

MILITARY ENGINEER SERVICES**CWE (AF) BORJHAR****NAME OF WORK: PROVISION OF INDOOR BADMINTON COURT AT AF
STN KURSEONG (2ND CALL)**

Srl. No	Particulars	Srl Page(s) No
1.	Contents sheet	01
2.	Tender Forwarding letter Including Instructions to Tenderers for filling of Tender.	02 to 06
3.	Notice of Tender IAFW-2162 (Revised 1960) including Appendix 'A' to Notice of Tender	07 to 13 including 13A
4.	Lumpsum tender and Contract for Works required IAFW-2159 (Revised 1947).	14 to 34
5.	General Conditions of Contracts IAFW-2249 (1989 print)	35 to 67
6.	Errata/Amendments to IAFW-2249 (1989 Print)	68 to 81
7.	Schedule of Minimum Fair Wages	82
8.	Special Conditions (Including Yard stick)	83 to 92
9	Particular Specifications including Appx 'A', 'B' & 'C'	93 to 149
10	Errata/Amendments to the tender documents	
11.	Relevant correspondence.	
12.	Acceptance letter.	
13.	Drawings(14 Sheets)	
	Total Pages	

(SIGNATURE OF CONTRACTOR)**DATE****SSW
For Accepting Officer**

Tele: 2841693

REGISTERED ACK DUE/SPEED POST

Commander Nirman Abhiyanta (VS)

Commander Works Engineers (AF)

Post: Airport, Borjar

Guwahati – 781 015 (Assam)

8660/BAG/2018-19/11 /E8

06 Jul 2018

M/S _____

NAME OF WORK : PROVISION OF INDOOR BADMINTON COURT
AT AF STN KURSEONG (2ND CALL)

Dear Sir(s)

1. Tender documents in respect of above work are uploaded on the site www.defproc.gov.in. The tender is on two stage cover e-tendering system. The contents of Cover I & Cover II are specified in NOTICE OF TENDER.
2. Bids will be received online by ACCEPTING OFFICER upto the date and time mentioned in the NOTICE INVITING TENDER (NIT). No tender/bid will be received in physical form and any tender/bid received in such manner will be treated as non bonafide tender/bid.
3. Bid will be opened on due date and time fixed for opening in the presence of tenderers/bidders or their authorized representative, who have uploaded their quotation bid and who wish to be present at the time of opening the bids.
4. Your attention is also drawn to instruction on filling and submission of tender attached herewith. You may forward your points on tender documents and /or depute your technical representative for discussion on tender/drawings and to clarify doubts. If any, on or before _____. You are requested not to write piece meal points and forward your points duly consolidated before due date viz _____.
5. Unenlisted contractors are required to submit the scanned copies (in pdf file) of documents required as per eligibility criteria mentioned in instructions for filling the tender documents and Appendix 'A' to NIT alongwith EARNEST MONEY DEPOSIT (EMD) and tender fee on e-procurement portal and submit the physical documents in the office of **CWE (AF) Borjhar** within time limit specified in NIT. Inadequacy / deficiency of documents shall make the bid liable for rejection resulting in disqualification for opening of finance bid.
6. (a) Contractor having not executed standing security bond and standing security deposit in any MES formation shall upload scanned copy of EARNEST MONEY DEPOSIT (EMD) mentioned in Notice of Tender and shall ensure receipt of hard copy of EMD in the office of tender issuing authority before date & time fixed for this purpose. In case of failure to abide by any of these two requirements, the finance bid will not be opened.

(b) Contractor having not executed standing security bond and standing security deposit in any MES formation would be required to deposit individual security deposit on acceptance of tender which will be calculated with reference to the tendered cost as per scales laid down by MES for calculation of "EARNEST MONEY" enhanced by 25% subject to maximum of Rs. 18,75,000/- (Rupees Eighteen Lakhs seventy five thousand only).

7. Enlisted contractors of MES shall submit the scanned copies (pdf file) of enlistment letter, tender fee and such other documents as mentioned in Appx 'A' to NIT on e-procurement portal and submit physical documents in the office of **CWE (AF) Borjhar** before date & time fixed for this purpose.
8. The contractor must ensure that the tender/bid on the proper form is uploaded in time as the Accepting Officer will take no cognizance of any quotations/offer received in any other electronic or physical form like email/fax/by hand/through post from tenderer/bidder even if they are received in time.
9. In view of delays due to system failure or other communication related failures, it is suggested that the tender/bid be uploaded, if necessary, sufficiently in advance of the last due date and time fixed.
10. General Conditions of Contracts (IAFW-2249) (1989 Print) and errata and amendments thereto, Schedule of minimum fair wages and MES SSR (Part-I and Part-II) are not enclosed with these documents. These are available for perusal in the Office of GE concerned and this office.
11. ANY TENDERER, WHICH PROPOSES ALTERATIONS TO ANY OF THE CONDITION, SPECIFICATIONS LAID DOWN IN THE TENDER DOCUMENTS OR ANY NEW CONDITION, WHATSOEVER, IS LIABLE TO BE REJECTED.
12. This letter shall form part of the tender documents.

Yours faithfully,

SIGNATURE OF CONTRACTOR

DATED:

(Sawant Dhanshri S)
Lt Col
SSW
for Accepting Officer

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER**1. EARNEST MONEY DEPOSIT (EMD)**

Contractor (s) who are not enlisted with MES/Who are enlisted but have not executed the Standing Security Bond shall submit Earnest Money Deposit as detailed in Notice of Tender in one the following forms, alongwith their tender/bid: -

- (a) Deposit at Call Receipt from a Scheduled Bank in favour of Garrison Engineer/ AGE (I) concerned.
- (b) Receipted Treasury challan, the amount being credited to the Revenue Deposit of Garrison Engineer / AGE (I) concerned.

It is advisable that Earnest Money is deposited in the form of deposit cal receipt from an approved Schedule Bank for easy refund. In case the tenderer/bidder wants to lodge "EARNEST MONEY DEPOSIT" in any other form allowed by MES, a confirmation about its acceptability will be obtained from the Accepting Officer well in advance of the bid submission end date and time. Earnest Money Deposit shall be submitted in the name of concerned GE.

NOTES: - Earnest Money Deposit (EMD) in the form of cheque /Bank Guarantee etc will not be accepted. NON-SUBMISSION OF EARNEST MONEY DEPOSIT (EMD) (scanned copy alongwith Technical Bid & hard copy before the date & time fixed for opening of BOQ) WILL RENDER THE BID DISQUALIFIED FOR OPENING OF COVER II (FINANCE BID)

2. SECURITY DEPOSIT

In case the tender/bid submitted by such contractor who is not enlisted with MES is accepted, the contractor will be required to lodge with the Controller of Defence Accounts INDIVIDUAL SECURITY DEPOSIT calculated with reference to TENDERED COST as notified by the Accepting Officer subject to a maximum of Rs. 18,75,000/-. The amount is required to be lodged within 30 (Thirty) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which the sum shall be recovered from the 1st RAR payment or from the Final bill (See Condition 22 of GCC (IAFW-2249)).

3. CONTRACTORS ENLISTED WITH CHIEF ENGINEER EASTERN COMMAND AND WHO HAVE EXECUTED STANDING SECURITY BOND AND DEPOSITED STANDING SECURITY DEPOSIT BUT OF LOWER CLASS

In case the tender/bid is accepted, the amount of Additional Security Deposit will be as notified by the Accepting Officer. The amount will be the difference between the "Individual Security Deposit" calculated with reference to the "TENDERED COST" and "Standing Security Deposit" lodged. The amount is required to be lodged within 30 (Thirty) days of the receipt by the contractor of notification of acceptance of tender /bid, filing which the sum shall be recovered from the 1st RAR payment or from the Final bill (Refer condition 22 of GCC (IAFW-2249))

4. CONTRACTORS ENLISTED IN MES FORMATION OTHER THAN CE EASTERN COMMAND

Contractors whose names are on the approved list of any MES formation i.e. other than CE Eastern Command and who have deposited Standing Security and have executed Standing Security Bond may tender/bid without depositing Earnest Money with the bid and if the Accepting Officer decides to accept the tender /bid, such tenderes will be required to lodge Security Deposit as notified by the Accepting Officer. The amount is required to be lodged within 30 (Thirty) days of the receipt by the contractor of notification of acceptance of tender/bid, failing which the sum shall be recovered from the 1st RAR payment or from the Final bill.

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (contd...)**5. GENERAL INSTRUCTIONS FOR COMPLIANCE**

5.1 The bids received only in the electronic form will be considered. All bids shall be submitted on 'defproc.gov.in' portal. Documents should be scanned and forwarded in 'pdf' form and 'xls' form as indicated.

5.2 Bids shall be uploaded on 'defproc.gov.in' portal on or before the bid closing date mentioned in the tender. No tender /bid in any other electronic or physical form like email / fax/by hand/through post will be considered.

5.3 Bid should be DIGITALLY signed using valid DSC. All pages of tender documents, corrections/alterations shall be signed / initialed by the lowest bidder after acceptance.

5.4 Drawings, if issued in physical form, must be returned duly initialed by the tenderer /bidder in separate envelope indicating his name and address.

5.5 The tender shall be signed, dated and witnessed at all places provided for in the documents after acceptance. All corrections shall be initialed. The Contractor shall initial every page of tender and shall sign all drawings forming part of the tender. Any tender/bid, which proposes alterations to any of the conditions whatsoever is liable to be rejected.

5.6 In the technical bid, a scanned copy of Power of Attorney in favour of the person uploading the bid using his/her DSC shall be uploaded. In case the digital signatory himself is the sole proprietor, scanned copy of an affidavit on stamp paper of appropriate value to this effect stating that he has authority to bind the firm in all matters pertaining to contract including the Arbitration Clause, shall be attached in "pdf" form. In case of partnership concern or a limited company, digital signatory of the bid /tender shall ensure that he is competent to bind the contractor (through partnership deed, general power of attorney or memorandum and Articles of Association of the Company) in all the matters pertaining to the contracts with Union of India including arbitration clause. A scanned copy of the documents confirming of such authority shall be attached with the tender/bid a scanned copy (in 'pdf' form) of Power of Attorney duly executed in his favour by such other or all of the Partner(s) or in accordance with constitution of the company in case of company, stating that he has authority to bind such other person of the firm or the Company, as the case may be, in all matters pertaining to the contract including the Arbitration Clause.

5.7 Even in case of Firms or Companies which have already given Power of attorney to an individual authorizing him to sign tender in pursuance of which bids are being uploaded by such person as a routine fresh power of Attorney duly executed in his favour stating specifically that the said person has authority to bind such partners of the Firm or the Company as the case may be, including the condition relating to Arbitration Clause, should be uploaded in 'pdf' form with the tender/bid; unless such authority has already been given to him by the Firm or the Company. It shall be ensured that power of attorney shall be executed in accordance with the constitution of the company as laid down in its Memorandum & Articles of Association.

5.8 Hard copies of all above documents should be sent by the contractor to the Tender issuing authority well in advance to be received before the date & time fixed for the same.

5.9 Bid (Cover 1 & 2) shall be uploaded online well in time.

5.10 The contractor shall employ Indian Nationals after verifying their antecedents and loyalty Attention is also drawn to special condition 3 referred hereafter and also conditions 24 & 25 of IAFW 2249 (General Conditions of contract).

INSTRUCTIONS ON FILLING AND SUBMISSION OF TENDER (contd...)

5.11 Tenderers/Bidders who uploaded their priced tenders /bids and are desirous of being present at the time of opening of the tenders /bids, may do so at the appointed time.

5.12 The tenderer/bidder shall quote his rate on the BOQ file only. No alteration to the format will be accepted, else the bid will be disqualified and summarily rejected

5.13 In case the tenderer /bidder has to revise /modify the rates quoted in the BOQ (excel sheet) he can do so only in the BOQ, through eprocuremes.gov.in site only before the bid closing time and date.

6. REVOCATION REVISION OF OFFER UPWARD / OFFERING VOLUNTARY REDUCTION, AFTER OPENING OF FINANCIAL BIDS BY LOWEST BIDDER

In the event of lowest tenders/bidder revoking his offer or revising his rates upward / offering voluntary reduction, after closing of bid submission date & time, his offer will be treated as revoked and the Earnest Money deposited by him shall be forfeited. In case of MES enlisted Contractors, the amount equal to the Earnest Money stipulated in the Notice of tender, shall be notified to the tender/bidder for depositing the amount through MRO. Bids of such Contractors/bidders shall not be opened till the aforesaid amount equal to the earnest money is deposited by him in Govt Treasury. In addition, bids of such tenderer/bidder and his related firm shall not be opened in second call or subsequent calls. Reduction offered by the tenderer/bidder on the freak high rates referred for review shall not be treated as voluntary reduction.

7. C.P.M (CRITICAL PATH METHOD)

7.1 The project planning for work covered in the scope of tender is based on CPM

7.2 The tenderer/bidder is expected to be fully conversant with the CPM technique and employ technical staff who can use the technique in sufficient details. Sufficient books and other literature on the subject are widely available in the market which the tenderer /bidder may make use of.

7.3 The tenderers/ bidder's attention is drawn to special condition of the tender regarding preparation of the detailed network analysis and time schedule for the work and his liability for employing sufficient resources to adhere to this schedule. Any inability on the part of the tender/bidder in using the technique will be taken as his technique will be taken as his technical inefficiency and will effect his class of enlistment and future prospect/ invitation to tenders for future works.

7.4 Department may issue amendments/ errata in form of CORRIGENDUM to tender /revised BOQ to the tender documents. The tenderer/bidder is requested to read the tender documents in conjunction with all the errata/amendments/corrigendum, if any, issued by the department.

8. Bidder should check the website periodically for any modified/ revised BOQ uploaded by the Department through Corrigendum and it is bidder's responsibility to ensure uploading of correct BOQ.

9. In case bidder fails to upload the modified/Revised BOQ and opened by NIC portal, shall be rejected. Further in case his bid is shown by NIC portal as L1 with pre-revised BOQ, though revised BOQ is not uploaded by the bidder, then his bid shall be rejected.

10. These instruction shall form part of the contract documents.

(SIGNATURE OF CONTRACTOR)

DATE

SSW
For Accepting Officer

MILITARY ENGINEER SERVICES
NOTICE OF TENDER

1. A tender is invited for the work as mentioned in Appendix 'A' to this NOTICE INVITING TENDER (NIT).
2. The work is estimated to cost as indicated in aforesaid Appendix 'A'. This estimate, however, is not a guarantee and is merely given as a rough guide and if the work cost more or less, a tenderer/bidder will have no claim on that account. The tender shall be based on as mentioned in aforesaid Appendix 'A'.
3. The work is to be completed within the period as indicated in aforesaid Appendix 'A' in accordance with the phasing, if any, indicated in the tender from the date of handing over site, which will be on or about two weeks after the date of Acceptance of tender.
4. Normally contractors whose names are on the MES approved list for the area in which the work lies, and within whose financial category the estimated amount would fall, may tender/bid but in case of term contracts, contractors of categories SS to E may tender/bid. In case, where the tender amount is in excess of the financial limit of the contractor and the Accepting officer decides to accept the tender/bid, in which event the tenderer/bidder would be required to lodge additional security deposit as notified by the Accepting Officer in term of conditions of contract. Consultants whose names are on the MES approved list of any MES Formation and who have deposited standing security and have executed standing security bond may also tender/bid without depositing Earnest Money along with the tender/bid and if the tender/bid submitted by such a tenderer/bidder is accepted, the contractor will be required to lodge with the Controller of Defence Accounts concerned the amount of 'Individual Security Deposit' within thirty days of the receipt by him of notification of acceptance of his tender/bid, failing which this sum will be recovered from 1st RAR payment or from the first final bill. In the case of term/running contracts, remaining sum shall be recovered from subsequent bill(s) of the consultant. Not more than one tender/bid shall be submitted/uploaded by one contractor or one firm of contractors. Under no circumstances will a father and his son(s) or other close relations who have business dealing with one another be allowed to tender/bid for the same contract as separate competitors. A breach of this condition will render the tenders/bids of both the parties liable for rejection.
5. The office of Commander Works Engineer (AF) Borjhar will be the Accepting Officer here-in-after referred to as such for purpose of the contract.
6. The Technical Bid and Financial Bid (Cover-1 and Cover-2) shall be uploaded by the tenderer/bidder on or before the date & time mentioned in NIT. A scanned copy of DD with enlistment details/documents shall be uploaded as packet 1/cover-1 ('T' bid) of the tender/bid on e-tendering portal. DD is refundable in case T bid is not accepted resulting in non-opening of 'Q' bid. The applicant contractor shall bear the cost of bank charges for procuring and encashing the DD and shall not have any claim from Government whatsoever on this account.
 - 6.1. Tender form and conditions of contract and other necessary documents shall be available on www.defproc.gov.in site for download and shall form part of contract agreement in case the tender/bid is accepted.
 - 6.2. In case of contractor who has not executed the Standing Security Bond, the Cover-I shall be accompanied with by Earnest Money of amount as mentioned in Appendix 'A' in the form of deposit at call receipt in favour of concerned GE/ AGE(I) (see Appendix 'A') by a scheduled Bank or in receipted Treasury Challan the amount being credited to the revenue deposit of the concerned GE/ AGE(I) (see Appendix 'A').

NOTICE OF TENDER (CONTD.....)

6.3 A contractor who is not enlisted for the area in which the work lies but whose name is in the MES approved list of any MES formation and who has deposited standing security and executed standing security Bond may bid without depositing earnest money alongwith the tender; but if the Accepting officer accepts the tender/bid, the contractor will be required to lodge with the Controller of Defence Accounts concerned the amount of 'Individual Security Deposit' within thirty days of the receipt by him of notification of acceptance of his tender/bid, failing which this sum will be recovered from 1st RAR payment or from the first final bill. In the case of term/running contracts, remaining sum shall be recovered from subsequent bill(s) of the contractor.

6.4 A Contractor who has executed standing security Bond but not corresponding to the appropriate class as mentioned above, shall lodge with the Accepting Officer, Additional Security Deposit as notified by the Accepting Officer within thirty days of the receipt of his notification of acceptance of his tender/bid, failing which this sum will be recovered from the first RAR payment or from the first final bill. In the case of term/running contracts, remaining sum shall be recovered from subsequent bill(s) of the contractor. However, in case where any payment is made to the consultant within thirty days of the receipt by him of notification of acceptance of tender/bid, the amount of additional security deposit shall be recovered from such payment.

6.5 The GE/ AGE(I) will return the Earnest Money wherever applicable to all unsuccessful tenderers/bidders by endorsing an authority on the deposit-at-call receipt for its refund, on production by the tenderer, bidder a certificate of the Accepting Officer that a bonafide tender/bid was received and all documents were returned.

6.6 The GE/ AGE(I) will either return the Earnest Money to the successful tenderer/bidder by endorsing an authority on the deposit-at-call Receipt for its refund on receipt of an appropriate amount of Security Deposit or will retain the same in part or full on account of security deposit if such a transaction is feasible.

6.7 Copies of the drawings and other document pertaining to the work signed for the purpose of identification by the Accepting Officer or his accredited representative, sample of materials and stores to be supplied by the consultant will also be available for inspection by the tenderer/bidder at the office of Accepting Officer and concerned GE/ AGE(I) during working hours

7. The tenderers/bidders are advised to visit the site of work by making prior appointment with GE/ AGE(I) who is also the Executing Agency of the work (see appendix 'A'). The tenderers/bidders are deemed to have full knowledge of all relevant documents, samples, site etc., whether they have inspected them or not.

8. Any tender/bid which proposes any alteration to any of the conditions laid down or which proposes any other condition or prescription whatsoever, is liable to be rejected.

9. Bidders shall have Provident Fund Code number and shall produce to GE/AGE(I) while signing work order. Bidders shall also ensure compliance of EPF and MP act 1952 by them as well as by his sub contractor, if any engaged by them for the work.

10. Tenders will be received by CWE (AF) Borjhar, PO- Airport, Borjhar, Guwahati- 781015 on date given in Appendix 'A'.

11. Any tender which proposes any alterations to any of the condition laid down or which proposes any other condition or description, what so ever, is liable to be rejected.

NOTICE OF TENDER (CONTD.....)

12. The uploading of bid implies that bidder has read this notice and the Conditions of Contract and has made himself aware of the scope and specification of work to be done and of the conditions and rates at which stores, tools and plants etc will be issued to him and local conditions and other factors having bearing on the execution of the work.

13. Tenderers/bidders must be in possession of a copy of the MES Standard Schedule of Rates (see appendix 'A') including amendments and errata thereto.

14. Invitation for e- tender does not constitute any guarantee for validation of 'T' bid and subsequent opening of finance bid of any applicant/bidder, even of enlisted consultants of appropriate class, merely by virtue of enclosing DD. Accepting Officer reserves the right to reject the 'T' bid and not open the finance bid of any applicant/bidder. 'T' bid validation shall be decided by the Accepting Officer based on, inter alia, capability of the firm as per criteria given in Appx 'A' to this NIT. The applicant contractor/bidder will be informed regarding non validation of his 'T' bid assigning reasons thereof through the eprocuremes.gov.in website. The applicant contractor/bidder if he so desires may appeal to the next higher Engineer authority viz CE (AF) Shillong Zone, on email id **chiefengrairforcesz@gmail.com** with copy to the Accepting Officer on email id **ssw_cweafborjhar@yahoo.com** in before the scheduled date of opening of Finance Bid. The decision of the Next Higher Engineer Authority (NHEA) shall be final and binding. The contractor/bidder shall not be entitled for any compensation whatsoever for rejection of his bid.

15. The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking, giving a price preference over other Tender(s)/bids which may be lower, as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible from such tenderer/bidder whose tender/bid may be rejected on the account of the said policy.

16. Accepting Officer does not bind himself to accept the lowest or any tender/bid or to give any reason for not doing so.

17. **Bidder shall upload their Goods and Services Tax (GST) Registration number document alongwith 'T' bid which is mandatory. Bidder who does not upload their Goods and Services Tax (GST) Registration number document shall be disqualified in the 'T' bid evaluation and their financial bid shall not be opened.**

18. Court of the place form where tender has been issued shall alone have jurisdiction to decide any dispute out of or in respect of this tender. After acceptance of tender, condition 72-jurisdiction of courts of IAFW -2249 shall be applicable.

19. GST on works contract is applicable to this contract. The unit rate quoted by the tenderers against various items of work given BOQ /sch 'A' are deemed to be inclusive of GST on works contracts as applicable.

20. This **Notice Inviting Tender (NIT)** including **Appendix 'A'** shall form part of the contract.

SIGNATURE OF CONTRACTOR
DATE:_____

SSW
FOR ACCEPTING OFFICER

ERRATA TO APPENDIX 'A' TO NOTICE INVITING e-TENDER**NAME OF WORK: PROVISION OF INDOOR BADMINTON COURT AT AF
STN KURSEONG (2ND CALL)**

Ser No	Ref to Para of NIT	Locations	Particulars	
1	4	Cost of Tender Documents	For: "Rs. 1000/- in the form of DD / Bankers cheque from any scheduled Bank in favour GE (AF) Bagdogra and payable at Bagdogra. Read: "Rs. 1000/- in the form of DD / Bankers cheque from any scheduled Bank in favour of GE (AF) Bagdogra and payable at Bagdogra. Contractors who have submitted DD during 1 nd Call are exempted from submission of DD in subsequent call."	
2	7	Published Date	For	" 24 Apr 2018 at 1700 hrs"
			Read	" 06 Jul 2018 1400 hrs"
		Document Download / Sale start date	For	" 24 Apr 2018 from 1800 hrs"
			Read	" 06 Jul 2018 1500 hrs"
		Bid Submission Start date	For	" 23 May 2018 at 1200"
			Read	" 21 Jul 2018 from 1200 hrs onwards"
		Last date of bid submission	For	" 09 Jun 2018 upto 1800 hrs"
			Read	" 30 Jul 2018 1800 hrs"
3	NIT	Appendix 'A' to Notice of Tender, Notes	For	"11 Jun 2018 at 1200hrs"
			Read	" 31 Jul 2018 1200 hrs"

 SIGNATURE OF CONTRACTOR
 DATE:_____

SSW
 FOR ACCEPTING OFFICER

In lieu of IAFW-2159 (Revised 1947
to be used in conjunction with General
Condition of Contract IAFW-2249)

MILITARY ENGINEERING SERVICES

Commander Nirman Engineers (VS)
Commander Works Engineers (AF)
PO : Airport, Borjar,
Guwahati – 781 015 (Assam)

8660/BAG/2018-19/ 11 /E8

06 Jul 2018

**LUMP SUM CONTRACT FOR THE WORKS PROVISION OF INDOOR BADMINTON
COURT AT AF STN KURSEONG (2ND CALL)**

1. Mr./Messers _____ of _____ is/are hereby authorized to tender for the above work. The quoted tender shall be uploaded by the bidder on **www.defproc.gov.in** on the date and time as per NIT. The quoted tender shall be opened on or after the date and time as per NIT in respect “**CA NO. CWE (AF)/BAG/ OF 2017-18 PROVISION OF INDOOR BADMINTON COURT AT AF STN KURSEONG(2ND CALL)**” at the office of the Commander Works Engineer (AF) Borjhar, Guwahati-15.

Any correspondence concerning this tender should be addressed as indicated at the top of this sheet quoting the reference as given.

**THE PRESIDENT OF INDIA DOES NOT BIND HIMSELF TO ACCEPT THE LOWEST
OR ANY TENDER.**

Signature of the Officer

Issuing the documents.

Appointment : SSW
Dated : 2018

In Lieu of IAFW-2159(R)

SCHEDULE 'A' NOTES**NAME OF WORK: PROVISION OF INDOOR BADMINTON COURT AT AF STN KURSEONG****GENERAL NOTES****1. SCOPE OF WORK**

1.1 This contract covers for all items of works described in Schedule 'A' Parts-I to VIII as indicated below. The buildings/structures and all services described under Schedule 'A' Parts – I to VIII shall be executed at locations as shown on site plan. The broad scope of works included in various parts of Schedule 'A' is as under:-

(a)	PART- I	BUILDING WORKS (Pre priced by MES)
(b)	PART- II	SITE CLEARANCE AND EARTH WORK (Pre priced by MES)
(c)	PART- III	INTERNAL ELECTRIFICATION (Pre priced by MES)
(d)	PART- IV	EXTERNAL ELECTRIFICATION (Pre priced by MES)
(e)	PART- V	PATH (Pre priced by MES)
(f)	PART- VI	AREA DRAINAGE (Pre priced by MES)
(g)	PART- VII	RETAINING WALL (Pre priced by MES)
(h)	PART- VIII	MISCELLANEOUS (To be Quoted by Contractor)

2. Description of building, works and services given in various parts of Sch 'A' are brief. These are deemed to be amplified and read in conjunction with Special Conditions, Particular Specifications, specifications for materials and workmanship and conditions in relevant trade sections of MES standard Schedule of rates (Part-I of 2009 for specification and Part-II of 2010 for rates) and contract drawings.

3. The 'Unit Rates' inserted by MES under column 5 of Sch 'A' Part-I to VII have been worked out at par MES Standard Schedule of Rates 2010 including amendments/errata as indicated in tender page herein after at the rates analogous hereto. The accuracy of the Unit Rates is however not guaranteed. The tenderers attention is invited to Condition 6-A sub Para (B) of IAFW-2249 General Conditions of Contracts). The tenderer shall derive lumpsum amount for each part of Sch A and quoted at appropriate places in General Summary/BOQ. In the event of any discrepancy between the lump sum quoted by the tenderer and percentage automatically displayed in BOQ, the lumpsum amount shall be treated as firm and percentage shall be amended accordingly. In this connection tenderer's attention is particularly invited to condition 6A, Sub Para B, lump sum contracts based on pre-priced schedule 'A' of IAFW-2249 forming part of the tender documents. The contractor shall have no claim whatsoever on account of any errors in the unit rates/priced inserted by MES.

4. The period of completion indicated in note 5 here-in-after shall be applicable to works under Schedule 'A' Part I to VIII. All quantities indicated under Col 5 of all parts of Schedule 'A' Part-II to VIII shall be assessed by the Garrison Engineer based on site requirements, before ordering on contractor within a reasonable time as provided under condition of 6 of IAFW-2249 General Condition of Contract.

5. **PERIOD OF COMPLETION:** The entire work under this contract shall be completed in a period of **12 (Twelve) months** from the date of commencement as per Work Order No 1.

6. The 'Unit Rates' against item of Sch 'A' part I shall be deemed to include the cost of construction of the entire work all as specified and shown on drawings except the trades listed in Schedule 'A' Parts II to VIII.

SCHEDULE 'A' (Contd...)

9. The unit rate for building in Sch 'A' Part-I also includes the provision of the following items of works, all as shown on drawings and as specified in particulars specifications and the contractor's tendered sum shall be deemed to include for the same unless otherwise catered for separately in other parts of Sch 'A'.

- (a) Anti termite treatment to building.
- (b) Nahani trap, Gully trap, Soil pipe, Waste pipe, Vent pipe, Drain pipe upto and including first manhole and gully trap where Bath, WC, Toilet are occurring .The average distance of gully trap if not shown on drawing shall be considered 30 cm from the outer face of external wall of the buildings. The average distance of first manhole if not shown on drawings shall be considered as 3.00m from the outer face of external wall of the buildings .The vent pipe shall be extended 1.00m above the roof level if does shown in the drawings.
- (c) Fittings and fixture, fitments, built in cupboard, pelmet box & other furniture articles as shown on drawing.
- (d) Surface dressing and levelling of the premises around 3.00m perimeter of the building from external wall.
- (e) Plinth protection with drain around the building, platform, courtyard as shown in drawings.
- (f) Steps wherever shown on drawings.
- (g) PVC Water storage tank, EWC, WHB, PVC Cistern, PEGSET, Looking Mirror as shown on drawing.
- (h) All strengthening measure as detailed in drawing No. AF/TD/29 Sheet No. 1/2 & 2/2 including note thereon. However, in case of any discrepancy between main structural drawing and the TD drawings referred above regarding seismic strengthening measures and provision of beams/ bends (PB/LB/TB) extra, the main structural drawings forming part of the contract shall be followed. No claim whatsoever shall be entertained at later stage.
- (j) Roof Treatment as specified / wherever shown in drawings.
- (k) GI Spout, stepguard, railing, fanhook etc.
- (l) Cutting and forming chases in masonry/concrete work etc including cutting and or leaving holes/recesses, sinking etc where required and as directed by Engr-in-charge and making good disturbed surface with PCC 1:2:4 type B1 or in CM 1:3.

Note: The list enumerated above is not an exhaustive list, non inclusion of anything/items in the above list does not mean that thing /items is not included in the lump-sum quoted for Sch 'A' Part-I, however please note that lump-sum quoted for Sch 'A' Part-I includes for all the aspects as enumerated in Sch 'A' Notes here in before.

10. **Applicable to Sch 'A' Part - II to VIII**

10.1 All quantities are provisional. Variation in quantities if considered necessary due to site requirement/any other technical reasons as directed by the GE, the same should be executed to the extent as specified in Condition 7 of General Conditions of Contract (IAFW-2249). Excavation and earthwork required for Schedule 'A' Part-II to VIII shall be executed and paid for under Schedule 'A' Part-II.

10.2 Unless otherwise specified unit rate of each items of work is inclusive of materials and labour or supply and fixing in including testing complete all as specified.

11. Special condition and preambles to items given in MES Schedule Part-II, under respective trades shall be applicable. If any provision in the description of items of Schedule 'A' and/or in particular specifications is at variance with the provision in special condition, in MES Schedule Part-II, and preambles to MES Schedule items, the provision in description of items of Schedule 'A' and provision in particular specifications shall take precedence there over.

SCHEDULE 'A' (Contd...)

12. In case of road/hard standing/floor cutting for laying cable/pipe etc, the rate of excavation in trenches in soft/loose soil in Schedule 'A' shall be deemed to include cutting of road and hard standing/floor cutting for laying cable and pipe etc and making good the same to match with existing.

13. **NOTES : Applicable to Schedule 'A' Part - I to VIII**

13.1 Tenderers shall calculate his own rate for each item of Schedule 'A' Part-I to VIII and arrive at a total lump sum for each part of Schedule 'A', Part - I to VIII. The lump sum amount shall be quoted in figures in the BOQ/General Summary.

14. **NOTES : Applicable to Schedule 'A' Part-VIII**

14.1 Tenderers shall calculate and quote his own rate in figures for each item of Schedule 'A' Part-VIII.

15. (a) The work site lies at **Kurseong** within in the District of **Darjeeling** in the State of **West Bengal**. Tenderer's attention is invited to the applicability of GST as levied by the Govt on works contracts to be paid by the contractor. The rate quoted by the tenderer in Schedule 'A' shall be deemed to include for the above mentioned Tax and all other taxes levied by the Govt/Statutory body and nothing extra will be payable on this account.

(b) Tenderers attention is invited to deduction of Labour Welfare Cess at sources @ 1% of construction cost as enforced by State Govt of Assam under building and other construction workers and building and other construction workers welfare Cess. This shall deemed to be included in rate quoted by the Contractor.

16. The under mentioned remarks shall be deemed to have been inserted in respective Column of Schedule 'A' against each item:-

(a) Under Col-3 - Refer list of drawings.

(b) Under Col-8 - See Note No 5 of Schedule 'A' on SI page No. 14

(c) Under Col -9 - See notes of Schedule 'A' on SI page No. 14 to 16

17. **TAXES DUTIES & LEVIES, ETC**

(a) The contractor's quoted rates shall be deemed to be inclusive of all taxes/cesses viz GST, duties, royalties, octroi and other levies payable under respective statues as applicable on the date of receipt of tender. It may be noted that any tenderer imposing any condition in this regard or on any other account shall be treated as a conditional tender and the same shall be liable to be rejected. Also refer special condition in this regard.

(b) No increase/decrease in any taxes/duties, statutory or otherwise after submission of tender and during the execution of the works shall be adjusted except as provided in special condition relevant clause herein after.

(c) It is incumbent on the part of tenderers / bidders to get themselves registered with Central Board of Excise and Customs. Irrespective of whether any tenderer / bidder has got his firm registered or not for execution of the Work Contract, the applicability of GST as levied by the Govt on works contracts to be paid by the contractor.

18. **GOODS & SERVICES TAX (GST)** : For the assets created under this contract, Goods and Services Tax (GST) shall be applicable as per Govt of India notifications. The tenders should keep this in mind while quoting their offer.

SIGNATURE OF CONTRACTOR
DATE : _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-I
(LIST OF WORKS AND PRICES)

(BUILDING WORKS)

Sl. No	Description of items of works	Drg. No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
1	Construction of Building with Permanent Specification complete all as shown on drawings and as specified.	Ref. list of drawing	Each	1.00	20,80,000.00	20,80,000.00		
.	Total c/o to General Summary/BOQ Serial page No 28 Rs.					20,80,000.00		

SIGNATURE OF CONTRACTOR
DATE_____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-II: SITE CLEARENCE AND EARTH WORK
(LIST OF WORKS AND PRICES)

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note:-Necessary Earthwork and Excavation as required for different services (except Sch 'A' part-I) also shall be measured under this Schedule unless otherwise specifically mentioned.								
1	Surface excavation not exc. 30 cm deep and averaging 15 cm deep and getting out in hard/dense soil complete all as specified and directed.		Sqm	480.00	27.80	13344.00		
2	Rough excavation not exceeding 1.50 m deep and getting out in hard / dense soil complete all as specified and directed.		Cum	850.00	101.30	86105.00		
3	Rough excavation exceeding 1.50 m deep but not exc. 3.00m and getting out in hard / dense soil complete all as specified and directed.		Cum	495.00	161.40	79893.00		
4	Removing excavated material exc. 500m but not exc. 1.00 Km depositing where directed complete all as specified and directed.		Cum	540.00	161.40	72630.00		
5	Removing surplus excavated material (SOIL) to distance not exc. 50 m and depositing where directed at a level not exc. 1.50 m above the starting point complete all as specified and directed.		Cum	253.75	96.10	24385.38		
6	Excavation in trenches not exc. 1.50 m wide and not exc. 1.50 m in depth for foundation, etc. or for shafts, wells, cesspits, manholes, pier holes, etc. not exc. 10 Sqm on plan and getting out in hard / dense soil complete all as specified and directed.		Cum	313.50	202.50	63483.75		
7	Returning, filling in, including spreading, levelling, watering and well ramming in layers not exc. 25 cm thick in each layer as in soil complete all as specified and directed.		Cum	86.75	41.70	3617.48		
Total c/o to General Summary/BOQ Serial page No 28 Rs.						3,43,458.61		

SIGNATURE OF CONTRACTOR
DATE_____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-III: INTERNAL ELECTRIFICATION
(LIST OF WORKS AND PRICES)

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note Excavation and earth work which are not specified otherwise shall measured and paid under schedule 'A' Part-II here-in-before								
1	M&L for point wiring with two single core FRLS PVC insulated unsheathed multistranded copper conductor cable of size 1.5 Sqmm 1100 volts grade with one single core PVC insulated unsheathed solid copper cable size 1.5 Sqmm 1100 volts grade as earth continuity conductor drawn through in and including PVC concealed conduit of size 20 mm (heavy grade) with all accessories and making grooves in any type of block wall plastering and making good disturbed surfaces as per existing and connected to common earth dolly, switch board not less than 1.6 mm thick (wall thickness) pressed steel sunk type box for housing / mounting the switch sockets with brass screw washer etc with 3 mm thick PVC/Bakelite/Masonite or approved laminated sheet cover for fixing of 5 Amps socket complete all as specified and directed.		Point	32.00	509.10	16291.20		
2	All as per item No.1 here-in-before but with two single core FRLS PVC insulated unsheathed, multi stranded copper conductor cable of size 2.5 Sqmm 1100 volts grade and one single core PVC insulated unsheathed, multistranded copper conductor of size 2.5 Sqmm 1100 Volts grade as earth continuity including PVC concealed conduit 25 mm dia for fixing of exhaust fan / 15 Amps power socket complete all as specified and directed.		Point	3.00	580.20	1740.60		
Total c/o to collection of Sch. 'A' Part-III on Srl page No.21 Rs.						18,031.80		

SCHEDULE 'A' PART-III: INTERNAL ELECTRIFICATION (CONTD....)
(LIST OF WORKS AND PRICES)

1	2	3	4	5	6	7	8	9
3	M&L for submain wiring with tow single core PVC insulated unsheathed, FRLS type, multi standard flexible copper conductor 1100 Volts grade cables 6 sqmm drawn through in and including rigid non metallic PVC conduit of 25mm size including 6 sqmm 1100 Volts grade PVC insulated unsheathed multi stranded, FRLS type flexible copper conductor cable as continuous earth wire and connecting to common earth terminals complete all as specified & directed. NOTE :- (a) Two runs of cable with one run of earth wire shall be measured as one length.		RM	100.00	213.00	21300.00		
4	S & F of switch socket combination multipurpose flush type 2 in 1, 3 pin, 5/15 Amps, 230V, AC complete all as specified & directed.		Each	3.00	95.20	285.60		
5	S & F switch socket outlet 5 Amps, 2/3 pin flush type suitable for multipurpose use complete all as specified & directed.		Each	5.00	51.50	257.50		
6	S & F switch piano flush type single pole one way, 5 Amps, AC 230 V complete all as specified and directed.		Each	27.00	34.30	926.10		
7	-ditto- all as per item No. 6 here-in-before but 15 Amps complete all as specified and directed.		Each	5.00	86.50	432.50		
8	S & F ceiling rose, surface, bakelite 65 x50 mm three terminals, AC, 230 Volts complete all as specified & directed.		Each	27.00	22.80	615.60		
10	M & L for Earthing complete with galvanized steel earth plate electrode 600mmx600mmx6mm thick buried directly in ground (earth pit not less than 2.25 m below ground level) with top edge of the plate not less than 1.5 m below normal ground level, connected to galvanized iron strip 32mmx6mm as earthing lead, by means of nut, bolt, washer, of the GI earth wire protected by provision of GI light grade pipe 40mm including provision of concrete pit in PCC 1:2:4 type B1 using 20mm graded stone aggregate with 40mm thick pre cast RCC cover 1:2:4 type B1 perforated at bottom 1.75m long placed on top edge of earth plate, common salt and charcoal filling, taste point made out of phosphorus bronze with fixing arrangement, funnel, wire mesh and earth work including returning filling in and removal of surplus soil to a distance not exc. 50m in hard/dense soil all as shown in SSR Part-I plate no.3 including testing the earth resistance complete all as specified & directed.		Each set	1.00	3277.50	3277.50		
	Total c/o to collection of Sch. 'A' Part-III on this page No.21 Rs.					27094.80		

SUMMARY OF SCHEDULE 'A' PART-III

(i) Total B/F from Srl Page No.20	Rs. 18,031.80
(ii) Total B/F from this page No.21	Rs. 27094.80
Total c/o to General Summary/BOQ Serial page No.28	Rs. 45,126.60

SIGNATURE OF CONTRACTOR
DATE _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-IV : EXTERNAL ELECTRIC SUPPLY
(LIST OF WORKS AND PRICES)

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note Excavation and earth work which are not specified otherwise shall measured and paid under schedule 'A' Part-II here-in-before								
1	M&L for sand cushioning with coarse sand in trenches for protection of underground electric cable, spread to uniform 23 Cm thickness and punned down gently to 18 cm after laying cable in trenches complete all as specified		CUM	2.25	678.20	1525.95		
2	Supply, laying well burnt Sub class "B" brick of old size laid flat dry, in trenches with width of brick laid to the axis of the cable for protection of cable complete all as specified and as directed.		Per 1000 Nos	0.50	2526.20	1263.10		
3	S & F 40 mm bore galvanised steel water tubing light grade with and including all fittings and laid in trenches/road/path/wall for protection of cable complete all as specified and directed.		RM	12.00	304.60	3655.20		
4	Supply, laying, jointing and testing XLPE insulated, PVC bedded, Galvanised steel strip or wire armoured with standard aluminium conductor 1100 Volts grade underground heavy duty power electric cable, laid trenches/duct or passing through pole including all necessary fixing arrangements, cross-sectional area 10Sqmm 2.5 core complete all as specified and as directed.		RM	50.00	104.00	5200.00		
5	S&F rigid non metallic PVC conduit 20 mm dia (heavy duty) ISI marked exclusive of boxes (junction/ terminals) but inclusive of all tees, bends elbows, reducers, bell mouth, tube ends and fixing accessories such as couplers, lock nuts, saddles, pipe hooks etc complete all as specified and as directed.		RM	15.00	35.00	525.00		
Total c/o to General Summary/BOQ Serial page No.28						12,169.25		

SIGNATURE OF CONTRACTOR
DATE _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-V: PATH
LIST OF WORK & PRICES

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note Excavation and earth work which are not specified otherwise shall measured and paid under schedule 'A' Part-II here-in-before								
1	M & L for Hardcore of gauge not exc. 63 mm, deposited, spread and leveled in layers not exc. 15 cm thick, watered and rammed to a true surface using broken stone or boulders complete all as specified and directed.		Cum	27.00	895.10	24167.70		
2	M & L for providing 100 mm thick cement concrete 1:4:8 Type D2 Nominal Mix (using 40 mm grade stone aggregate) as in sub floor, sub base of floor complete all as specified and directed.		Sqm	180.00	230.10	41418.00		
3	M&L for cement concrete tiles of 25 cm x 25 cm x 22 mm thick machine pressed set jointed and pointed in neat cement slurry in floors with mixture of white and grey cement and no pigments, and cut and polished over 20 mm thick screed bed in CM 1:4 all as specified and directed.		Sqm	180.00	629.00	113220.00		
4	M&L for PCC 1:2:4 type B1 (using 20 mm graded aggregate) as in benching, kerbs, rounded or chamfered on edge complete all as specified and directed.		Cum	8.00	3939.90	31519.20		
5	M & L for brick work with sub class 'B' old size bricks straight or curved on plan exc. 6.00 m mean radius built in cement mortar 1:4 complete all as specified and directed.		Cum	35.00	2351.90	82316.50		
5	M & L rendering 15 mm thick on fair faces of brick work or concrete surfaces in CM 1:4, rendering is to be finished even and smooth without using extra cement complete all as specified and directed.		Sqm	225.00	127.40	28665.00		
Total c/o to General Summary/BOQ Serial page No.28						3,21,306.40		

SIGNATURE OF CONTRACTOR
DATE _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-VI: AREA DRAINAGE
(LIST OF WORKS AND PRICES)

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	Period of completion of individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note Excavation and earth work which are not specified otherwise shall measured and paid under schedule 'A' Part-II here-in-before								
1	M & L for plain cement concrete 1:3:6 type C2 Nominal Mix (using 40 mm graded stone aggregate) as in surface channel or drain or benching in manhole etc. complete all as specified and directed.		Cum	16.00	2648.80	42380.80		
2	M & L for plain cement concrete 1:2:4 type B1 Nominal Mix (using 20 mm graded stone aggregate), as in lintels upto 1.5 m clear span, cills, steps, seismic and other similar bands, plinth course, string courses, lacing courses, parapets and railings upto 60 cm in height, copings, kneelers, apex stones, bed plates, water troughs and the like including weathering, slightly rounded or chamfered angles & throating as directed including necessary form work as required complete all as specified and directed.		Cum	5.00	4144.40	20722.00		
3	M & L for brick work with sub class 'B' old size bricks straight or curved on plan exc. 6.00 m mean radius built in cement mortar 1:4 complete all as specified and directed.		Cum	35.00	2351.90	82316.50		
4	M & L rendering 15 mm thick on fair faces of brick work or concrete surfaces in CM 1:4, rendering is to be finished even and smooth without using extra cement.		Sqm	175.00	127.40	22295.00		
Total c/o to General Summary/BOQ Serial page No.29						1,67,714.30		

SIGNATURE OF CONTRACTOR
DATE _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-VII: RETAINING WALL
(LIST OF WORKS AND PRICES)

SI No	Description of items of works	Drg No	Unit	No of Unit required	Unit Rate (Rs)	Amount (Rs)	individual items after date of handing over site	Remarks
1	2	3	4	5	6	7	8	9
Note Excavation and earth work which are not specified otherwise shall measured and paid under schedule 'A' Part-II here-in-before								
1	M & L for Hardcore of gauge not exc. 63 mm, deposited, spread and levelled in layers not exc. 15 cm thick, watered and rammed to a true surface using broken stone or boulders complete all as specified and directed.		Cum	52.00	895.10	46545.20		
2	M & L for plain cement concrete, 1:4:8 type D2 Nominal Mix (using 40 mm graded stone aggregate) as in foundation, filling and mass concrete complete all as specified and directed.		Cum	14.00	2303.30	32246.20		
3.	M & L for plain cement concrete 1:2:4 type B1 Nominal Mix (using 20 mm graded stone aggregate), as in lintels upto 1.5 m clear span, cills, steps, seismic and other similar bands, plinth course, string courses, lacing courses, parapets and railings upto 60 cm in height, copings, kneelers, apex stones, bed plates, water troughs and the like including weathering, slightly rounded or chamfered angles & throating as directed including necessary form work as required complete all as specified and directed.		Cum	8.00	4144.40	33155.20		
4	M & L for walling of random rubble stone masonry, un-coursed, well bonded, bedded, solidly hearted and built in cement mortar 1:6 complete all as specified and directed.		Cum	365.00	1898.90	693098.50		
5	M & L for raised pointing to random or polygonal rubble, uncoursed or brought upto course in cement mortar 1:4 to walls complete all as specified and directed.		10 Sqm	18.50	843.00	15595.50		
6	Extra over stone walling for hammer dressing to face stones and dressing of face beds and joints as specified or random rubble walling, uncoursed or brought upto courses, hammer dressing with maximum depression on face from straight edge held against the dressed surfaces n.exc 20 mm on granite or trap stone complete all as specified and directed.		Sqm	250.00	169.20	42300.00		
Total c/o to collection of Sch. 'A' Part-VII on Srl page No.26. Rs.						862940.60		

SCHEDULE 'A' PART-VII: RETAINING WALL (CONTD....)

1	2	3	4	5	6	7	8	9
7	M & L for providing pre-cast cement concrete in door or window cills, lintel, bressumers, bed plates, apex stone, pintle blocks, bonders (For stone masonry) and similar items with plain faces including chamfers, weathering, throating etc. in cement concrete 1:2:4 type B-1, using 20 mm graded stone aggregate and setting in cement mortar 1:6 complete all as specified and directed by Engr-in-charge.		Cum	18.00	4303.20	77457.60		
8	M & L for reinforced concrete pipes of 100mm bore, class NP2, laid and jointed complete with collars complete all specified and directed.		RM	75.00	230.60	17295.00		
Total c/o to collection of Sch. 'A' Part-VII as below Rs.						94,752.60		

SUMMARY OF SCHEDULE 'A' PART-VII

(i) Total B/F from Srl Page No.25	Rs.	862940.60
(ii) Total B/F from this Page No.26	Rs.	94,752.60
Total c/o to General Summary/BOQ Serial page No.29	Rs.	9,57,693.20

SIGNATURE OF CONTRACTOR
DATE_____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'A' PART-VIII
LIST OF WORK & PRICES
(MISCELLANEOUS ITEMS)

Note:- Tenderers shall refer serial item Nos. 8.01 to 8.08 given in BOQ /General summary after serial item No 7.0 for quoting unit rates against this schedule.

SIGNATURE OF CONTRACTOR

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'B'**ISSUE OF MATERIALS TO CONTRACTOR**
(SEE CONDITION 10 OF IAFW-2249)

Se r No	Particulars	Rate in which materials will be issued to the contractor		Place of issue (by Name)	Remarks
		Unit	Rate		
1	2	3	4	5	6

----- NIL -----

SIGNATURE OF CONTRACTOR
DATE: _____SSW
FOR ACCEPTING OFFICER

SCHEDULE 'C'
LIST OF TOOLS AND PLANTS (OTHER THAN TRANSPORT)
WHICH WILL BE HIRED TO THE CONTRACTOR
(See Condition 15,34 & 35 of IAFW-2249)

Sl No.	Quantity	Particulars	Details of MES Crew supplied	Hire charges per working day (Rs.)	Stand by charges per off day (Rs.)	Place of issue by name	Remarks
1	2	3	4	5	6	7	8

_____ NIL _____

SIGNATURE OF CONTRACTOR
DATE: _____

SSW
FOR ACCEPTING OFFICER

SCHEDULE 'D'
TRANSPORT TO BE HIRED TO THE CONTRACTOR
(See Condition 16 & 35 of IAFW-2249)

Sl No	Quantity	Particulars	Rate per unit per working day (Rs.)	Place of issue (by name) (Rs.)	Remarks
1	2	3	4	5	6

_____ NIL _____

SIGNATURE OF CONTRACTOR
DATE: _____

SSW
FOR ACCEPTING OFFICER

TENDER

THE PRESIDENT OF INDIA

Having examined and perused the following documents:-

1. Particular Specification signed by SSW for CWE (AF) Borjhar.
2. Drawings detailed in the list of Drawings.
3. Schedule 'A', 'B', 'C' & 'D' attached hereto.
4. MES Standard Schedule of Rates Part-I, 2009 (specifications) and Part-II, 2010 (Rates), (here-in-after and in IAFW-2249 referred to as the "MES Schedule") including amendment 1 & 2 for Part-I, 2009 and amendment 1 to 59 for Part-II, 2010.
5. General Conditions of Contracts, IAFW-2249, (1989 print) together with errata 1 to 20 and amendment 1 to 40.
6. Water : Conditions 31 of IAFW-2249 (General Conditions of Contracts): Water will be supplied by the MES and shall be metered and shall be paid for by the contractor to the department @ Rs. 14.40 per 1000 litres of water supplied.
7. Should this tender be accepted, I/We agree:

*(a) That the sum of Rs. _____ (Rupees _____ only) forwarded as Earnest money shall be either be retained as Part of Security Deposit or be refunded by the Government on receipt of the appropriate amount of Security Deposit, all as per condition 22 of IAFW-2249.

(b) To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein and as detailed in the General Summary below or at such other rates as may be fixed under the provisions of Condition 62 of IAFW-2249 and to carryout such deviations as may be ordered vide Condition 7 of IAFW-2249 up to a maximum of 10% (Ten percent) and further agree to refer all disputes, as required by condition 70 of IAFW-2249 to the Sole Arbitrator of a Serving Officer having degree in Engineering or equivalent or having passed final/direct final examination of Sub Division II of Institution of Surveyors (India) recognized by the Govt. of India to be appointed by the Chief Engineer (AF) Shillong Zone, Elephant Falls Camp, Shillong – 09, or in his absence the Officer officiating as Chief Engineer (AF) Shillong Zone, whose decision shall be final, conclusive and binding.

* to be deleted where NOT applicable.

TENDER (Contd...)

Total B/F from serial page No. Rs. _____ for the Lump sum of
Rs. _____ (Rupees _____
_____ only)

Signature _____ Date _____

Name of Signatory _____
(IN BLOCK LETTERS)

In the capacity of _____ duly authorised to signed the tender for and on
behalf of

S'Shri/Shri _____
(IN BLOCK LETTERS)

Signature of witness

Postal Address

Name _____

Address _____

Telegraphic address

Telephone _____

ACCEPTANCE

_____ Alterations have been made in these documents and as evidence that these
alterations were made before the execution of contract agreement, these have been initialed
by the contractor and Lt Col Sawant Dhanshri S SSW.

The said Officer is hereby authorized to sign and initial on my behalf, the documents forming part of
this contract.

The above tender was accepted by me on the _____ day of _____ '2018

on behalf of the President of India for the Lump sum of Rs. _____

(Rupees _____
only).

Signature _____ dated this _____ day of _____ '2018

Appointment : COMMANDER WORKS ENGINEERS (AF) BORJAR,
ACCEPTING OFFICER
(For and on behalf of the President of India)

GENERAL CONDITIONS OF CONTRACTS
(IAFW-2249, 1989 PRINT)
FOR

LUMP SUM CONTRACT (IAFW-2159, REVISED 1947)

1. A copy of the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249)-1989 Print with Errata 1 to 20 and amendments No. 1 to 40 has been supplied to me/us and is in my/our possession. I/We have read and understood the provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/We agree that I/we shall abide by the Terms and Conditions thereof, as modified, if any, elsewhere in this tender document.

2. It is hereby further agreed and declared by me/us, that the GENERAL CONDITIONS OF CONTRACTS (IAFW-2249)-1989 Print including Condition 70 thereof pertaining to settlement of disputes by Arbitration, containing 33 pages (Serial Page No 35 to 67) with errata 1 to 20 and amendments No. 1 to 40 (Srl Page No 68 to 81) form part of these tender documents.

SSW
ACCEPTING OFFICER

SIGNATURE OF CONTRACTOR
DATED:

MILITARY ENGINEER SERVICES
ERRATA TO GENERAL CONDITIONS OF
CONTRACT IAFW-2249 (1989 PRINT)

Errata No	Page No	Particulars
1.	4	Condition 3, Para 3, Line 1 : For : “An” Read : “and”
2.	7	Condition 7, last Para, Line 9 : For : “Objection” Read : “objection”
3.	7	Condition 7, last Para, Line 11 : For : “thetein” Read : “therein”
4.	8	Condition 8, Line 7 Delete “) ” after the word “necessary”
5.	10	Condition 15, Para 2, Line 3 : For : “actory” Read : “Factory”
6.	11	Condition 15, Para 2, Line 6 : For : “escept” Read : “except”
7.	11	Condition 15, Para 2, Line 6 : For : “authorise” Read : “authorised”
8.	11	Condition 15, Para 5, Line 1 : For : “Maintence” Read : “Maintenance”
9.	16	Condition 32, Para 1, Line 4 : For : “sitning” Read : “siting”
10.	16	Condition 32, Para 2, Line 6 : For : “reinstead” Read : “reinstated”
11.	16	Condition 34, Line 6 : For : “revese” Read : “revest”
12.	16.17	Condition 36, Para 2, Line 2 : For : “conbusitible” Read : “combustible”
13.	17	Condition 37, Line 3 : For : “whese” Read : “whose”
14.	17	Condition 43, Line 1 : For : “Shal” Read : “Shall”
15.	17	Condition 44, Para 2, Line 4 : For : “visit this” Read : “visit his”
16.	18	Condition 48, Para (a), Line 5 : For : “airising” Read : “arising”
17.	20	Condition 54, Line 1 and 2 illigible word is “Contractor”
18.	20	Condition 54, Para below (a), Insert `b’ in the existing bracket “()”
19.	30	ANNEXURE `B’, Clause 6, Line 2 Delete the word “after”
20.	30	ANNEXURE `B’, Clause 6, but line 3 Insert fullstop “(.)” after the word “therof” and For “laddor” Read “Ladder”

SIGNATURE OF CONTRACTOR
DATE :

SSW
FOR CWE (AF) Borjar

MILITARY ENGINEER SERVICES
AMENDMENT TO GENERAL CONDITIONS OF
CONTRACT IAFW-2249 (1989 PRINT)

Amendment No	Page No	Particulars						
1.	28 & 29	Annexure `A` Military Engineer Services contractor's labour Regulations. (a) Para 2 (a) line 3 <u>For</u> : `Not exceeding Rs. 400 per month'. <u>Read</u> : `Not exceeding Rs. 500 per month'. (b) Para 11, line 5 Add the following after the words labours concerned. `The Garrison Engineer shall payments to the labour concerned within 45 days from the receipt of the report from the labour welfare officer or other person authorized as aforesaid, as the case may be".						
2.	9	Condition 10(R), Line 2 to 6. <u>For</u> : `Materials which _____ as aforesaid'. <u>Read</u> : `Materials which Govt shall supply are shown in Schedule `B' which also stipulates place of issue and rate (s) to be charged in respect thereof'.						
3	19	Condition 50, Sub Para 4 (b) (iii) Delete the existing description against sub para 4 (b) (iii) and insert as under :- <table><tr><td>(iii) Where the contract sum exceeds Rs. 20.00 Lakh but does not exceed Rs. 150.00 Lakh</td><td>Seven and half percent of the Contract value of the item or group of items of work for which a separate period of completion is given or Rupees seven and a half lakhs whichever is less.</td></tr><tr><td>(iv) Where contract exceeds Rs. 150.00 Lakhs but does not exceed Rs. 300.00 Lakhs</td><td>Five percent of the contract value of the item or group of the items of work for which a separate period of completion is given or Rupees twelve and a half lakhs whichever is less.</td></tr><tr><td>(v) Where the contract sum exceeds Rs. 300.00 Lakhs</td><td>Four percent of the contract value of the item or group of items of work for which a separate period of completion is given subject to a maximum of Rupees twenty five lakhs."</td></tr></table>	(iii) Where the contract sum exceeds Rs. 20.00 Lakh but does not exceed Rs. 150.00 Lakh	Seven and half percent of the Contract value of the item or group of items of work for which a separate period of completion is given or Rupees seven and a half lakhs whichever is less.	(iv) Where contract exceeds Rs. 150.00 Lakhs but does not exceed Rs. 300.00 Lakhs	Five percent of the contract value of the item or group of the items of work for which a separate period of completion is given or Rupees twelve and a half lakhs whichever is less.	(v) Where the contract sum exceeds Rs. 300.00 Lakhs	Four percent of the contract value of the item or group of items of work for which a separate period of completion is given subject to a maximum of Rupees twenty five lakhs."
(iii) Where the contract sum exceeds Rs. 20.00 Lakh but does not exceed Rs. 150.00 Lakh	Seven and half percent of the Contract value of the item or group of items of work for which a separate period of completion is given or Rupees seven and a half lakhs whichever is less.							
(iv) Where contract exceeds Rs. 150.00 Lakhs but does not exceed Rs. 300.00 Lakhs	Five percent of the contract value of the item or group of the items of work for which a separate period of completion is given or Rupees twelve and a half lakhs whichever is less.							
(v) Where the contract sum exceeds Rs. 300.00 Lakhs	Four percent of the contract value of the item or group of items of work for which a separate period of completion is given subject to a maximum of Rupees twenty five lakhs."							
4.	27	<u>CONDITION 70 TO SUB PARA-9</u> Add the following at the end of the sub para : "If the value of the claims or counter claims in an arbitration reference exceeds Rs. 1.00 lakh the arbitrator shall given reasons for the award."						

AMENDMENT (CONTD...)

1	2	3
5.	14 & 15	<u>CONDITION 25</u> Delete para 2 and 3 of the above condition and substitute the following :- “Where the contractor is a qualified Engineer or even if he is so qualified, he cannot, in the opinion of the GE give his full personal attention to the works, he shall at his own expense employ a person / person (s) possessing the following qualifications, and / or experience as his accredited agent(s) to supervise the works and to receive instructions from the Engineer-in-Charge :- (a) For works costing over Rs. 300.00 Lakhs other than those covered in (g) below Two degree holders in Engineering from Government recognized Institution or equivalent with at least 5 years practical experience of works. and Adequate numbers of Diploma holders in Engineering from a government recognized Institution with at least 8 years practical experience of works. (<u>Note</u> : The above provision shall be applicable irrespective of the fact whether contractor himself is a qualified Engineer or not.) (b) For works costing between Rs. 100.00 Lakh and Rs. 300.00 Lakh other than those covered in (g) below A degree holder in Engineering from a Government recognized Institution or equivalent with at least 4 years practical experience of works. OR Two diploma holders in Engineering from a Government recognized Institution with at least 6 years practical experience of works. (c) For works costing between Rs. 60.00 Lakh and Rs. 100.00 Lakh other than those covered in (g) below A degree holder in Engineering from a Government recognized Institution or equivalent with at least 3 years practical experience of works. OR A diploma holders in Engineering from a Government recognized Institution with at least 5 years practical experience of works. (d) For works costing between Rs. 7.50 Lakh and Rs. 60.00 Lakh other than those covered in (g) below A degree holder in Engineering from a Government recognized Institution with at least 2 years practical experience of works. OR A diploma holder in Engineering from a Government recognized Institution with at least 4 years practical experience of works.

AMENDMENT (CONTD...)

1	2	3
		(e) For works costing between Rs. 2.00 Lakh and Rs. 7.50 Lakh other than those covered in (g) below (f) For works costing upto Rs. 2.00 Lakh other than those covered in (g) below (g) For works of any value for repairs to buildings and roads, periodical Services to building, term contract, grass cutting and fencing A degree or diploma holder in Engineering from a Government recognized Institution with adequate practical experience of works. Competent person with adequate practical experience of works. A competent person with adequate practical experience of works. The employment of Agent(s) as aforesaid shall be to the approval of GE who may verify his / their qualifications and experience by referring to original degree / diploma / testimonials which shall be made available to him by the contractor or by the individual employed or proposed to be employed.
6.	27	<u>Delete</u> the description added at the end of sub para 9 vide amendment No 4 (1989 Print) and insert as under :- “The arbitrator shall give reasons for the award in each and every case irrespective of the value of claims or counter-claims”.
7.	24	<u>CONDITION 64</u> <u>Delete</u> para 4 viz ‘Provided the amount _____ shall not exceed Rs. 1.50 Lakhs in toto.’
8.	26	<u>CONDITION 70 ARBITRATION PARA 1, LINE 4</u> Amend the words “Engineer Officer” to Read” Serving Officer having degree in Engineering or equivalent or having passed final / direct final Examination of Sub-Division II of Institution of Surveyor (India) recognized by the Govt of India”.
9.	2	<u>Add</u> the following new condition under chapter IV :- “71. Jurisdiction of Courts”.
27		<u>Add</u> the following new condition :- “71. Jurisdiction of Courts- irrespective of the place of issue of tenders, the place of acceptance of tenders, the place of execution of contract or the place of payment under the contract, the contract shall be deemed to have been made at the place from where the acceptance of tenders has been issued and the work is executed / executable. The courts of the place from where the acceptance of the tender has been issued and the work is executed / under execution shall alone have jurisdiction to decide any dispute arising out of or in respect of the contract”.
10.	14 & 15	<u>CONDITION 25 AS AMENDED VIDE AMENDMENT NO 5</u> <u>For</u> : ‘Degree holders in Engineering from a Government recognised Institution or equivalent wherever occurring’. <u>Read</u> : ‘Degree holders in Engineering from a Government recognized Institution or equivalent / final or direct final pass of sub division II of the Institution of Surveyors (India)’.

AMENDMENT (CONTD...)

1	2	3
11.	27	<u>CONDITION 70 : ARBITRATION PARA 8</u> <u>For</u> : `The Arbitrator may, from time.....Publishing the award'.  <u>Read</u> : `The Arbitrator may, from time to time with the consent of the parties, enlarge the time for making and publishing the award'.
12.	24	<u>Add</u> the following Para 4 after Para 3 (c) :- "The amount so retained from the contractor shall be called retention money and shall be released to the contractor alongwith the final bill. However, in case the amount of this retention money is more than Rs. 1.50 Lakh, then after retaining an amount of Rs. 1.50 Lakh or 1% of the contract amount as executed whichever is more, the balance amount of retention money will be refunded to the contractor at satisfactory completion of works as certified by the GE".
13.	23	<u>CONDITION 62 (G) VALUATION OF DEVIATION PARA 1, LINE 3</u> <u>For</u> : `Plus 10%'.  <u>Read</u> : `Plus 15%'.
14.	5	(a) <u>Condition 4A (a), Line 4</u> <u>For</u> : `Rs. 2,500/-'.  <u>Read</u> : `Rs. 5,000/-'. (b) <u>Condition 4A (d), Line 2 & 3</u> <u>For</u> : `Rs. 5,000/-'.  <u>Read</u> : `Rs. 10,000/-'.
15.	13	<u>CONDITION 22, SECURITY DEPOSIT, SUB PARA 3, LINE 3 AND 4</u> <u>For</u> : `Controller of Defence Accounts concerned'.  <u>Read</u> : `Accepting Officer'.
16.	24	<u>CONDITION 64 SUB PARA 7, LINE 4 & 5</u> <u>For</u> : `Controller of Defence Accounts'.  <u>Read</u> : `Accepting Officer'.
17.	19	<u>CONDITION 50</u> (a) <u>Sub para 2, line 2.</u> <u>For</u> : "Deviation orders on the contractor" <u>Read</u> : "Deviation orders, escalation amount" (b) Delete existing sub para 4(b) (i) to 4(b) (v) in toto and insert as <u>under</u> :- "Ten percent of the contract value of the item or group of items of work for which a separate period of completion is given." (d) Amount of retention money plus compensation during currency of contract shall not exceed ten percent of contract value. Contractor shall furnish BGB or Fixed Deposit Receipt in lieu of retention money and if compensation amount is not fully met from retention money, the difference if any shall be recovered from the payments due to the contractor.

AMENDMENT (CONTD...)

18 3 & 4
1989

(a) Condition 1 (a) line 4

For : "the MES Schedule, the Specifications"

Read : "the M.E.S Schedule, the Special Conditions, the Specifications"

(b) Condition 1 (b), line 2

For : "these conditions, and the Specifications"

Read : "these conditions, the Special Conditions and the Specifications"

(c) Condition 1 (b), line 3

For : "loaned"

Read : "sold"

(d) Condition 1 (g), line 3

For : "Garrison Engineer" who administers"

Read : "Garrison Engineer" (or Assistant Garrison Engineer (Independent) if applicable) who administers"

(e) Condition 1 (g), line 3

In the end add the following :-

"Where the office of the CWE does not exist and the GE is directly under the Chief Engineer, the authority of the CWE stipulated in these conditions shall vest in the concerned Chief Engineer".

(f) Condition 1 (h), line 3

For: "the Superintendent Grade I"

Read : "The Junior Engineer (JE)"

(g) Condition 1 (i) line 1

For : "Indian Standards Institution"

Read : "Bureau of Indian Standards."

(h) Condition 1 (p), line 4

For : "air craft and acts of God"

Read : "air craft and natural calamities"

(i) Condition 1 (p), line 5

For : "floods and tornado"

Read : "floods, tornado and Tsunami"

19 5
1989

(a) Condition 4A, line 7

For : "Rs. 60,000/-"

Read : "Rs. 1,50,000/-"

(b) Condition 4 A (a), line 4

For : "2,500/-"

Read : "10,000/-"

AMENDMENT (CONTD...)

19 5 (c) Condition 4 A (c), line 4
 1989 For : "2,500/-"
 Contd.... Read : "10,000/-"

(d) Condition 4 A (d), line 2 & 3
 For : "5000/-"
 Read : "20,000/-"

(e) Condition 4 A (f), line 1
 For : "60,000/-"
 Read : "1,50,000/-"

20 5 (a) Condition 6, subpara1
 1989

The existing contents shall be substituted as under :-

"6. Provisional Items – The amount pertaining to provisional items need not be deducted from the Contract Sum. The Engineer-in-Charge and Contractor shall set out the works covered under provisional items and provisional lump sum based on the description of items, drawings forming part of contract agreement and considering the ground conditions as encountered at site of works. The statement of variation in quantities, new items or deletion of items from the contract agreement as required will be worked out for approval of Engineer-in-Charge who will convey approval of such changes through site order book. For the purpose of payment the variation in value of work executed under these items shall be ascertained by measurement or valuation as for deviation. The variations shall be regularized as per condition 7.

21 6 & 7 (a) Condition 6A, line6
 1989 Add following after the words "preference to scale.:-"

"However the provisions of any drawing of a later date shall take precedence over that of a drawing of previous date further subject to the condition that working drawing will take precedence over a Typical Detail Drawing."

(b) Condition 6A(a), line 1
 For : "Quantities."
 Read : "Quantities, Schedule 'B', 'C', 'D',"

(c) Condition 6A(A)
 (i) Existing subpara (b) to (f) shall be enumerated as subpara (c) to (g).
 (ii) Add new subpara (b) after existing subpara (a) as under :-
 "(b) Items and their quantities for which no rates or prices have been quoted shall be deemed to have been covered by the rates and prices quoted for the other items of Schedule 'A' or bill of quantities."

AMENDMENT (CONTD...)

21 6 & 7
1989
Contd..

(d) Condition 6A(C),(iii)

The existing contents shall be substituted as under :-

(iii)	Contract sum exceeding Rs 10 lakh but not exceeding Rs 100 lakh	:Rs. 20,000 plus 2% of Contract Sum exceeding Rs. 10 lakh subject to a maximum of Rs. 1,00,000/-
(iv)	Contract sum exceeding Rs. 100 lakh	:1% of contract sum subject to a maximum of Rs. 5 lakh

22 8
1989

(a) Condition 9 (c), line 19

For : "labour at Site"

Read : "labour and tools and plants at Site"

(b) Condition 9 (c) line 19

Add following at the end of para (c) viz line 21:

"The contractor shall give the details of idle labour, workmen, employees, tools and plants and such other details as asked by the GE, within seven days of issue of order of suspension and the GE shall verify the necessity and correctness thereof. Proper record of these details shall be maintained duly signed by the GE and the contractor."

23 8,9 &
1989 10

(a) Condition 10A, subpara 2

Add in the end after the word "comply". following:-

"However if the cost of particular item of material in a contract exceed Rs 1 lakh, these materials shall be procured only from the manufactures or from their authorized dealers/stockiest (except in case of materials of local origin) and the contractor shall furnish proof thereof to the satisfaction of the GE that the material so comply.

(b) Condition 10A, Subpara3.

Add in the end after the word "in the Contract." Following :

"The approved samples of materials which loose their identity after incorporation in the work shall be preserved with the GE till completion of work. Thereafter the same shall be removed in 'as is where is' condition by the contractor with prior permission of the GE without any extra cost to the Government. However, the approved samples of materials which do not loose their identity after incorporation and which can be incorporated in the work as decided by the Engineer-in-Charge shall be allowed to be used in the sample quarter/block/work."

(c) Condition 10B, line 1 of last sub-para of page 9.

For : "cost of loading,"

Read : "cost of carriage, loading,"

(d) Condition 10B, line 3 of subpara 3 of page 10.

For : "the Engineer-in-Charge may,"

Read : "the GE may,"

(e) Condition 10B, line 5 of subpara 3 of page 10.

For : "as decided by the GE,"

Read : "on the date of notifying to the contractor by GE (after technical check of final bill in CWE's Office) as decided by the GE or the stock book rate as fixed by the department, whichever is higher."

(f) Condition 10B, line 6 of subpara 3 of page 10.

For : "the market rate,"

Read : "the recovery rate,"

AMENDMENT (CONTD...)

- 24 10 & (a) Condition 11(A), subpara (i) to (viii).
 1989 11 Existing contents of subpara (i) to (vii) shall be replaced as under with sub para (i) to (iv):-
- “(i) by reason of civil commotion, local combination of workmen, strike or lockout, affecting any of the trades employed on the work, or
 - (ii) by reason of delay on part of nominated subcontractors, or nominated suppliers which the Contractor has, in the opinion of GE, taken all practicable steps to avoid, or reduce, or
 - (iii) by reason of delay on the part of Contractors or tradesmen engaged by Govt in executing works not forming part of the contract, or
 - (iv) by reason of any other cause (except force majeure) which in the absolute discretion of the Accepting Officer is beyond the Contractor’s control;”

(b) Condition 11(A), last subpara, line 2.

For : “GE.”

Read : “Accepting Officer”

(c) Condition 11 (C).

The existing contents shall be substituted as under :-

“(C) Extension of time if due shall be granted within 45 days of receipt of request from the contractor alongwith supporting documents, but before expiry of original/extended period of completion.”

“(D) No claim in respect of compensation or otherwise, for idle, labour and/or idle machinery etc. and/or business loss or any such loss, howsoever arising, as a result of extensions granted under Conditions (A) and (B) above shall be admissible. The decision on reason and quantum of extension shall be final and binding.

“(E) DELAY ON ACCOUNT OF FORCE MAJEURE-

Should any force majeure circumstances arise, each of the contracting party will be excused for the non fulfillment or for the delayed fulfillment of any of its contractual obligations, if the affected party within 15 days of its occurrence informs the other party in writing.

Force majeure shall mean fires, floods, natural calamities such as earth quakes, lightening or other acts such as war, turmoil’s, strikes (otherwise than contractor’s employees), invasion, act of foreign enemies, hostilities, civil war rebellion, revolution, insurrection, military or usurped power, damage from aircraft, sabotage, explosions, quarantine restrictions, beyond the control of either party.

AMENDMENT (CONTD...)

24 10 & It is understood and agreed between the parties here to that the rights and
1989 11 obligations of the parties shall be deemed to be in suspension during the
Contd... continuance of the force majeure even as aforesaid and the said rights and
obligation shall automatically revive upon cessation of the intervening force majeure
event. The period within which the rights and obligations of the parties shall be in
suspension due to force majeure event, shall not be considered as a delay with
respect of the period of completion and/or taking over work under the contract
or otherwise to the detriment of either party.

Notwithstanding the provision of the immediately foregoing clauses, it is
further understood and agreed between the parties hereto that in the event of any
force majeure persisting for an uninterrupted period exceeding 6 (Six) months,
either party hereto reserves the right to terminate this contract upon giving prior
written notice of 30 (Thirty) days to the other party of the intention to terminate
without any liability other than agreement for the completed work and/or contractor's
materials lying at site."

25 12 (a) Condition 17, line 1
1989 For : "The Contractor shall not"
Read : "The Contractor including public sector undertaking/Government agency
shall not".

26 13 (a) Condition 18, line 1
1989 For : "The Contractor shall not"
Read : "The Contractor including Public Sector undertaking/Government agency
shall not"

27 14 & (a) Condition 25, the contents of subpara 2 after line 5 shall be substituted as
1989 15 under :-

(a)	For works costing between Rs 50 lakh to 1000 lakh	A Degree holder in Engineering from a Govt recognized institution or equivalent, final or direct final passed of Sub Division II of the Institution of Surveyors (India) with at least 4 years practical experience of works.
(b)	For works costing between Rs 7.5 lakh and Rs 50 lakh	A Degree holder in Engineering from a Government recognized Institution or equivalent, with final or direct final passed of Sub Division II of the Institution of Surveyors (India) with at least 2 years practical experience of works.
(c)	For works costing below Rs. 7.5 lakh	A Diploma holder in Engineering from of Govt. recognized Institution with adequate practical experience of works.

Notes :-

- (1) Engineers (Degree/Diploma holders) employed should be of the relevant discipline to which nature of work pertains.
- (2) The provision at Serial (b) & (c) above shall be applicable irrespective of the fact whether contractor himself is a qualified Engineer or not.
- (3) Contractor shall employ additional Engineers as directed by GE where there are scattered sites.
- (4) For works costing more than Rs 10 Crore, the requirement of Engineering Staff shall be as given in the tender documents.
- (5) For specialist works/services Accepting Officer may vary requirement of supervisory staff in tender document.

AMENDMENT (CONTD...)

- 27 14 & (b)Condition 25, last sub-para on page 15.
 1989 15 The contents of last sub-para on page 15 shall be substituted as under :-
 Cotnd.. "The GE shall have full powers, to put the contractor on notice on account of default either for non-employment of Engineer(s) or absence of Engineer(s) from site and levy penalty @ Rs 500/- per day per vacancy upto 30 days period. Thereafter GE shall have the option to either suspend the work or employ Engineer(s) at contractor's cost and recover the amount from contractor's dues."
- 28 15 (a) Condition 26, last subpara, last line.
 1989 For : " Rs. 50/-"
 Read : "Rs. 5,000/- (Rupees five thousand only)"
- 29 16 (a) Condition 31, third subpara, line 2
 1989 For : "at the *All India Flat Rate per 1,000 gallons which"
 Read : "at the *All in cost Rate per 1,000 gallons subject to a minimum of Rs. 3.75 per every Rs. 1000/- worth of work done priced at contract rate which"
- 30 17 (a) Condition 36, last subpara
 1989 Add the following at the end:-
 "Fencing be provided wherever necessary as decided by GE to isolate the working area to make the area unrestricted from restricted".
- 31 17 (a) Condition 44, subpara 3, line 1.
 1989 For : "rupees one lakh"
 Read : "rupees two lakh"
- (b) Condition 44, subpara 3, line 2.
 For : "rupees five lakh"
 Read : "rupees ten lakh"
- 32 18 (a) Condition 46, subpara 2, line 11 to 14.
 1989 For : "Provided always that the liability of the contractor under this condition shall not extend beyond the defects liability period except as regards workmanship which the G.E shall have previously given notice to the contractor to rectify."
- Read : " Alternatively, such work, if technically/structurally acceptable, without detriment to the safety and utility of the item and the structure may be permitted to be accepted as devalued and recovery shall decided by competent authority (CWE in respect of contract concluded by himself and GE's and AGE (I) and CE in respect of contract concluded by him) or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Whether any particular defect is due to unsound, imperfect or unskillful workmanship or due to normal wear & tear or user's negligence, decision of GE shall be final and binding. Provided always that the liability of the Contractor under this Condition shall not extend beyond the defects liability period except as regards workmanship which the GE shall have previously given notice to the contractor to rectify. Govt. further reserves the right to get the work technically inspected during currency of the contract and also during defects liability period by the Additional Director General of Technical Examination and/or his Officers or any other agency. The defects observed as a result of such technical examination shall be rectified by the contractor as notified by the GE. However, if the defects are not rectified, the devaluation of the work shall be carried out and recovery thereon shall be affected."

AMENDMENT (CONTD...)

- 33 19 (a) Condition 49, subpara 2, lines 2,3 & 4
 1989 For : "within such period as may be notified by the Engineer-in-Charge, to the place of issue against written receipt from the Engineer-in-Charge."
 Read : "to the place of issue as stipulated in Condition 10 (B) here-in-before against written receipts from the Engineer-in-Charge."
- (b) Condition 49, subpara 5, lines 3,4 & 5
 For : "before the completion of entire group, but for all purposes of the contract except for compensation for delay, the completion of the entire group shall be taken into account."
 Read : "before the completion of the entire group. In such event, the grouping (phasing) of items as catered for in the contract shall be deemed to have been amended accordingly."
- (c) Condition 49, subpara 2
 Existing contents shall be substituted as under :-
 "On receipt of notice from the Contractor that the work has been completed, the GE shall within seven days certify to the Contractor the Date(s) on which the items or group of items of Works are completed and taken over and the state thereof or shall notify the details of incomplete items of work to the Contractor over completion of work, the decision of Accepting Officer or CWE in case of GE's contract shall be final and binding."
- 34 21 (a) Condition 55
 1989 Existing contents shall be substituted as under :-
"55. Termination of Contract for Death – Without prejudice to any of the rights or remedies under this contract, if the Contractor dies, the Accepting Officer shall have the option of terminating the Contract without compensation to the Contractor. If proprietor has nominated a person during his lifetime, the nominee will be allowed by the GE to complete the balance work. However if the nominee is not willing or in the opinion of Accepting Officer is not capable of completing the work as contracted for, he shall terminate the contract without any compensation to the nominee. The decision of the Accepting Officer whether the nominee is capable or not shall be final and binding."
- 35 21 & (a) On page 2, against SI 59, Blank, add following in description
 1989 22 "Determination of contract in the event of Force Majeure"
(b) On page 22, against SI 59, Blank
 Insert new condition 59 in lieu of blank as under :
"59.Determination of contract in the event of Force Majeure- The contract may be determined at the option of either party by giving 30 days notice in writing to the other party should any event of 'Force Majeure' continue to prevail for an uninterrupted period of six months and no progress of work is achieved owing to such circumstances during these six months. On receipt of notice from one party to other explaining circumstances of 'Force majeure' the Garrison Engineer and contractor will carry out joint inspection of works and an inventory of completed, incomplete works and the materials collected for incorporation in the work shall be prepared for processing of final bill. The contractor shall have no claim to payment of any compensation on account of any profit or advantage which he may have derived from the execution of work in full but which he could not derive due to determination of contract on account of 'Force majeure'

AMENDMENT (CONTD...)

- 36
1989 (a) Condition 61, Last but one Para, line 6
For : "Rs. 500/-"
Read : "Rs. 5,000/-"
- 37 24 (a) Condition 64, subpara 1 & 2
1989 Substitute existing contents with following:-
 "64. Advances on Account – The contractor may at intervals of not less than 30 days for contracts of value less than Rs. 50 lakh and 15 days in case of contracts more than 50 lakhs submit claims on I.A.F.W-2263 provided the payment due is not less than Rs. 50,000/- and for Tem Contracts, contractor may prefer not more than two claims for payment of advances on account of work done and of materials delivered in connection with Measurement and Lump Sum Contracts. However such claim for work done, which are required to be measured, shall b e submitted only after recording joint measurements in the MES Measurement Book IAFW-2261."
- (b) Condition 64, subpara 3, line 3
For : "Engineer-in-Charge:-"
Read : "Garrison Engineer:-"
- (c) Condition 64, subpara 8 & 9
Insert a new subpara between subpara 8 and 9 as follows :-
 "Provided further, the contractor may be paid advance on account to the full value of materials such as fittings and fixtures and other manufactured items as decided by the GE which do not lose their identity, brought on the site, on his furnishing Guarantee Bond(s) or Fixed Deposit Receipt (s) from a Scheduled Bank for the amount of retention money which should otherwise be recoverable from him under the contract. The Guarantee Bond and Fixed Deposit Receipt shall be executed and kept valid in a manner as described here-in-before."
- 38 25 (a) Condition 66, line 2
1989 For : "the period being"
 Read : "the period to be"
- (b) Condition 66, line 3
For : "by the GE"
Read : "by the Engineer-in-Charge"
- (c) Condition 66 (a)
For : "Four months"
Read : "Six months"
- (d) Condition 66 (b)
For : "Six months"
Read : "Nine months"
- 39 27 Existing Condition 71 Jurisdiction of Court shall be renumbered as
1989 Condition 72

AMENDMENT (CONTD...)

40 27 Add a new Condition 71 Conciliator as under :-
1989

71.Conciliator – If a dispute (other than those for which the decision of the CWE or any person is by the contract expressed to be final and binding) of any kind whatsoever arises between the parties to the contract during the execution of the works, or after completion or after determination/cancellation/termination of the contract, including any disagreement by either party with any action, inaction, opinion, instruction, certification or valuation by the Accepting Officer or his nominee, the matter in dispute shall, in the first place be referred to the Disputes Resolution Board (DRB) in case of contracts valuing Rs. 10 crore or more and to conciliation, by a sole conciliator, in case of contracts valuing less than Rs 10 crore. In case of disagreement with the decision of such DRB or conciliator, any party may invoke arbitration clause.

Procedure for the constitution/appointment of DRB/Conciliator shall be as laid down in the Contract Agreement.

SIGNATURE OF CONTRACTOR
DATE : _____

SSW
FOR CWE (AF) Borjar

SCHEDULE OF MINIMUM FAIR WAGES

1. It is hereby agreed that the "Schedule of Minimum Fair wages (SMFW)" as published vide Government of India latest Notification and subsequently amended thereafter form part of these tender documents.
2. My /our signature here under is in token to my/our having read and understood the provision contained therein and I/we agree that I/we shall abide by the same and that aforesaid form part of this tender.
3. Note : "Schedule of minimum fair wages " referred to above is available for reference, in the office of the Accepting Officer.

**SSW
FOR ACCEPTING OFFICER**

**SIGNATURE OF CONTRACTOR
DATE:**

SPECIAL CONDITIONS**1. GENERAL**

1.1 The following Special Conditions shall be read in conjunction with General Conditions of contract IAFW-2249. Any provision in this Special conditions if at variance with provision in the above mentioned documents, shall take precedence there over.

2. SECURITY AND PASSES ETC

2.1 The work is to be carried out in restricted area. Contractor's attention is invited to condition 25 of IAFW-2249. He shall on demand of the Engineer-in-Charge, submit a list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge as to the confide of such people.

2.2 The Engineer-in-charge shall at his discretion have the right to issue passes, as Rules and Regulations of the installation/area in force to control the admission of the contractor, his agents, employees of work people to the site of work or any part thereof. Passes shall be returned at any time on demand by Engineer-in-Charge or the authorities concern and all cases on completion of work.

2.3 The contractor and his agents, employees work people shall observe all the Rules promulgated by the authorities controlling the installation/area in which work is to be carried out e.g. Prohibition of smoking and lighting, fire precaution, search of persons on entry and exit, keeping to specific routes, observing specific timing, etc. Nothing extra shall be admissible for any men-hours etc. lost on this account.

3. SECURITY OF CLASSIFIED DOCUMENTS

3.1 Contractor's special attention is drawn to Condition 2(A) and 3 of General Conditions of Contract IAFW-2249. The contractor shall not communicate any classified information regarding the work either to sub contractor or other without prior approval of the Engineer-in-Charge. The contractor shall not make copies of the design/drawings and other documents furnished to him in respect of work and he shall return all documents on the completion of the contract. The contractor shall along with final bill attach a receipt from the Engineer-in-Charge in respect of his having return the classified documents as condition 3 of General Conditions of Contracts IAFW-2249.

4. INSPECTION OF SITE

4.1 The contractor is advised to inspect the site of work with prior appointment of GE who shall give reasonable facilities for this purpose, to ascertain for himself the site/ground conditions, access roads, approaches, availability of local materials etc. and all the necessary information which may affect works and prices under contract. The contractor shall be deemed to have visited the site before submitting the tender irrespective of the fact whether or not he actually visit it.

5. MATERIALS AND SAMPLES

5.1 Materials provided by the contractor for incorporation in the work shall, unless otherwise specified in the particular specifications, comply with the requirements of the relevant Indian Standard (IS) of the years of the publication/having latest revision to be followed as specified in the MES Schedule of Part-I. The contractor may, however at his own discretion provide and incorporate in the works such materials complying with the requirement of any corresponding, subsequently amended or revised edition of the IS without any adjustment in the contract sum.

5.2 The contractor shall produce samples of all materials, articles, fittings, accessories etc. that he proposes to use and get them approved in writing by the Engineer-in-Charge. The materials, articles, etc. as approved shall be signed by the Engineer-in-Charge and the contractor's representative. The samples shall be kept in custody of the Engineer-in-Charge.

SPECIAL CONDITIONS (CONTD...)

5.3 The brands of all materials, article, fittings, etc. approved together with the names of the manufacturers and firm from which supply have been arranged shall be recorded in the materials passing register.

5.4 The materials for which IS do not exit or which are specified in the particular specifications to conform to the samples kept in the GE office, shall comply with the requirement of these samples. The contractor are advised to inspect the samples, which shall remain open for inspection with GE during working hours. The contractor shall be deemed to have full knowledge of the samples whether he inspects them or not.

6. ADMISSION TO SITE

6.1 Delete the following from lines 5 to 9 sub-para (1) of Condition 24 of IAFW-2249. "In the event of areas of land -----land allotted to him" and insert as under. "The contractor shall be allotted free of charge the area as approved by the GE for the purpose of erection of temporary workshops stores etc".

6.2 The area so occupied shall be vacated by the certified date of completion and site of work shall be cleared as stipulated in condition 49 of IAFW-2249.

6.3 The persons who are directly employed by the contractor for the purpose of execution of works shall only be allowed to stay and work in these area. The contractor shall ensure that outsiders who are not directly connected with the work do not stay in this area. The GE shall exercise proper check for the same.

6.4 The contractor shall ensure proper sanitation of the area to the satisfaction of the Engineer-in-Charge.

7. WORKING HOURS

7.1 The work under subject contract lies in restricted area. Usually work during six days in the week and remain close on the 7th day. The working hours available to contractor's labour and staff however, accordingly may get reduced because of the time taken in security checks observed at the time of entry exit and during working hours.

7.2 The exact working hours, days and non working days observed for the restricted area where works are to be carried out shall be deemed to have been ascertained by the contractor before submitting his tender.

7.3 Contractor may also be allowed to carry out the work beyond the working hours for that area (day and night) with prior approval of GE but no movements of materials and transport to/out of site of work shall be permitted during night unless special permission is obtained from the GE.

7.4 The contractor shall not carry out any work on gazetted holidays, weekly holidays and other non working days except when he is specifically authorized to do so by GE. The GE may at his sole discretion declare any day as holiday or non working days without assigning any reason for such declaration. No payments shall be admissible for any man/hours loss on this account.

8. MINIMUM WAGES PAYABLE TO LABOUR

8.1 The contractor shall have no claim whatsoever if on account of the local regulation or otherwise he is required to pay wages in excess of the minimum wages shown in the Schedule of minimum wage, except that provided for in condition 63 of IAFW-2249.

SPECIAL CONDITIONS (CONTD...)**9. EMPLOYMENT OF PERSONNEL**

9.1 The contractor shall employ only Indian Nationals as his representative, servant and workman and verify their antecedents and loyalty before employing them for the work. He shall ensure that no person of doubtful antecedents and nationality is in any way associated with the work. If for reasons of technical collaboration or other considerations, the employment of foreign national is unavoidable, the contractor shall furnish the particulars to his effect to the Accepting Officer at the time of submission of the tender.

10. PERIOD FOR KEEPING THE TENDER OPEN

10.1 The tender shall remain open for acceptance for a period of 60 days from the date specified for submission, excluding the date of submission.

11. SIGNING OF CONTRACT DOCUMENTS

11.1 The person signing the tender on behalf of another or on behalf of a firm shall attach with the tender a proper power of attorney duly executed in his favour by such other persons or by all the parties stating that he has authority to bind such other persons of the firm as the case may be in all matters pertaining to the contract including the arbitration clause.

12. OUT OF POCKET EXPENSES

12.1 No out of pocket expenses incurred by the tenderers in submitting his tender shall be reimbursed whether his tender is accepted or not.

13. TIME AND PROGRESS CHART

13.1 The time and progress chart to be prepared as per condition 11 of IAFW-2249 (General Conditions of Contracts) shall consist of detailed net work analysis and a time schedule. The Critical path net work will be drawn jointly by the GE and the contractor soon after acceptance of tender. The scheduling of the activities will be done by the GE and the contractor so as to complete the work in the stipulated time. On completion of the time schedule a firm calendar date schedule will be submitted in four copies within two weeks from the date of handing over the site.

13.2 During the currency of the work contractor is expected to adhere to the time schedule and the adherence will be part of the contractor's performance under the contract. During execution of the work, contractor is expected to participate in the review and updating of the net work undertaken by GE. These reviews may be undertaken at the discretion of GE either as periodical approval measure or when the quantum of work on the contract as substantially changed through deviation orders or amendments. Any revision of the schedule as a result of the reviews will be submitted by the contractor to the GE within a week who will approve it after due scrutiny. The contractor will adhere to the revised schedule thereafter. In case of contractor not agreeing to the revised schedule, the same will be referred to the Accepting Officer whose decision will be final, conclusive and binding. GE's approval to the revised schedule resulting in a completion date beyond the stipulated date of completion shall be not automatically amount to a grant of extension of time. Extension of time shall be considered and decided by the appropriate authorities mentioned in condition 11 of IAFW-2249 and separately regulated.

13.3 Contractor is expected to be mobile and employ sufficient resources to achieve the detailed schedule within the broad frame work of the accepted methods of working and safety.

14. CO-OPERATION WITH OTHER AGENCIES

14.1 The contractor is required to work, in close co-operation and he shall permit free access and generally afford reasonable facilities to other agencies, departmental workmen, etc. working in the same area which may operate here-in-after and during currency of the contract.

SPECIAL CONDITIONS (CONTD...)**15. CLEANING DOWN**

15.1 The contractor shall clean all floors, remove cement/lime/paint drops, clean joinery, glass etc, touch up all painter's work and carry out all other necessary items of work to make the premises clean and tidy before handing over the buildings/works.

16. WATER SUPPLY

16.1 Water will be supplied by the MES from the point shown on site plan or at any point as decided by GE at the recovery rate indicated on tender page of contract. The contractor shall carry out necessary arrangement to draw, store and carry water from these points to work without any charges to Govt. Government will not liable for any damage for intermittent or of failure of supply of water as the case may be on account of any reason.

16.2 If the contractor does not desire to take water supply from MES he shall specifically mention so while submitting his tender and shall make his own arrangement for water required for the entire completion of work, failing which the contractor shall be deemed to have agreed to take water supply from MES. In case the contractor specifically mentioned regarding own arrangement of he will be permitted to drill bore well (s) in the area at his own cost. The well (s) dug/drilled by the contractor shall become property of the Govt without any extra cost. The contractor shall at his own cost, get the water tested from recognized Govt Laboratory about the portability of water and produce the certificate to the GE.

17. ELECTRIC SUPPLY

17.1 In case the contractor desires to buy electricity from MES, it will be supplied at point(s) shown on site plan or at any point as decided by GE.

17.2 Electric supply shall be 415/230 volts, 50 cycles, three phase AC supply.

17.3 The contractor shall be charged for the electric energy consumed at the following rates:

(a) At Rupees 8.08 per unit (KWH) for lighting and power

17.4 The above rates are all in cost rates, Duties and/or taxes if any, levied by State Govt. and/or any Electricity undertaking and the electricity charges will be borne by the Department.

17.5 Electricity shall be supplied from main switches. Main switches and KWH meter to register the power supplied shall be provided and installed by MES. All other fittings, cable, switch, connections etc. for distribution and supply of electric from main switch to work site shall be arranged by the contractor at his own according to Indian Electricity Rules and along the routes approved by the GE. The GE shall have free access to inspect all installation, connections, devices for consuming the electricity and if these are not found satisfactory, the GE shall have the power to get these disconnected.

17.6 Supply of electricity shall be during the hours as decided by the GE, however MES do not guarantee, the continuity of supply and no compensation shall accrue to the contractor for the supply becoming intermittent or if there is any breakdown for any reason.

18. RECORD OF CONSUMPTION OF CEMENT

18.1 For the purpose of keeping record of cement received and consumed in works, the contractor shall maintain a properly bound register in the form approved by the Engineer-in-Charge showing quantities of cement received, used in work and balance in hand at the end of each day. This register shall be signed daily by the contractor's representative and Engineer-in-Charge.

18.2 The register shall be kept at site in the safe custody of the contractor during progress of the work and he shall on demand produce the same for verification of inspecting officer.

19. ROYALTIES

19.1 Delete the existing description of condition 14 of IAFW-2249 and insert the following "No quarries on defence land are available.

SPECIAL CONDITIONS (CONTD...)**20. DAMAGE TO EXISTING WORKS**

20.1 Any damage done to existing structure during the execution of works shall be made good by the contractor at his own cost and site of works left clean and tidy on completion. Rectification or replacement for making good etc shall conform to the standard of materials originally used in the work and finished work shall match with existing work in all respect to the entire satisfaction of the GE. In case of any dispute on this account, the matter shall be referred to the CWE whose decision in writing shall be final and binding.

21. PROPRIETARY/ BRANDED MATERIALS

21.1 Proprietary/branded materials such as bitumen, water proofing compound, etc. quantity of which cannot be checked after incorporation in the work, shall when collected at site to be recorded in measurement book with reference to voucher No, make, brand and rate charged by manufacturer/supplier, and signed both by the MES representative and the contractor.

21.2 The contractor shall obtain proprietary/ branded materials from their authorized stockist where such authorized stockiest have been appointed. Contractor shall produce receipted vouchers showing quantity and quality of the materials to satisfy the Engineer-in-Charge that materials comply with the specification. These vouchers shall be endorsed, dated and initialed by the Engineer-in-Charge giving the contract number and name of the work and a certified copy of each voucher signed both by Engineer-in-Charge and the contractor shall be kept in MES record.

21.3 When cost of each category of materials is less than Rs. 2500/- production of vouchers may not be insisted upon if the GE is otherwise satisfied of the quality & quantity of the materials.

22. STORAGE OF MATERIALS

22.1 The contractor shall not be provided with storage accommodation at the site. The tenderer shall make his own arrangement as per condition 10 of IAFW-2249 and as directed by the Engineer-in-Charge.

23. CONDITION OF WORKING

23.1 The work lies in restricted area. The contractor and his workman shall observe all the Rules promulgated from time to time by the authority controlling the area viz prohibition of smoking, lighting and fire precaution, search workman/agents and transport on entry and exit and keeping to specified route and working hours restriction.

23.2 The contractor, his agents(s)/representative/workman etc and his materials, carts, trucks or other means of transports etc will be allowed to enter through and leave only from such gate and at such time as the GE or authorities in charge of the restricted areas may at their sole discretion permit to be used. The contractor's authorized representative is required to be present at the place of entry and exit for the purpose to identify his carts, trucks etc, to the personnel in charge of the security of restricted area.

23.3 The contractor, his agents and representatives are required individually to be in possession of identity card or pass duly verified by the GE. The identity card/pass will be examined by the security staff at the time of entry into or exit from the restricted area and also at any time inside the restricted area. Every workman shall be in possession of an identity card which shall be issued after a thorough investigation of the antecedents of the labour employed by the contractor and attested by the Engr-in-Charge in accordance with the standing Rules and regulation of the Unit. Contractor shall be responsible for the conduct and action of his men, agents or representatives. Passes shall be returned at any time on demand by Engr-in-Charge and in any case on completion of work.

SPECIAL CONDITIONS (CONTD...)**24. OFFICIAL SECRET ACT**

24.1 Refer condition 2A of General Conditions of Contract IAFW-2249. The Contractor's attention is invited to the Indian Official Secret Act 1923 (XIX of 1923), particularly Section 5 thereof. The contractor shall be bound by the provisions of this Act.

25. RETENTION MONEY/COMPENSATION FOR DELAY

25.1 Refer Condition 64 of IAFW-2249 (Advance on account) and Condition 50 of IAFW-2249 (Compensation for Delay).

26 ROCK MET IN EXCAVATIONS

26.1 If during excavation rock is met with, GE will be informed of this in writing by the contractor. The nature/type of rock met with will be decided by the GE, whose decision shall be final and binding. If the nature of rock met with is 'hard rock' the same will be priced and paid as excavation in hard rock at the rates as applicable to this contract. Hard rock obtained from excavation shall be properly stacked, measured and recorded in measurement book and will be the property of the contractor. The credit at the rate of Rs. 500.00 per cubic metre of hard rock obtained shall be recovered from the contractor. The measurement shall be signed by Engineer-in-charge and contractor. The hard rock obtained thus can be reused in the execution under this contract subject to fulfillment of requisite specifications specified here-in-after and after approval of GE.

27. FEMALE LABOUR

27.1 If the contractor desires to employ female labour on works to be carried out inside the area of a Factory, Depot, Park etc and a female searcher is not borne on the authorised strength of the Factory, Depot, Park etc, at the time of submission of the tender, he shall be deemed to have allowed in his tender for pay and allowances etc. for a Female Searcher (Class (IV) servant/GP 'D' servant) calculated for the period female labour is employed by him inside that area. If more than one contractor employees female labour during any month and female searcher has/have to employ female searcher in addition to the authorised strength of the Factory, Depot, Park etc the salary and allowances paid to the additional female searcher (s) shall be distributed on an equitable basis between the contractors employing female labour taking into consideration the value and period of completion of their contracts. The GE's decision in regard to the amount payable on this account by any contractor shall be final and binding.

28. VALUATION OF DEVIATIONS APPLICABLE ONLY FOR LUMP SUM CONTRACTS BASED ON PRE-PRICED SCHEDULE 'A'

28.1. Ref condition 62 (B) of the General Conditions of Contracts (IAFW 2249).

28.2 Items of work involved in deviation order for which there are no rates in MES Schedule shall be priced in accordance with the conditions 62(G) of IAFW 2249.

29. RE-IMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"

29.1 The rates quoted by the contractor shall be deemed to be inclusive of all taxes/cesses viz GST, duties, Royalties, Octroi & other levies payable under the respective statutes. No reimbursement/refund for variation in rates of taxes, duties, Royalties Octroi and other levies, and/or imposition/abolition of any new/existing taxes/cesses, duties, Royalties, Octroi & other levies shall be made except as provided in sub para 29.2 here-in-below.

SPECIAL CONDITIONS (CONTD...)

- 29.2 (a) The taxes/cesses which are levied by Govt at certain percentages rates of contract sum/Amount shall be termed as "taxes directly related to contract value" such as GST, Labour welfare cess/tax and like as applicable but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all "taxes directly related to contract value" with existing percentage rates as prevailing on last due date for receipt of tenders. Any increase in percentage rates of "Taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be reimbursed to the contractor and any decrease in percentage rate of "Taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the contractor to the Govt/deducted by Govt from any payment due to the contractor. Similarly imposition of any new "taxes directly related to contract value" after the last due date for receipt of tenders shall be reimbursed to the contractor and abolition of any "taxes directly related to contract value" prevailing on last due date for receipt of tenders shall be refunded by the contractor to the Govt/deducted by the Govt from the payments due to the contractor.
- (b) The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any further "taxes directly related to contract values", give written notice thereof to the GE stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The contractor shall submit the other documentary proof/information's as the GE may require.
- (c) The contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorised representative of Govt, and shall further, at the request of the GE furnish, verified in such a manner as the GE may require, any documents so kept and such other information's as the GE may require.
- (d) Reimbursement for increase in percentage rates/imposition of "taxes directly related to contractor value" shall be made only if the contractor necessarily & properly pay additional "taxes directly related to contract value" to the Govt, without getting the same adjusted against any other tax liability or without getting the same refunded from the concerned Govt Authority and submits documentary proof for the same as the GE may require.

30. GUARANTEE FOR ANTITERMITE TREATMENT

30.1 Should the GE at any time during construction or reconstruction or prior to the expiration of period of ten years after the certified date of completion of work as per contract finds that buildings have been infested with termites, the contractor shall on demand in writing from the GE, specifying the building(s) complained or notwithstanding the same may have been in advertantly passed, certified and paid for forthwith under take to carry out such treatment as may be necessary to render (the paid building) free from termite infestation at his own expense for period of ten years from the certified date of completion and in the event of failing to do so with in a period to be specified by the GE in his demand aforesaid, the GE shall undertake such treatment at the risk and expenses in respect of the contractor. The liability of the contractor under this condition shall not extend beyond the period of five years from the certified date of completion unless the GE has previously given notice to the contractor. Conditions of contract (IAFW-2249) shall be deemed to be amended to the extent as mentioned above.

30.2 An amount of security deposit equal to the individual security deposit calculated, based on the amount of antitermite treatment at contract rates for the buildings for which treatment to be carried out shall be retained out of the final bill amount towards security deposit for antitermite treatment and shall be refunded to the contractor after expiry of the period of ten years from the certified date of completion by the GE provided there are no termite infestation in the buildings. Conditions 10.46 and 68 of General Conditions of Contracts (IAFW-2249) shall be deemed be to amended to the extend mentioned above.

SPECIAL CONDITIONS (CONTD...)**31. GRANITE STONE PLATE FOR GUARANTEE**

31.1 The contractor, within four weeks from the certified date of completion, shall provide a black granite stone plate of size 90 cm x 60 cm x 1.5 cm at a prominent place/location of each building as directed by the GE having engraved the following information/details on the plate:-

- | | |
|--------------------------------|---|
| (a) Job No | (g) Date of commencement |
| (b) CA No & year | (h) Detail of completion (phase-wise) |
| (c) Name of work | (j) Date of expiry of defect liability period |
| (d) Name of contractor | (k) Date of expiry of guarantee period given against ATT & water proofing treatment over roof/terrace |
| (e) Name of GE | |
| (f) Name of Engineer-in-Charge | |

31.2 Granite stone plate shall be fixed over 15 mm thick cement screed in cm (1:3)

31.3 All figures /words engraved shall be painted with golden paint of approved make.

31.4 The cost of above is deemed to included in the lump sum amount quoted by the contractor against Schedule 'A' Part-I.

32. ADVANCE ON ACCOUNT OF MATERIALS WHICH DOES NOT LOSS IDENTITY (APPLICABLE FOR CONTRACT OF VALUE Rs.50 LAKHS AND ABOVE)

32.1 Refer condition 64 of the General Condition of Contract (IAFW- 2249) Advance on Account.

32.2 The Condition 64 of the General Condition of Contracts shall be deemed to be modified to the extent mentioned here-in-after. Add the following in continuation of para 8 "Provided further the contractor may be paid advance on account to the full value of the under mentioned materials only, brought on the site, on his furnishing Guarantee Bond(s) from a Scheduled Bank for the amount of retention money which should otherwise be recoverable from him under contract :-

- | | |
|---|---------------------|
| (a) Sanitary fittings. | (f) LT Pannel board |
| (b) Factory made door shutters. | (g) Tiles |
| (c) Factory made PVC/pressed steel Chowkats | (h) Steel Windows |
| (d) Electrical fittings | (j) Transformer |
| (e) Feeder pillar box. | |

32.3 The Bank Guarantee Bonds shall be executed for a period of 24 months and on a form as directed by the Accepting Officer. The contractor shall further arrange to extend the period of Guarantee Bond if and when necessary, as directed by the Accepting Officer or shall furnish fresh guarantee bond(s) of similar value in lieu. It shall be noted that advance on account to the full value of materials brought on the site is permissible only in respect of fittings and fixture and other manufactured items which do not lose their identity materials.

SPECIAL CONDITIONS (CONTD...)**33 QUALIFIED TRADESMEN**

33.1 The compliance with the condition 26 of IAFW-2249 (General Conditions of Contract), the contractor shall employ skilled/semi skilled tradesmen who are qualified and possessing certificate in particular trade from Industrial Training Institute (ITI)/National Institute of Construction Management and Research (NIC-MAR)/ National Academy of construction (NAC) Hyderabad Similar reputed and recognised Institute by State/Central Government to execute the works of their respective trade. The number of such qualified tradesmen shall not be less than 25% of total skilled/semi skilled tradesmen required in each trade. The contractor shall submit the list of such tradesmen alongwith requisite certificates to Garrison Engineer for verification and approval. Notwithstanding the approval such tradesmen by GE, if the tradesmen are found to have inadequate skill to execute the work of their trades, leading to unsatisfactory workmanship, the contractor shall revoke such tradesmen within a week after written notice to this effect by the GE and shall engaged other qualified tradesmen after prior approval of GE. GE's decision whether a particular tradesmen possesses requisite qualification, skill and expertise commensurate with nature of work, shall be final and binding. No compensation whatsoever on this account shall be admissible.

34. FEES CHARGEABLE BY POLICE AUTHORITIES FOR VERIFICATION OF ANTECEDENT

34.1 Verification of antecedents of Proprietor/partner/Directors of the firm in connection with issue of tender and of Enlistment shall be Govt responsibility and accordingly payment to police authorities towards verification of antecedents shall be borne by Govt.

34.2 Verification of antecedents of Contractor's representatives/labour deployed at site in connection with execution of work under the contract, as per security requirement of User Unit/Installation shall be the responsibility of the contractor and all expenses in connection with verification of antecedents by Police Authority/Security Agency shall be borne by the contractor.

35. TESTING OF MATERIALS

35.1. **A level Test for works costing 100 Lakhs and above** : The contractor shall set up site laboratory for testing of materials (except Sch 'B' materials) for 'A' level tests as listed in Appx 'B'. The contractor shall arrange all equipment / machines for the tests specified in Appx 'B' as A level tests at his own cost with prior approval of GE/AGE (I). This cost shall be included in the lump-sum costs quoted by the contractor. The contractor shall employ a competent technical representative as approved by the GE/AGE (I) for the purpose of testing and all such tests shall be carried out in the presence of Engr-in-charge. The successful tests results thereof shall be recorded and signed jointly by the contractor and the Engr-in-charge. The charges for these test i.e. A level tests carried out in site laboratory of the contractor shall not be recovered. In case, the contractor has not set up the site laboratory and the tests are carried out in zonal or any other laboratory set up/approved by GE/AGE(I), the recovery shall be made at rates applicable i.e as given in Appx 'B'.

35.2 **A level Test for works Costing upto 100 Lakhs** : The contractor may set up site laboratory at his option for works costing upto 100 lakhs. The other stipulations will be same as specified in preceding para 37.1. However in case the contractor has not set up the site laboratory and tests are carried out in zonal or any other laboratory approved /set up by GE / AGE (I), the recovery shall be made at rates applicable i.e. as given in Appx 'B'.

35.3 **B & C Level Tests** : For tests of 'B' & 'C' level as indicated in Appx 'B', the contractor shall provide all facilities for testing of materials at Zonal laboratory/Govt. approved laboratories or test house/Engg. Colleges at his own cost. The lump sum / rates quoted by the contractor shall deemed to be inclusive of these tests. The rates of various tests conducted in laboratory of MES are indicated in Appx 'B'. The contractor shall bear the actual charges of 'C' level tests (to be done in labs other than MES labs) irrespective of rates indicated in Appx 'B'. Wherever it is convenient to get 'B' level test done at approved test house/Engg. College, the same can be done at the cost of the contractor and no separate recoveries will be made by the Department for the same.

SPECIAL CONDITIONS (CONTD...)**36. YARD STICK FOR PAYMENT THROUGH RAR**

36.1 The payment through RAR in respect of Schedule 'A' Part-I (Lump Sum building work portion) shall be prepared by the GE and shall be got approved from CWE. The payments through RAR for other Parts except Schedule 'A' Part-I and all Deviation Orders shall be made as per actual measurement at site. Also refer Condition 64 of IAFW-2249 (General Conditions of Contracts).

37. **QUALITY CONTROL** : The Contractor shall be required to submit Quality Control Plan as per format given in Appx 'D' to the particular specifications within 30 days of commencement of contract.

38. TESTING OF MATERIALS

38.1 All the materials to be incorporated in the work shall be subjected to quality control tests as per the testing procedure and frequency as laid down in relevant IS and as indicated in the tender.

SIGNATURE OF CONTRACTOR
DATE:_____

SSW
FOR ACCEPTING OFFICER

PARTICULAR SPECIFICATIONS**A. GENERAL: APPLICABLE TO ALL SCHEDULE 'A' PARTS****1. GENERAL**

1.1 General Rules, Special Conditions and Preamble to various Parts given in the MES Standard Schedule of Rates Part I, 2009 and Part – II, 2010 shall be deemed to be applicable to the work under this contract. Materials and workmanship required to be incorporated in these works and services shall be as given under specification and workmanship in the various trade section of the MES Standard Schedule of Rates mentioned here-in-before duly modified by the Particular Specifications and notes on the drawings.

1.2 Particular specifications given here-in-after are only to particularise, amend or to emphasize the aforesaid specifications in the MES Schedule which is not repeated here.

1.3 Particular specifications given hereinafter shall be read in conjunction with the provision in the MES Schedule and the relevant IS referred to therein. In case of any discrepancy, the provision in these particular specifications shall take precedence. The contractor shall not take cognizance of notes appearing on the drawings regarding the bearing capacity of soil as the same are for departmental purpose only while designing the foundations etc.

1.4 Lump sum quoted by the tenderer shall be deemed to include for any details/items of work and/or construction which are obviously and fairly intended and which may not have been included in these documents but which are essential for the execution and entire completion of the work.

1.5 Decision of the Accepting officer as to whether any minor detail of work and/or construction is obviously and fairly intended to be included in the contract shall be final, conclusive and binding.

1.6 However, some of the items which shall be deemed to be essential for execution and entire completion of work are detailed as under: -

- (a) Reinforcement for any RCC member not indicated in the drawings (minimum reinforcement as per relevant IS shall be provided).
- (b) Dwarf wall in situation like verandah, passage, ramp, etc. not indicated.
- (c) Lintels over doors, windows and opening not indicated.
- (d) Fittings to doors, windows, ward robes and such other built-in-furniture items not shown.

1.7 In all the above and similar cases, the details indicated else where in the drawings which are similar or near to the missed items of work shall be followed. In the absence of any other similar or near details, minimum essential requirement to complete the work from structural and utility point of view shall be deemed to be included in lump sum quoted. In the event of dispute, decision of the Accepting officer thereon shall be final, conclusive and binding.

2. SCOPE OF WORK

2.1 This contract covers all the works as described in Schedule 'A', particular specifications and as shown on drawings and other documents forming part of this tender.

PARTICULAR SPECIFICATIONS (Contd...)

2.2 In particular specifications, approved list of manufacturers for panel doors, steel windows, pressed steel doorframes and other items have been given. Contractor shall obtain the aforementioned items from one of the approved manufacturers only subject to prior approval of sample by the GE. However, it will not absolve the contractor from ensuring that the products supplied are conforming to the relevant IS in all respects before procuring the sample for approval by the GE and before procuring the product for incorporation in the work.

3. DIMENSION

3.1 In laying out building and other structure, the dimensions mentioned in drawing or deduced there from shall be strictly followed.

3.2 Where specifications for any item of work are not given in MES schedule or in these particular specifications, specifications as given in relevant Indian Standard or Code of practice shall be followed.

3.3 Any drawing which is mentioned in the drawings forming part of the tender but not specifically mentioned in the list of drawings shall deemed to be forming part of the tender. The tenderer shall see such drawings/details in the office of Accepting Officer/ GE.

3.4 In all above and other similar cases, the details indicated elsewhere in the drawings which are similar or near similar to the missed out items of work shall be followed. In the absence of any other similar or near similar details, minimum essential requirement for completion of the work from structural and utility point of view and in sound Engineering practice shall be deemed to be included in the lump sum quoted. In the event of any dispute, decision of the Accepting Officer shall be final and binding.

4. MATERIALS

4.1 All materials, fittings and fixture used in the work shall unless otherwise specified, comply with the requirements of the relevant Indian Standard of the year of publication (Edition) as specified in the MES Sch-2009, Part-I. The Contractor may, however, at his own discretion, provide and incorporate in the works such materials complying with the requirements of any subsequently amended or revised edition of the IS without any adjustment in the quoted rates.

4.2 All materials to be supplied by the Contractor for incorporation in the work shall conform to relevant specification. In case specification of any materials needed for incorporation in the works is not contained in any of the contract documents, the specification of such materials proposed to be incorporated in the work shall be got approved in writing from the GE before their incorporation by the Contractor.

4.3 Samples of all materials, fittings and fixtures shall be submitted by the Contractor to GE for his approval through Engineer-in-Charge. The Contractor shall not commence the work until the samples are approved in writing by GE. The Contractor shall ensure that all the materials incorporated in the work are identical in all respect with the approved samples.

4.4 The brands of all materials, articles etc approved together with name of manufacturers and firms from which supplies have been arranged shall be recorded in the sample approval register.

4.5 The materials which are specified in Sch 'A' & Particular specifications shall be conforming to sample kept in GE's Office. The Contractors are advised to inspect the samples which shall remain open for inspection with GE. The Contractor shall be deemed to have full knowledge of the specifications of these samples whether he inspects them or not.

PARTICULAR SPECIFICATIONS (CONTD...)

4.6 Manufactured materials/articles shall be brought at site in original sealed packing bearing manufacturers marking unless the quantity required is a fraction of smallest packing. The contractor shall on demand produce to GE original purchase Vouchers/Invoices for the full quantity of materials produced.

4.7 Materials such as aggregates etc shall generally conform to the samples kept in GE's office in addition to their conformity with relevant specifications given in the tender documents. The sources for the all such materials shall be got approved from GE.

4.8 **MATERIALS AND THEIR TEST** : The rates quoted are deemed to include for all tests as specified and as required in IS. The tenderer shall not be allowed any claim on this account. All tests are mandatory and shall be carried out as per standard method of testing. The list of testing of materials and their level of test is enclosed in Appendix 'B' to this Particular Specifications.

4.9 As far as practicable all manufactured materials/articles other than those manufactured in contractor's workshop at site shall bear IS certification marks. In case, any articles not bearing IS certification marks but conforming to a relevant specifications is proposed to be incorporated in the work samples of the same shall be got approved in writing from GE before their incorporation in work. The contractor shall submit sufficient evidence to the GE to show that such articles conform to the relevant specifications and no adjustment shall be made on this account.

4.10 Manufactured materials/articles shall be brought at site in original sealed containers, packing, bearing manufacturers marking unless the quantity required is a fraction of smallest packing.

4.11 Materials of proprietary nature such as paints, water proofing compound, chemicals for water proofing treatment and the like, quantity of which cannot be checked after incorporation in the work shall be measured and recorded in the measurement book as soon as these are brought at site. These measurements shall be signed both by the Engr-in-Charge and authorised representative of the contractor. Original stamp receipted bill along with the relevant invoices from the manufacturer or authorised dealers (if any) in support of having brought the full quantity required for incorporation in the work, shall be produced to the Engr-in-Charge.

4.12 Original stamp receipted bill/vouchers alongwith invoices and a zerox copy of each for the following item for the full quantity shall be produced to the Engr-in-charge before these items are considered for payment through RAR:-

- (a) Cement.
- (b) Steel
- (c) WPC, APP Membrane, ATT
- (d) Paint
- (e) GI Pipe
- (f) Kota Stone, Tiles
- (g) Plumbing Items
- (h) Cable, MCCB, MCB

4.13 Further the contractor shall be liable to produce any other voucher etc, in respect of other items/materials as and when asked by the GE /Engr-in-Charge. The Engr-in-Charge shall keep the zerox copy duly certified by him and return the original to the contractor after defacing the original voucher.

4.14 In case of non-availability of test certificate for a particular item from national test laboratories and if such test certificate is considered necessary by the GE, he may ask the contractor to get the test carried out the item from laboratory as approved in writing by the GE. The testing charges shall be borne by the contractor and no extra payment for the cost of testing shall be entertained by the Dept.

4.15 The contractor shall carry out such instructions that are given to him in writing by Engr-in-Charge to ensure that full quantity of such materials incorporated in the work.

PARTICULAR SPECIFICATIONS (CONTD...)

4.16 Integral water proofing compound (WPC) shall conform to IS-2645 and brand shall be got approved in writing from GE. Preparation of mix and method of mixing shall be as per manufacturer's instruction, while pricing deviation for omission, the quantity shall be considered as 3% by weight of cement.

4.17 Lime shall conform to IS-712. Classes of lime for different items of work shall be as specified in MES Schedule.

4.18 Letter conveying approval of samples/materials by GE /Engr-in-Charge will entirely, mentioned source of supply, name of manufacturers, trade name/brand (if applicable) and reference to clause of contract containing specification of particular materials.

4.19 Materials such as aggregates etc shall generally conform to the samples kept in GE office in addition to their conformity with relevant specifications given in the tender documents. The sources for all such materials shall be got approved from GE. Sources of some of the materials are indicated below.

Note : Please note that the source given below are for guidance only, Contractor has to ascertain the availability of materials from the source given below before quoting their offer. In case of non availability/scarcity of materials in the sources given below, no claim what-so-ever on this account shall be entertained by the Govt at later stage.

<u>MATERIALS</u>	<u>SOURCE</u>
(a) Sand coarse for PCC/RCC Work	: BALASON/MAHANANDA RIVER
(b) Sand fine for plaster/mortar	: - do -
(c) Broken stone aggregates	: -do-
(d) Crushed stone aggregates	: ETHELBARI
(e) Bricks	: Locally available best quality

5. EXCAVATION AND EARTH WORK

5.1. Excavation and earth work shall be deemed to be in soft/loose soil. However during excavation if hard/dense soil is met with which can neither be treated as soft rock nor hard rock within the definition given in MES Schedule part-I, the same shall be treated as any type of soil and the excavation in such earth shall be deemed to have been included in the quoted lump sum of the building in Schedule 'A' part-I. In case rock is met with the same shall be ordered as deviation.

5.2 Lump sum quoted by the contractor shall not include use of timbering to uphold sides of excavation. If timbering is ordered by the GE in writing it will be paid extra as deviation to the extent required/ordered in writing.

5.3 Hard rock met with during excavation shall be entered in the measurement duly signed by GE and contractor and same shall become the property of contractor for which recovery at the rate of Rs. 600.00 per cubic meter (solid contents of excavation shall be made from contractor's payments). The hard rock so obtained may be allowed to be used in the work by GE provided it meets the specified requirements. Locations etc where it is to be used shall be decided by GE whose decision shall be final and binding. In no circumstances blasting will be permitted for excavating hard rock.

5.4 Lump Sum quoted by the contractor shall be deemed to include site clearance and surface dressing for the area covered by the building and up to a wide of 3 meters beyond the edge of the plinth protection around the building as per para 3.6 and 3.10 of MES Schedule Part-I.

5.5 The ground level shown in the drawings are ground level after site clearance/surface dressing is carried, thereafter excavation in trenches or over areas will be carried out as shown on drawings.

PARTICULAR SPECIFICATIONS (CONTD...)

5.6. Lump sum quoted by the tenderer shall be deemed to include for bailing pumping and de-water foundation trenches, if water is met with or accumulated from any source or cause. No additional payment as stipulated in para 3.17 of MES Schedule Part-I will be admissible. In the event of deviation no price adjustment shall be for cost of bailing, pumping etc. and de-watering as specified here-in-before whether these are actually required and done at site or not.

5.7 EXCAVATION IN TRENCHES AND OVER AREAS

5.7.1 Excavation in trenches and over areas shall be carried out in soft/loose soil and as specified in respective class here-in-before and as described in Paras 3.13.1 to 3.13.4 of MES Schedule Part-I. Bailing and pumping of water, if required, will be done as described in Para 3.17 of MES Schedule Part-I. No extra payment shall be admissible for the above mentioned operation. In the event of deviation no adjustment shall be made for cost of bailing pumping and de-watering as specified here-in-before.

5.8 FILLING IN TRENCHES, PLINTH AND UNDER FLOOR

5.8.1 Filling excavated earth in foundation trenches shall be carried out as per Para 3.19.1, 3.19.2 and 3.19.3 of MES Schedule Part-I. Earth obtained from excavation and not approved for filling or surplus to the requirement shall be removed to a distance as directed by Engr-in-Charge. If any additional earth is required in filling, it shall be obtained from sources approved by Engineer-In-Charge outside of MD land and the cost of same shall be deemed to be included in lump sum quoted by the contractor. No claim what-so-ever shall be entertained by the Govt on this account.

5.9 **HARD CORE** : Refer Para 3.27 of MES Schedule (Part-I) 2009 as applicable.

5.9.1 The material for hard core shall be of broken stones or boulders of gauge not exceeding 63mm.

5.9.2 The hard core shall be spread, watered and rammed. The thickness of hard core shown in drawing is the consolidated thickness.

6. PRE-CONSTRUCTION ANTI TERMITE TREATMENT

6.1 Refer Para 3.26 of MES Schedule Part-I.

6.2 Pre-constructional anti-termite chemical treatment to bottom and sides of foundation trenches/pits, filling in trenches/pits, and below floors, junctions of walls and floors, external perimeter of buildings/plinth protection and surrounding s of conduits/pipes of all buildings, shall be carried out al as specified in clause 3.26 of MES Schedule Part-I.

6.3 Anti-termite treatment shall be got done through approved specialist agency which is member of India Pest Control Association holding valid license as per clause 13 of Insecticides Act 1968. Persons employed to do the anti-termite treatment shall be qualified as per Rule 10 of Rules framed under the Inspection Rules 1971. The specialist agency may be any one from the list circulated by E-in-C's Branch which are located and active in the area with prior approval of GE. However, if the contractor himself is enlisted for anti-termite treatment also, he may carry out anti-termite work himself.

6.4 Anti-termite treatment shall be carried with chemicals "Chloropyriphos" 20% conforming to IS as specified in the MES Schedule, Purchased directly from the manufacturer or his authorized agent. Contractor will not be allowed to use chemicals banned by the Government of India and contractor shall have no claim on this account. Chemical brought to site in sealed container and bearing IS mark shall only be used in the work. Purchase voucher shall be produced before the GE for verification and defacement against this contract.

PARTICULAR SPECIFICATIONS (CONTD...)

6.5 The defect liability period of the anti termite treatment shall be 10 years and the contractor shall guarantee to keep the site building area free from termite infestation for the period of 10 years after the work has been handed over to GE on completion. The contractor may obtain a similar guarantee from the specialist firm engaged by him for the purpose. An amount equal to the individual security deposit of the cost of anti termite treatment at contract rates shall be deducted from final bill as a guarantee for anti termite treatment which shall be release after 10 (TEN) years of guarantee period.

6.6 Should the GE at any time during the construction or prior to expiry of said guarantee period of 10 years find that the building have been infested with termite, the contractor, on demand in writing from the GE will fort with undertake to carry out such treatment which may necessary to render the buildings free from termite infestation at his own expense till expiry of guarantee period of ten years. The guarantee shall also be applicable to wood work and joinery as specified here-in-after.

6.7 In the event of contractor's failure to comply with the GE's direction within the stipulated period, the work shall be got carried out at the risk and cost of the contractor. The liability of the contractor under this condition shall not be however, extended beyond the period of 10 years from the certified date of completion unless the notice was served on the contractor previously to rectify such defects.

6.8 The contractor shall provide a plaster plate of requisite size in situation as decided by the Engineer-in-charge on the wall of each of the building. The plate shall be 10 mm thick in cement sand mortar (1:4) to indicate the CA NO., Name of the contractor, the date of completion of the work and the probable date of expiry of 10 years guarantee for Antitermite treatment by engraving and painting (black). The cost of plaster plates is deemed to be included in the unit rates of the buildings.

7. PLINTH PROTECTION WITH DRAIN

7.1 Unless otherwise specified in drawings/here-in-before, plinth protection shall be 75 mm thick PCC (1:3:6) type C1 (20mm graded stone aggregate), over 75mm thick (consolidated thickness) hard core over rammed earth. Plinth protection shall be laid in 1:40 slope. The concrete shall be laid at stretch not exceeding 3 metres in length. Top surface of concrete shall be finished even and smooth without using extra cement. Joints between adjoining slabs shall be exceed 10mm in thickness and shall be filled with bitumen mastic i.e. bitumen and sand is in proportion 1:2. Hard core for plinth protection shall be crushed/broken stone aggregate (at the discretion of contractor) conforming to IS-383, not exceeding 63mm gauge). Unless otherwise specified in drawings, the width of plinth protection shall be 750mm wide.

7.2 Wherever drain alongwith plinth protection shown on drawings the same be of size as shown on drawings. The PCC drain shall be in PCC (1:3:6) type C-1(20mm graded stone aggregate) and the inside surface of the drain shall be finished smooth with using extra cement.

8. CONCRETE WORK**8.1 MATERIALS****8.1.1 CEMENT**

8.1.1.1 **TYPE OF CEMENT** : Cement shall be ordinary Portland cement Grade 43 conforming to IS : 8112 of 1989 (latest edition) or Portland Pozzolana Cement conforming to : 1489 of 1991.

PARTICULAR SPECIFICATIONS (Contd...)

8.1.1.2 The following checks and procedures shall be followed before the cement supplied by the contractor is accepted and is approved for incorporation in the works. The contractor may procure cement from any manufacturer mentioned in the list given below or from any manufacturer not listed below but approved by E-in-C's branch.

(a) Procurement

- | | |
|---|------------------------------|
| (i) The Associated cement Companies | (ii) Grassim Industries Ltd |
| (iii) Ultra Tech Cement | (iv) The India Cement |
| (v) Dalmia cement | (vi) Andhra Cement |
| (vii) Century Cement | (viii) Saurashtra Cement |
| (ix) Binani Cement | (x) Nadras Cement |
| (xi) Manalam Cement | (xii) Birla Corp Ltd |
| (xiii) Orient Cement | (xiv) Lafarge Cement |
| (xv) Shree Cement | (xvi) Lakshmi Cement |
| (xvii) J K Cement | (xviii) Gujrat Ambija Cement |
| (xix) Jaypee Rewa Cement | (xx) Star Cement, Maghalaya |
| (xxi) M/s Meghalaya Cement Guwahati (Brand : TOPCEM). | |
| (xxii) M/s N K Cement Pvt Ltd , Agartala (Tripura) {For OPC only} | |

(b) **Testing of Cement** : The manufacture/supplier shall carry out inspections and testing of cement in accordance with the relevant BIS provisions. The Contractor shall submit the Manufactures Test Certificate in original along with the Test Sheet giving the result of each physical test as applicable and chemical composition of the cement or authenticated copy thereof. The Engineer-in -Charge shall record these details in Cement Acceptance Register, after due verification. The GE shall also organize independent testing of random samples of cement drawn from various lots from the National test House. SEMT CME, Regional Research laboratories or from any Govt Engineering college as per IS-3535-1986 (Method of chemical analysis of hydraulic cement.). In order to undertake departmental testing, requisite facilities shall be organized.

(c) **Storage** : Cement shall be stored over dry platform at least 20 cm high in such a manner as to prevent deterioration due to moisture or intrusion of foreign matter. In case of store rooms, the stack shall be at least 20 cm away from floors and walls, Inspection of storage shall be carried out by Eng-in-Charge or junior Engineer specifically detailed by him in writing, once a day. It shall be ensured that tested and untested cement are segregated and stored separately with distinct identification.

(d) **Documentation** : The Contractor shall submit original vouchers the of the supplier for the total quantity of cement supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the GE along with the relevant documents before acceptance. The original vouchers and test certificate shall be defaced by the Engineer-in-Charge and kept on record in the office of GE duly authenticated and with cross reference to the control Number recorded in the cement Acceptance register. The Cement Acceptance Register will be signed by Junior Engineer, Engineer-in-Charge, GE and the contractor. The Accepting Officer may order Board of Officers for random check of cement and verification of connected documents. The entries quantity of all cement shall also be suitably recorded in the Measurement book for record purposes before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

PARTICULAR SPECIFICATIONS (Contd...)

8.1.1.3 The following condition shall have to be satisfied before PPC can be allowed to be used in the work :-

- (a) PPC should meet the strength criteria of 43 grade OPC as laid down IS 8112 – 1989.
- (b) The minimum period before striking off formwork while using PPC shall be as given in PS clause here-in-after.
- (c) In cold climate region where temperature is lower than 15 degree Centigrade only OPC shall be used.
- (d) Mixing of OPC & PPC shall not be allowed in a work. However with the strict control of ground executives different building can have different types of cement.
- (e) While procuring PPC, the following requirement are to be ensured and certificate to the effect is to be obtained by the contractor for each batch from the manufacturer and the same shall be submitted to the GE for approved to procure PPC.
 - (i) The quality of fly ash is strictly as per IS-1489 (Part I) -2002.
 - (ii) Fly ash is inter ground with clinker not mixed with clinker.
 - (iii) Dry fly ash is transported in closed containers and stored in silos. Only pneumatic pumping should be used.

8.1.1.4 The fly ash received from thermal power plants using high temperature combustion above 1000 degree centigrade should be used.”

8.1.1.5 Identification and marking of cement bags by the manufacture shall be as per relevant ant BIS codes.

8.1.1.6 The entire lot of cement brought by contractor to the site shall be removed by contractor under his own arrangements and at his own cost, whenever the test results are not found within the prescribed acceptable limits. Decision of GE in this respect shall be final and binding.

8.1.1.7. The cost of all tests including cost of transportation shall be borne by contractor irrespective of test results.

8.1.1.8 The proper accommodation for storages, preservation and maintenance of cement shall be provided by the contractor at his own cost till consumption of cement in the work at the place(s) decided by GE. All arrangement for proper storage and safety of cements as indicated here-in=before shall be made by contractor at his own cost. The cement storage accommodation shall be provided with two locks at each door. the key of one lock at each door shall remain with the Engineer in charge or his representative and that of other lock shall remain with the contractors authorised agent at site of works so that cement is removed from the godown/storage accommodation according to daily requirement with the knowledge of both parties.

8.1.1.9 Schedule of supply of cement shall be worked out by contractor in consultation with GE so as to match with the progress contemplated in CPM Chart prepared for this project.

8.1.1.10 **WEIGHING AND PAYMENT FOR CEMENT**

8.1.1.10.1 Random samples of 5 bags per 100 bags shall be got weighed by Engineer-in-Charge in presence of representative of contractor from each consignment to arrive at average weight per bag for calculating total quantity of cement brought at site for incorporation in the work. All arrangement for weighing of cement bags including labour etc shall be provided by the contractor at his own cost.

8.1.1.10.2 The quantity of cement arrived at as aforesaid shall be considered for payment as applicable in accordance with IAFW-2249, General Conditions of Contracts.

PARTICULAR SPECIFICATIONS (Contd...)

8.1.1.10.3 Payment for cement shall only be allowed after production of original purchase vouchers, manufacturer's test certificates for each consignment of cement brought by contractor and after the results of random testing carried out by GE are found satisfactory as specified here-in-before.

8.1.2 AGGREGATES

8.1.2.1 **COARSE AGGREGATE (STONE)**: Aggregate for all concrete work shall be crushed stone aggregate conforming to IS-383 and para 4.4 of MES Schedule Part I, 2009. The aggregate also shall be in conformity with the samples kept in GE's office.

8.1.2.2 **FINE AGGREGATE (COARSE SAND)** : Fine aggregate shall be sand conforming to the requirements to IS-383 and para 4.4 of MES Schedule Part . Sand shall be washed in clean water if the deleterious materials exceed the permissible limit. Use of sand confirming to grading Zone-IV of IS-383 shall not be allowed in RCC/PCC work.

8.1.2.3 Grading of coarse aggregate unless otherwise specified shall be as follows: -

<u>SL. NO</u>	<u>DESCRIPTION</u>	<u>GRADING</u>
(a)	For Reinforced/Structural Element of depth/thickness 50mm or under	: 12.5mm graded
(b)	For Reinforced/Structural Element of depth/thickness over 50mm	: 20mm graded
(c)	For Plain Cement Concrete thickness exc. 25mm but not exc. 75mm	: 20mm graded
(d)	For Plain Cement Concrete thickness 75mm and over	: 40mm graded
(e)	Lime Concrete	: 40mm graded

8.1.2.4 Grading of coarse aggregate for plain and reinforced concrete i.e. stone aggregate shall be as per para 4.4.7 (I) of MES Schedule part-I and grading of fine aggregate sand shall be as per para 4.4.7(2) of MES Schedule Part-I

8.1.2.5 **AGGREGATES FROM NATURAL SOURCES** : Aggregates obtained from natural sources shall not contain any type of harmful materials and shall be cleaned in all respect.

8.1.3. **WATER**: Refer para 4.9 & 4.9.2 of MES Schedule Part I. Water shall conform to clause 5.4 IS-456-2000 in case water is drawn by the contractor from his own sources as mentioned in Special Condition Clause No 12 of these tender documents.

8.1.4 PLASTICISER

8.1.4.1 Plasticiser shall be used in Design Mix Concrete as per the Manufacturer's instruction without any extra cost to achieve the desired results strength and workability. Plasticiser manufactured by M/S FOSROC CHEMICALS, INDIA LTD, SIKI QUALCRETE LTD OR MC-BAUCHEMIE (INDIA) PVT LTD shall be used. However Plasticiser should confirm to IS-9103.

PARTICULAR SPECIFICATIONS (Contd...)**8.2. WORKMANSHIP****8.2.1. MIX OF CEMENT CONCRETE**

8.2.1.1. Unless otherwise specified, the mix of cement concrete required in various situation shall be of the following specified grade/proportions. Plain cement concrete and the RCC shall be provided in accordance with IS: 456-2000: -

SI No	Situation	Mix of cement concrete	Type with nominal size of graded aggregates
1	2	3	4
(a)	Sub-base of floor	1:4:8	Type D-2 (40mm)
(b)	Lean concrete below RCC column footing	1:4:8	Type D-2 (40mm)
(c)	All RCC work	-	M-25 (Design Mix)
(d)	Lean concrete for wall foundation and dwarf wall.	1:4:8	Type D-2 (40mm)
(e)	PCC in foundation for steps in GF and lean concrete to RCC post of staircase.	1:4:8	Type D-2 (40mm)
(f)	PCC cills, PCC drain, PCC plinth protection and hopper of gully trap and PCC blocks.	1: 3: 6	Type C-1(20mm)
(g)	All PCC bed block and pre-cast Jalli.	1:2:4	Type B-O(12.5mm)
(h)	All plain cement concrete not described in (a) to (g) above	1:2:4	Type B-1(20mm)
(j)	Plain cement concrete below plinth beam where shown on drawings	1: 3: 6	Type C-2 (40mm)

8.2.1.2. All concrete except lime concrete shall be machine mixed. Where small quantities of concrete work is involved, hand mixing may be permitted by the Engineer-in-charge at his own discretion subject to addition of 10% extra cement.

8.2.1.3 Compaction of RCC slabs, beams, foundations and columns shall be done with approved mechanical vibrator using pin and surface type vibrators for all concrete works including for flooring concrete. In other locations compaction may be achieved manually as directed by Engineer-in-charge.

8.2.1.4 For batching, workability, mixing, form work, removal of form work, transportation, placing, compaction, construction joint, curing, protection and inspection of concrete refer relevant paras of MES Schedule Part-I.

8.2.1.5. Sampling and testing of concrete of grade M-25 shall be done as per paras 4.11.17 of MES Schedule part I. Testing of concrete as mentioned in IS-456 shall be carried out by the contractor without any extra cost to the department i.e. cost of samples, transportation and testing will be borne by the contractor. Sampling and strength testing of concrete shall be done in accordance with clause 15 of IS-456.

PARTICULAR SPECIFICATIONS (Contd...)**8.3 SPECIFICATIONS FOR DESIGN MIX CONCRETE : M-25 GRADE**

8.3.1 **CEMENT**: Cement shall be all as specified here-in-before.

8.3.2 **AGGREGATE** : Aggregate shall conform to IS-383 and shall be type basalt/trap granite stone. Aggregate shall be non porous, hard, strong, durable, clear and free from various impurities and adherent coating and shall not contain deleterious materials exceeding the limits specified in the above referred IS. When required by the Engineer-in-Charge, the contractor shall, at his own expenses, carry out any test laid down in IS-383 and IS-2386 to verify that the aggregate complies with the requirements of the IS. The test will be carried out in any Govt laboratory, Govt approved Laboratory, Govt Engineering College as approved by GE.

8.3.2.1 **Coarse Aggregate** : Coarse aggregate shall consist of crushed graded stones aggregates. The maximum size of the aggregate shall be 20mm graded as per IS-383.

8.3.2.2 **Fine Aggregate** : Fine aggregate shall consist of naturally occurring coarse sand, fine aggregate shall conform to Zone II/III of Table IV of IS-383.

8.3.2.3 **Samples** : Samples of the aggregate proposed to be used shall be approved by GE prior to bulk delivery of the same at site of work. Field tests for determining the contents of silt, clay etc., for fine aggregate shall be carried out by the Engineer-in-Charge, from time to time to ensure that material brought to site are in conformity with the samples, approved by the GE.

8.3.2.4 **Grading of Aggregates** : The grading of coarse and fine aggregate shall be as per MES Schedule. Fine aggregate shall have grading as per grading Zone II/III of IS 383-1970. The grading of coarse and fine aggregate shall be checked as frequently as possible. The frequency for the aggregate testing shall be determined by Engineer-in-Charge to ensure that the specified grading is being maintained.

8.3.2.5 **Testing of Aggregate** : Aggregate shall be tested for following properties in accordance with IS mentioned against them:-

(i)	Aggregate particle size & shape	:	IS-2386 Part I
(ii)	Presence of deleterious materials	:	IS-2386 Pt II 1969
(iii)	Aggregate specific gravity, density, voids absorption and bulk density	:	IS-2386 Pt III
(iv)	Aggregate crushing value aggregate impact value and aggregate abrasion value	:	IS-2386 Pt IV
(v)	Aggregate soundness	:	IS-2386 Pt IV

8.3.3 MIX PROPORTION AND STENGTH

(i)	Type of cement	: Ordinary port-land cement, Grade 43 as per IS : 8112-1989 .
(ii)	Aggregate/cement ratio by weight	: As per mix design based on IS-10262 & IS-456
(iii)	Workability	: As per clause 7 of IS-456 – 2000
(iv)	Water cement ratio	: As per mix design based on IS-10262 & IS-456.
(v)	Degree of quality control	: Good (Refer IS-10262)
(vi)	Minimum cement content	: As per table 5 of IS-456, 2000 and as specified here-in-after.
(vii)	Maximum size of aggregate	: 20 mm graded
(viii)	Maximum water cement ratio	: As per table 5 of IS-456, 2000
(ix)	Exposure Condition	: Moderate.

PARTICULAR SPECIFICATIONS (Contd...)

8.3.4 As soon as possible, after receiving the order to commence work, the Contractor at his own expense shall get concrete mix designed from any Govt. approved laboratories/Govt. Engineering Colleges to satisfy the requirements of Clause 2.2.2.3 of Particulars Specifications here-in-above.

8.3.5 The actual proportion of concrete mix shall be arrived at by means of number of trial mixes. First trial mix shall be prepared with the mix proportions arrived at as per mix design and other trial mixes with suitable adjustment in mix proportion.

8.3.6 Six number of cubes of size 15x15x15 cm shall be made from each trial mix. The concrete cubes shall be tested as per IS-516-1959. Out of six cubes, three will be tested after seven days and remaining three after 28 days from the date of casting.

8.3.7 The test after seven days is intended to give an early indication of the strength likely to be achieved at 28 days.

8.3.8 The concrete shall be deemed to comply with the strength requirements of clause 15 and 16 of IS-456-2000 is met with.

8.3.9 Whenever, there is any change in the type of grading of materials, the mix should be re-designed and modified suitably to give the desired compressive strength.

8.3.10 On the basis of above test results, the final design mix will be approved by the CWE. The approval of the CWE shall not relieve the contractor of his responsibility for obtaining the required minimum strength of quality concrete in the work.

8.3.11 Minimum cement content for the M-25 (Design Mix) concrete shall not be less than as Table 5 of IS-456, 2000. In case cement content as per actual Design Mix works out lower than minimum cement content specified, the contractor shall provide minimum cement content as per Table 5 of IS-456, 2000 and nothing extra shall be payable on this account. In case cement content as per actual Design Mix works out more than minimum cement content specified, the contractor shall provide cement content as per approved design mix and nothing extra shall be payable on this account.

8. 4. CAST-IN-SITU/PRECAST ARTICLES

8.4.1 PCC cills, RCC shelves, isolated lintels up to 1.5 metre length (i.e not in continuation with lintel band) may be cast in situ or pre-cast at the discretion of the contractor. In the event of deviation with regards to these items pricing shall be done at appropriate rate in SSR for cast-in-situ articles. Top of such pre-cast articles should be distinctly marked.

8.4.2. Unless otherwise specified all pre-cast concrete articles shall be set and jointed in CM (1:3).

8.4.3 For Assembly and cover to reinforcement refer paras 4.11.7 to 4.11.8.4 of MES Schedule Part-I.

8.5 LINTEL/TIE

8.5.1. Lintel beam and SLT shall be provided as per detailed section shown in structural drawings irrespective of whether the sections are shown or not on architectural drawings. Where lintel band is provided, SLT and lintel with chajja, wherever occurring shall be cast monolithic with the lintel band and the reinforcement higher of the two shall be provided.

PARTICULAR SPECIFICATIONS (Contd...)**8.6. FORMWORK**

8.6.1 Refer Para 4.11.6 and 7.15 of MES Schedule Part I.

8.6.2 Formwork to exposed surfaces of concrete (other than mentioned here-in-after) shall be steel formwork having wrought and smooth surfaces in contact with concrete. However, in case of pricing deviation, form work top exposed surfaces shall be priced as fair finished surfaces at per SSR enhanced by the deviation percentage. Timber planks shall not be permitted.

8.6.3 Form work to exposed surfaces of RCC column, beams, lintels etc which are continuous with the plaster surface of wall and/or to the surface of concrete which are buried in contact with masonry or otherwise shall also be steel formwork.

8.6.4 Exposed surfaces of concrete such as soffits/sides of RCC chajjas, beams, staircase & shelves etc which are not continuous with the adjoining plastered surface shall be finished as specified in Para 4.11.16.2(a) of MES SSR Part-I. However, the soffit of RCC roofs/floor slab shall be plastered with 5mm thick cement mortar (1:3).

8.6.5 Application of non-adhering oils such as used engine oils or bitumen based paints to inside of forms is not permitted.

8.6.6 Provide steel props/spans/bracings of sufficient strength such as ACROW props, ACROW spans from ACROW Indian Ltd, Bombay or similar as approved by the GE. Use of conventional wooden ballies (posts), struts that is other than steel member are not permitted.

8.7. CURING AND MINIMUM PERIOD FOR STRIKING OFF FORM WORK

8.7.1. For RCC works in various locations, the minimum period for curing and striking off form work shall be as under in lieu of that specified in clause 4.11.6.3 of MES Schedule Part-I :-

(a) Curing :- Structural RCC work, PCC work, Plastering etc. : 14 days

(b) Striking off Form Work Walls, columns and vertical sides of beams-3 to 4 days

(c) Slabs (Props left under) : 8 days

(d) Beams soffits (Props left under) : 9 days

(e) Removal of props to slab/beam

(i) Spanning upto 6 M span : 16 days

(ii) Spanning beyond 6 M span : 22 days

(f) For cantilever portion of slab form work with support shall be retained until the completion of the casting of the entire frame work of the building.

8.7.2 In case of bad weather, periods mentioned above may be revised at the discretion of the Engineer-in-charge. The contractor shall be deemed to have considered the above provision before tendering and quote lump sum accordingly. No claim will be entertained if longer periods is required for striking off form work and curing and all such effected matters is looked into upon the use of pozzolana cement as a result being issued to the contractor in full or in part or for bad weather.

8.7.3. Curing shall be carried out using pump of suitable capacity at no extra cost to the Govt. all as directed by Engineer-in-Charge.

PARTICULAR SPECIFICATIONS (Contd...)**8.8 FINISHES**

8.8.1 For finishing to exposed surfaces of concrete, refer at paras 4.11.16.1, 4.11.16.2(b),(c), (d),(e) and 4.11.16.3 of MES Schedule Part-I. If thickness of plaster in cement mortar (1:3) as specified in para 4.11.16.2(b) of MES Schedule Part-I is required to be increased in excess of 5mm to achieve fair and even surface, it shall be provided by the contractor without any extra cost to the Govt.

8.8.2 All projections of chajja, RCC roof, cills and the like shall be provided with proper drip course and/or throating in plastering only and not while casting RCC/PCC.

8.8.3. All flat surface exposed to weather shall be weathered with imperceptible slope for smooth run of rainwater.

8.4. PCC DRAIN

8.4.1. PCC drain shall be provided wherever shown and as per detail shown on drawing. PCC for drain shall be of concrete 1:3:6 type C-1, finished even and smooth with using extra cement.

9. BRICK WORK**9.1. Materials**

9.1.1. **Cement** : Cement shall be as specified for concrete work.

9.1.2. **Sand** : Sand for mortar shall be as specified in para 5.4, 5.4.1 of MES Schedule Part I.

9.1.3 **Brick** : Refer to paras 5.6.1 to 5.6.9 of MES Schedule part I. The brick shall have minimum compressive strength of 75 kg/sq cm and shall be of sub class 'B' bricks as mentioned in para 5.6.5 of MES Schedule Part I. Testing of bricks shall be carried out by the contractor without any extra cost to the Govt including the cost of transportation. The dimensions of bricks shall not vary more than $\pm 8\%$. The size of bricks shall be 230x115 x75mm.

9.1.4. **Water** : Refer to para 5.17 of MES Schedule Part I.

9.2 WORKMANSHIP

9.2.1 **Brick Work** : Mix of mortar for brick shall be as follows:- Brick work in various situations irrespective of whatever shown on drawing shall be in cement mortar (1:6) for full brick work and in cement mortar (1:4) for half brick/less than half brick work.

9.2.2. **Half Brick Walls** : Refer para 5.36 of MES Schedule Part I. Brick work in half brick walls exceeding 1200 mm in height from floor level shall be reinforced with 2 Nos. 8 mm dia deformed bars at every fourth course, starting from top of the first course from floor level.

9.2.3. The foundation for half brick wall shall be provided as shown in foundation plan. Where foundations for half brick wall are not indicated, the same shall be constructed of the sub base level. Half brick thick walls in first floor shall be constructed of the RCC floor slab.

9.2.4 The drawings for this work are prepared taking size of half brick thick as 11.5 cm and full brick thick as 23 cm, deviation if any shall also be priced on this basis irrespective of actual size of bricks used. Centerline dimensions of buildings shown in drawings shall however, be maintained. No adjustment for extra cost due to increase in width of foundation concrete, walls, lintels, bands and blocks shall be admissible to the contractor on this account.

9.2.5 Deviation for brickwork shall be priced at the rates for sub class 'B' brick in MES Schedule part II subject to addition of contractor's quoted percentage.

PARTICULAR SPECIFICATIONS (Contd...)

9.2.6. Any hole left in the brick work for the purpose of centering/scaffolding shall be filled up with PCC (1:3:6) type C1 mixed with WPC as per manufacturers instructions.

9.2.7 Flat iron 40 x 6 mm of size 300 mm bent to shape shall be provided at junction of column & brick work for building work. Spacing of FI shall be 300 mm c/c.

9.2.8 Dwarf wall as shown in structural drawing shall be provided below plinth beam along the external perimeter of building .

9.3 **BEARING PLASTER** : Refer to clause No 5.34.14 of MES Schedule Part I, tops of walls bearing the edges of RCC floors, roofs, slabs, beams shall be finished with a layer of cement mortar 1: 4, 15 mm thick and the plastered surface shall be white washed. Two layers of chisel craft paper shall be provided above the plastered surface. Where the bottom of slab does not coincide with the level of brick course after cement plaster, the level shall be make up either by increasing the thickness of slab at bearing or where feasible by using brick tiles so that the bearing is directly on the plaster.

9.4 **DAMP PROOF COURSE (DPC)**

9.4.1 DPC shall be 40 mm thick in PCC 1:2:4 type B0 (using 12.50 mm graded stone aggregate) with water proofing compound as per manufacturer's instruction. Layer of 200 micron polythene film shall be laid over a coat of hot blown bitumen, grade 85/25 @ 1.50 Kg /Sqm over the cement concrete.

9.4.2 DPC shall be laid to the full width of wall. Level of the DPC at the openings shall be lowered equal to the thickness of the floor finish. The continuity of the DPC shall be maintained. The workmanship shall be all as specified in clause 5.42 of SSR Part-I, 2009. DPC shall not be provided on dwarf wall, RCC wall and RCC columns and at the location where RCC / PCC plinth band or RCC plinth beams are provided above the ground level.

10. **STONE MASONRY**

10.1 Refer Clause No. 6.2, 6.5, 6.6, 6.6.1, 6.6.5, 6.7.1, 6.8, 6.9 and 6.10.1 including other provision (as applicable) of MES schedule Part-I.

10.2 Stone Walling of Random Rubble Masonry shall be Lime/Sand Stone.

10.3 Pre-cast PCC 1:3:6 (using 20mm Graded Stone Aggregate) Bond Stone Set in Cement Mortar shall be provided in lieu of Stone Bond Stone and is deemed to be included in Unit Rate of SCHEDULE 'A'. PCC Bond Stone shall be set in Cement Mortar 1:4 unless otherwise specified in SCHEDULE 'A'.

10.4 Unless otherwise specified, all surfaces of stone masonry shall be hammer dressed from the wall face not more than 40mm for an exposed surface and 20mm on the surface to be rendered.

10.5 Sand for Mortar as specified in Clause No. 5.4, 5.4.1 of MES Schedule Part-I.

10.6 **Water** : Refer Clause No. 5.18 of MES Schedule Part-I.

PARTICULAR SPECIFICATIONS (Contd...)**11. STEEL AND IRON WORK**

11.1 Quality of steel to be incorporated in the work shall be as follows: -

(a)	High strength deformed steel bars produced by Thermo Mechanical treatment process (In short called as TMT bars) for reinforcement.	Of Grade Fe 500/ Fe-500D/ Fe-550/ Fe-550D and meeting all requirement of IS 1786-1985 (Reaffirmed) 1990.
(b)	Mild steel for miscellaneous works	Shall conform to IS-432(Part-I). Grade wherever not shown/ indicated otherwise shall be of Grade I.
(c)	Structural steel	Standard quality - Conforming to IS-2062. Ordinary quality – Conforming to IS -1977.
(d)	Galvanised steel sheets (Plain & corrugated)	Conforming to IS-277.
(e)	Fabric reinforcement for concrete	Conforming to IS-1566

11.2 Deviations on items of steel work shall be priced at applicable rates in MES Schedule subject to contractor's percentage for respective parts of Schedule 'A'.

11.3 WELDING

11.3.1 Welding of steel and ironwork shall be done in an approved manner with electric arc welding.

11.3.2 Electric welding shall be metal arc welding as specified in Para 10.15 of MES Schedule Part-I.

11.3.3 Welding electrodes shall be of quality suitable for welding of structural steel and shall comply with requirement of IS-814 for covered electrodes for metal arc welding of mild steel.

11.3.4 Unless otherwise specified/shown on drawings, the fillet welds shall be of 6mm size.

11.3.5 All butt welds shall be full penetration welds.

11.4 REINFORCEMENT

11.4.1 Reinforcement shall be bent to shape and provided as indicated on the drawings.

11.4.2 All laps and crossings shall be tied with mild steel wire (annealed) of size not less than 0.9 mm dia.

11.4.3 Unless other wise shown on drawing, bends to a radius of 4 times the dia of bar shall be provided in respect of tor steel bars. In case of deviations involving reinforcement bars, the length of each bar for the purpose of calculating laps shall be taken as 10 (Ten) metres for omit purpose.

11.4.4 Unless otherwise shown on drawings, spacing of chairs shall be 75 cm centre to centre below the cranked up bars to keep the bars in position.

PARTICULAR SPECIFICATIONS (Contd...)**11.5 REINFORCEMENT STEEL AND STRUCTURAL/NON-STRUCTURAL STEEL****11.5.1 TYPE OF STEEL****11.5.1.1 REINFORCEMENT STEEL**

(a) Wherever mild steelbars have been shown on drawings TMT bars of same size and grade Fe500/Fe500D/Fe550/Fe550D of SAIL/ RINL/TISCO/JINDAL STEEL/ M/s Shyam Steel Industries Ltd Durgapur, West Bengal/ M/s SPS Steel Rolling Mills Ltd , Durgapur, West Bengal/ M/s Jai Balaji Industries Durgapur, West Bengal/ SRMB SRIJAN/ M/S Steel Exchange India Ltd, Hyderabad-5000016 (A.P)/ M/S JINDAL STEEL & POWER LTD, Gurgaon-01 meeting requirements of IS-1786-2008 shall be used.

(Note for 'TISCO 'Make for works being executed in North eastern Region:- Reinforcement steel of above mentioned grade can also be procured from authorized distributor / Busines development partners of TISCO. Production of documents indicating original lot No. and test certificate from TISCO alongwith voucher from TISCO authorized distributor from whom steel is being purchased shall be mandatory in such case.) .

(b) Wherever deformed bar(s) have been shown in drawings, TMT bars of the same size and grade shall be used.

(c) However 6mm bars (MS and CTD bars) wherever shown on drawings, the same shall be amended to 8mm TMT bars without changing spacing/numbers. The grade shall be as explained in (a) and (b) above.

11.5.1.2 STRUCTURAL STEEL

(a) Definition of structural steel as given in clause 10.4 of SSR Part-I shall be applicable. Standard quality steel of grade E-250(Fe-410W quality A) conforming to IS-2062 for all types of steel structures including those subject to dynamic loading shall be used.

(b) Ordinary quality structural steel wherever mentioned shall be conforming to IS-1977 of grade E-165(Fe-290) and shall be used for steel doors, collapsible gate, window guard bars or grills, steel gates, hand railings, fencing posts etc.

(c) Unless otherwise mentioned, galvanized steel sheets (plain or corrugated) where applicable shall be conforming to IS-277 . Grade of zinc coating to be used shall be the one which is given in Clause 10.29.1 of SSR Part-I.

11.5.2 SOURCE OF PROCUREMENT**11.5.2.1 Reinforcement Steel.**

(a) GENERAL : Steel shall not be issued under Schedule "B" The contractor shall procure the same from any of the sources mentioned here in after for entire completion of work.

(b) High strength deformed steel bars (TMT steel bars) of grade Fe 500 D meeting requirements of IS-1786-2008 shall be used.

PARTICULAR SPECIFICATIONS (Contd...)

(c) TMT steel bars to be used in the work shall be of grade Fe 500 D procured from SAIL/RINL/TISCO/ SHYAM STEEL INDUSTRIES/SPS STEEL ROLLING MILLS LTD/JAI BALAJI INDUSTRIES/ M/S STEEL EXCHANGE INDIA LTD. / M/S JINDAL STEEL AND POWER LTD and any other primary producer approved by E-in-C's Branch.

(d) Reinforcement steel shall meet the codal requirement of IS 1786, 2008 .

(e) Independent testing of steel by the GE shall be optional at the discretion of the GE. In case of procurement of steel from main producers and testing charges shall be borne in accordance with condition 10A of IAFW-2249 i.e. testing charges shall be borne by the Department if the test results are found in order otherwise these shall be borne by the contractor.

(f) The contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests shall also be borne by the contractor.

11.5.2.2 The contractor shall produce original vouchers from suppliers for the total quantity of steel supplied, under each consignment and to be incorporated in the work The original vouchers shall be kept on record of the GE duly defaced by Engineer-in-Charge and authenticated.

11.5.2.3 **Structural Steel** : Structural steel shall be procured by the contractor from main producers of steel like SAIL/ RASHTRIYA ISPAT NIGAM/VSP/ TATA STRUCTURA In case of non availability the same SAIL/RASHTRIYA ISPAT NIGAM/VSP/ TISCO (non availability certificate obtained from the producers) it can be procured from approved secondary producers with a reduction of 5% (Five percent) of the accepted rates of structural steel. In case the desired section of structural steel is not rolled/ manufactured by primary producers, there shall be no price adjustment in use of structural steel procured from approved secondary producers. The approved list of secondary producers are as mentioned below:-

(Note : For 'TISCO 'Make for works being executed in North eastern Region:- Structural steel can also be procured from authorized distributor / Business development partners of TISCO. Production of documents indicating original lot No. and test certificate from TISCO alongwith voucher from TISCO authorized distributor from whom steel is being purchased shall be mandatory in such case.)

1. M/s. K L Steel Pvt Ltd
Post Box No. 61,
Lal Kuan Bulandshahar Road
Ghaziabad (UP).
2. M/s. Pushpak Steel Industries Pvt Ltd
Gate No 119 Alandi Market Road
Dhanore, Jah Khed Pune,
Tele Fax-020-2644700/070
3. M/s. Amba Shakti Ispat Ltd
Plot No-6, Phase-II, Industrial Area, Kala Amb
Dist Sirmour-173030 (HP)
Tele: 01734-309983, 309986 Fax-01702-238927.
4. M/s Shri Badrinarain Alloys & Steels Ltd
95, Stephen House, 4 BBD Bag
Kolkata-700001
Tele: 033 2225381/ 22481601
Fax: 0120-2867917
5. M/s Karam steel Corp.
Nasrali Road, PO Box No 56.
Mandi Gobind Garh-147301.

PARTICULAR SPECIFICATIONS (Contd...)

NOTE: Tolerance on size and weight of reinforcement bars shall not be more than specified in clause No. 10.17.4 and 10.17.5 of MES Schedule Part-I.

11.5.2.2 **Galvanised Steel sheet & Fabric Reinforcement for concrete** : These shall be ISI Marked and shall be procured directly from Main manufacturers.

11.5.2.6 However, reinforcement steel, structural steel, Galvanised steel sheets and Fabric Reinforcement shall be permitted to be procured from authorised dealers of main producers in case of contracts of value less than 7.5 lakhs.

11.5.2.7 Steel sections for railing, gates, fencing, guard bars, grills, steel chowkhat, holdfasts etc., which do not constitute structural members, can be procured from main producers/secondary producers/BIS marked manufacturers or their authorised dealers/authorized conversion agents at the option of contractor without any price adjustment.

11.5.2.8 The contractor should place their demand/requisition of steel with the producers with adequate lead time.

11.5.2.9 Steel, when procured from main producers/approved secondary producers/authorized conversion agents of main producers (stipulated in above paras) shall have to be procured directly from the storage depots of the main producers/approved secondary producers/authorized conversion agents and not from their authorized agents/dealers.

11.5.2.10 The particulars of the manufacturer/supplier of steel shall be submitted by the contractor to the Garrison Engineer prior to procurement for every lot of steel separately. The original documents in support of purchase of steel shall be verified by the site staff and Garrison Engineer and certified true copy of the result shall be retained in GE's office. The form given here in after will be used for this purpose.

11.6 TESTING OF STEEL

11.6.1 The manufacturer is to carry out inspection and testing of steel in accordance with the relevant BIS provisions. The contractor shall submit the manufacturer's test certificate in original along with the Test Sheet giving the result of each mechanical test as applicable and the chemical composition of the steel or authenticated copy thereof duly signed by the manufacturer with each consignment. The Engineer-in-Charge shall record these details in Steel supply & Acceptance Register (as per proforma given herein-before) after due verification and send a certified true copy of test sheet to GE for his records. The GE/ CWE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME, Regional Research Labs and NABL approved Labs etc as per the recommended minimum frequency shown in table as per given here-in-after. Samples from each lot should be tested for quality and elongation. The elongation shall not be less than 18%. Cost of samples, transportation and testing shall be bore by the contractor. The record of such checks would be maintained in the steel test register.

11.6.2 Testing shall not be insisted upon for steel given in para above.

11.6.3 INDEPENDENT TESTING

11.6.3.1 The GE/CWE shall also organize independent testing of random samples of steel drawn from various lots from National Test House, SEMT Wing CME Pune, Regional Research Laboratories, Govt approved laboratories, Zonal laboratories as per the recommended minimum frequency as in Para 4.6.4 . In addition samples from each lot shall be tested for quality and elongation as per the parameters given in STEEL SUPPLY & ACCEPTANCE FORM. The elongation shall not be less than 18%.

PARTICULAR SPECIFICATIONS (Contd...)**11.6.3.2. Reinforcement Steel**

(a) Independent testing of steel by the GE shall be optional at the discretion of the GE in case of procurement of steel from main producers and testing charges shall be borne in accordance with Condition 10 A of IAFW-2249 i.e. testing charges shall be borne by the Deptt if the test results are found in order, otherwise these shall be borne by the Contractor.

(b) Independent testing of steel by the GE shall be mandatory in case of procurement of steel from secondary producers/authorized conversion agents of main producers and testing charges shall be borne by the contractor irrespective of the outcome of test results.

(c) In both the cases at (a) & (b) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests, samples, conveyance etc shall also be borne by the contractor.

11.6.3.2. Structural Steel

(a) Independent testing of structural steel by the GE shall be optional at the discretion of the GE in case of procurement from main producers and testing charges shall be borne in accordance with Condition 10 A of IAFW – 2249 i.e., testing charges shall be borne by the Deptt if the test results are found in order, otherwise these shall be borne by the contractor.

(b) Independent testing of structural steel by the GE shall be mandatory in case of procurement from secondary producers/authorized conversion agents of main producers and testing charges shall be borne by the Contractor irrespective of the outcome of test results.

(c) In both the cases at (a) & (b) above, the contractor at his cost shall provide all facilities required for the testing and cost of materials consumed in tests, samples, conveyance etc shall also be borne by the Contractor.

11.6.4 FREQUENCY FOR TESTS ON STEEL

11.6.4.1 REINFORCEMENT STEEL :_Nominal mass test, Tensile test, Bend and Rebend test shall be carried out as per minimum frequency given below: -

Nominal Size of Bars		Frequency
(a)	Bar size less than 10 mm	One sample (3 specimens) for each test for every 25 tonnes or part thereof.
(b)	Bar size 10 mm to 16 mm	One sample (3 specimens) for each test for every 35 tonnes or part thereof.
(c)	Bar size over 16 mm	One sample (3 specimens) for each test for every 45 tonnes or part thereof.

11.6.4.2 STRUCTURAL STEEL : The tests shall be carried out as per the frequency mentioned below: -

Type of Test		Frequency
(a)	Tensile Test	One test for every 25 tonnes of steel or part thereof.
(b)	Bend Test	One test for every 25 tonnes of steel or part thereof.

PARTICULAR SPECIFICATIONS (Contd...)**NOTE:**

1. For various tests, Acceptance criteria, tolerance etc refer to Steel supply & Acceptance Form given here in before and relevant BIS Codes.
2. For steel items, for which, independent test is mandatory, as specified above, payment shall be released against these items only after satisfactory test report. Any item of steel, failing in test, shall be rejected and the particular consignment removed from the site by the contractor at his own cost.

11.6.5 DOCUMENTATION : The contractor shall submit original purchase vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. The GE along with the relevant documents before acceptance shall inspect all consignments received at the work site. The original Vouchers and the tests certificates shall be defaced by the Engineer-in-charge and kept on record in the office of the GE duly authenticated and with cross reference to the control number recorded in the Steel Acceptance Register. The Steel Acceptance Register will be signed by JE, Engineer-in-charge, GE and contractor. The entire quantity of all steel items shall be suitably recorded in the Measurement Book as not to be abstracted, before incorporation in the work and shall be signed by the Engineer-in-charge and the contractor.

11.7 STORAGE ACCOUNTING, PRESERVATION AND MAINTENANCE OF STEEL

11.7.1 The storage, accounting, preservation and maintenance of steel supplied by the contractor shall be done as per standard engineering practice till the same is incorporated in the work and the cost of the same shall be deemed to be included in the unit rate/amount quoted by the tenderer. The GE shall inspect at regular interval to verify that steel lying at site is stored, accounted, preserved and maintained as per the norms. The steel shall be stored so as to differentiate each consignment separately. If the GE is not satisfied with the storage / preservation of any size of bar/section of steel, he may order for any test(s) of steel as applicable for that size of bar/section of steel and as specified in tender documents /relevant IS code to recheck the acceptability criteria for the same. The contractor shall bear the cost of necessary testing(s) in this regard and no claim whatsoever shall be entertained.

11.7.2 Movement of steel shall be recorded in In/Out steel register as per following Performa. Each entry in the register shall be signed by the contractor and Engineer-in-Charge.

IN/OUT STEEL REGISTER

Sl No	Date	Steel IN			Steel OUT			Qty Balance
		Qty (Tons)	Section	Control No	Qty (Tons)	Section	Reasons*	
1	2	3	4	5	6	7	8	9

*** Note:**

- (i) The following reasons may be mentioned for taking out steel from storage: -
 - (a) For testing purpose
 - (b) For use in work
 - (c) Rejected steel taken out of site
- (ii) All the transaction in the register shall be signed by Contractor / his representative and Engineer-in-Charge/JE.

PARTICULAR SPECIFICATIONS (Contd...)

11.7.3 **Scheduling and Supply** : Schedule of supply of steel will be finalised by GE in consultation with contractor and the same will be incorporated in CPM chart so that supply of steel is monitored in a way to avoid any delay in completion of the work. The schedule of supply of steel will be vetted by Accepting Officer or Officer nominated by the Accepting Officer from time to time

11.8 MEASUREMENTS AND PAYMENT OF STEEL

11.8.1 The entire quantity of all steel items shall also be suitably recorded in the Measurement Book for record purposes as 'Not to be abstracted' before incorporation in the work and shall be signed by the Engineer-in-Charge and the contractor.

11.8.2 The nominal mass conversion factors for various steel Sections/ size of finished bars as given in relevant IS codes shall be considered standard for measurement.

11.8.3 The contractor shall plan to procure steel considering the time required for approval and testing of steel well in advance. No extension of time on grounds of delay in procurement of steel or testing/retesting of steel shall be admissible.

11.8.4 The payment of steel shall only be allowed after production of original purchase vouchers, test certificates by the contractor for each consignment of steel and results of testing carried out by the department are found satisfactory after testing as specified herein before.

11.8.5 **FABRICATION OF STEEL STRUCTURES** : The structural steel work shall be carried out all as specified in MES Schedule Part-10 and in drawings. The quality of fabrication and erection at site shall be got certified to the satisfaction of the department by any of the certifying bodies as approved by Accepting Officer.

11.9 MILD STEEL HOLDFAST

11.9.1 Mild Steel holdfast shall be of size as mentioned in the drawings. This shall be treated with two coats of coal tar and sanded before fixing in position, and shall be embedded in PCC Block (1:3:6) type C-1 of size 250 mm x 150 mm x thickness of wall unless specially shown otherwise in drawings.

11.10 MILD STEEL GUARD BARS/OTHERS STEEL ITEMS

11.10.1 Mild Steel guard bars shall be of 10 mm x 10mm square bars of Fe- 310-0 or Fe-410-0 quality. Guard bars shall be provided to all windows & vents as shown on drawings. The guard bars including window shall be painted with 2 coats of synthetic enamel paints over a coat of red oxide zinc chrome primer.

11.10.2 Other steel items like steel door with PGI sheet covering, railing in balconies and stair case, water meter and switch board boxes etc shall be fabricated to the dimensions as shown on drawings as directed by Engineer-in-Charge. Welding, bolting, drilling holes etc shall be as specified in MES Schedule.

11.11 STEEL WINDOWS/VENTILATORS

11.11.1 Refer Clause No. 10.25 of MES Schedule Part-I.

11.11.2 Steel Windows/Ventilators shall conforming to IS-1038 and shall be provided as shown on drawings. The frame shall be of hot rolled section E7D as per IS-7452 using ISI marked section and as specified in MES Schedule subject to following :-

PARTICULAR SPECIFICATIONS (Contd...)

- (a) Sizes shall be as shown on drawings.
- (b) While supplying, steel windows shall have one shop coat of anticorrosive paint (Red oxide zinc chrome primer).
- (c) Window shall be given another coat of anticorrosive priming coat of paint before fixing.
- (d) Window fitting shall be steel copper oxidised and shall be from approved manufacturer conforming to relevant IS.
- (e) Sub dividing bars of leaf shall be tennoned and riveted to the frames.
- (f) Outside (external) shutters of steel windows shall have friction hinge with stainless steel washers in pairs back to back with serrated surface. The inside (internal) shutters of steel window shall have box hinge. Outer shutter of steel window shall be provided with 30 cm long peg stay each in addition to steel window openable.
- (g) Steel windows shall be fixed as per IS-1081-1960 embedding in cement concrete block of appropriate size.
- (h) Lugs shall be fixed in cement concrete blocks of appropriate sizes, lugs shall be provided all as shown on drawings. Top log shall be provided with screws and rawl plug.
- (j) Section of structural steel for steel windows and ventilators shall be hot rolled section E7D as specified in IS-7452.
- (k) Irrespective of what is shown on drawings MS guard bars shall be provided to all steel windows and ventilations in all floor. However, wherever specifically MS grill shown on drawings shall be provided.
- (l) All steel windows, ventilators shall be factory made and of approved make and shall be procured from any of the approved firms listed in Appendix 'D' to Particular Specification.

11.11.3 **Fabrication** : Refer Clause No. 10.25.2 of MES Schedule Part-I and relevant Clause of IS-1038. The process of welding adopted shall be of flush butt welding. Prior to procurement of entire quantity of steel windows and ventilators, the contractor shall produce a sample to the GE who shall after its inspection /examination and after satisfying himself with regards to above mentioned requirements, approve the samples and convey in writing to the contractor.

11.11.4 **Testing** : The number of steel windows/vents to be subjected to independent Destructive testing in reputed Testing House/ Laboratory by GE shall be as per Appendix to IS-1038. In case results are not satisfactory, the entire lot shall be rejected. Cost of Destructive testing including the requisite number of steel windows/ vents required as per lot size is deemed to be included in the quoted lump sum by the contractor.

11.12 **COLLAPSIBLE GATE**

11.12.1 Refer Clause No. 10.24 of MES Schedule Part-I.

11.12.2 Collapsible Steel Gate shall be of approved design.

PARTICULAR SPECIFICATIONS (Contd...)**11.13 STEEL TRUSS & PURLINS****11.13.1 Generally**

11.13.1.1 The steel member used for trusses and other places shall be manufactured as per specification given in relevant IS. Tolerance in thickness and weight shall be as per IS. The steel shall be procured from any of the manufacturers mentioned here-in-before. Steel member exposed to view shall be painted with two coats of synthetic enamel paints over a coat of primer. Steel members not exposed to eye shall be painted with two coats of red oxide primer.

11.13.2 COMPONENT MEMBERS

11.13.2.1 All component members shall be neatly fabricated true to shape according to dimensions/size shown on respective drawings. A marking diagram allotting distinct identification mark to each separate piece of steel work shall be prepared to ensure correct assemble and erection at site. The component parts shall be assembled in such a manner that they are neither twisted nor otherwise damaged.

11.13.3 DRILLING HOLES

11.13.3.1 Work shall be carried out all as specified in Clause No. 10.11 of MES Schedule Part-I and as per IS. Holes shall not be formed by gas cutting process.

11.13.4 CUTTING

11.13.4.1 Cutting may be effected by shearing, cropping or sawing gas the cutting by mechanically controlled torch will be permitted but after gas cutting edges shall be cleared of slag, burnt metal and made free from local protection and depressions exceeding 1mm by grinding. Hand frame cutting may be permitted subject to the approval of Garrison Engineer.

11.13.4.2 Shearing, cropping and gas cutting shall be clean, free from any distortion and if it is not so, the edge shall be ground without any additional payment. Holes where required in steel members shall be done using suitable drilling machine and punches. Making holes with gas cutting is not permitted.

11.13.5 CONNECTIONS

11.13.5.1 All connections of steel work shall be welded except bolting where specifically shown on drawings.

11.13.6 JOINTS

11.13.6.1 The joints surface shall be prepared as specified in IS. Every member of the various types of steel trusses, roof girders, stanchions etc shall be in one piece without joint. However, additional splice joints, if required due to site conditions shall be carried out on written approval of Garrison Engineer without extra cost to Government. Splicing of members shall be done all as shown on drawings.

11.13.7 FABRICATION

11.13.7.1 Fabrication of all components including notching, cutting, punching/drilling and welding shall be carried out exactly in accordance with the detailed drawings and with the best workmanship. Sufficient steel work shall be trial fitted by the contractor in his workshop at site to ensure accuracy of various components, as work failing to fit accurately at site will be liable for rejection by the Garrison Engineer.

11.13.7.2 All fabrication shall be done at site and in position where necessary.

11.13.7.3 Erection shall be carried out as specified in Clause No. 10.16 of MES Schedule Part-I.

PARTICULAR SPECIFICATIONS (Contd...)

11.13.7.4 Contractor's particular attention is drawn to IS-7205 (Safety Code for erection on structural steel work). Anchor bolts for fastening of steel structure shall be set in designed position and grouted alongwith foundation. Also refer Clause No. 10.16.2 and 10.16.3 of MES Schedule Part-I.

11.13.7.5 Damaged structural members shall be examined and rectified or replaced as directed by Engineer-in- Charge.

11.13.7.6 The erected parts of structure shall be stable during all the stage of erection and the structural elements to be erected, shall be stable and strong to bear erection load.

11.13.7.7 Working on the already erected structure is permitted only after they are finally fixed. Erection of structures of each tier of high structure shall be executed only after the relevant fastening of lower ties by the permanent or temporary fastening devices as clarified for safety.

NOTE : The contractor shall at his option may get the truss components fabricated at the manufacturer's shop and transport the same to the work site without any extra cost. However the fabricated truss will be erected only after the same is approved by Garrison engineer.

11.13.8 ERECTION OF TRUSSES

11.13.8.1 The trusses shall be lifted only at nodes. The trusses shall not be aligned at the Apex. It shall be lifted by slinging at two mid points of rafter, which shall be temporarily braced by suitable section. After trusses are placed in position, purlins and wind bracing shall be fixed as soon as possible.

11.13.9 PRECAUTION DURING ERECTION

11.13.9.1 Contractor shall maintain accuracy in dimensions of fabricated members all as shown on drawings.

11.13.9.2 Suitable equipment for erection/ hoisting of members shall be used. Under no circumstances, members already erected shall be used/taken support to erect new members.

11.13.9.3 Contractor shall take all precaution to avoid damage to members or injury to workers

11.13.10 WELDING**11.13.10.1 GENERALLY**

(a) Refer Clause No. 10.15 of MES Schedule Part-I.

(b) Welding shall be done by metal arc process in accordance with the standard specified in IS-816 and IS-9595. All welding shall be turned point upto a length not less than twice the thickness of the weld.

(c) The work shall be positioned for down hand welding wherever possible/practicable.

(d) Joint surfaces shall be smooth, uniform and free from fins, tears, laminations and such other defects which adversely affect quality of weld and workmanship.

(e) All welds shall be cleaned of slab and other deposit after completion. The specified size of welds shall be provided for the full length of each weld as shown on drawings.

(f) Skilled welders shall only be employed for the work and the workmanship shall be of high standard.

PARTICULAR SPECIFICATIONS (Contd...)

11.13.10.2 **ELECTRODES FOR WELDING** : Electrodes used for welding shall conform to IS-814 and shall be ISI marked. The contractor shall supply at his own cost necessary electrodes, for getting them tested if Garrison Engineer so desired.

11.13.10.3 **INSPECTION/TESTING WELDS** : The Garrison Engineer or his representative shall inspect and examine the electrodes for welding. Garrison Engineer shall have the welds tested for soundness using any of the non destructive tests and the testing charges shall be borne by the contractor.

11.13.10.4 **PRECAUTION/SAFETY AND HEALTH** : The contractor shall ensure that the safety requirements and health requirements in electric and gas welding and cutting operation are complied with during operations. The contractor shall also provide equipments for eye and face protection during welding as laid in IS. Fire precautions shall be taken in accordance with IS-3016, Code of practice for Fire Precaution in welding and cutting operations.

12. **FLOORING & FLOOR FINISHES**

12.1 **GENERAL**

12.1.1 Refer Clause No. 13.2, 13.4, 13.5, 13.8, 13.14, 13.21, 13.23, 13.24, 13.25, 13.27, 13.32, 13.38, 13.39, 13.40, 13.46 and 13.47 of MES Schedule Part-I are to be adopted for Materials and Workmanship of laying Floor/ Skirting/Dado.

12.1.2 Floors shall be laid to levels or to falls as shown on drawings and as directed by Engineer-in-Charge. Floor finish shall be extended over dwarf wall, doors and other opening.

12.1.3 Steps and connected ramps shall have the same type of floor as adjoining floors of building unless otherwise specifically mentioned and shall have chequered finish in addition.

12.1.4 Where two different types of floors finish are provided on either side of the opening, the superior floor finish shall be extended over the opening.

12.1.5 Finishing layer of floor shall be carried out through all opening and over dwarf wall.

12.1.6 PCC floor shall be finished even and smooth using extra cement unless otherwise specifically mentioned in drawings of schedule of finishes or here-in-after.

12.1.7 Polythene film if shown in drawing shall conform to IS-2508, 150 micron thick of 01.0 Grade. If full width of polythene film is not available, the same shall be laid with an overlap of 150mm pasted with the resin solution.

12.1.8 Sub floor may not be laid in panels. Under layer and topping layer of casting PCC/terrazzo cast-in-situ floor shall be laid in square or rectangular panel as directed by Engineer-in-Charge. Length of panel shall not exceed 2.0 Metre. Length width ratio shall not exceed 1.5 times in rectangular panels. However, area of each panel shall not exceed 2.0 Square Metre as specified. Cement concrete in sub base or sub floor and top wearing coat shall be laid separately and not monolithically.

12.1.9 Polished Kota stone shall be of machine cut polished and thickness shall be all as mentioned in the schedule of finishes. The stone slab shall be hard, even, sound, durable, tough, and regular in shape of shade as approved.

PARTICULAR SPECIFICATIONS (Contd...)**12.2. NON SKID CERAMIC TILE FLOOR**

12.2.1 Non skid ceramic coloured tiles of 7 to 8mm thick of size 400mmX400mmX7 to 8mm(300mm x300mm x 7 to 8mm thick in wc/toilet) shall be laid over 20mm thick screed bed in CM (1:6) . The tiles shall be set and jointed in neat cement slurry and pointed in coloured cement to match. The joints shall be almost invisible and shall not exceed 1 mm thickness in any case. The tiles shall be Premium Series (First/ standard quality of manufacturer) The shade and colour of tiles shall be as approved by GE.

12.3. RUBBER FLOORING**12.3.1 GENERAL**

12.3.1.1 5MM thick rubber sheet with fabric backing or insert and plain coloured or marbled topping matt or glossy, laid in floors with approved adhesive as shown on drawing.

12.3.1.2 Rubber sheets or tiles for flooring shall conform to IS 809-1992, Specification for rubber flooring materials for general purposes. The rubber flooring shall be with fabric backing or fabric insert with topping type 'A' plain or marbled or type 'B' ribbed or fluted, as indicated and of colour as directed.

12.3.1.3 The rubber flooring materials shall be of first class workmanship, satisfactorily vulcanized, free from sulphur boom and objectionable odour and blisters, cracks, and embedded foreign matter. There must be no porosity on the surface or throughout the thickness of the sheet. The surface finish of the flooring shall be either glossy or matt as indicated. The base stratum may be of any colour. The underside of the floor covering shall be either furnished with a cloth impression or be buffed smooth. The edges and ends shall be cut true and square. The colour of the flooring shall, be not permanently affected by cleaning with water and washing soap or by treatment with a suitable floor polish. The colour of the flooring shall not bleed into an adjacent piece of rubber.

12.3.1.4 The thickness of the flooring shall not differ at any point by more than + 0.5 mm or – 0.2 mm from the thickness specified. The thickness and size of rubber sheets and rubber tiles (200mm, 300mm or 500mm square) for floors shall be as indicated. In the case of fabric insert type rubber flooring, the thickness of wearing stratum shall be at least 1mm; where the total thickness of flooring is more than 2.5mm, thicker wearing surface is recommended.

12.3.1.5 The adhesive as recommended by the manufacturer should be used; the manufacturer shall also indicate the precautions to be taken while using the adhesive.

12.3.2 **SKIRTING** : Irrespective of whatever specified and mentioned elsewhere in the tender documents, Skirting/dado shown in schedule of finishes shall match with flooring i.e. same provision (for shade & colour of tiles) to be made for skirting/Dado as made for flooring and provided with the following specification :-

Note : The height of skirting shall be minimum 150mm from FFL and height of dado shall be upto lintel height from FFL, unless otherwise shown on drawing or specified elsewhere in tender documents.

PARTICULAR SPECIFICATIONS (Contd...)**12.4 PCC FLOORS**

12.4.1 **General** : Refer paras 13.25, 13.27 and 13.32 of MES Schedule Part-I.

12.4.1.1 PCC floor for other than ramp shall be 50 mm thick PCC 1:2:4 type B1 (Using 20 mm and graded stone aggregate) shall be laid over 100 mm thick PCC 1:4:8 type D2 all as specified in schedule of finishes and shall be in square/rectangular panel adopting panel dimension not exceeding 2000 mm with 4 mm thick (nominal thickness) sheet glass as dividing strips for the panels. The width of the glass strips shall be 2 mm less than the thickness of the floor and those strips shall be visible in the finished floor. The glass dividing strips shall be provided so as to form a border along the wall with width not exceeding 450mm from face of the wall.

12.4.1.2 PCC floor for ramp shall be 50 mm thick PCC 1:2:4 type B2 (Using 40 mm graded stone aggregate) and shall be laid over 100 mm thick PCC 1:4:8 type D2 over rammed earth

12.4.2 PCC PLINTH PROTECTION

12.4.2.1 Irrespective of what is shown on drawings, PCC plinth protection shall be provided with 50 mm thick PCC 1 : 3 : 6 type C-1 over 50 mm thick (consolidated thickness) hard core of broken stone aggregate over rammed earth. The surface of plinth protection shall be finished even and smooth without using extra cement. The concrete in plinth protection shall be laid in alternate bays of length n.exc 3 m and shall be laid in slope 1 in 12. The joints shall be 12 mm thick filled with bitumen mastic.

13. PLASTERING AND POINTING**13.1. CEMENT PLASTER****13.1.1. GENERAL**

13.1.1.1. For sand to be used in cement plaster, refer paras 14.5, 14.5.1 and 14.5.2 of MES Schedule Part-I

13.1.1.2 The thickness of plaster mentioned here-in-after is finished thickness exclusive of dubbing out. Plastering in one coat/first coat as applicable and dubbing out shall however, be done in one operation.

13.1.1.3. The external and internal finishes (Plastering) shall be returned in the jambs of the openings upto frames and taken around cupboards and similar projections.

13.2.1 **INTERNAL PLASTER** : Internal surfaces of walls including internal surfaces shall be plastered with 15 mm thick (10mm +5mm) cement mortar (1:6) finished surface even and smooth without using extra cement. Internal wall / floor surfaces of lift well shall be plastered as in Para 1.5 on serial page No. 238A.

13.2.2. **EXTERNAL PLASTER** : External surfaces of walls shown shall be plastered with 20 mm thick CM in two layers of 12 mm thick rendering coat and 8 mm thick setting coat in cement mortar (1:4). The base layer to be finished rough with scouring mark to receive the second layer which will be applied after not less than a gap of two days over the first one with water proofing compound as per manufacturer's instruction. For the purpose of pricing deviation, the percentage of water proofing compound shall be taken as 3% by weight of cement. The plaster shall be continued to the exposed surfaces of RCC column, beams etc. which are continuous with plastered surfaces of walls. All external plaster shall be taken up to 15 cm below GL. The finishing of External plaster shall be of even and smooth without using extra cement.

PARTICULAR SPECIFICATIONS (Contd...)

13.2.3 **CEILING** : Exposed surfaces of Ceiling shall be plastered with cement mortar (1:3), 5 mm thick finished the surface even and smooth without using extra cement.

13.2.4 **CHICKEN WIRE MESH** : Where two dissimilar materials viz brick work and RCC; stone masonry and RCC; etc are meeting, GI chicken wire mesh of 12 mm mesh size and 1.40 mm steel wire dia shall be provided over joints beneath plaster (for both external and internal surfaces) to prevent cracks in plaster due to differential thermal expansion of dissimilar surfaces as directed by the Engr-in-Charge.

14. **FINISHES**

14.1 **CEMENT BASE PAINT**

14.1.1 Cement base paint shall be provided at all the locations as shown on drawing. Cement base painting shall be provided all as specified in clause 15.15 of SSR Part-I.

14.2 **OIL BOUND DISTEMPER**

14.2.1 Two coats of oil bound distemper white colour or black colour over a coat of primer shall be provided after application of wall putty at all the internal locations irrespective of whatever shown on drawings. Distemping shall be done all as specified in clause 15.14 of SSR Part-I.

14.3 **WHITE WASHING**

14.3.1 White wash shall be provided at all the locations shown on drawing. White wash shall be provided all as specified in clause 15.12 of SSR Part-I.

15. **BUILDER'S HARDWARE**

15.1. **General** : Irrespective of what is shown on drawings all articles of builder's hardware except butt hinges shall be of aluminium anodised matt finish. Size shall be as given on drawings/Schedule of fittings. All aluminium builder's hardware shall be fixed with cadmium coated steel screws.

15.2. **Tower bolt** : Refer para 9.3 of MES Schedule part-I. The diameter of bolts shall be 10 mm and the bolts shall be barrel bolts.

15.3. **Butt hinges** : Refer para 9.7.2 of MES Schedule part- I. Butt hinges shall be of pressed steel/cold rolled mild steel medium weight. Butt hinges for PVC door shall be stainless steel and shall be fixed with cadmium coated steel screws.

15.4. Ball catch shall be of cast brass all as specified in para 9.14 of SSR part-I.

15.5. Irrespective of whatever shown on drawings, decorative type coloured drapery rod of 25mm dia suitable for hanging two curtains shall be provided in lieu of pelmet box and curtain rod. Design of curtain rods shall be got approved from the GE.

15.6. All fittings shown on schedule of fitting/drawings shall be provided whether the same have been specified or not.

15.7. All builder's hardware shall be ISI marked except bow handles which shall conform to relevant IS.

PARTICULAR SPECIFICATIONS (Contd...)**15.8. HOLD FAST**

- (a) Flat iron hold fasts/lugs shall be provided by welding as and where shown on drawings.
- (b) Irrespective of what is shown on drawings, flat iron hold fasts shall be embedded in PCC (1:3:6) type C-1, block of size 15 cm (height of block) x 30 cm (length of block) x width of masonry wall.
- (c) Hold fasts shall be hot tarred and sanded before fixing.

15.9 FAN HOOKS

- (a) Cast iron box with hook shown in drawings shall be provided in ground floor where RCC roof is provided. Fixing / hanging arrangement of fan in ground floor / first floor, where CGI sheet roof is provided, shall be with GI pipe all as shown in drawing No AF/TD/10 Sheet 1/1 dated 18.12.92, wherever ceiling fan/fan hook is indicated in drawings.
- (b) The contractor may at his discretion provide mild steel box fabricated out of 1.40 mm thick mild steel sheet in lieu of cast iron box without any price adjustment.
- (c) Laminated white circular sheets shall be fixed to cover metallic boxes provided for fans & pendent lights in the ceiling so that no portion of metallic boxes is visible. The cost of fan hook with CI box as specified above in RCC slab and fixing / hanging arrangement with GI pipe in case of CGI sheet roof shall be deemed to be included in the cost tendered by the contractor for buildings under Sch "A" Part – I.

15.10 FIRST MANHOLE (Size 90cm x 90cm x 90cm) - The manhole shall be of the following specifications: -

- (a) Excavation and earthwork -Soft/loose soil. Surplus soil shall be removed to a distance n.exc 50m and deposited as directed by Engg-in-Charge.
- (b) PCC foundation - PCC (1:3:6) type C2.
- (c) Walling - Brick work in CM (1:4).
- (d) Plastering: -
 - (i) Internally – 15mm thick in CM (1:3) mixed with integral water-proofing compound as per manufacturer's instruction and surface finished even and smooth without using extra cement
 - (ii) Externally - 15mm thick in CM (1:6) from top upto 150mm below GL.
- (e) Benching - PCC (1:2:4) type B1.
- (f) RCC cover slab - M-25 (design mix) and TMT bars as reinforcement.
- (g) Rest all as per drawings.

16 WPC

16.1 Integral water proofing compound (WPC) shall conform to IS -2645 and the brand shall be got approved in writing from the GE. Preparation of mix and method of mixing shall be as per manufacturer's instructions. While pricing deviation for omission, the quantity shall be considered as 3% by weight of cement.

PARTICULAR SPECIFICATIONS (CONTD)**17. ROOF COVERING****17.1 PRE-PAINTED GALVALUME ROOFING**

17.1.1 **Materials** : Roofing sheet shall be of polyester coated prepainted galvalume trapezoidal profile having effective width of 1000mm +/-5% width. Sheet shall be manufactured out of high strength steel with minimum 550Mpa strength hot dip coated with aluminium-zinc alloy (55% aluminium and 45% zinc). Sheet shall be prepainted with primer coat of 5 micron and coated with silicon modified polyester coating of 20 micron and alkalyed coating of 10 micron on reverse side. Total thickness of sheet shall be 0.50 mm. End rib shall be designed for anti capillary activities to avoid any seepage of water through lateral overlap, this shall be as per manufacturers instruction. Make of roof sheet shall be DYNA ROOF/SPECTRUM/ PRESTAR/TATA BLUESCOPE/METCO ROOF /CRIL. Contractor shall submit original manufacturer's certificate in regard to strength, hot dipped and cooling. GE will accept the material only after production of manufacturer's test certificate and satisfactory result as per specification.

17.1.2 **Fittings and fixing** : Side over lap and end overlap of sheets shall be as per manufacturers instruction. The sheets shall be laid on purlins or other structural members as required and shall be fixed with self – drilling and self tapping screws 0.5 mm dia full threaded, all Kaitex coated and fitted with EPDM washers in stainless steel. These screws shall be coated with anti-corrosive substance to ensure longer life and shall be fixed using drill guns for leak proof installation. Screws shall be of "HILTI" make or other equivalent. The plates shall be laid to a true plane with the lines of corrugations truly parallel or normal to the sides of the area to be covered, unless otherwise required as in special shaped roofs.

17.1.3 **Ridges and Hips** : Ridges and hips shall be laid all as per manufacturer's instructions.

17.1.4 **Valley and Flashing** : Valley and flashing shall be done as per manufacturer's instruction.

17.1.5 Flashing shall be well and properly tucked into joints of brick work of masonry, secured with hardwood wedges and the joints finished neatly to match the adjoining work.

17.1.6 Fixing of polyester coated sheet roofing shall be done under the supervision and direction or the representative of the manufacturer.

17.2 FIBRE GLASS REINFORCED TRANSLUCENT SHEET

17.2.1 Wherever FRP sheet is shown on drawing, corrugated fibre glass reinforced translucent sheeting of 2mm thickness shall be provided with two corrugation side lap and fixed with 'L' type of 'J' type or cranked hook bolts complete as directed by Engineer-in-Charge.

17.2.2 Make and shade of sheets shall be as approved by GE.

17.3 WIND TIE

17.3.1 Irrespective of what is shown on drawing, wind tie shall be provided with flat iron 40 x 6 mm at top purlin and bottom purlin over CGI sheet roof on both sides. Flat iron shall be painted with two coats of synthetic enamel paint over a coat of red oxide zinc chrome primer.

17.4 EAVES BOARD

17.4.1 Irrespective of whatever is shown on drawings Eaves board shall be 250 wide and 1.2 mm thick MS sheet welded to FI clamp. FI clamp shall be 25 x 6 mm; 360 mm long bent to shape and shall be fixed @ 1000 mm C/C all as per details shown on drawings. MS sheet and FI clamp shall be painted with two coats of synthetic enamel paint over a coat of red oxide zinc chrome primer.

PARTICULAR SPECIFICATIONS (Contd...)**18. INTERNAL ELECTRIFICATION****18.1. GENERAL**

18.1.1 All work of internal electrification shall be executed by fully qualified licensed electricians and as per the latest Engineering practice and latest IS codes/IS Rules. Certificate of qualification shall be produced on demand by Engineer-in-Charge.

18.1.2 The position of electrical fittings and fixtures shown on the drawing are tentative. The exact position of these shall be as directed by Engineer-in-Charge at the time of execution without any price adjustment.

18.1.3 The runs of wires and locations of fittings shall be marked on walls and soffits of roof/floor slabs for the wiring in a sample building for the approval of Engineer-in-Charge. The contractor may have to realign the wiring and or relocate the fittings required for final approval at no extra cost to Government. The entire work shall be completed on the basis of sample building. Layout wiring diagram in duplicate shall be submitted by the contractor and got approved from GE before execution of work.

18.1.4 Looping -in-system of wiring shall invariably be used through the installation.

18.1.5 All equipment, fittings and accessories, materials etc selected for the wiring installation shall conform to the relevant India Standards wherever these exist.

18.1.6 Contractor shall produce samples of all the fittings accessories materials etc for approval by the GE, before incorporation in work.

18.1.7 Not with standing, the fact that equipment has passed the inspection carried out during the stage of manufacture, the contractor is not relieved from his obligations to conform to the quality, workmanship, guarantee of performance etc.

18.1.8 Any defective material, equipment or workmanship which may come to the notice of the GE or his representative after installation shall be liable for rejection and the contractor shall have to replace such materials, equipment etc or rectify the defects at his own cost.

18.2. NON METALLIC (PVC) CONDUIT AND CONDUIT ACCESSORIES

18.2.1 Refer clause 19.29 of MES Schedule Part-I, 2009. Conduit and conduit accessories shall conform to relevant IS i.e., IS-9537 (Part-III) 1983 and IS-3419-1976. Conduit shall be non-metallic PVC conduit and shall show no appreciable un-evenness. Interior and ends of conduit and conduit accessories shall be free from bushes, ducts fins and the like which may cause damage to the cables. Each length of PVC conduit shall be marked with the following :-

- (a) Manufacturer's name or trade mark.
- (b) Country of manufacture.
- (c) Nominal size of the conduit.

18.2.2 Each length of conduit shall also be marked with the ISI certificate mark.

18.2.3 PVC flexible conduit of size as directed by the Engineer-in-charge shall be provided as required without any extra cost

PARTICULAR SPECIFICATIONS (Contd...)**18.2.4 CONDUIT ACCESSORIES**

18.2.4.1 The conduit fittings shall be made of non metallic PVC and shall be fabricated or cast to shape. They shall be so designed and constructed that they match with the corresponding conduit sizes without any adjustment and ensure reliable mechanical protection to the cable. The inside edges, through which the cables are intended to pass, shall be smoothly routed in order to prevent abrasion of cables. Entries for conduits shall be formed so as to prevent the conduit being screwed or pushed right through to the interior of the fittings. Inspection fittings shall be so constructed that the screws fixing the cover do not deform the conduits or damage the insulation of the cable enclosed. The screwed couplers shall be screwed inside throughout their entire length.

18.2.4.2 The axis of any elbow shall be a quadrant of a circle plus a straight portion at each end. Normal bend shall be large sweep being giving a diversion of 90 degree in the turn of the conduit half normal bends shall be similar to normal bends both as regards of curvature and length of straight portions at the ends but shall give a diversion in the run of the conduit of 45 degree small circular boxes shall be provided with lugs of thickness not less than 2.8 mm for fixing the covers. Large circular boxes shall have lugs of thickness not less than 4mm for fixing the cover fittings and shall be adequately protected against rust and corrosion both outside and inside with medium protective coating.

18.2.4.3 Fitting shall comply with the dimensions given in appropriate tables of IS-2667-1976 subject to a tolerance of + 5 percent.

18.2.4.4 Each fittings shall be marked clearly and with the following information :-

- (a) Name or trade mark of manufacturers.
- (b) Country of manufacture.

18.2.4.5 The fittings may also be marked with the ISI certification mark.

18.2.4.6 Conduit pipes shall be fixed by heavy gauge saddles, secured to suitable wood plugs or other plug with screws in an approved manner at an interval of not more than one metre, but on either side of couplers at bends or similar fittings, saddles shall be fixed at a distance of 30 cm from the center of such fittings. All necessary bends in the system, including diversion shall be done by bending pipes or by inserting suitable solid or inspection by normal bends, elbows or similar fittings, or fixing inspection boxes whichever is more suitable. Conduits fittings shall be avoided as far as possible, on conduit system exposed to weather, where necessary solid type fittings shall be used. All the screws shall be cadmium coated.

18.2.4.7 The conduit of each circuit or section shall be completed before conductors are drawn in the entire system of conduit after erection shall be tested for mechanical and electrical continuity throughout and permanently connected to earth wire by means of suitable earthing clamp efficiently fastened to conduit pipe in a workman like manner for a perfect continuity. Gas or water pipes shall not be used as earth medium.

18.2.4.8 Inspection type conduit fittings such as inspection boxes, drawn boxes, bends, elbows and tees shall be so installed that they can remain accessible for such purposes so as to withdraw existing cables or the installing of additional cables.

18.2.4.9 Separate conduit shall be used for normal light, fan, exhaust fan.

PARTICULAR SPECIFICATIONS (Contd...)

18.2.4.10 In case of concealed wiring, conduits shall be laid before casting in the slab so as to conceal the entire run of conduits and ceiling outlet boxes. Vertical drops shall be buried in columns or walls.

18.2.4.11 All wiring from FFL upto a height of 100 cm shall be drawn through non-metallic (PVC) conduit, concealed in walls. Contractors rates for the respective item of point wiring shall be included for this provision.

18.2.4.12 All the fan boxes shall be covered with 3 mm thick hylem sheet and contractors rate for the point wiring for fan shall include this provision.

18.2.5 LAYING OF CONDUITS

18.2.5.1 Conduits shall be laid either recessed in walls and ceilings or on surface on walls and ceilings or partly recessed partly on surface, as required.

18.2.5.2 Same rate shall apply for recessed and surface conduiting in this contract.

18.2.5.3 Stranded copper conductor insulated wire of size as per schedule of quantities shall be provided in entire conduiting for loop earthing.

18.2.5.4 GI wire of suitable size to serve as a fish wire shall be left in all conduit runs to facilitate drawing of wires after completion of conduiting.

18.3. PVC INSULATED 1100 VOLTS GRADE CABLE (PVC SHEATHED/UN-SHEATHED)

18.3.1 The conductor shall be of stranded copper wires. The insulation shall consist of compounded polyvinyl chloride. The thickness of insulation shall not be less than nominal value mentioned in appropriate table of IS-694-1964. The composition of the compound of sheath shall be polyvinyl chloride. The compound shall be designed to offer adequate mechanical protection. The value of thickness of sheath shall be in accordance with those specified in appropriate tables. The insulation on sheath shall be applied by the extrusion process and each shall form a compact homogeneous body.

18.4 SWITCH BOXES-MODULAR TYPE

18.4.1 Switch boxes suitable to house switches of required ratings, and fan regulators as required shall be provided. In case the number of switches in one box is not tallying with that available in standard manufacturer, the box accommodating the next higher of switches shall be provided without any extra cost. In case fan regulator/regulators is/are to be provided at a later date, suitable provision for accommodating such regulators shall be made in the switch boxes and blank of covers shall be provided without any extra cost.

18.4.2 Switch boxes shall be so designed that accessories are mounted on a grid plate with tapped holes for brass machine screws leaving ample space at the back and on the side for accommodating conductors, check-nuts and screwed bushes at conduit entries etc.. The grid plates and MS boxes shall be fitted with a brass earth terminal. Boxes shall be attached to conduits by means of check-nuts on either of their walls. Moulded front covers made from high impact resistant and ultra violet stabilized engineering plastics shall be fixed by means of counter sunk chromium plated brass machine screw. No timber shall be used for any supports. Switch boxes shall be located with bottom at 1200mm above floor level unless otherwise indicated.

PARTICULAR SPECIFICATIONS (Contd...)**18.4.3 MODULAR BOXES FOR SOCKET / TELEPHONE / CALL BELL OUTLETS**

18.4.3.1 Outlet boxes shall be suitable for housing switches socket outlets / telephone outlets / buzzers and any other outlet as required. These shall be so designed that accessories are mounted on a grid plate with tapped holes for brass machine screws leaving ample space at the back and on the sides for accommodating conductors, check nuts and screwed bushes at conduit entries etc.. The grid plates and MS boxes shall be fitted with a brass earth terminal. These shall be attached to conduits by means of check nuts on either sides of their walls. Moulded front covers made from high impact resistant, flame retardant and ultra violet stabilized engineering plastics shall be used to mount the outlets and shall be fixed to the outlet MS boxes by means of counter sunk chromium plated brass machine screws. No timber supports shall be used. Boxes shall be located at skirting level or bottom at 1200mm from floor or inside raceways on laboratory work table as indicated in drawings and / or as directed.

18.4.4 WIRES

18.4.4.1 Wiring shall be carried out with PVC insulated 660/1100 volt grade FRLS unsheathed single core wires with electrolytic annealed stranded copper (unless otherwise stated) conductors and conforming to IS: 694/1990, IS: 1554. All wire rolls shall be ISI marked. All wires shall bear manufacturers label and shall be brought to site in new and original packages. Manufacturer's certificate certifying that wires brought of site are of their manufacture shall be furnished as required.

18.4.4.2 The smallest size of conductor for lighting circuits shall have a nominal cross-sectional area of not less than 1.5 sq.mm, while minimum size of power wiring shall be 4 sq.mm.

18.5. MCB & DB

18.5.1 MCBs shall have quick make and break non-welding silver alloy contacts both on the manual and automatic operation. MCBs shall be of thermal magnetic type with inverse time delay over current tripping having a short circuit rupturing capacity as specified in Schedule 'A'. In case of multiple breakers, the tripping must be on all the poles and operating handle shall be common. Pressure clamp terminals for stranded solid conductor insertion are acceptable upto 4 Sqmm aluminium and for higher ratings, the terminals shall be suitably extended for bolted lugs connections. All terminals shall be suitably shrouded.

18.5.2 MCBs shall be housed in distribution board fabricated out of sheet steel and shall have IP-52 degree of protection to prevent entries of dust, ample clearance between the conductors and sheet steel body shall be maintained in order to obviate any chance of short circuit. Movable conduit entry plates shall be provided at top and bottom to facilitate drilling holes to suit individual requirement. The MCBs shall be mounted on a high grade rigid insulating support and connected by electrolytic copper bus bars phase separation barriers made out of resistant materials shall be provided between the phases. Bus bars shall be colour coded for phase identification and shall be PVC shrouded.

18.5.3 Distribution board of IP-52 degree of protection shall be recessed in wall niche/mounted on the surface of the wall with necessary clamps, bolts as required. Distribution boards shall be provided with proper identification name plate, danger mark etc. DB shall be provided with a circuit list giving details of each circuit. All the outgoing circuit wiring shall be provided with identification ferrule giving the circuit number and phase. Identification of all out going circuit shall also be written on the expose portion of DB.

18.5.4 Suitable earth terminal shall be provided on the distribution board for bending to earth.

18.5.5 Distribution Boards and MCBs shall be of the same make.

PARTICULAR SPECIFICATIONS (Contd...)**18.6. MODULAR SWITCHES/SWITCH SOCKET OUTLET/Socket OUTLET**

18.6.1 The base shall be made of vitrified ceramic material or tough non ignitable moulded insulating material. The covers, cover plates and actuate members shall be of tough, non ignitable insulating material. Current carrying parts shall be made of brass, copper phosphor bronze, aluminium alloy or any other suitable material, springs shall be of corrosion resistant metal. Attachment fitting screw and other non current carrying Parts shall be of mild steel aluminium alloy or insulating material. All socket outlets and switch socket combination shall have ISI certification mark.

18.7. UTILITY FITTINGS

18.7.1 The detailed dimension/indicated in the drawing/MES Schedule Part-I shall be followed. These fittings shall be pre-wired with twin core copper flexible cable of size 23/.0076. About 15 cm long extra flexible cable shall be provided with fittings for making connections with the connector.

18.7.2 Four Nos brass machine screw with washer, 4 mm dia 15 mm length, shall hold the shade.

18.7.3 Acrylic sheet shall be 3 mm thick and conform to IS-7569-1981.

18.7.4 Provision of earth connection is to be made in the fittings for earthing.

18.7.5 Brass lamp holders shall conform to relevant IS.

18.7.6 All fittings shall conform to relevant IS.

18.7.7 Fittings shall be fitted on PVC block of suitable size as directed. Cost for this provision shall be deemed to be included under respective item of fittings.

18.8 MOUNTING HEIGHT

18.8.1 Mounting height of various fittings shall be as under :-

- | | | |
|----------------------------|---|--|
| (a) Bracket light fittings | - | 215 cm from FFL. |
| (b) Ceiling light fittings | - | These shall be fixed centrally in the soffit of slab or as directed. |
| (c) Switch | - | 100 cm from FFL. |
| (d) Socket outlet | - | -ditto - |

18.8.2 Position of fittings not indicated above shall be as directed by the Garrison Engineer.

19. EXTERNAL ELECTRIC SUPPLY**19.1. GENERAL**

19.1.1 The scope of work covers external electrification to various buildings in this tender and includes all works described in various items of Schedule 'A' Particular Specification and as shown on drawing.

19.1.2 The layout of various electrical equipments, fittings /accessories cables etc shown on various drawings attached with this tender are tentative. The exact layout shall be as directed by Engineer-in-Charge and approved by GE in writing to suit the site requirements. Contractor to ensure written approval before taking work in hand. No price adjustment what so ever, shall be admissible to the contractor on this account.

PARTICULAR SPECIFICATIONS (Contd...)

19.1.3 Specifications of materials and workmanship in these external electrification services shall be as specified in MES Schedule part-I except where specifically mentioned in these documents. General rules, preamble to various section rates, Special Conditions, methods of measurements etc. given in SSR shall apply to this contract unless otherwise specified in these documents.

19.1.4 Particular specifications given here-in-after are brief and are only to particularise, amend or emphasize, the aforesaid specifications which are not repeated here. In case of any discrepancy between the two, specification mentioned herein shall take precedence over MES Schedule Part-I.

19.1.5 The tenderer shall be responsible for supplying, installing, laying, connecting, testing and commissioning of the item covered in the tender all as specified and directed by Engineer-in-Charge. The work shall be of high standard and executed as per sound engineering practice as per MES Schedule part-I/IE Rules/IS/National Electrical code.

19.1.6 During the currency of work and also on completion of work, testing shall be carried out for all items/the installation, as a whole as per SSR/IE Rules/IS to the entire satisfaction of GE and a record shall be maintained duly signed by the Engineer-in-Charge and the contractor.

19.1.7 Pre-commissioning test by EI/SEI will be carried out and record maintained. The contractor will be responsible for the arrangement of testing and all the equipment testing material will be arranged by the contractor at no extra cost.

19.1.8 The entire installation shall run continuously for 72 hours under normal operating conditions and contractor's Engineer, fully familiar with the system and equipment, shall be available at the site during this period for proper setting of relays instruments etc, and rectifications of any defect.

19.1.9 The equipments for testing and arrangements for testing shall be made by the contractor without any extra cost.

19.1.10 The tenderer shall include all requisite components, accessories like cable glands, lables, CTs selector switches shrouds, indication lamps, Auxiliary relays, contractors, toggle switches, handles, cable indicating dice, brackets and clamps of all kinds, instrument wiring, instrument fuses interlocks and all such other requirements for completion of the entire work though not specifically brought out in schedule 'A' and in these specifications. The tendered rates shall be deemed to include all connected works required for supplying, erecting, testing and commissioning of the entire equipments (s) fittings and items like foundation for equipments, supplying and connecting of cables in ducts etc.

19.1.11 Unless otherwise specified civil engineering works required for installation of the equipments such as grouting of poles and equipments, trench cutting and back filling in ground and in road crossing etc shall be deemed as included.

19.1.12 Wherever the cable crosses the cable existing path/road, the contractor shall dig only half the width of path/road at a time. If required, necessary diversion shall be provided. Proper warning signs and red light shall be provided. Proper warning signs and red light shall be displayed and watchman posted to prevent accident at crossings and diversions. After the cables are laid, tested and trenches refilled the road/path disturbed shall be made good to conform to the original specifications. No extra payment shall be made to the contractor for the aforesaid incidentals. The contractor shall be deemed to have visited site of works and made himself familiar.

PARTICULAR SPECIFICATIONS (Contd...)

19.1.13 The electrical works shall be carried out by properly skilled and licensed electricians under the supervision of qualified electrical supervisor/engineers as per IE Rules. The contractor shall, on demand by Engineer-in-Charge produce such evidence of qualifications of his workman/supervisors/engineers at the time of commencement of work and at any time thereafter/during the currency of work.

19.1.14 The items covered in this tender and incorporated in work shall be capable of delivering satisfactory services/operation without detriment to its life under the climatic conditions of the proposed site.

19.1.15 Before taking up any item of work of this tender in an area not belonging to Min of Defence, the contractor shall give adequate notice to the local authorities through MES. He shall be responsible for making adequate arrangements for lighting, watching and guarding excavation which might be a source of danger to the public.

19.1.16 **TESTING OF TRANSFORMER / DEG SET** : The transformer / DG Set shall be tested as type test, routine test & special test as per IS-2026 in presence of GE / his representative.

19.2 TIMELY PLANNING/PROCUREMENT ACTION BY CONTRACTORS

19.2.1 "Within Twelve weeks after acceptance of tender, the contractor shall produce documentary evidence to the effect that he has placed orders for various equipments of makes specified in the tender on the manufacturer or his authorized dealers, to the GE and the Accepting Officer".

19.3 SAMPLES AND MATERIALS

19.3.1 All materials (equipments, fittings, cables, accessories etc) to be incorporated in the work shall invariably be ISI marked and of the make specified herein and approved by GE. In case any ISI marked items is not available in the country, this shall be conforming to BIS and of the make approved by GE.

19.3.2 Amendments to IS issued till the date of receipt of tender are deemed to be included.

19.3.3 In case IS does not exist for any item, it shall conform to current BS/DIM/ASTM, specifications in which case a copy of relevant standards shall be submitted by tenderer.

19.3.4 The contractor after obtaining written approval of makes and samples, shall obtain the materials and equipments from an approved firm or through their authorised agents and shall ensure that the materials are brought to site in the manufacturer's original packing with seal intact.

19.3.5 The contractor is required to submit the original purchase vouchers/cash memos duly machine numbered and dated in respect of purchase of the articles showing all taxes, makes and numbers as required. The purchase vouchers shall be produced to the Engineer-in-Charge for his verification of materials/equipments and obtaining the approval/permission of GE for release of payments/incorporation in works. On approval, the Engineer-in-Charge shall deface the purchase vouchers etc and the defaced original voucher alongwith two Xerox copies thereof shall be submitted by the contractor to the Engineer-in-Charge for reference and record. The original purchase vouchers shall be released to contractor after technical check and payment of final bill.

19.3.6 No foreign exchange shall be made available by the Department.

PARTICULAR SPECIFICATIONS (Contd...)

19.3.7 Manufacturer's test certificate as per IS test procedures for items to be incorporated in works shall be submitted by the contractor.

19.3.8 The tenderer shall submit detailed catalogues/pamphlets/drawings for all major electrical equipment(s) like UG & LT cables etc. to the GE for approval within one month of placement of work order. The GE would convey the decision in two weeks and thereafter procurement action be organised accordingly by the contractor.

19.4. RECORD

19.4.1 On completion of work, the contractor shall submit one tracing (on cloth) and three copies of detailed layout plans showing :-

- (a) Detailed schematic diagram and S/S layouts,, with equipment details.
- (b) Schematic circuit and control wiring diagram for LT panels.

19.4.2 The following record for all buried cables :-

- (a) Size and type of cable and manufacturer's number.
- (b) Location of the cables in relation to buildings, roads, etc., with depth.
- (c) Cross section showing where cables are laid in pipes or ducts giving their sizes, type and depths together with an indication of any spare ways available.
- (d) Position and type of all joints.
- (e) Location of other cables which run alongwith or across the cable route.
- (f) Position and depth of all pipes, ducts etc which are met as obstructions to the cable route.
- (g) Accurate lengths from joint to joint.
- (h) Record of service lines as per MES Schedule Part-I para 19.96.

19.5. SAFETY PROCEDURE AND PRACTICES

19.5.1 In all major electrical installations such as sub-stations, industrial establishments, transmission and distribution lines and cable networks, safety procedures & instructions for working on low, medium and high voltage mains and apparatus and safety practices listed in IS-5216 (Guide for safety procedures and practices in electrical works) shall be followed to the extent applicable. The contractor shall provide workmen with safety devices and appliances.

19.6. FIRE SAFETY

19.6.1 All electrical equipment shall satisfy the requirements laid down in IS-1646 Code of practices for fire safety of buildings (general) electrical installation and IS-3034. Code of practice for fire safety of industrial buildings, electrical generating and distributing stations to the extent applicable.

19.6.2 **HDPE PIPE** : Shall conform to IS-14333:1996 and as described in MES Schedule Part-I.

19.7. CABLES

19.7.1 LT electric power cable shall be XLPE insulated and PVC bedded and overall PVC sheathed, heavy duty steel wire armoured all as specified in Sch 'A' conforming to IS : 7098 (Part I).

19.7.2 All LT cables shall bear ISI certification marks, These shall be brought at site wound on cable drum, ends sealed and with manufacturer's test certificates.

PARTICULAR SPECIFICATIONS (Contd...)

19.7.3 All jointing with termination lugs/sleeve shall be done with hydraulic/mechanical crimping tools.

19.7.4 All LT electric power cable connected in switches, bus bar, LT feeder pillar box etc will be connected with suitable size of aluminum lugs and entry of cable only through proper size of steel/brass chromium plated cable gland all as directed by Engr-in-Charge.

19.7.5 **Method of laying** : Before laying the cable, the trench shall be provided with a layer of sand of 8 cm depth for the purpose of cushioning. After the cable has been uncoiled and laid into the trenches over the rollers, the cable shall be lifted slightly over the rollers beginning from one end by helpers standing about 10 metres apart and drawn straight. The cables then be taken off the rollers by additional helpers lifting the cable and then laid straight into the route. When the cable has been properly straightened, it shall be covered with sand to a depth of 15 cm. This is then gently punned down to a depth of 10 cm above top of the upper most cable, thus providing a good bedding for the protective cable cover on warning covers which are placed centrally over the cable i.e. by PCC slab. The punning shall be done by hand, mechanical punners shall not be used.

(a) **Depth of trench** :- Depth from the upper surface of the street pavement or ground to the cable axis shall be not less than the following :-

(i) upto 1.1 KV Working pressure : - 45 cm plus radius of complete cables.

19.7.6 **Spacing between cables**: When more or one multicore or trefoil group of single core cables are laid in the same trench, a horizontal inter axial spacing of 25 to 40 cm shall be provided to reduce the effect of mutual heating and to ensure that a fault occurring in one cable will not damage the adjacent cable. When more than one tier of cable is necessary, riddle soil is filled in the trench, and rammed down to form a solid bed to a height of 25 to 40 cm above that of the first tier. The mesh of the screen through which the soil is riddled should not exceed 12.5 mm IS sieve. The width of the trenching shall in no case be less than 45 cm so as to facilitate working on the cables. Laying of cables in tier formation shall be avoided as far as possible as loading of cables is very much reduced.

19.7.7 **Road Crossing**: When crossing roadways, it is preferable to cross on the askew to reduced the angle of the bend as the cable enters leaves the road crossing. The cable shall pass through pipe as per schedule 'A'.

19.7.8 **Pulling out the cable**: On no account the cable shall be allowed to twist or kink as it is likely to spring the Armour and fracture the paper insulation and outer serving of the cable. When pulling cable around the bends, rollers should be placed sideways so as to keep the cable on a safe radius. Cable drums should be rolled in the direction of arrow.

19.7.9 **Minimum Bending Radius**. Cables shall always be bend (or straightened) slowly they should never be bend to a small radius. The minimum safe bending radius for impregnated paper insulated cables may be taken as given below, but wherever possible larger radius should be used.

Voltage	Minimum Bending Radius		
	Single core cables	Multicore cables	
		Unarmoured	Armoured
Upto 11 KV	20 D	15D	12 D

Note: 'D' is the overall diameter of the cable. At joints and terminations, the individual of Multiple cable should never be bent so that the radius of the bend is less than 15 times the diameter over the insulation.

PARTICULAR SPECIFICATIONS (Contd...)

19.7.10 **CABLE LAID IN DUCTS OR FLOORS** : Cables ducts should be of such dimensions that the cables laid in it do not touch one another. If necessary, cables may be fixed with clamps on angle iron support on the walls of the ducts. The duct should be covered with removable slabs or chequered plates and filled with sand after the cables have been laid without any cost to the Government.

19.7.11 **CABLE LAID ALONG THE SURFACE OF THE WALLS** : Cables may be fixed by means of suitable MS clamp or bracket or on cable racks, as directed. If necessary the cable may also be laid in a chase cut in the wall and fixed with clamps. The chase may be covered with removable MS Sheet.

19.7.12 **CABLE ENDS** : All PVC cables upto 1100 volts grade shall be terminated into the equipment by means of compression type cable glands having screwed nipples and check nuts. The cable conductors shall be provided with crimp type solder less cable socket or connections to suit the termination arrangement of the equipment. The crimping shall be done by hand/hydraulically operated crimping tool after applying conducting jelly. The insulation of the cable shall be removed just immediately before the crimping is done.

19.7.12.1 **CABLE ROUTE INDICATOR**: The cable route indicator shall be made out of 50x50x6 mm angle iron, 60 cm long embedded in PCC (1 : 4: 8) type D-2 of size 30x30x30 cm with the letter 'HT CABLE' OR "LT CABLE" suitably inscribed on CI circular plate 8 mm thick 100 mm dia. The cable route indicator shall be provided at the ends, for loops, at bends and at interval of 25 m in straight runs.

19.7.13 **TESTING OF CABLES** : All low voltage and high voltage cables shall be tested by Megger before laying and after carrying out the joints. The cables shall be tested for :-

- (a) Continuity.
- (b) Absence of cross phasing.
- (c) Insulation resistance to earth.
- (d) Insulation resistance between conductors.

19.7.14. **TESTING AFTER LAYING AND JOINTING** : The following tests shall also be carried out after the initial laying and jointing work.

- (a) Insulation resistance test : Sectional and overall
 - (b) Continuity Test : Sectional and overall
- Insulation resistance test shall be carried out between conductor and earth by Meggar of the following voltages:-
- | | | |
|-----------|---|----------|
| LT Cables | - | 0.5/1 KV |
|-----------|---|----------|

20. **RETAINING WALLS**

20.1. **GENERAL**

20.1.1 Refer relevant Clauses of of MES Schedule Part-I and all specified in Particular Specifications here-in-before for various Trades.

20.1.2 Retaining Walls shall be constructed all as specified in Schedule 'A' and shown on Drawing. All Materials/ relevant materials shall be as specified here-in-before.

PARTICULAR SPECIFICATIONS (Contd...)**21. STANDARD OF QUALITY AND WORKMANSHIP**

21.1. The supply and installation of all equipment and accessories shall strictly comply with provisions contained in the latest addition of Indian Standard Code of Practice and as applicable to aforementioned works except where such regulation and rules are modified by this specifications.

21.2. All electrical work shall be carried out by properly skilled and license electrician under the supervision of qualified electrical supervisor/Engineers (See condition 25 of General Conditions of Contract IAFW-2249). Electrician, Supervisor and the contractor shall be license holder for HT works as per IE Rules. The contractor shall on demand by the Engineer-in-Charge produce such evidence of qualification of workman/supervisor/Engineers, either at the commencement of work at any time thereafter during the currency of the contract. The entire work shall be high class with the best workmanship and to the entire satisfaction of the Engineer-in-Charge.

22. EQUIPMENT AND MATERIALS

22.1. All equipments and materials to be incorporated in this work shall be of make as specified in Sch 'A' and shall strictly comply with latest appropriate Indian Standard Specification or where IS Specification is not available, they shall comply with latest BIS Specification.

22.2. Materials and equipments for which make have not been specified shall be of standard make and shall strictly comply with current appropriate IS specifications. The items/works for which specification has not been given they shall comply with latest IS/BIS specifications.

23 APPROVED NAMES OF MANUFACTURERS

23.1. Approved names of manufactures of various items/equipment(s) to be incorporated in this work unless otherwise specified in Schedule 'A' or anywhere in the tender documents shall be as under :-

SN	DESCRIPTION OF ITEM	MAKES
1	2	3
1	CHLOROPYRIPHOS ATT CHEMICAL	DURBAN/TRISHUL/DE-NOCIL.
2	CONSTRUCTION CHEMICALS LIKE WPC,NON METALLIC HARDENER, EPOXY AND POLYMER BASED	FOSROC/PIDILITE/BAUCHEMIC INDIA/CICO/ROFF
3	GLAZED/CERAMIC/ VITRIFIED TILES	KAJARIA/SOMANI/ORIENT/REGENCY/BELL/NITCO/ JOHNSON/ASIAN GRANITO INDIA LTD.
4	CI PIPE CENTRIFUGAL SANITARY	NECO/BPL/BAJAJ
5	PVC SWR PIPES	SUPREME/JAIN /KISAN/PRINCE
6	PVC WATER PIPE	SUPREME/JAIN /KISAN/PRINCE
7	PP-R PIPE & FITTINGS	SUPREME/KISAN/SFMC/FUSION
8	HDPE PIPE AND FITTINGS	SUPREME/ KISAN/ DURO PLAST.
9	GI TUBING	TATA/JINDAL/ZENITH/PRAKASH SURYA
10	DOOR CLOSURE	UNIVERSAL/ EVERLITE/SANDHU
11	MORTICE LOCK	GODREJ/HARRISON
12	CEMENT BASED PAINT	SNOW CEM/DURA CEM/AQUA CEM
13	ACRYLIC EMULSION PAINT	ASIAN/SHALIMAR/BERGER

PARTICULAR SPECIFICATIONS (Contd...)

1	2	3
14	SYNTHETIC PAINT	ASIAN(APCOLITE)/SHALIMAR(SUPERLAC)/BERGER (LUXOL) /JOHNSON(BROLAC)/ICI(DULUX)/NEROLAC
15	OIL BOND DISTEMPER /PLASTIC PAINT	ASIAN/SHALIMAR/BERGER/ICI/NEROLAC/GARWARE
16	GLASS/MIRROR	SAINT GOBIN/MODI/ATUL/KOHINOOR/GOLD FISH/TRIVENI
17	APP MODIFIED WATER PROOFING MEMBRANES	TEXAS/STP/TIKI TAR/IWL/ JALNIDHI/PIDILITE
18	JOINT SEALING COMPOUND GRADE 'A'/'B'	STP/ CHOWKSY CHEMICAL/TIKI TAR/PIDILITE
19	NON SKID CERAMIC TILES	REGENCY/KAJARIA/SOMANY/JOHNSON
20	PVC COPPER CONDUCTOR CABLES FOR WIRING (FRLS)	MESCAB/ NICCO/FINOLEX/L&T/ 'V' GUARD/PLAZA
21	PVC ALUMINIUM CONDUCTOR CABLES.	MESCAB/ PLAZA/PARAGON/ISI MARKED
22	MCCBS	SCHNEIDER(NSX)/ SCHNEIDER (ACTI-9)/ABB/ LEGRAND/ CONTROLS AND SWITCH GEAR CO.LTD/ L&T (D-SINE)/ INDO ASIAN (GOLD PLUS)
23	PVC CONDUIT & CONDUIT ACCESSORIES	AVON PLAST / PLAZA /FINOLEX / RICHA
24	MCB DISTRIBUTION BOARDS, MCBS AND ISOLATORS	LEGRAND / ABB /INDO ASIAN (GOLD PLUS)
25	MODULAR SWITCHES AND SOCKETS	CRABTREE /ANCHOR (VIOLA)/ ABB/ SCHNIEDER (ZENCELLO)
26	NORMAL SWITCHES AND SOCKETS/CEILING ROSE	ANCHOR/HAVELLS/ KOLORS
27	FLUORESCENT / COMPACT FLUORESCENT LAMP FITTINGS & OTHER LUMINARIES	BAJAJ/PHILIPS/ CROMPTON /WIPRO/HAVELLS
28	LT CABLES	MESCAB/ NICCO//POLYCAB/INDO GLOSTER/PLAZA/ RPG/HAVELS/UNIVERSAL/UNISTAR/ CRYSTAL.
29	11 KV CABLES HT	HAVELS/UNIVERSAL/ TORRENT/ CRYSTAL.
30	CHANGE OVER SWITCHES	C & S/HAVELLS/ABB/L&T/ INDO ASIAN
31	VOLT/AMP/FREQ METERS	AE/IMP/HAVELLS/MECO/L&T
32	VOLT/AMP/FREQ METERS(DIGITAL)	ENERCON/ABB/SIEMENS
33	VCB	SCHNEIDER / ABB / ITE GURGAON / GE PROLEC / L&T /CROMPTON GREAVES / SIEMENS.

PARTICULAR SPECIFICATIONS (Contd...)

1	2	3
34	HT CABLE JOINTING KIT	DENSON / M SEAL / 3M.
35	SWR PIPE	JAIN IRRIGATION SYSTEMS LTD/ KISAN MOULDINGS LTD
36	DI PIPE	KESORAM / TISCO / KEJRIWAL / ELECTROSTEEL.
37	VOLTAGE STABILIZER UPTO 5 KVA.	V GUARD / VOLINA / VOLTAS / SERVOCON.
38	HDPE PIPE	SINTEX OR ANY ISI MARKED.
39	NP2 CONCRETE PIPE	ANY ISI MARKED
40	ANTI STATIC FLOORING/ RUBBER SHEET FLOORING	ANY ISI MARKED
41	GALVALUME PREPAINTED SHEET	TATA BLUE SCOPE/PRESTAR/CRILL/METCO /SPECTRUM/ DYNA ROOF

SIGNATURE OF CONTRACTOR
DATE:_____

SSW
FOR ACCEPTING OFFICER

PARTICULAR SPECIFICATIONS (CONTD.)**24. LIST OF DRAWING**

Ser No	Description of drawings	Drawing No	Sheet No	Date of Drawing	
				Original/ true Copy	Last Revision
1	2	3	4	5	6
<u>INDOOR BADMINTON COURT (ARCHITECTURAL DRAWINGS)</u>					
1	Plan Front and Rear Elevations.	CWE/KUR/01	1/3	07.11.17	
2	Left & Right side elevation, section at A-A and details of box type window.	-do-	2/3R	07.11.17	
3	E/M Plan, Roof Plan and schedule of finishes.	-do-	3/3	07.11.17	
<u>STRUCTURAL DRAWINGS</u>					
1	Layout plan of foundation, column, schedule and typical details of footing and column	CWE/KUR/STR/01	1/7	07.11.17	
2.	Layout plan of plinth beam, lintel beam, schedules and typical details of beams	-do-	2/7	07.11.17	
3.	Layout plan of roof beam, schedule and typical details of beam and col junction and other details	-do-	3/7	07.11.17	
4.	Typical details of cantilever beam & slab and 1 BK, ½ BK Wall	-do-	4/7	07.11.17	
5.	Arrangement of bracing truss and schedule of truss member.	-do-	5/7	07.11.17	
6	Typical details of truss	-do-	6/7	07.11.17	
7.	General Notes and reference	-do-	7/7	07.11.17	
8	Typical detail of beam column junction and other details.	CWE/BOR/STR/330	3/5	06.03.17	

PARTICULAR SPECIFICATIONS (CONTD.)

Ser No	Description of drawings	Drawing No	Sheet No	Date of Drawing	
				Original/ true Copy	Last Revision
1	2	3	4	5	6
<u>TYPICAL DETAILS DRAWINGS (COVERED IN BOOKLET)</u>					
1	Typical Drain	AF/TD/169/06	1/1		
2	Details of Indian type WC single stack system	AF/TD/179/06	1/1		
3	Architectural Norms	AF/TD/182/06	1/1		
4	Fixing details of Exhaust Fan	AF/TD/183/06	1/1		
5	Detail of M/s Hook, Brick, steps, Plinth protection, peg set, soap niche, pcc sill, ground sink	AF/TD/184/06	1/1		
6	Details of Ramp, Pelmet Box, Curtain Rod, Roof Projection	AF/TD/185/06	1/1		
7	Details of Steel door (SD-1A)	AF/TD/201/06	1/2-2/2		
8	Details of Steel doors	AF/TD/205/06	1/2-2/2		
9	Miscellaneous Details	AF/TD/207/06	1/2-2/2		
10	Steel Windows with fan lights and guard bars.	AF/TD/208/06	1/2-2/2		
11	Details of RCC Chajja, MS Rung, Eaves Board.	AF/TD/215/06	1/1		
12	Ductile detailing of reinforced concrete str subjected to seismic force	AF/TD/STR/01	1/5-5/5		
13	General Notes and Structural Details	AF/TD/STR/02	1/18-18/18		
14	Typical joint details of steel Hallow section truss	AF/TD/STRU/211	1/1		
15	Typical details of RR retaining wall	AF/TD/STR/261/16	1/1		

Note :- Under column 3 of List of Drawings (TD drgs), reference to drawings No. "AF/TD & T" have been made. Contractor are deemed to be in possession of all said standard drawings amended upto date as issued by "Chief Engineer (Air Force) Shillong Zone", Shillong/CWE(AF) Borjar . These drawings may however be referred to in this HQ/GE office during working hours. No claim whatsoever shall be admissible to the contractors on account of any misunderstanding if any on this account.

SIGNATURE OF CONTRACTOR
DATE: _____

SSW
FOR ACCEPTING OFFICER

PARTICULAR SPECIFICATIONS (contd.)**(APPENDIX-`A)****CEMENT SUPPLY/ACCEPTANCE FORM CEMENT ACCEPTANCE REGISTER**

1. CA No & Name of work :
2. Control No
3. Name of Manufacuterer/Brand Name/ Gde of Cement (A) Manufacture _____ (b) Brand _____ (c) Grade
4. Qty of cement & Lot No/Week No (in BORs) : Qty _____ (b) Lot No/Week No _____
5. Manufacturer's test Certificates No _____
6. Random Test Details (a) Physical test report from vide their letter No _____
(Name of approval Lab/Engg College)
(b) Chemical test report from _____ vide their letter No _____
(Name of approval Lab/Engg College)

Details of Physical & Chemical properties :-

(APPENDIX-`A)**PARTICULAR SPECIFICATIONS(CONTD)****CEMENT SUPPLY/ACCEPTANCE FORM CEMENT ACCEPTANCE REGISTER**

	Physical Requirements (As per IS 4031)1										Chemical Requirements (As per IS 4032)							
	Specific Surface (M ² /Kg)	Soundness by Le chatellar Expansion Expansion (%)	Soundness by Auto Clave Expansion	Initial setting time (Minutes)	Final setting time (Minutes)	Compressive Strengths			Temp during testing 0C	Standard consistency (%)	Lime saturation factor (Ratio)	Almina Lon Ratio (Ratio)	Insoluble Resdue (%)	Magnesia (%)	Sulphuric Anhydride (%)	Loss opn Ignition (%)	Alkaes (%)	Chloride (%)
						03 Days (Mpa)	07 Days (Mpa)	28 Days (Mpa)										
As per relevant IS																		
As per manufact urer's test certificate																		
As per random test certificate																		

SIGNATURE OF CONTRACTOR
DATE: _____

SSW
FOR ACCEPTING OFFICER

CA NO: CWE (AF)/BAG/

OF 2018-19

SERIAL PAGE NO.141

PARTICULAR SPECIFICATIONS (contd.)**Appendix ' B '****STEEL SUPPLY & ACCEPTANCE REGISTER**

1. CA NO & Name of Work
2. Contract No
3. Name of Manufacturer's T.C No
4. Manufacturer
5. Random Test details (a) Physical test report from _____ vide their letter No _____
(Name of approved Lab/Engg College)

(b) Chemical test report from _____ vide letter No _____
(Name of approved Lab/Engg College)

Types of steel, Dia & Qty (a) type : TMT/CRS (b) Dia _____ mm (c) Actual Wt _____ MT (d) Conversion Wt _____ MT

	Chemical test						Mechanical test						
	Carbon %	Sulphur %	Phosphorous %	Manganese %	Silicon %	Corrosion Resistant element	Wt per metre	Stress (N/mm ²) 0.2% proof stress	Tensile strength (N/mm ²)	Elongation %	Bend Test	Rebend Test	Remarks
As per IS 1786													
As per Manufacturer's test certificate													
As per independent test													

Remarks with Signature

Accepted/Rejected

Contractor

Junior Engineer

Engineer-in-Charge

Garrison Engineer

Remarks of BOO/Inspecting Officer/CWE

SIGNATURE OF CONTRACTOR

DATE: _____

SSW

FOR ACCEPTING OFFICER

PARTICULAR SPECIFICATIONS (contd.)**APPENDIX 'C'****MATERIAL AND THEIR TESTS**
RECOVERY RATES OF TESTING CHARGES

Sl No	Materials	Test	Method of testing	Frequency of Tests	Level of test	Rate per test Rs. Ps	Remarks
1	2	3	4	5	6	7	8
1.	Bricks	i) Compressive strength	IS-3495 (Part – II)	As per IS-5454 as given under :- Lot size Sample permissible No of size defective bricks	'A'	180/-	Checks for visual and dimensional characteristics shall also be carried out
		ii) Water absorption	-do-		'A'	150	as per IS-5454.
		(iii) Efflorescence	-do- (Part I)	1001 to 5000 10001 to 100000 35000 35001 to 150000	'A'	180/-	Legned Site lab B- Zonal lab C-National test House / SEMT wing Pune Engg College.
2	Coarse aggregate	(i) Sieve analysis	IS-2386 (Part I)	One test for every 15M ³ of aggregates or part thereof brought to site.	'A'	120/-	
		(ii) Flakiness Index	-do-	-do-	'A'	90/-	
		(iii) Estimation of deleterious materials	IS-2386 (Part-I)	One test for every 100M ³ of aggregate or part thereof.	'A'	120/-	
		(iv) Organic impurities	-do-	One test per source of supply	'C'	120/-	
		(v) Moisture content	-do- (Part – II)	Regularly as required	'A'	120	

PARTICULAR SPECIFICATIONS (contd.)**APPENDIX 'C'**

		(vi) Specific gravity	-do-	One test for each source of supply.	'B'	120/-	
3.	Fine aggregate	(i) Sieve analysis	IS-2386 (Part -I)	One test for every 15 M ³ of FA or part when brought to site.	'A'	180/-	
		(ii) Test for clay, -do- silt, and impurities	-do- (Part I)	-do-	'A'	90/-	
		(iii) Specific gravity	-do- (Part II)	One for each source of supply	'A'	180/-	
		(iv) Moisture content	-do- (Part-II)	Regularly as required subject to 2 tests/day when being used.	'A'	180/-	
		(v) Test for organic impurities(Part – II)	-do-	One test for each source of supply.	'C'	180/-	
4.	Structural Concrete (M-15 Grade and above)	(i) Slump test or compacting factor test or vee-bee time	IS-119	The minimum frequency of sampling of concrete of each grade shall be as under:-	'A'	180/-	Random sampling shall be carried out to cover all mixing units.
		(ii) Compressive strength	IS-516	Qty of concrete samples in the work(cubic Metre) 1 3 31-50 4 51 and above 4+1 for each	'A'	120/-	As per IS-456 clause 14 for frequency of sampling.
5.	Cement Flooring /tiles	(i) Water Absorption	IS-1237 (Appx 'D')	06 tiles out of 18	'B'	180/-	Sample of 18 tiles from each source of supply selected at Random.
	-DO-	(ii) Wet transverse strength	-do- (Appx 'E')	-do-	'B'	144/-	
	-D0-	(iii) Resistance to wear	-do- (Appx 'F')	-do-	'C'	540/-	

PARTICULAR SPECIFICATIONS (contd.)**APPENDIX 'C'**

1	2	3	4	5	6	7	8
6.	TIMBER	Spacific gravity and weight	IS-1708-1960 Minimum 3 samples from a lot	of 4 Cum or 250 pieces of seasoned timber.	`B'	120/-	
		(ii) Moisture content	-do-		`A'	120/-	
7.	Water for construction purposes	Test for Acidity	IS-456& 3015	Once at the stage of approval of source of water.	`B'	240/-	Also refer clause 4.3 of IS-456 and its subsequent sub clauses regarding suitability of water.
		(ii) Test for Alkalinity	-do-		`B'	240/-	
		(iii) Test for solid content	-do-		`C'	300/-	
8.	Welding of steel work	Visual inspection test	IS-822-1970. Clause 7.1	100% by Visual inspection	Work site	360/-	frequency to be decided on consideration of their importance by the Accepting Officer.
9.	Timber onesl and glazed Door/window & Shutters (including Factory made Shutters)	Dimension s, sizes, workmans hip and finish	IS-1003-1977 (Part I)	Frequency of sampling from each lot shall be as under:- Lot size sample size 26 to 50 5 51 to 100 8 101 to 150 13 151 to 300 20 301 to 500 32 501 to 1000 50 1001 and above 80	`A'	180/-	

PARTICULAR SPECIFICATIONS (contd.)**APPENDIX 'C'**

		(b) Strength test(i) Slamming	IS-1303-1990	From the each lot 5% of the factory made shutters shall be manufacture tested for strength test.		-do-	
		(ii) Impact indentation	-do-			-do-	
		(iii) Shock resistance	-do-			-do-	
		(iv) Edge loading	-do-			-do-	
10.	Plywood (IS-303-1989)	(a) Moisture content	IS-1734-1983 (Part-I)		'B'	120/-	
		(b) Water/ resistance test	-do-(Part-I)	Six test pieces cut from each of the boards selected as per table shall be subjected to tests	'B'	240/-	Sampling shall be as per IS-7835-1975
11.	Veneered wood particle board (medium density) IS-3097-1985	(a) Density	IS-635	Three test specimens from each (Part-I) sample size 150mm x 75 mm)	'C'	60/-	Sampling shall be as per IS-3487-83 with moisture metre.
		(b) Moisture Content	-do-	-do-	'A & B'	60/-	
		(c) Water Absorption	-do-	-do-(Size 300 mm x 300 mm)	'A'	60/-	
		(d) Swelling due to surface absorption (Part 17)	-do-	-do-(Size 125 mm x 100 mm)	'A'	60/-	
		(e) Swelling in water	-do-	-do-(Size 200 mm x 100 mm)	'A'	60/-	
		(f) Modulus of rupture	-do-(Part -4)	Three test specimens as per IS-2380-77	'B'	90/-	
		(g) Screw withdrawal strength	-do-(Part1 -4)	-do- as per IS-2385	'C'	120/-	

PARTICULAR SPECIFICATIONS (contd.)**APPENDIX 'C'**

12.	CEMENT	(a) Setting time	IS:4031-63 Re RE-AFFIRME T- 1986	Once for each consignment or as and when required.	'B'	210/-	
		(b) Soundness	-do-	-do-	'C'	140/-	
		(c) Compressive Strength	-do-	-do-	'B'	420/-	
		(d) Fineness	-do-	-do-	'C'	140/-	

SIGNATURE OF CONTRACTOR
DATE:_____

SSW
FOR ACCEPTING OFFICER

APPENDIX 'D'**FORMAT FOR QUALITY CONTROL PLAN**This format shall form part of Contract Agreement(To be submitted by Contractor within 30 days of commencement of contract)**PART-I**

1. Contract Agreement reference No :
2. CPM Network prepared and approved by GE :
3. Resource scheduling done based on CPM :
4. Site Laboratory (with equipments) set up as per Contract Agreement : Not Applicable
5. Concrete mix design submitted and approved :
6. Preliminary works completed to standard engineering practice :
7. Arrangements for water made (Including testing of water) :
8. Arrangements for electric supply made :
9. Materials

Sl No	Item	Source as per CA	Contractor's plan of sourcing	Refer to testing clause	Agency for testing	Responsibility
1	2	3	4	5	6	7

10. List of all T & P, make and numbers that the contractor would deploy at site of work.
11. Name of person nominated by contractor exercising quality control :
12. Qualifications/Experience of person at Srl No 11 above. :
13. Name of supervisors with their qualifications/ experience employed by contractor. :
14. Confirmation that contract relating to relating to quality of all materials and standards of workmanship and finishes and :
15. Confirmation that requirement of tests to be conducted on materials before approval of sample and during execution, tests on workmanship, tests :

Contd...2/-

APPENDIX 'D' (contd...)**PART I (Contd..)**

16. Method to be adopted for maintaining :
records of tests result
17. Certificate that contractor shall maintain :
a log of all materials received at site as
per the following format:-

SI No	Date	Materials	Quantity received	Source	Whether as per approved sample or not	Tests carried out by supplier	Tests to be carried out before incorporation
1	2	3	4	5	6	7	8

18. General remarks by contractor of his plan of action to ensure that quality.

(Signature of contractor)

Date

SIGNATURE OF CONTRACTOR
DATE: _____

SSW
FOR ACCEPTING OFFICER

APPENDIX 'D' (contd...)**Part-II**

(To be completed by GE before forwarding for approval by CWE)

- 1 Verification of Serial No 2 to 8 of Part – I :
- 2 Verification of Serial No 9 to 18 of Part – I :
- 3 Confirmation that stage Passing Register :
laying down the stages and authority
responsible for approving the same has
been prepared, shown to contractor and
kept at site.
- 4 Confirmation that all sites as require by :
contract has been handed over to
contractor on the date fixed in Work
Order No 1
- 5 Confirmation that arrangements for Govt :
liability in supply of water and electricity
has been made and no hold up on this
account is expected.

Dated :

(Signature of GE)

Approved by CWE