Standard Bidding Document for Double Cover off-line tender

(value more than Rs. 50 Lakhs)

DESIGNED TO EXCEL

ODISHA CONSTRUCTION CORPORATION LTD.
(A Govt. of Odisha Undertaking)

Subarnarekha Canal Group of Projects, Laxmiposi

COVER – I

(TECHNICAL BID)

Tender Call Notice No.03/OCCL/SCP/2025-26,
dt. 24.11.2025

NAME OF WORK

Construction of E-Library & Reading Room at Meghasan College, Nudadiha in the District of Mayurbhanj
Last date of submission of Tender : 08.12.2025(Up to 1.00 PM)

Manager (Civil) **Senior Manager (C),P.M-2** **G.M (C), H.O**

APPROVED

MANAGING DIRECTOR

TABLE OF CONTENTS

Contractor Senior Manager (Civil)

1. DETAILS OF DEMAND DRAFTS SUBMITTED BY THE BIDDER WITH THE TECHNICAL BID (COVER-I)

(DETAILS TO BE FILLED IN BY THE BIDDER)

A. DETAILS OF TENDER PAPER COST SUBMITTED BY THE BIDDER

Tender Paper cost Rs._____

(Rupees_____

_____) only vide A/C Payee D.D.

_____Dated_____issued by

_____

Bank,_____Branch in favour of " **Odisha Construction Corporation Ltd**" payable at **Bhubaneswar**.

B. DETAILS OF EARNEST MONEY DEPOSIT (EMD) SUBMITTED BY THE BIDDER

Exempted till 31.12.2022 as per Finance Department Office Memorandum No. 8484, dated. 05.04.2022. The Bid Security Declaration form in prescribed proforma is attached herewith.

Full signature of "Bidder" with seal

Contractor Senior Manager (Civil)

2. Particulars of the Bidder

(Details to be filled in by the bidder in all respect in the blank space ***otherwise his tender will not be considered****.)*

Full Name of the Bidder: -

…….

Full Address of the Bidder :-

……

……

……

…… PIN -

…….

Telephone No. – Land line :……Mobile :

…….

E-mail ID :-

…….

OCC Enlistment No. of the Bidder:

……..

Signature of the Bidder with seal

Contractor Senior Manager (Civil)

3. **OTHER STATUTORY DOCUMENTS SUBMITTED** :- (*Please write the GSTN / PAN / EPF No. etc. in the relevant box and attach the certified copies of the documents*)

i.	GST No.	
ii.	PAN	
iii.	EPF No.	
iv.	OCCL Enlistment No. -	Valid upto-
v.	Any other documents. (As per Tender Call Notice)	

Full signature of the "Bidder" with date and seal

Contractor Senior Manager (Civil)

4.Undertaking by the Contractor

I / We Shri _____

(In case of the firm, the name of the proprietor/head of the firm along with the designation & name of firm should be mentioned)

S/o Sri _____, Permanent resident of

Vill./Street _____, P.O. - _____, P.S.- _____

Via -_____, Dist. -_____State -_____, PIN -_____

declare that I/We have thoroughly gone through the tender document and I/We know about the site(s) of works. I/We agree to work at rates quoted by me/us or atsettled rates and abide by the terms and conditions of the tender document.

Full signature of the "Contractor" with date and seal

Contractor Senior Manager (Civil)

ODISHA CONSTRUCTION CORPORATION LTD.
(A Govt. of Odisha Undertaking)
SUBARNAREKHA CANAL GROUP OF PROJECTS,
QR.NO.D4/2, IRRIGATION COLONY, LAXMIPOSI AT/PO: - LAXMIPOSI,
BARIPADA, DIST: MAYURBHANJ, ODISHA-757107.
Email id: occbaripada@gmail.com
Tender Call Notice No. 03/OCCL/SCP/2025-26 dt. 24.11.2025

1. The Senior Manager (Civil) Subarnarekha Canal Group Of Project, Laxmiposi on behalf of Odisha Construction Corporation Ltd. ("OCCL") invites sealed tender on percentage rate basis on double cover from the eligible class of contractors enlisted with "OCCL" for the following work.

Sl. No.	Name of work	Approx. value of work (Rupees in Lakhs)	EMD@1%	Cost of Bid document (non refundable including GST) (Rs.)	Period of completion.	Class of Contractor
1.	Construction of E-Library & Reading Room at Meghasan College, Nudadiha in the District of Mayurbhanj	64.65 Lakhs	64,700/-	Rs.10,000 + Rs.1800 (GST@ 18%) = Rs.11,800	11 months including rainy season	C-II & above

2. The tender document can be downloaded from the official websites of OCC Ltd. (www.odishaconstruction.com) from **24.11.2025** to **08.12.2025** up to **1.00 P.M**. In such case, the Contractors have to deposit the cost of tender paper as above by cash/demand draft to be drawn on or before dt. **08.12.2025** from any nationalized / scheduled bank payable at **Baripada/Bhubaneswar** in favour of **Odisha Construction Corporation Ltd.** along with the tender.
3. The tender must be accompanied with Bid Security Declaration form (as enclosed with this document) in prescribed proforma failing which the bid will be treated as non-responsive.
4. The tender is to be dropped in the tender box kept in the office of the Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi in **a cover containing Cover-I & Cover-II**.

   Cover- I is to contain Bid Security Declaration form, Copy of valid enlistment certificate as Contractor/job-worker issued by "OCCL"., Copy of PAN card, copy of GST Registration & Clearance Certificate, Copy of EPF registration and Copies of Credential certificates and documents required as per the relevant clauses of DTCN and special conditions if any. The cover is to be sealed and super scribed as **Cover – I (Technical Bid)** for the work: - **Construction of E-Library & Reading Room at Meghasan College, Nudadiha in the District of Mayurbhanj.**

   Cover – II is to contain the price bid duly filled in and signed by the bidder and is to super scribed as **Cover – II (Price Bid)** for the work: **Construction of E-Library & Reading Room at Meghasan College, Nudadiha in the District of Mayurbhanj.** The bidders are required to write their names over the Cover-II.

Contractor Senior Manager (Civil)

Both the covers are then to be kept inside a third cover duly sealed and super scribed with the name of the work:- **Construction of E-Library & Reading Room at Meghasan College, Nudadiha in the District of Mayurbhanj.** In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamper proof tapes as additional precaution.

5. The bidders are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had invited the bid.

6. The bid must be dropped in the Tender Box kept in office of the Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi on or before **1:00 pm** of **08.12.2025**. **Cover- I (Technical Bid)** Bid will be opened on **08.12.2025** at **3.30 PM** in the same venue in presence of the tenderers or their authorized representatives, who may like to be present. If there will be a public holiday on the last date of receipt & opening of the tenders as specified above, the tender documents shall be received & opened on the next working day at the same time & venue. Date time and place of opening of **cover- II (Price Bid)** shall be intimated subsequently to those bidders who will be found eligible after evaluation of Technical Bid.

7. **Additional Performance Security** shall be submitted by the bidder when the bid amount is less than the estimated cost put to tender. In such an event, only the successful bidder who has quoted less bid price/rates than the estimated cost put to tender shall have to furnish an amount as stipulated below towards Additional Performance Security (APS) in shape of Demand Draft in favour of Ödisha Construction Corporation Ltd." payable at Bhubaneswar / Term Deposit Receipt(TDR) pledged in favour of Odisha Construction Corporation Limited/ Bank Guarantee in prescribed format (Annexure-C) in favour of Odisha Construction Corporation Limited from any nationalized/scheduled bank in India counter guaranteed by itslocal branch at Bhubaneswar within seven days of issue of Letter of Acceptance (LoA) by Odisha Construction Corporation Limited (by email) to the successful bidderotherwise the bid of the successful bidder shall be cancelled and further proceedings for blacklisting shall be initiated against the bidder.

Sl. No.	Range of difference between the estimated cost put to tender and bid amount	Additional Security to be deposited by the successful bidder
1	Below 5%	No additional Security
2	From 5% and above and below 10%	50% of (Difference between estimated cost put to tender and Bid amount)
3	From 10% and above	150% of (Difference between estimated cost put to tender and Bid amount)

8. The Contractors shall have to furnish an affidavit in support of the authenticity/ genuineness of the documents/certificates and credentials submitted along with the tender document. In case of production of forged document, the penalty shall be rejection of their tenders, and cancellation of their enlistment with the Corporation. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.

9. The tender received will remain valid for 90 (Ninety) days from the last date of receipt of tenders and the validity of tenders can also be extended if agreed to by the tenderer and OCCL.

10. The intending bidders are to quote the %(percentage) **excess or less or at par** of the

amount put to tender in the bill of quantity in the format enclosed with the tender document. For evaluation, the amount quoted in words in the bill of quantity shall be treated as final, if there is any difference in figures and words in tender document. If the amount quoted by the bidder is less than 15% of the tendered amount, then such a bid shall be rejected & the tender shall be finalized basing upon the merits of rest bids. But if more than one bid is quoted at 14.99%(Decimal up to two numbers will be taken for all practical purposes) less than the tendered cost, the tender accepting authority will finalize the tender through a transparent lottery system, where all bidders/their authorized representatives, the Senior Manager(Civil)/authorized person of Senior Manager(Civil) will remain present.

11.<u>Qualifying Criteria</u>

(Not applicable for the works of value less than Rs. 7.00 Crores.)

12. The authority reserves the absolute right to accept or reject the tender and to split up work to award to one or more Contractors without assigning any reason thereof.

13. Any dispute arising out of the above tender call notice shall be subject to Jurisdiction of Hon'ble High Court, Odisha.

For Odisha Construction Corporation Ltd.

Sd/-
Senior Manager (Civil)
Subarnarekha Canal Group Project.

Contractor Senior Manager (Civil)

Memo No. : OCCL/852 Dt. 24.11.2025

Copy submitted to Managing Director, OCCL, Bhubaneswar, OCCL, Head Office, Bhubaneswar for favour of kind information and necessary action.

Sd/-
Senior Manager (Civil)

Memo No. : OCCL/853 Dt. 24.11.2025

Copy submitted to the General Manager (Civil), Baripada for favour of kind information & necessary action.

Sd/-
Senior Manager (Civil)

Memo No. : OCCL/854 Dt. 24.11.2025

Copy to Senior Manager (Civil), OCCL, SBD, Unit-VIII, Bhubaneswar-12 for information.Senior Manager (Civil), SBD, H.O is requested to hoist the above notice & Tender document in web site of OCCL.

(By email-nanda8038@yahoo.com)

Sd/-
Senior Manager (Civil)

Memo No. : OCCL/855 Dt. 24.11.2025

Copy to Notice Boards of Subarnrekha canal groups of project & Head Office the OCC Ltd., Unit-VIII, Bhubaneswar.

Sd/-
Senior Manager (Civil)

Contractor Senior Manager (Civil)

INSTRUCTIONS TO BIDDERS

1. Bidder may go through the tenders published in the web site and download the required documents/tender schedules for the tenders he is interested.

1.1 Bidder should go through the tender schedules carefully and submit the documents as asked; otherwise, the bid will be rejected.

1.2 If any further clarifications required, this may be obtained from the project office of Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi. Bidders should take into account of the corrigendum (s) if any, published before submitting the bids.

1.3 The bidder should read the terms & conditions and accept the same to proceed further to submit the bids.

2. Method of submission of Tender Documents

2.1 If the intending bidder is an individual, the documents shall be signed by the individual with his full written name and current address.

2.2 If the intending tender is a proprietary firm, it shall be signed by the proprietor with his full name and current address.

2.3 If the intending bidder is a firm in partnership it shall be signed by a partner holding the power of attorney for the firm in partnership in which case a certified copy of power of attorney shall accompany in the technical documents.

2.4 If the intending bidder is a limited company or Corporation, it shall be signed by a duly authorized person holding the power of attorney in which case certified copy of power of attorney shall accompany.

2.5 The Tender containing all required documents shall be dropped in the Tender Box kept at **the office of Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi.**

3. Opening of Tender Documents.

The Technical Bid Documents **will be opened on dt. 08.12.2025 at 15.30 hrs** in the office of the **Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi** in presence of the bidders or their authorized representatives who wish to be present. Date & time of opening of Financial Bid will be intimated later on to the successful bidders i,e, who have qualified in Technical Bid evaluation.

4. Minimum Qualifying Criteria

The Cover-I shall contain the following documents failing which their bid shall be liable for rejection

(a) Demand Draft towards cost of tender document in Original.
(b) Bid Security Declaration Form in prescribed proforma (Annexure-F).
(c) Photocopy of PAN
(d) GST Registration
(e) EPF Registration No. & Clearance Certificate.
(f) Affidavit towards authenticity/genuineness of certificate in Original (Annexure-A).
(g) Undertaking to pay minimum wages in prescribed proforma in Original (Annexure-E).
(h) Undertaking to pay Royalty in prescribed proforma in Original (Annexure-D)
(i) Valid OCCL Enlistment Certificate.

Contractor Senior Manager (Civil)

(j) No Relationship Certificate (Annexure-B)

(k) Complete tender document duly filled in, full name, Designation & Official Seal. In case of power of attorney holder the copy of such delegation is to be enclosed with the tender document.

5. The agency/Contractor has to extend all necessary co-operations to the electrical and P.H contractors selected by OCCL for execution of the electrical & P.H work. During execution of the Civil Portion of work, the agency/contractor must ensure that all the electrical pipeline works are performed by the electrical contractor prior to roof casting. Similarly, provisions towards underground pipeline wiring for electrical and P.H works are also to be kept by the Civil Contractor/agency prior to plastering and flooring of the building.

6. Final Decision making authority

The Managing Director of the Corporation is the competent authority who reserves the right to accept or reject or disqualify any of the tender without assigning any reasons thereof and his decision shall be final and binding on all the bidders.

7. Further Clarification

The **Senior Manager (Civil), Subarnarekha Canal Group of Project, Laxmiposi** may be contacted during office hours on any working days during the bidding period for any further clarification.

8. **Sample of all Materials:** The contractor shall supply sample of all materials at his own cost before procurement for the work for testing and acceptance as may be required by the concerned Engineer-in-Charge.

9. ISSUE OF ADDENDA / CORRIGENDA/ CANCELLATION NOTICE:-

The Officer inviting the tender may publish any addendum / corrigendum/ cancellation of tender in the notice board and in web site and such notice shall form part of the bidding documents.

Contractor Senior Manager (Civil)

General terms and conditions

1. DEFINATIONS

(i) "CORPORATION" means **"ODISHA CONSTRUCTION CORPORATION LTD. ("OCCL" in short)"** with registered office at Unit-8, Gopabandhunagar, Bhubaneswar – 751 012 (Odisha) represented through its Managing Director or any other officer as designated by the "Corporation" from time to time.

(ii) "ENGINEER-IN-CHARGE" means the qualified engineer deployed by the "Corporation" at work site for the work including the Senior Manager (Civil), "OCCL" in charge of the work

(iii) "CONTRACTOR" means the enlisted person/firm/organisation having men, machinery, materials etc. to execute the work satisfactorily as per scope indicated herein within stipulated period.

(iv) "CLIENT" means the State Govt. or Central Govt. organization or any individual from whom "OCCL" has received the work for execution.

2. AGREEMENT

The "Contractor" shall enter into an agreement with the "Engineer-in-Charge" in the format on requisite value of stamp paper prescribed for the purpose by the "Corporation" within a stipulated period to be specified by the "Engineer-in-Charge" failing which the EMD and ISD shall be forfeited. The work may be awarded in favour of some other agency at the discretion of the "Corporation".

3. RATE

The rate quoted by the tenderer is to be indicated in % (Percentage) up to two decimal point excess or less or at par of the total amount of the estimated value of work putto tender, which shall be valid for the full period of execution or till completion of work whichever is later. The % (Percentage) excess or less or at par quoted by the "Contractors" should be firm for the entire period of execution.

The "Contractor" shall quote the rate in % (Percentage) excess or less or at par of total amount put to tender to complete the works as per specifications inclusive of all transportation, handling, loading, unloading, lift, de-lift, taxes, duties, watering/ curing, dewatering, levies, incidental expenses etc. that will be applicable on the work to be executed by him. No claim in this regard in whatsoever form shall be entertained.

4. PAYMENT TERMS

(i) No advance shall be paid for the work. The rates shall remain firm throughout the agreement period.

(ii) The payment to the "Contractor" shall be limited to the measurements taken and accepted by the client. The "Contractor" cannot raise any dispute over the measurements allowed by the "Engineer-in-Charge" for the purpose of payment.

(iii) The Contractor will bear the full cost of rectification or replacement of works required as per direction of "Client" or "Engineer-in-Charge".

(iv) The payment to the "Contractor" against any item shall be released only after receipt of payment by the "Corporation" from the "Client" against respective item.

(v) Any penalty levied by "Client" on "OCCL" due to delay in work will be borne by the "Contractor" in full, if the "Contractor" is responsible for delay.

(vi) The Agreement rate of the Contractor shall be exclusive of GST. GST as applicable shall be paid extra over and above the Running account bills on production of GST invoice.

(vii) Price adjustment/price variation as per Govt Circular, 2019 shall be applicable to the agreement with a condition that the same is accepted by the client. No claim towards price adjustment/Price variation will be entertained prior receipt of the samefrom the client.

5. INITIAL SECURITY DEPOSIT (ISD)

The "Contractor" shall deposit Initial Security Deposit (ISD) at the rate of 2(Two) % of the work/agreement value on receipt of letter of intent of work within a period of 15 days from the date of issue but before execution of agreement.

If the "Contractor" fails to deposit such initial security within the stipulated date, the the work may be awarded in favour of some other agency at the discretion of the "Corporation" and suitable actions as deemed fit shall be initiated against the L-1 bidder.

6. SECURITY DEPOSIT (SD)

The Security Deposit (SD) at the rate of **3 (Three) %** shall be deducted on the gross amount of each bill of the "Contractor". The security will be released after 12 (Twelve) months of completion of the work or settlement of final bill of the "Contractor", whichever islater, if no defect in the work is noticed and material account as well as all disputes including compliance of labour rules, ESI rules etc. are settled.

29. ADDITIONAL SECURITY DEPOSIT

The "Engineer-in-Charge" may, if he feels it necessary can deduct and withhold from the bill of the "Contractor" a sum not exceeding 10% and not less than 5% of the gross value of work done as additional security deposit for the rectification of defective and/or unsatisfactory work.

The additional Security Deposit shall be deducted in addition to normal security deposit. Such defects shall be rectified by the "Contractor" within such period as the "Engineer-in-Charge" may fix-up and if the "Contractor" fails to rectify the defects within the specified period, this shall be rectified by the "Engineer-in-Charge" at the cost and risk of the "Contractor". The expenses so incurred in the rectification of the defective works and/or unsatisfactory work done by the "Contractor" shall be recovered from the bills or any other dues of the "Contractor" or otherwise as per law. In this connection, the decision of the "Engineer-in-Charge" shall be final and binding on the "Contractor". The additional security deposit shall be released in full, when the "Contractor" rectifies the defects in time at his cost.

8. WITH HELD AMOUNT FOR EPF, FPF AND ESI DUES

2(Two) % shall be deducted and kept withheld from R.A. bills of the "Contractor" towards EPF, FPF and ESI dues. If the "Contractor" produces either a clearance in support of deposit of EPF, FPF and ESI dues with the concerned authority within 3(Three) months from the end of each financial year then the above withheld amount shall be released. Otherwise, the "Corporation" shall deposit the same with Provident Fund Authority and ESI Authority. Defects, if any, shall be recovered from the "Contractor".

9. INCOME TAX, GST, CESS OTHER TAXES, DUTIES, LEVIES ETC.

(a) The **bidders** have to quote the **percentage rate** excluding GST (Goods and Service Tax).

(b) The **percentage rate** quoted by the Contractor in the tender for works shall exclude GST that may be levied on turnover on works contract according to the Laws and Regulations as applicable & as amended from time to time.

Contractor Senior Manager (Civil)

(c) GST as applicable on works contract will be deposited by the Contractor after passing of each bill and the Contractor is to intimate to the Corporation subsequently.

(d) TDS on works contract as applicable towards GST will be deducted from the bill and credited to Govt. account by the Corporation.

(e) **1% (One Percent)** of the gross amount of the bill will be deducted from the Contractor bill towards labour Cess as per Odisha building and other construction workers (RE & CS) rules 2002 and Amendment during 2008 and as amended by Govt. from time to time.

10. THE AMOUNT OF ROYALTY OF DIFFERENT MATERIALS AS UTILIZED BY THE CONTRACTOR IN THE WORK WILL BE RECOVERED FROM THEIR BILL, BASING ON THE RATE FIXED BY THE GOVT. OR AS AMENDED FROM TIME TO TIME DURING THE PERIOD OF EXECUTION.

11. OPTIMUM USE OF MACHINERY, VEHICLES, EQUIPMENTS, TOOLS, TACKLES, CONSUMABLES AND STEEL MATERIALS

THE "CONTRACTOR" SHALL ENSURE OPTIMUM UTILISATION OF THE PLANTS, MACHINERY, EQUIPMENTS, TOOLS, TACKLES, CONSUMABLES, CEMENT, STEEL MATERIALS ETC. AND SHALL NOT CREATE ANY HINDRANCE FOR OTHERS. THE DECISION OF THE "ENGINEER-IN-CHARGE" REGARDING THE OPTIMUM REQUIREMENT SHALL BE FINAL AND BINDING ON THE "CONTRACTOR"

12. RECORD OF MATERIALS, CONSUMABLES, MACHINERY, EQUIPMENTS, TOOLS, TACKLES ETC.

If steel & cement are to be supplied by the corporation as per the requirement at the work site, the cost of the material will be realized at the following rate.

a) Cement - at estimate rate / procurement rate whichever is higher.

b) Steel - at the procurement rate of SAIL / RINL

N.B :- Transportation charges will be borne by the Contractor.

The "Contractor" shall be responsible for maintaining the data and complete records of issue and consumption of materials and consumables as well as record of plants, machinery, equipments, tools, tackles, cement, steel materials etc. issued to him by the owner and "Corporation". The material, plants, machinery, equipments, tools, tackles cement, steel materials etc. shall be issued as per requirement and availability only.

The materials supplied by the "Corporation" will be received by the "Contractor" from the "Corporation" store on submission of indent by the "Engineer- in-Charge". Transportation of materials to site of work and storage at site are the responsibility of the "Contractor".

The "Contractor" will keep an accurate record of "Corporation" materials and furnish the consumption statement of such materials. The surplus materials, if any, are to be returned to the "Corporation" store at his cost failing which, the cost of excess materials will be recovered from the dues of the "Contractor" @ 5(Five) times the issue rate of "OCCL" or market rate, whichever is higher.

The materials, if and when supplied by the "Contractor", shall be of the best and suitable quality as per specifications stipulated in the technical specifications and subject to approval of "Engineer-in-Charge"/"Client", whose decisions, as regards quality of the materials, shall be final.

Contractor Senior Manager (Civil)

13. RETURN OF PLANTS, MACHINERY, EQUIPMENTS, TOOLS, TACKLES, MATERIALS, AND CONSUMABLES ETC.

The plants, machinery, equipments, tools, tackles, excess cement, excess steel materials, excess consumables etc. of the "Corporation" are to be returned by the "Contractor" in good working condition after completion of the work/termination of the contract by the "Corporation". The "Corporation" may hire plants, machinery, equipments, tools, tackles etc. from the owner as well as outside for use in work. The same are also to be returned by the "Contractor" in acceptable good working condition with original fittings after completion of the work/termination of the contract by the "Corporation".

Any damage to/ by the plants, machinery, equipments, tools, tackles etc. during use by the "Contractor" shall be booked to the "Contractor" for recovery from his bills.

The balance unused/excess cement, steel materials, balance consumables etc. of the "Corporation", if any, shall be returned by the "Contractor" in good condition at specified places as per direction of the "Engineer-in-Charge" failing which the cost at 5(Five) times the market rate shall be deducted from the "Contractor".

14. EMPTY CEMENT BAGS AND SCRAP STEEL MATERIALS/CUT PIECE RODS

The cost of empty cement bags against cement issued by "OCCL" shall be deducted by "OCCL" from the bills/dues of the "Contractor" @ prevailing schedule of rate (Post GST)

The scrap steel materials/cut piece rods generated during execution of work out of steel materials issued by ""OCCL"" shall be the property of the "Corporation".It is the responsibility of the "Contractor" to collect and stack them at proper location/locations as per direction of the "Engineer-in-Charge". The "Contractor" shall be responsible for return of the same. An unaccounted loss of 0.5% shall be allowed. Balance has to be returned to the "Corporation". In case of non-return of the same, the cost as decided by the "Engineer-in-Charge" shall be recovered from the "Contractor".

15. ELECTRICITY

Electricity required for execution of work is to be arranged by the "Contractor" or the "Contractor" shall arrange generator for execution of works.

16. MEASUREMENT OF WORK

The quantity of work executed shall be measured and payment made once in a month or on completion of work or on termination of the agreement, when final measurement will be made and account will be adjusted accordingly. The decision of the "Engineer-in-Charge" regarding the rates, progress, measurement and quality of the work shall be final and binding on the "Contractor".

17. INDIAN STANDARDS, DRAWINGS AND SPECIFICATIONS

The work shall be carried with due diligence and in a workman like manner in accordance with relevant Bureau of Indian Standard specifications on the basis of latest approved drawings and technical specifications supplied by "Corporation" in absence of which as per the direction of "Engineer-in-Charge".

The technical specifications in the relevant agreement between the "Corporation" & owner and approved drawings & technical specifications issued by the owner & "Corporation" shall be the basis for execution of work under the

Contractor Senior Manager (Civil)

agreement. In the absence of approved drawings and technical specifications, the direction of the "Engineer-in-Charge" shall be final and binding on the "Contractor".

The "Contractor" shall make arrangements to take copies of the approved drawings from the office of the "Engineer-in-Charge" for reference during execution of work.

18. PAYMENT TO WORKMEN

The "Contractor" should maintain job register and payment rolls of their workmen and get those checked by the "Engineer-in-Charge" or his authorised representative from time to time. The payment to the workers/ supervisory staff shall be made by the "Contractor" in the presence of the owner and/or "Engineer-in- Charge" or his authorised representative. The paid pay roll register shall be signed bythe "Engineer-in-Charge" or his authorised representative as a token of disbursement. The copies of paid pay roll shall be submitted to the "Engineer-in- Charge" within a period of 7(Seven) days from the date of payment failing which no further payment to the "Contractor" shall be released.

19. WORKMEN COMPENSATION

In case of any loss due to accident arising during/in connection with execution of the contract, the "Contractor" will pay compensation to his workmen. The "Contractor" will be fully responsible for his workmen as per workmen'scompensation act and labour laws in force during entire period of execution of contract. In case, the "Contractor" fails to do so, the "Corporation" may pay thesame and recover the same from the bills/ dues of the "Contractor".

20. INFORMATION OF WORKMEN

The "Contractor" will make his own arrangements for procurement of labour and shall furnish all information of workmen employed by him like name, father's name, full permanent address, sex and age to the "Engineer-in-Charge" along with the pay.

21. STATUTORY REQUIREMENTS

The "Contractor" shall comply all statutory requirements applicable at site of work such as minimum wage act, labour act, factory act, workmen's compensation act, provident fund rules, employee's state insurance rules etc. A certificate to this effect shall be enclosed by the "Contractor" with each Running Account Bill for payment.

22. MINIMUM AGE OF WORKMEN

The "Contractor" shall not employ any person, who is below the age of 18(Eighteen) years or unfit for the tendered items. The "Engineer-in-Charge" shall have right to decide, whether any labour employed by the "Contractor" is below the age of 18(Eighteen) years or unfit and refuse to allow any labour, whom he decides to be below the age of 18 years or unfit for any other reason.

23. LABOUR LICENCE

The "Contractor" has to obtain valid labour licence and maintain all records at his own cost as per the conditions laid down in the labour rules in vogue and amended from time to time.

24. MINIMUM WAGE ACT

The "Contractor" shall pay wages of each labour at the rate not less than the wages as per Minimum Wages Act in force and as may be ammended from time to time. The "Engineer-in-Charge" has the right to enquire into and decide on any

complaint of the labourers relating to non-payment or less payment of wages to them and his decision will be final and binding on the "Contractor".

25. NON-PAYMENT OF DUES OF LABOURERS

If the "Contractor" fails to pay the dues of labourers engaged by him for this work in time, the same shall be paid by the "Engineer-in-Charge" directly to the deserving workers. The expenditure so incurred on account of non-payment or less payment shall be recovered from the bills or any other dues of the "Contractor".

26. PROVIDEND FUND (PF)

Employees Provident Fund., wherever applicable, shall be payable by the "Contractor" as per the Provident Fund Rules in force and shall keep the "Corporation" indemnified for it. He should get the registration number for this from the Regional Provident Fund Commissioner, Odisha. He shall produce the records in support of payment of EPF/FPF dues to the "Engineer-in-Charge" for check andrecord by the "Engineer-in-Charge".

27. EMPLOYEES STATE INSURANCE SCHEME (ESI)

The Employees State Insurance Scheme (ESI), wherever applicable, shall be payable by the "Contractor" as per the E.S.I. Rules in force and shall keep the "Corporation" indemnified for it. He should get the Registration Number for this from the E.S.I. Deptt., Odisha. He shall produce the records in support of payment of ESI dues to the "Engineer-in-Charge" for check and record.

28. WORKMEN INSURANCE

The workmen insurance shall be the responsibility of the "Contractor". He shall produce the records in support of workmen insurance to the "Engineer-in- Charge" for check and record.

29. HUTMENTS/TEMPORARY ACCOMMODATION

The "Contractor" has to arrange hutments/temporary accommodation for his own labourers/ workmen at the work site at his own cost.

30. IDLE LABOUR

"OCCL" will not be held responsible for idle labourers of the "Contractor" for any reason, whatsoever and no claim on this account will be entertained.

31. WORKING IN SHIFTS

If necessary, the "Contractor" may be asked to work in two (2) or 3(three) shifts. Normally, the work shall be executed in shifts. The "Contractor" may, if required, have to engage the workmen on overtime to complete the work in scheduled time. The overtime cost shall be borne by the "Contractor".

32. CLAIMS AND LIABITIES

All claims/liabilities etc. arising out of Explosives act and labour laws shall be borne by the "Contractor" and he shall keep the "Corporation" indemnified against them and also in case of injuries or death of labourer(s) resulting from accidents during the execution of the work. In case the "Corporation" will have to pay for any such claims under Workmen's Compensation Act, the same shall be adjusted fromthe pending bills/dues of the "Contractor" or shall be recovered otherwise as per law from him.

33. SAFETY

The "Contractor" should abide by the safety laws and rules of statutorybodies, "Corporation" and owner as per directions of "Engineer-in-Charge" and SafetyOfficers inspecting from time to time.

34. WATCH AND WARD

The "Contractor" shall arrange watch and ward and safety of the site of work, constructed structures, machinery, vehicles, equipments, tools, tackles, consumables, cement, steel materials etc. of the "Corporation" and owner at his owncost.

35. AUTHORISED PERSON

The "Contractor" may in writing authorise his power of attorney holder or any other person to draw materials, avail facilities, and attend measurements etc. during the course of execution of work. All liabilities created by the authorised person of the "Contractor" by way of loss of materials drawn, amenities availed, unpaid wages created etc. shall be considered as the liabilities of the "Contractor" and suchliabilities shall be made good by the "Contractor" or it shall be recovered from the bill/payment due to him.

36. SPLITTING UP WORK

The authority reserves the right to split up the work amongst various "Contractors" and increase or decrease the quantity of work mentioned in the tender document without assigning any reason thereof and no claim whatsoever will be entertained on this account. The quantity as per agreement may also increase or decrease as per actuals.

If "Corporation" desires, different agencies can be engaged at a single site of work for which each agency is to co-operate so that other agency does not face any difficulty in engagement of his machinery, equipments, vehicles etc.

37. BREACH OF CONTRACT

The ISD including EMD, SD and additional SD are liable to be forfeited in the event of breach of contract and the agreement shall be terminated. The dues of the "Corporation" including due of labourers/workmen and other statutory payable liabilities payable by the "Corporation" as principal employer shall be cleared by the "Contractor". The decision of the "Engineer-in-Charge" in this regard shall be final and binding on the "Contractor". The amount remaining as outstanding against the "Contractor" after adjustment of his dues shall be payable by him to "OCCL". If necessary, legal action may be taken for recovery of the dues of the "Corporation" including labour and statutory dues to be cleared by the "Corporation" as principal employer and "OCCL" reserves the right to recover the payable amount from the "Contractor" from works done by his under any other organization or from his properties.

38. TERMINATION OF CONTRACT

The "Engineer-in-Charge" may put an end to the agreement at his option at any time due to (a) Bad workmanship (b) Dis-proportionate progress (c) Non-compliance of labour rules or (d) Any other reason. The decision of the "Engineer-in- Charge" is final in this respect and no claim on this account will be entertained. "OCCL" also reserves the right to take expert measurements, if the "Contractor" doesnot co-operate in taking final measurements after termination of contract.

39. RESPONSIBILITY OF CONTRACTOR

The work shall be completed by the "Contractor" in all respect within the stipulated period of completion and the responsibility of the "Contractor" shall cease only, when the items are fully accepted by the owner after erection at project site.

Contractor Senior Manager (Civil)

40. PROGRESS OF WORK AND PENALTY

The "Contractor" will achieve the desired progress as per programme.. If the "Contractor" fails to achieve the contracted quantity every month as per programme,penalty at the following rates shall be imposed.

Sl. No.	Failure percentage(%)	Penalty percentage (%)
(i)	Less than 10(Ten)%	1(One)% of value of defaulted quantity
(ii)	Above10(Ten)% and upto 20(Twenty)%	2(Two)% of value of defaulted quantity
(iii)	Above 20(Twenty)% and upto 30(Thirty)%	5(Five)% of value of defaulted quantity
(iv)	Above 30(Thirty)%	To be asked to demobilise with penalty equivalent to 10(Ten)% of value of defaulted quantity. The "Engineer-in-Charge" will off-load the work and get the work done through any other agency or of its own at the risk and cost of the "Contractor". No claim will be allowed to the "Contractor" in this regard.

41. REJECTION DUE TO BAD WORKMANSHIP

The rejection due to bad workmanship shall be charged to the "Contractor" at a cost of rejected items plus 20(Twenty) %.

42. TESTING OF WELDERS AND OTHER SKILLED/SEMI-SKILLED WORKMEN

The qualification test of welders and other skilled/semi-skilledworkmen may be conducted at site by the "Engineer-in-Charge" and only qualified welders and other skilled/semi-skilled workmen shall be deployed for the work. The cost of testing shall be borne by the respective "Contractor".

43. QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance/Quality Control Plan shall be prepared beforecommencement of site activities and shall be followed maintaining stage-wise up-to- date record of the work.

44. SITE VISIT

The "Contractor", interested to participate in the tender, should visit the site of work and get himself acquainted with site conditions and tendered work before submitting the tender.

45. DEVIATION OF PROVISIONS IN AGREEMENT

The "Contractor" will not vary or deviate from the provisions in the agreement without obtaining prior permission in writing from the "Corporation".

46. RIGHT OF THE "CORPORATION"

The "Corporation" reserves the right to cancel a particular tender call or all tender calls without assigning any reason thereof. The items can be splitted among two or more tenderers at any stage. The offer of any tenderer or all may be cancelled without assigning any reason thereof. The requirements shown in any tender call notice are only indicative and may vary.

47. APPROACH ROAD, HAUL ROAD ETC.

The approach road, haul road etc. if required, at site of work are to be constructed and maintained by the "Contractor" at his cost.

Contractor Senior Manager (Civil)

48. SUB-LETTING

The work under any agreement shall not be assigned or sublet to anybody by the "Contractor". If the "Contractor" shall assign or sublet or attempt to do so, the "Engineer-in-Charge" shall terminate the agreement and shall get the work done through any other agency or of its own at the risk and cost of the "Contractor". No claim will be allowed to the "Contractor" in this regard. "OCCL" reserves the right to have access also to units of the "Contractor" to verify, if works are actually executed by him.

49. EXECUTION OF EXTRA ITEMS AND EXTRA QUANTITIES

All extra items are to be executed by the "Contractor" at prevailing S/R rates. All extra quantities are to be executed at agreement rates.

50. FORCE MAJEURE:

Neither party shall be liable to the other for any loss or damage occasioned by or arising out of acts of God such as unprecedented flood, volcanic eruption,earthquake or other convulsion of nature and other acts such as but not restricted to invasion, the act of foreign countries, hostilities, or war-like operations before orafter declaration of war, rebellion, military or unurped power which prevent performance of the contract and which could not be foreseen or avoided by a prudent person.

50. **JURISDICTION**

For all liabilities created under the various contractual obligations/impositions under this agreement, the "Contractor" undertakes not to raise any dispute or litigations in connection there with and shall make all endeavours to resolve all disputes amicably through conciliation and in all such cases, the decision of the Managing Director, "OCCL" shall be final and binding on the "Corporation" as well as on the "Contractor" failing which all such disputes arising out of the agreement shall be subject to jurisdiction of Hon'ble High Court of Odisha at Cuttack and their sub- ordinate courts at Bhubaneswar only. Both the parties agree by mutual consent that any dispute relating to this agreement is barred from arbitration.

.

Contractor Senior Manager (Civil)

SPECIAL CONDITIONS OF CONTRACT

1. The contractor is to supply labour for giving section and profiles. All materials necessary for such work will be supplied by the Contractor at his own cost and responsibility and profiles are to be maintained till the work is completed.
2. The offer submitted by the Contractor will remain valid till finalization of the award of the work. He is not entitled to withdraw his offer during the period of consideration of his offer. Withdrawal of offer prior to finalization of the tender will entail for actions as deemed fit.
3. The Contractor shall furnish the postal address of his site office as well as his permanent registered office along with Phone numbers (both Landline & Mobile) and valid e-mail id. Any notice shall be deemed to have been served if it is delivered to his authorized agent/representative at site or sent by Registered Post or sent by e-mail to the said site office.
4. The Contractor shall arrange to obtain drawings and specification of the work from the Senior Manager's Office. He has to carry out the work at the agreement rates including any additions/alternations in drawings/specifications as may be instructed by the Engineer-in-Charge during course of execution of the work.
5. The Contractor will install display board at his cost mentioning information about the work at worksite after drawal of the agreement.
6. The work has to be executed strictly as per drawings and specifications. The Contractor has to engage technical persons to assist the corporation for taking initial levels, final levels, giving layout and to supervise day-to-day work.
7. Required Engineering personnel for day-to-day supervision of works will be provided by the Contractor. Engineering personnel of OCCL will monitor the quality and progress of work and will do check measurement for payment.
8. The quantities mentioned against each item of work are subject to variations. Such variations shall not vitiate the contract. The rates quoted shall apply for increased or decreased quantities of different items.
9. The agency/Contractor has to extend all necessary co-operation to the electrical and P.H contractors selected by OCCL for execution of the electrical & P.H work. During execution of the Civil Portion of work, the agency/contractor must ensure that all the electrical pipeline works are performed by the electrical contractor prior to roof casting. Similarly, provisions towards underground pipeline wiring for electrical and P.H works are also to be kept by the Civil Contractor/agency prior to plastering and flooring of the building.
10. The bidder has to visit the site and quote his rate which should include cost of haul road, dewatering if required by suitable method and other ancillary works for completion of work andno extra payment shall be made.

Contractor Senior Manager (Civil)

11. PERIOD OF COMPLETION:

This work is to be completed in all respect within **Eleven (11)** calendar months (including rainy season) from the date of issue of work order. The Contractor, whose tender is accepted must submit a programme of work within 7(Seven) days after issue of work order for approval of the Engineer-in-Charge. The Contractor will execute the work strictly as per the programme submitted by him, failing which action will be taken by the Senior Manager as per clauses indicated in the general terms and conditions of OCCL

12. OCCL shall provide temporary Bench Mark (T.B.M.) at convenient location. The Contractor has to establish at his cost sufficient Nos. of temporary B.Ms. for smooth execution and measurement of work.

13. Due to non-issue of design and drawings by the client in time and any hindrances caused due to non-settlement of rehabilitation and resettlement problems if any by the client which may likely to affect the progress of work or stoppage of work, the Contractor shall have no right to claim any compensation in whatsoever manner from OCCL. The Senior Manager (Civil) in-charge of the work may direct the Contractor to suspend the work or any part of the work temporarily for any period as may be necessary. This temporary suspension shall not vitiate the contract and the Contractor shall not be entitled to any claim on account of such temporary closure. However this temporary suspension period will be considered towards extension of time for completion of the work.

14. All materials required for the work shall be approved by the Engineer-in-Charge before use in the work. The contractor must extend necessary co-operation for sampling and testing of materialsby OCCL/client. However, testing charges shall be borne by the Contractor.

15. The Contractor has to obey all rules and regulations for movement of transport vehicles in main roads, village roads, in factory and colony areas. He has to obtain necessary permission from the concerned authorities at his cost and risk. Necessary permission/license for borrowing earth from borrow areas whether Government or private will be borne at his own risk and cost. The rate quoted is inclusive of such expenditure.

16. The Contractor shall allow the quality control organization to take as many samples as may be required by them during course of execution of different items of works. He shall also extend necessary co-operation to carry out any number of field tests as may be necessary. Any portion of work or material rejected by Quality Control Organization/ Department shall be treated to have been finally rejected by the Engineer-in-Charge.

17. Maintenance of the work during construction and during the **Defect Liability Period of 1 (one) year after completion of the work** is the responsibility of the Contractor.

Contractor Senior Manager (Civil)

18. The Contractor shall display notice both in English and Oriya indicating prevailing wages of different categories of labour in a conspicuous place. He shall also maintain wage book of each worker and shall issue wage cards in the prescribed forms to different workers.

19. Payment for the work done by the Contractor shall be based on actual field measurement. The Contractor or his authorized representative shall be present at the time of recording the measurement at each stage and sign the field level book and measurement book as token of acceptance.

The payment for the quantity of different items executed by the Contractor shall in no case exceed the quantity admitted by the Department/client for the respective items and certified / paid to OCCL.

20. Statutory deductions, such as security deposit, income tax including surcharge, hire charges of machineries, cost of materials, EPF contribution, labour clearance etc. shall be deducted from the R/A bills. If the Contractor fails to submit the receipt in support of payments towards royalty, cess, tolls and other taxes, the same shall also be deducted from the R/A bills.

21. SAFETY PROVISIONS:

The Contractor shall at his own expenses arrange for the safety during construction as required including the provisions in the safety manual published by the Central Water and Power Commission, New Delhi (January'1962) edition). In case the Contractor fails to make such arrangement, the corporation shall be entitled to cause them to be provided and to recover the cost thereof from the Contractor. For failure to comply with the provision of the safety manual, the Contractor shall without prejudice to any other liability pay to the Corporation a sum not exceeding **rupees five hundred per day** for each day of default.

22. ACCIDENTS:

It shall be the Contractor's responsibility to protect against accidents on the works. He shall indemnify the corporation against any claims for damage or for injury to person/ machineries/ transport/ vehicle property resulting from any in the course of work and also under the provision of the workmen's compensation Act.

On the occurrences of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the Contractor shall within twenty four hours of such accident report in writing to the Senior Manager (Civil) in charge of the work stating the fact clearly and in sufficient details the circumstances of such accidents and the subsequent action. All other accidents on the works involving injuries to persons of damage to property other than that of the Contractor shall be promptly reported to the Senior Manager stating clearly and in sufficient details the facts and circumstances against all loss or damage resulting directly or indirectly from the Contractor failure to confirm to the provisions of the said act in regard to such accidents. In the event of an accident in respect of which compensation may become payable

Contractor Senior Manager (Civil)

under the workmen's compensation Act including all modifications thereof. The Senior Manager (Civil) in charge of the work may retain out of any money due and payable to the Contractor such sum or sums of money as may be in opinion of the Senior Manager be sufficient to meet such liability. On receipt of award from the Labour Commissioner in regard to quantum of compensation, the difference in amount will be reimbursed or recovered from the Contractor

23. WAGES:

Wages shall have the same meaning as defined in the payment of wages Act and include time and piece rate wages, if any.

(i) Display of notices regarding wages etc.

The Contractor shall:

(a) Before he commences his work, continue to display and correctly maintain in a clean and legible condition in conspicuous places on the work, notices in English and in the local India language spoken by the majority of the workers, giving the rates of wagesprescribed by the State Public Department/Electricity Department for the district which the work is done.

(b) Send a copy of such notice to be Engineer-in-Charge of the work.

(ii) Payment of wages:

(a) Wages due to every worker shall be paid to him / her directly.

(b) All wages shall have to be paid in current coin or currency or in both.

(iii) Fixing of wages period :

(a) The Contractor shall fix the wage period in respect of which the wages are payable.

(b) No wage period shall exceed one month.

(c) Wages of every workman employed on the contract shall be paid before the expiry of ten days, after the last day of the wage period in respect of which the wages are payable.

(d) When the employment of any worker is terminated by or on behalf of the Contractor, the wages earned by him shall be paid before the expiry of the day succeeding the one on which his employment is terminated.

(e) All payments of wages shall be made on a working day.

(iv) Wage book and wage cards etc. :

(a) The Contractor shall maintain a wage book of each worker in such as may be convenient, but the same shall include the following particulars.

(b) Rate of daily/monthly wages.

(c) Nature of work on which employed.

(d) Total No. of days working during each wage period.

(e) Total amount payable for the work during each wage period.

(f) All deductions made from the wages with an indication in each case of ground for which the deduction(s) is/are made.

Contractor Senior Manager (Civil)

(g) Wage actually paid for each period.

24. During excavation of cut-off-trench and other components, shoring, shuttering including cost, carriage of materials including all taxes and cost of dewatering is to be borne by the contractor. Only the designed sectional quantity will be paid. Dewatering from the foundation trenchesincluding and running charges of pump and coffer dam if required will be borne by the contractor.

25. It must be definitely understood that the Corporation / Government do not accept any responsibility for the correctness and completeness of the trial borings shown in the cross sections.

26. Excavated materials and debris unused in the area are to be removed from the site by the contractor at his own cost and responsibility as per the direction of Engineer-in-charge.

27. The work will be executed as per approved drawing, design and B.I.S. specification and as per the instruction of Engineer-in-charge.

28. No claim whatsoever on account of interest will be entertained under any circumstances.

29. The Contractor will remain responsible to arrange all mechanical means whenever required to complete the work in time at his own cost.

30. Any damage caused to the work due to any cause except major natural calamity whatsoever during the execution will be made good by the contractor until it is handed over to the Department in complete shape.

31. The quantities provided in the tender schedule are tentative which is likely to vary during execution as directed by the Engineer-in- charge.

32. If use of explosives is necessary for the purpose of blasting of rock required at any stage of the execution, the contractor is to obtain necessary blasting area license from the appropriate authorities and procure the explosives and store them at his own responsibility and arrange in the work sites. The procurement and storage of the explosives is the sole responsibility of thecontractor &he shall abide by all the laws of explosive act.

33. No extra cost is to be paid to the contractor towards construction of coffer dam, diversion channel, approach road & haul road etc. required for execution of work. The approach road / haul road to work site will be maintained by the contractor.

34. The detail specification enclosed with the tender papers for different item of work should be strictly adhered to during course of execution of work. The work is to be carried out strictly as per OPWD code, BIS specification and as per prevailing standards of State Govt. and Central Govt.

35. If departmental land is available, the contractor will be allowed to use the same for accommodation of his labourers, stores and machineries free of rent. If department land is not available the contractor will make his own arrangement for land for such requirement at his own cost.

36. The quantity mentioned can be increased or reduced to the extent of 10% for individual items subject to a maximum of 5% over the estimated cost. If it exceeds the limit stated above, prior approval of competent authority is mandatory before making any payment.

37. The period of completion is fixed as **11 calendar months (including rainy season)** and cannot be altered except in case of exceptional circumstances with due approval of next higher authority / Client Department.

38. Royalty for stone products, sand, and Borrow earth are to be recovered from the contractor's bill as per prevailing Govt. Notification.

39. The Contractor is required to establish a field labour with required equipments for quality control testing at site at his own cost.

Contractor Senior Manager (Civil)

40. Testing of reinforcement bar and concrete works.

(i) If, in the opinion of the Engineer-in-Charge of the work, the reinforcement bars to be used in the work requires testing in order to confirm its technical specification, the same shall be tested either in the Department laboratory or in any other authorized laboratory as referred by the Engineer-in-Charge at the cost of the contractor. The contractor shall bear all the cost towards supply of required samples, transportation and testing charges. The decision of the Engineer-in-Charge on this aspect is final and binding on the contactor.

(ii) All the testing of concrete works shall be carried out as per the direction of the engineer-in-charge or his authorized field functionaries and in case of any dispute ariseson this aspect; the decision of the **Engineer-in-Charge** is final and binding on the contractor. Testing of all the concrete works of all grade required for structures, CementConcrete lining and in any other construction activities of the work shall be tested in theDepartment Laboratory at the cost of the contractor. The contractor shall supply all the required samples at his own cost including transportation and bear all the testing charges of the concrete. The cost for the testing as charged by the Govt Quality control testing unit shall be final and binding on the contractor. If, in the opinion of the engineer-in-charge a Field Laboratory for acceleration of testing of concrete is required, the contractor shall install it at the work site at his own cost with all the required machineries and equipments as per the direction of the engineer-in-charge and cement testing work shall be carried out in the Field Laboratory under the direct supervision of the Field functionaries of the Govt Quality control testing unit.

41. The Bidders are required to inspect the site and satisfy themselves regarding availability of land for the work and other facilities for execution of same. It may be noted that, he is to completethe work within the time specified. No extension of time will be allowed in any account. If the Bidder fails to complete the work within the scheduled time or leaves the work in complete, he will have no claim on the work so executed and in this matter the decision of the Engineer-In- Charge of the Corporation is final & binding.

42. The work has to be executed confirming to ISI standards and specifications.

43. The rate quoted will be inclusive of all taxes, duties and cess etc.but excluding GST The rates will be firm and binding during the entire period of execution and extension thereof.

44. The contract price will be inclusive of all ancillary works such as approach road to work site, dewatering, desilting, cofferdams, water diversion measures, shoring, strutting, gangways, chutes, ramps, ladders, scaffolding, the quality control testing charges and any other such works, which will not be measured but are necessary for carrying out the proposed construction. No extra payments will be made to the contractor for such ancillary works/jobs.

45. The price of the contractor will be inclusive of all finishing jobs and rectifications works as and when required. The defect liability period will be for a period of 1 year after the date of handing over. Successful completion and handing over on the part of the contractor will not resolve him from the responsibility of attending to all the required rectifications and maintenance of the system during the defect liability period.

46. The contractor will be fully responsible for the safety of the work, property and workmen. The contractor will provide proper insurance cover for the work and property against any damage due to accidents, natural calamities or otherwise from the date of commencement till the end of defect liability period and also insurance cover against possible accidents and personal injuries to workers and workmen during the period of construction.

Contractor Senior Manager (Civil)

PERCENTAGE RATE TENDER AND CONTRACT FOR WORKS

GENERAL RULES & DIRECTIONS FOR THE GUIDANCE OF CONTRACTORS

1. The work proposed for execution by contract will be notified in a form of invitation to tender posted through websites www.odishaconstruction.com

This notice will state the work to be carried out, the items and approximate quantities thereof as well as the date for submitting and opening tenders also the amount of earnest money to be deposited and the amount of the security deposit by the successful tenderer and the percentage if any to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the submission of tender signed for the purpose of identification by the Sub-divisional Officer/Executive Engineer shall also be open for inspection by theContractor at the office of the Sub-Divisional Officer/Executive Engineer during office hours.

2. In the event of the tender being submitted by a firm it must be signed separately by each member thereof, or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so.

3. Receipts for payment made on accounts of works, when executed by a firm must also be signed by the several partners, except where the Contractors are described in their tender as a firm in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having authority to give effectual receipts for the firm.

4. The memorandum of work tendered for and the memorandum of materials to be supplied by the OCCL and their issue rates shall be filled in and completed in the office of the Senior Manager (Civil) before the tender form is issued if a form is issued to an intending tender without having been so filled in and completed, he shall request the office to have this done before he completes and delivers his tender.

5. The amount of earnest money to be remitted will be 1% (online).

6. The Engineer-in-charge or his duly authorized assistant will open the tenders in the presence of any intending Contractors who may be present at the time and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of tender being rejected the earnest money shall thereupon be returned to the tenderer.

7. The Engineer-in-charge shall have the right of rejecting all or any of the tenders.

8. In the event of a tender being selected for acceptance the Engineer who opened the tenders will, if he is competent to accept the tender, inform the tenderer of the selected.

tender who shall there upon sign copies of the specification and other documents with the agreement. The tenderer of the selected tender shall also deposit the required amount of the security money within the prescribed time. If the tenderer fails to deposit the required amount of the security money within the prescribed time the Engineer-in-charge may reject the tender.

If the Engineer is not competent to accept the tender himself, he will inform the tenderer of the tender which he decides to recommend for acceptance, such tenderer shall thereupon sign forthwith copies of the specification and other documents mentioned in rules 1 and 4 and shall deposit the required amount of the ISD/PSD within the prescribed time. The tender with the specification and other documents signed by the tenderer will then be forwarded for acceptance to the Engineer who is competent to accept the same. If the said Engineer rejects the tender the ISD/PSD deposited shall be refunded to the tenderer.

Contractor Senior Manager (Civil)

9. When a tender is selected for acceptance, the tenderer shall deposit the required amount of the ISD/PSD. No tender shall be finally accepted until the required amount of the ISD/PSD has been deposited.

10. The amount of Initial security Deposit to be deposited by the tenderer whose tender is selected for acceptance shall be 2 (two) percent of the agreement value of the work, failing which tender shall be liable to rejection.

Taxes as per provisions of Government shall be deducted from the bills of tenderer.

11. When tender has been selected for acceptance and the required amount of the security money has been deposited the Engineer shall scrutinize all pages of the form of item, Rate Tendered/quoted percentage in case of percentage tender and Contract for works to see that the form has been properly filled up and signed by the Contractor and the signature witnessed. He shall then, if he is competent to accept the tender, sign the acceptance of the tenders or if he is not so competent to, shall send the form for signature of the acceptance to the officer competent to accept it.

12. All tenderers are required to submit a list of works, which are in hand at the time of submitting their tenders. The list of works are required to be submitted in the proforma by the Executive Engineer under whom he has executed the work in order to judge their past performance (vide Works Department Circular No. 15443 dt. 01.08.2005.)

13. The earnest money deposited is liable to be forfeited to Corporation, if the tenderer backs out from the offer before acceptance of the tender by the competent authority.

14. IT towards GST will be deducted at the rate prescribed in the Odisha Goods & Service Tax Act-2017 or as amended from time to time.

Contractor Senior Manager (Civil)

GENERAL INFORMATION

SECTION – 1
GENERAL INFORMATION

1.0 General Information & Scope of Work

1.1 Description of work to be executed: "Extension of District verterniary Hospital. Balasore"

1.2 Location of work site:

The works site is well communicated from Balasore Head quarters, Block Balasore, district Balasore

1.3 Transport communication facilities.

Private buses and trucks are playing through frequently from work site. The contractor has to make arrangement at his own cost to transport all his construction equipments, construction materials and labour to work site, as stated via above root.

1.4 Climate :

The project area has moderated climate with mean temperature from 27^0C to 32^0C during summer month. The rainy season is generally confined to four months from 16th June to 15th October during which about 90% of the total annual precipitation is received.

1.5 Availability of Labour:

Both Semi-Skilled & unskilled labour required for the work are available in project area and it is preferable to engage local labourer, However the Contractor must makehis own arrangements for labour / machineries / equipments.

1.6 Nearest Town:

The nearest town to the work site is Balasore.

1.7. **Availability of Petrol, Diesel and other lubricants:**

The nearest petrol pumps for procurement of petrol, diesel and other lubricants are available at Balasore. The contractor shall make his own arrangement for procurement of same at his own cost required for the machineries and equipments engaged for the work.

1.8 Electric Supply:

Electricity supply is available at work site. The Contractor shall make his own arrangement for extension of electric connection at his own cost if so required by him.

1.9 Observation of Rules:

The Contractor shall take precaution to ensure safety to the workers. The department/Corporation will not take any responsibility for accident if any that may occur during the period of execution. The Contactor shall take immediate action to rectify the defects, immediately if any during the period of execution pointed out by the Department. Labour licence most be produce before the starting of work.

1.10 Housing Facilities:

Private house may or may not available in the vicinity of the work site. The Contractor shall make his own arrangement for housing the labourers, workers and staff at the work site.

1.11 Medical Aid:

The nearest Health Centre available at Balasore, DHQ. However, the Contractor shall make first aid arrangement at his own cost in accordance with rule and regulations of prevailing Labour Act.

1.12 **Post, Telegraph & Telephones**:

Post, Telegraph, Telephones, & Fax are available at Balasore.

1.13 Local Roads:

The existing available approach road to the work site can be used by the contractor. The contractor shall however construct and maintain the connecting roads in the working areas including drainage, sanitary etc. at his own cost. The contractor shall construct haul road and other approach road as maybe necessary for proper execution of the work at his own cost.

1.14 General Information:

1.14.1 The information and the data related to work site conditions described above represents the site condition in general and for information of the bidders/contractors. The department does not guarantee the reliabilities or accuracy of any other data. The Contractor shall undertake at his expense such studies as are necessary to assess the reliabilities and accuracy of information presented.

1.14.2 It shall be presumed that the bidder / contractor visits sites of proposed works at his expense and satisfy himself as to the nature and location of work and local condition in general and particularly about the availability of construction materials electricity supply, water supply, storage and handling of materials, disposal of soil, road communication, availability of labour and other related matters, planning for execution etc. before quoting his rates for different items of work. The department therefore will not bear any responsibility for any interpretation or conclusion made bythe contractor in respect of site condition and consequence thereof.

1.15 Sources of Fund :

Contractor Senior Manager (Civil)

SECTION-2 (I)

2.0 GENERAL SPECIFICATION

2.1 The enclosed drawing in the Quotation document gives broad dimensions and outline of the works to be executed through this contract. These drawings may however be revised/modified from time to time and supplementary additional drawing may also be issued as per necessity. During the course of execution there may be changes in dimension, specifications and shape of components. These chances in the drawing can be done without in any way deviating the terms of the contract and the Job Worker is to execute the work as per revised drawings and specifications at the samerate as agreed upon for the work awarded under the original contract. The Job Worker shall do no work without proper drawings. He shall check all drawings and specifications carefully and advise the Engineer-in-charge if any error and omission are discovered where upon the Executive Engineer will prepare revised additional drawings and specifications and may be required to suit the stage of the work.

2.2 Where the drawings are not consistent with the text of the specifications, the text shall govern.

2.3 The rates shall be for finished items of works as per description in the schedule of quantities and according to drawings, specification and conditions of the contract. The rates quoted shall be for execution of finished items of work & the specifications of which confirm to the details furnished in the Agreement and provisions in Bureauof Indian Standards and shall include all general and incidental charges which will notbe paid separately. Such general and incidental charges are listed in succeeding Para for the convenience of the Quotationers but are not exhaustive. Omission of any suchitems here in but required for delivering finished items of work, shall not be plea,that such items are not covered by the rates quoted.

2.4 Formation and maintenance of haul roads including river and drainage crossings within the work site. The existing approaches and haul roads, if any, under thecontrol of the Department may be made use of but improvement, if required, shall bedone by the Job Worker at his own cost.

2.5 Labour and material required for the construction of reference points, bench marks, pillars, diversions, signboards, road signals etc. for setting out works shall be at Job Workers cost.

2.6 Scaffolding and gangways as and when required for the work will be done by the Job Worker at his own cost. No additional payment in this regard, will be entertained.

2.7 The rate includes all leads, lifts & delifts.

2.8 Form work complete includes cost of materials, labour, maintenance, erection dismantling and removal.

2.9 Construction of coffer dam, dewatering of any water, that may accumulate in the areas required for carrying out the items under schedule of quantities, includes the initial dewatering of the pond formed after the formation of coffer dam or any type ofcross bound and all seepage that may accumulate in the area before of during construction.

2.10 Protection of the components of work during the rainy season & khariff irrigation supply shall be the responsibility of the Job Worker. The responsibility for the safety of the structure rests, entirely on the Job Worker and any damages that may occur, has to be made good by the Job Worker at his own cost.

2.11 The sequence of construction adopted by the Job Worker shall have to be approved by the Engineer-in-Charge.

2.12 The Job Worker has to make his own design for coffer dam or any type of cross bund required during course of execution. All materials for the coffer dam of cross bound shall be arranged by the Job Worker at his cost. The Job Worker shall maintain the coffer dam/cross bund till completion of the work.

2.13 Quality Control:

2.13.1 Before collecting materials required for execution of the respective items of work as laid down in the schedule of quantities and in the detailed specifications described hereafter in the subsequent sections, the Job Worker shall ensure that samples of materials proposed to be used are first approved by the Engineer-in-Charge. When directed the samples of materials proposed to be used should be furnished to the Departmental laboratory i.e. **Quality Control Division, Bhadrak or any other Laboratory recognized by the Govt.**

2.13.2 All such testing charges shall be borne by the Job Worker. The Job Worker will provide necessary assistance if required for collection of samples. The Job Worker is liable to pay for any test which is not included in the agreement but required in the opinion of the Engineer-in-Charge during execution of the work for which no additional payment will be made to the Job Worker.

2.13.3 On the basis of satisfactory test results confirming to technical specification, collection of materials shall be started in the field. The testing of materials shall be checked in the field Laboratory by the Junior Engineer/ Assistant Engineer of the Department as well as staff of **Quality Control Division, Bhadrak/ or any other staff of Laboratory recognized by the Govt.**

. If the field test result is found unsatisfactory, the materials shall be rejected and action taken to remove the same from work site by the Job Worker at his own cost. In no case the defective materials shall be used in the work.

2.13.4 On receipt of notice from the Engineer-in-charge and on observation of Funding Department the Job Worker will rectify the defect in stipulated period at his own cost. If the defects are not rectified in the stipulated period, the Engineer-in-charge shall assess the cost, get the defect rectified and recover the same from the dues of the Job Worker.

2.13.5 A quarry chart indicating possible source of materials may be seen in the office of the Senior Manager, Subarnarekha canal group project, Laxmiposi**.** The Job Worker must however satisfy himself those materials as per required specifications and quantity is available in those quarries. No extra payment will be made due to non-availability of materials as per required specification and quantity in the quarries shown in the departmental quarry chart. The quarry chart is only an indication of source ofmaterial and the department does not accept the responsibility if the materials are not available in full quantity and quality.

2.13.6 No claim for carriages of water whatsoever will be entertained.

2.13.7 Decision regarding usefulness of excavated materials rests fully on the Engineer-in-Charge. However he may take advice of Quality Control Organisation or higher authorities if required.

SECTION-2(II)

2. EARTH WORK IN EXCAVATION OF FOUNDATION AND FILLING

2.1. General

The Item in the schedule excavation of foundation and pile driving include removal of all materials up to the level as per profile specified in the drawing or as directed by the Engineer-in-charge.

2.2. Setting out of the Work.

2.2.1. In the vicinity of the Building site temporary Bench Marks shall be set up by the department at different convenient location.

2.2.2. The contractor shall establish sufficient No. of reference Bench Marks for facilitating the setting out and talking levels for measurement of work with the approval of the Engineer in charge at his own cost. The Bench mark showing value of R.L. shall be conspicuously carved and painted on the Bench Mark.

2.2.3. The layout of the building shall have to be given in appropriate manner with pegs and pillars as per layout plan prepared by contractor after duly approved by the Engineer in charge. The center line of the building and the reference line for all alignments for setting out works including constructions of reference Bench mark, reference lines check profiles, surveys, as may be required at the various stages of the constructions, shall be done by the contractor at his own cost. The cost of such work shall be deemedto have been included if the costs of the items in schedule.

2.3. Clearing the Sites.

2.3.1. The contractor shall clear the entire area required for setting out of all tree stumps, bushes, jungles roots, bush wood rubbish of all kinds of all other objectionable materials. The ownership of all the useful materials so removed from clearing site and or excavations shall rest with the department. The contractor shall have to remove all the stumps and roots of trees for which no additional payment will be made roots of trees shall dispose off all such materials within 1 Km/ as directed by the Engineer-in- charge. As operations in connection with clearance of jungle and bushes shall be subject to provision of forest Acts and rules.

2.3.2. No separate payment will be made to the contractor for complying the requirements of this Para graphic and all cost shall be deemed to have been included in the rates quoted in schedule for the items of excavation.

2.4. Pile Driving

The R.C.C. double under reamed Piles of size and shape as shown in approved drawing or as directed by Engineer-in-charge will be drived in all kinds of soils to line, levels and plumb. By engaging labour all materials and obstacles inside the hole will be removed by scooping out from inside. All precautions will be taken against shifting, andtilting.

2.4.1. Measurement and Payment.

The item rate includes driving of R.C.C double under reamed Piles of dia specified. and labour charges for sinking of the same in all kinds of soil to lines, levels and plumb including supply of necessary T & P for removal of materials and obstructions, disposal

of spoil with all leads and lifts, delifts and cost of all materials conveyance, taxes, royalty and labour etc. as directed by Engineer-in-charge.

2.5. Excavation

The excavation of foundation may be carried out manually as per specification, drawing and directions of the Engineer in charge. It should be finished reasonably to the prescribed dimension.

2.5.1. Measurement and Payment.

2.5.2 The measurement for excavation will be based on level section only. No allowance shall be made for any excavation except where specifically authorized.

2.5.3 The payment will be made on volumetric basis for the quantities excavated to the required extent.

2.5.4 The cross sections shall be taken initially and on completion of excavations, final cross sections shall be taken. These sections will be marked on the initial cross section taken prior to commencement of works. The quantities between initial and final cross sections shall be worked out and paid for. It shall be clearly understoodthat no excavation beyond the prescribed dimensions will not be paid for.

2.5.5 The unit bid price for this item shall be inclusive of full compensation for mobilizing, demobilizing and supplying all materials, equipments T&P, labour, supervision and incidental works including running, maintenance and hire charge of pumps used for running, maintenance of coffer dam if required, dressing and leveling the bed of foundation to the proper profile and disposal of excavated materials away from the working area as per direction of the Engineer-in-charge.

2.6. Filling Foundation and Plinth

2.6.1. With Excavation Materials.

The Item in the schedule filling of foundations and plinth includes the filling with excavated earth including conveying to the foundation site, laying in layers, breakings, clods, watering and ramming as specified and as per direction of the Engineer-in- charge.

2.6.2. The unit bid price for this item shall be inclusive of supplying all materials, equipments T & P, labour, supervision and incidental works, running, and maintenance and hire charges of pumps used for dewatering, and leveling to the proper profile and disposal of extra excavated materials away from the working area as per direction ofthe Engineer in charge.

2.7 With Sand

2.7.1. Filling of foundation and plinth will be made with sand and the manner of depositing the materials shall be subject to approval by the Engineer-in-charge.

2.7.2. Any sand coarse or fine which is fairly clean and free from salts may be used without screening or further treatment.

2.7.3. The sand shall be placed carefully and spreaded in uniform layers not exceeding 15 cm. lamping to be used for compaction of filling materials immediately adjoining the foundation wall. Sufficient care is to be taken for profuse watering in order to avoid voids and for proper settlement.

2..4. The sand should satisfy the specification specified. The sand shall be laid in layers well watered and rammed.

2.8. Measurements and Payment.

The payment shall be made on cubic meter basis under relevant items of schedule of quantities. The quantities between initial and final cross sections shall be worked out and paid for.

2.8.1. The unit bid price for this item shall be inclusive of full compensation for mobilizing, demobilizing supplying all materials, equipment, I & P labour, supervision and incidental works including running maintenance, dressing and leveling the top of the filling materials, to the proper profile and including conveyance etc. complete as

per the direction of the Engineer-in-charge.

2.8.2. The materials required for development of site shall be obtained from borrow area duly approved Engineer-in-charge. The contractor has to arrange borrow area to borrow earth at his own cost and responsibility. Adequate lighting arrangement should be provided by the contractor. All areas require for borrowing earth for development of site shall be cleared of all trees stumps, roots bushes rubbist other objectionable materials. The materials free from all objectionable materials

shall be deposited spread in the uniform layers not exceeding
22.5 cm. and breaking clods upto maximum to 5 to 7 cm.

2.8.3 a) All works shall be measured by level

b) All linear measurement shall be in meters correct to 0.01 meters, area worked out in sqm. Co to $0.01m^2$ and volume work out in cubic meter connect to $0.01m^2$.

2.9. Soil Treatment.

2.9.1. Chemicals.

The treatment of the areas shall be carried out by applying one of the following chemicals to be supplied by the contractor.

i) Aldrin
ii) Chlordane
iii) Dieldrin
iv) Lindane
v) Heptachlor, or
vi) Any other and similar type.

A daily record shall be maintained by the Contractor indicating the details of work done and the quantity of chemical consumed for the work. This record book shall be the properly of the employer and should be loaded over to employer on completion of work.

2.9.2. Method of Application

The following paragraphs specify the manner and sequency of operations, which must be followed. They also indicate the rate of application of chemicals of stated concentration for various operations. It shall be distinctly understood that these represent the minimum rates of application for each operation and that the Contractor may have to actually apply chemicals at rates higher than those specified as per instruction of the Engineer to the extent considered.

i) After the final depth of the foundation trenches (which shall also include foundation pits) is reached. The horizontal and vertical sides shall be soakedwith insecticides by high pressure pumps at the rate of at least 5 liters per sqm. of trench surface area. i.e the surface area of the vertical sides as well as bottomof the foundation trench should be soaked with chemical solution at the rate of 5 liters per sqm.

ii) After the vertical and horizontal side of the foundation trenches are treated in the manner described above, the floor area in between the walls shall be treated by saturating the soil with insecticides. For this purpose holes of 50mm. dia shall be bored in the natural soil surface at suitable at suitable space intervalsdepending upon the type of soil. The chemical used shall be at the rate of 5 liters per sqm.

iii) After the earth, to raise the plinth level, has been filled in, the whole area should be saturated with the insecticidal solution at the rate of at least 5 liters per sqm.

iv) After the walls are constructed and the plinth filled in treated as specified above, complete saturation treatment shall be given by digging 450 mm, deep trench around the walls of the building on the outer side and saturating the same with

Contractor Senior Manager (Civil)

insecticides at the 5 liter per running meter of the wall.

2.9.3. Treatment shall not be made when the soil or fill is excessively wet immediately after heavy rains, to avoid surface flow of the toxicant from application at site. Unless the treated areas are to be immediately covered, precautions shall be taken to prevent disturbances of the treatment by human or animal contact with the treated soil.

2.9.4. The contractor shall include in the rate cost of all items of operations including supplying, handling and transportation of chemicals, enabling works and other contingencies required for the completion of the job and tools, land plants as required for the work such as spraying pumps, basket, bucket, through, measuring glasses etc. The Contractor shall also include in his rate the cost of masks and otherprotective and safety appliances are necessary as specified by the manufacturer or asinstructed by the Engineer) for the labourers engaged for the job.

2.9.5. Mode of Measurement.

The rate for the item shall be based on the unit plinth area of the building treated and this shall cover all the four stages of work.

3.0. PLAIN CEMENT CONCRETE, REINFORCED CEMENT CONCRETE AND FROM WORK.

3.1. General

3.1.1. Concrete for all structure works shall be composed of cement sand coarse aggregates water and any other admixture as specified all well mixed and brought to the proper consistency. Test shall be came out on the concrete at specified intervals during the progress of work and the mixes modified as necessary in order to consistently secure the required strength, work ability, density and impermeability together with the maximum practicable economy. The water cement ratio for the concretes will be regulated by the maximum practicable economy. The water cement ration for the concretes will be regulated by the requirements of strength, durability and workability. The concrete shall be of uniform consistency and quality throughout any pour and for similar parts of the same structure. However the consistency and composition shall be such that the concrete can be worked into all corners and anglesof the forms.

3.1.2. The control concrete is based, besides other factors, on maintaining a fairly uniform slump at the point of placement and on holding the water-cement ratio as closely as practicable for the standard determined for the purpose under no condition shall be slump be greater than that required to provide proper placement and compaction of the fresh concrete within the form.

3.1.3. The slump shall be measured in accordance with the standard methods prescribed in I.S. specification.

3.1.4. The allowable slump or consistency shall be used as directed. The consistency of the concrete shall be varied only by increasing or by decreasing the amount of cement paste in batch and nor by any change of the water-cement ratio established for each class of concrete. Concrete classification is related to the specified 28 days compressive strength. Test specimens of concrete shall be taken for quality control operation of the work as per requirement in Indian Standard Specification.

3.2. Composition

3.2.1. General

Concrete shall be composed of Portland cement, sand coarse-aggregate admixtures (if required) and water as specified, all well mixed and brought to the proper consistency. Use of approved admixture shall be permitted by Engineer in charge. Only on satisfactory evidence that its use does not adversely affect the properties of concrete.

3.2.2. Material

3.2.2.1. General

The materials such as cement, steel shall have to be arranged by the contractor.

3.2.2.2. Cement.

a) Cement for concrete to be arranged by the contractor will be Ordinary PORTLAND.

b) The Contractor shall create a suitable and adequate infrastructures and arrangement for procuring, handling, storing and conveying cement to mixed at site with advance planning of work to be done during next one month.

c) Cement shall be stored separately in dry, water tight and properly ventilated structures at the cost of contractor. All storing facilities shall be subject to approval and shall be such as to permit easy access for inspection and identification. The contractor shall produce test certificate of the manufacturer for 10 tons of receipt of cement or as approved by the Engineer-in-charge.

d) Sampling and testing shall be done by at the laboratory of the Deptt. No cement shall be used clearance has been given by the Engineer-in-charge. That the test results are satisfactory, cement than 90 days shall not be used unless the test results satisfy the minimum strength requirements.

3.2.2.3. Fine Aggregates

General aggregates shall conform to I.S 383-1970 or its latest version. Sand to be used shall be as obtained from river bed from specified quarries. The contractors for may obtain sand form different which shall meet required of specification.

3.2.2.3.1. Quality

Sand shall consist of hard, dense, durable and uncoated siliceous grittier materials. It shall be free from injurious amount of dust, lumps, soft and fluffy particles, shale, alkali, organic matter, loan and other deleterious substance. Sand shall be washed if necessary to remove all vegetations and other foreign matter. The cost of washing and screening shall be borne by the contractor. The sand will pass a 4mm. sieve.

3.2.2.3.2. Fineness Modulus

Sand should have a fineness modulus between 2.1 to 3.0

3.2.2.3.3. Storage.

All sand shall be stored on the site of work in such a manner as to prevent intrusion of foreign matter.

3.2.2.4. Coarse Aggregate.

3.2.2.4.1. General

Coarse aggregates for concrete shall consist of clean, dense and durable crusher broken hard gram metal free from vegetable matter. Predominantly flaky aggregates shall not be used.

The sum of total of all deleterious materials shall not exceed 5 percent by weight.

Coarse aggregate shall be washed if necessary to remove all vegetables and other perishable substances and objectionable amounts of foreign matters. The cost of washing and screening shall be borne by the contractor.

3.2.2.4.2. Grading

a) Coarse aggregates shall have a maximum size of 40mm. and well graded.

b) For heavily reinforced concrete members, maximum size of aggregates shall usually be restricted to 5mm less then the minimum lateral clear distance between the main bars of 5mm less then the minimum cover to the reinforcement, whichever is smaller.

c) The gradation shall give a dense concrete of the specified strength and consistency that will work readily into position without segregation and without use of excessive water content.

d) The grading of coarse aggregates shall be in the nominal sizes as mentioned I.S. 3831970.

e) Specific Gravity – 2.60 minimum.

3.2.2.4.3. Storage

a) Aggregates shall be stacked in such a way as to prevent the intrusion of foreign materials such as soils, vegetable matter etc. Heaps of fine and coarse aggregates shall be kept separate.
b) The aggregates shall be stock piled adjacent to the mixer site so as to require minimum re-handling and labour when conveyed to the mixer.
c) The aggregates shall be placed on a dry hard patch of ground. The aggregates shall be kept free of dirt, rubbish, papers, vegetables matters and bidi etc. on the stock piles.
d) To minimize moisture variations the stock piles shall be spread over the large in area as possible but left low and fairly uniform height preferably 1.25. to 1.50 meter and the lowest layers of about 30cm height shall be allowed to act as drainage layers and not used till end.

3.2.2.5. Water

Water used for fixing of concrete and mortar shall be free from injurious amounts and deleterious materials. Portable water is generally considered satisfactory for mixing and curing. Samples of water will be tested before use.

Where water is found to contain any sugar or an excess of acid, alkali or salt, the Engineer-in-charge will refuse to permit its use.

3.2.2.6. Admixtures.

3.2.2.6.1. General

No materials other than the essential ingredient i.e. cement, aggregate and water shall ordinarily be used in manufacture of concrete of mortar. But the Engineer-in- charge may permit the use of approved admixtures or imparting specificcharacteristic to concrete. On satisfactory evidence that is used on not in any way adversely affect the properties of concrete particularly its strength, volume changes durability and has no deleterious effect on the reinforcement. Cost of such admixture shall be born by the contractor and shall be deemed to have been included in the unitrates for relevant items.

Air entraining agent (AEA) confirming to requirement of IS 9103-1976 may be used as necessary only on approval of the Engineer-in-charge. The air entraining agent as an admixture may be added to the concrete batch in form of solution. It shall be batched by means of mechanical batches capable of correct measurement and in sucha manner as will ensure uniform distribution of the agent through out the batch during the specified mixing period. The amount of AEA used shall be such as to effect air entrainment from 4 to 6 percent by volume. The resulting modification if any tothe content of proportion of cement a consequence there of shall be accounted for in the rate for payment according to general technical specification for concrete.

3.2.2.6.2. Epoxy

Use of Epoxy for binding fresh concrete for repairs may be permitted on written approval of the Engineer-in-charge. Epoxy shall be applied in accordance with the instructions of the manufacturers. The cost of such repairs with all materials shall be borne by the contractor.

3.3.3. Mixing

3.3.3.1. General

The concrete ingredients shall be mixed thoroughly in appropriate proportion in mixers so as to insure uniform homogeneous distribution of all the componentmaterials throughout the mass at the end of mixing period.

3.3.3.2. Operation of Mixtures.

The following general principles should be followed in the operations of mixer

i) The ingredients (cement, sand and aggregates) should be fed into the mixer

simultaneously in such manner that the period of flow of each is about the same.

ii) A portion of the water about 5 to 10 percent should precede and a like quantity should follow the introduction of the other materials.

iii) The remaining water (80 to 90%) should be added uniformly along with the introduction of dry ingredients.

3.3.4. Conveyance of Concrete

Concrete shall be conveyed from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent segregation of ingredients. In case, such segregation occurs inadvertently, concrete shall be mixed before being laid in place. The mode of transport of concrete shall be subject to approval of the Engineer-in-charge.

It shall be deposited in its final position as early as practicable, but always within a period of 30 minutes of its removal from the mixer. The handling and conveyance of concrete shall conform to para 4.8 of IS 475-1975 (with latest amendments)

3.3.5 Preparation for placing concrete

Concrete shall not be placed until all form work required is completed, exploded parts, if any, installed checked and surface prepared for placing. No concrete shall be deposited until the foundation has been inspected and approved.

3.3.6 Consistency.

The amount of water used in the concrete shall be regulated as required to secure concrete of the proper consistency and to adjust for any variation in the moisture content for grading of the aggregates as they enter the mixer. Addition of water to compensate for stiffening of the concrete before placing will not permitted. Uniformity in the concrete consistency from batch to batch will be required.

The slump of the concrete should be fairly uniform at the point of placement keeping the water cement ration as closely as practicable to the standard ratio determined for the required mix. Under no condition, shall the slump be greater than that required to provide proper placement and compaction of the fresh concrete.

3.3.7 Tests

The compressive strength test of the concrete and also other test if necessary will be conducted by the Department in accordance with the provisions as per Indian Standard specification. The contractor shall provide such facility as may be necessary for procuring and handling representative test samples sand, coarse aggregates or concrete at site and will allow department any number of samples to collect from the mix for testing purpose without any compensation.

3.3.8 Preparation for Placing Concrete.

3.3.8.1 Concrete shall not be placed until all form works required is completed, embedded parts, if any installation and checked and surface prepared for placing. No concrete shall be deposited until the foundation beer inspected and approved.

All surface of forms and embedded materials that have become encrusted with dried mortar or concrete previously placed shall be cleaned of all such mortar or grout before the surrounding of adjacent concrete is placed.

3.3.8.2 Foundation Surface.

Immediately before placing concrete, all surface of foundation upon or against which the concrete be placed shall be free from standing water, mud and debris. All surfaces of rock upon or against with concrete is to be placed shall, in addition to the foregoing requirements be cleaned and free from lubricants, Objectionable coating and loose semi detached or unsound fragments. The surfaces absorptive foundations upon or against which concrete is to be placed shall be moisten thoroughly kept sufficiently wet for at least 24 hours and immediately prior to placing so that the moisture will not be dry from the freshly placed concrete.

3.3.8.3 Surface of construction and Contraction Joints.

Concrete surface, upon or against, which concrete is to be placed and which new concrete is to adhere that have become so rigid that the new concrete cannot be incorporated integrally with that the previously placed are defined as construction joints. The surface of construction joints shall be cleaned and when covered with fresh concrete mortar. Cleaning shall consist of removal of loose of defective con and other foreign materials. The surface of all construction joints shall be washed thoroughly with air jet immediately prior to placement of adjoining concrete. Surface of construction joints which have been permitted to dry by reasons of succeeding lift not being placed within the specific moist curing permit shall be kept continuously moist for at least 72 hours immediately prior to placing the succeeding lifts pools of water shall be removal from the surface of construction joints before the newconcrete is place.

3.3.9 Placing

3.3.9.1 The contractor shall kept the Engineer-in-charge informed as to when placing of concrete will be performed. Placing of concrete shall be performed only in thepresence of a duly authorized person shall of the department.

3.3.9.2 Re tampering of concrete will not be permitted. Any concrete which has become so stiff that proper placing can not be ensured shall be wasted. Concrete shall be deposited directly in its final position and shall not be caused to flow such that the lateral movement will permit or cause segregation of the coarse aggregate, mortar or water from the concrete mass. Methods and equipments employed in depositing concrete I forms be such as will not result in clusters or group of coarse aggregate being separated from the concrete mass but if clusters do occur, they shall be scattered before the concrete is vibrated.

3.3.9.3 Except as intercepted by joints, all formed concrete shall be placed in continuous approximately horizontal layers, the depth of which generally shall not exceed 50 centimeters.

3.3.9.4 The department reserves the right to require lesser depth and layers as pernecessity.

3.3.9.5 Each deposit of concrete shall be vibrated completely before another deposit of concrete is placed over it.

3.3.9.6 Mass concrete shall not be placed during rains, sufficiently heavy or prolonged to wash mortar from aggregates. During such rains mortar would not be spread on construction joints and diluted mortar already spread shall be removed and replaced before continuing with the work.

3.3.9.7 Construction joints shall be approximately horizontal unless otherwise shown on the drawings or prescribed by the Engineer-in-charge and shall be given the prescribed shape by the use of forms, where required or other means that will ensure suitable joining with subsequent work. All intersection joints with concrete surface which will be exposed to view shall be made straight and level or plumb.

3.3.10 Consolidation (Compaction)

i) Consolidation of newly placed concrete shall be done with immersion type vibrators. The equipment for vibration should have adequate power and shall be of high frequency, rugged and reliable. Operator should be experienced, competent, dependable and energetic. Ample stand by units and parts as well as systematic servicing should be provided. Vibrator should not be used to cause concrete tomove more than a short distance laterally, otherwise fine materials runs ahead and segregates from the coarse aggregate.

Contractor Senior Manager (Civil)

ii) Re-vibration shall be restored to only after specified instructions as given by the Engineer-in-charge.

iii) Where vibrator is used to full advantage for consolidation of newly placed concrete, no supplementary Roding or other working of concrete is necessary. At corners, obstruction block outs, location with congested reinforcement special care shall be taken to attendto these places with sample and properly applied additional vibration.

iv) Immersion type vibrators of approved weight and frequency 7000 to 9000 r.p.m. to secure maximum consolidation shall be used. Extended vibrators of any approved type shall be used on only in inaccessible location and where it is impracticable to use immersion type.

v) All excessive vibrations sufficient to cause segregation and laitance or tending to bring an excess amount of water to eh surface shall be avoided.

vi) The immersible type vibrators should generally be insertedvertically. In very shallow concrete some consolidation can be obtained by using vibrators in horizontal position. Vibrators should be inserted at feasible intervals of 450mm to 1000 mm apart or as directed by the Engineer-in-charge and withdraw after 10 to 20 second. The entire depth of new layer of concrete should be vibratedand ordinarily the vibrators should penetrate the layer below (which had not yet become rigid) for several millimeters to ensure through bond between the layers. Under ordinary job consolidation, there is little likelihood or damage from direct re-vibration of lower layer or by vibration transmitted by embedded steel. Vibrators shall not be however inserted into lower course that have commenced final set, nor shall they be directly applied or allowed to disturb reinforcement extending into hardened or partially hardened concrete.

vii) When smooth surface are required for all surface that will be permanently exposed to weather and for all surface next to embedded metal work around which it is desired to prevent leakage the adjacent concrete shall be properly vibrated, spaded or tamped. For formed concrete surface to be exposed to high velocities of water, special precautions shall be taken to prevent to minimize surface pitting without resorting to over manipulation of the concrete. Concrete shall not be deposited under water.

The compaction concrete shall confirm to para 4.11 of I.S. 457 of 1957.

viii) The Contractor shall construct all concrete structures to the exact lines, grades and dimensional established in the drawing specified by the department and as directed by the Engineer-in-charge. After the forms have been constructed and erected all surface imperfections shall be corrected, all nails shall be hidden and any roughness and angles on the surface to the required curvature be finished.

3.3.11 Curing and Protections.

i) All concrete shall be protected against injury until final acceptance. Expose finished surface of concrete shall be protected from the direct rays of the Sun for at least 72 hours after placement. Exposed concrete shall also be protected from the action of rains and mechanical injury. No fire shall be permitted in direct contact with concrete at a time. Concrete in which standard profit and cement is used shall be kept continuously moist for not less than 14 days for normal concrete by covering pipes or by any other methods approved by the Engineer- in-charge.

Contractor Senior Manager (Civil)

ii) All opening formed through the concrete, should be closed during the entire curing period and as long thereafter as practicable to prevent circulation of air and the resultant cracking.

iii) Construction joints shall be cured in the same way as the other concrete and shall also be kept moist for at least 72 hours prior to the placing of additional concrete upon the joints.

iv) The methods of keeping formed concrete surface moist shall be by continuous sprinkling of spraying of water as may be necessary to prevent any portion of the surface from drying during the specified curing period.

v) The water and other methods of curing shall be handled so as not to stain concrete surface which shall be exposed.

vi) The actual method curing adopted shall be subject to the approval of theEngineer-in-charge. The contractor shall have on hand and ready to install before actual concrete placement is started, all equipments needed for the adequate curing and protection at all locations of concrete placement.

vii) In case, curing operations are inadequate or unsatisfactory, the Engineer-in-charge shall be entitled to take such steps as it may deem necessary to make good the deficiencies and defects at the contractor's risk and cost.
Curing and protection should conform to Para 4.14 of IS 457 of 1957 with the latest.

3.3.12 Repair of Concrete.

i) Repair of concrete shall be performed by skilled workmen and in the presence of the Engineer-in-charge of his authorized representatives. The contractor shall correct all imperfections on the concrete surface as necessary to produce surface that shall conform to the required standards. All materials, procedures and operation used in the repair of concrete shall be subject to approval of the Engineer-in-charge.

ii) Surface concrete finished against from shall be smooth free from projections. After removal of forms, within 24 hours thereof, whenever practicable, allunsightly tigges of fins shall be removed and any local bulges on exposedsurface shall be removed by toweling and robbing. All holes left by the removalof fasters from the tie-rods, shall after being removed with a toothed rammer byneatly filled with dray requisite patching mortar.

iii) All honey combed, porous, fractured or otherwise defective concrete which in the opinion of the Engineer-in-charge is to be replaced to the required standard shall be removed by chipping. The chipped opening shall be sharp edged and keyed and shall be filled to the required lines with fresh concrete.

iv) Concrete replacement shall be used when holes extend 0.05 sq m. in area and deeper than the reinforcement steel in reinforced concrete and in unreinforced concrete where the holes are 0.1 sqm.in area and 100 millimeters or more in depth.

v) Where concrete is used for filling as mentioned above, the defective concrete shall be remove and good concrete exposed but in no case less than millimeters in depth and the concrete will reinforced if necessary and as directed by the Engineer-incharge.

vi) Dry patching mortar shall consist of one part of cement to two parts of sand by volume and just enough water so that the mortar as used will stick together on being moulded into ball sight pressure of the hands and will not exclude free water when so pressed but will leave the hands damp. The mortar shall be placed within 30 minutes of preparation.

vii) The mortar shall be placed in layers not more than 25mm in thickness after being

compacted and each layer shall be thoroughly tamped to the satisfaction of theEngineer-in-charge. Each layer except the last shall be roughened thoroughly to provide an effective bond with the succeeding layers. The last or finishing layers shall be smoothened to form a surface continuous with the surrounding concrete. Drypacking mortar shall be used for filling behind reinforcement or for filling holes that extend completely through a concrete section.

viii) All patches shall be bonded thoroughly to the surface of the chipped opening and shall be sound and free from shrinkage crack, repair of concrete shall conform to para – 4.15 of I.S. – 1957.

ix) Chipping and Roughening Concrete Surfaces

1) The surface upon or against which additional concrete is to be placed shall be chipped and roughened by the contractor at his cost for expose of fresh surface. The roughening shall be performed by chipping or other satisfactory method and in such manners as not to loosen, crack or shatter any part of the concrete beyond the roughened surface. After being roughened the surface of the concrete shall becleaned thoroughly of the loosen fragments dirt and other objectionable substancesby the use of high velocity air and water jet. All concrete which is not hard, dense anddurable be removed to the depth required to secure a satisfactory surface.
2) The cost of the work of chipping and roughening shall be deemed to have been included in the contractor's tendered rate for the respective items of concrete.

x) Damaged Defective Concrete

Concrete damage from any cause and any concrete which shall be found defective by reason of the contractor's operations at any time before, if and where so directed, be removed and replaced by the contractor with acceptable concrete as directed by the Engineer-in-charge.

3.4. False Work and Forms.

These make up the temporary supports of the concrete consists of three parts.

3.4.1 Centering constituting the bottom forms supporting the weight of the concrete.

3.4.2 Centering constituting the side forms retaining the concrete at the sides and subject to hydraulic pressure as long as the concrete does not set.

3.4.3 Props, beams and bracing supporting and stiffening the forms.

3.4.4 Forms made from timber planks or steel sheets properly tightened with timer framing are suitable both for centering and side shutters. For centering, platforms of rough planks suitable supported and leveled up with earth and finished at the top with cement plaster

1:12 with neat cement punning should be done unless otherwise permitted by the executive Engineer in case of slabs requiring an appreciable camber and a smooth un plastered ceiling. The use of temporary masonry finished with smooth cement plaster is permissible for side shutters provided that it can be made strong enough to withstand distortion due to hydraulic pressure. Any of the above type of centeringand side shuttering or a combination thereof may be used as most convenient in eachcase. Beams, props and bracing of steel or timber are all useful and may be used according to materials available and as required in each case. All forms shall be trueto line and shape according to the requirements of the design of the finished reinforced concrete work. They shall be tightly assembled and fixed, soundly supported on beams and props or a combination thereof and efficiently braced. The forms shall present flush and smooth contract surface with the concrete and shall be slot and rigid enough to hold the we concrete without distortion and the whole assembly shall be strong and rigid enough to stand any incidental loads-including wind pressure or shocks- without any appreciable vibration, deflection, distortion bulging or settlement. They shall also be sufficiently water tight to prevent escape of water from the concrete. The beams and props and other members supporting or

stiffening the centering and side shuttering shall be so fixed and arranged over collapsing wedges or other contrivances that the following operations which are required after the concrete has sufficiently hardened can be easily and safely performed.

3.4.5 Stacking and removing the side shuttering earlier than the centering without disturbing or giving shocks to the latter or any other part of the structure or essential temporary supports.

3.4.6 Slackening the centering without jarring the structure.

3.4.7 Removing the centering, beams, props and other member of the false work orshutters without jarring any parts of the structure or other false work in the neighbourhood.

3.4.8 Forms for all rectangular columns shall preferable be so arranged that the shutters on one side can be fixed in position and tightened up with rest of the shutters as work proceeds. This enable concrete to be compacted uniformly from bottom upward and it is not necessary to throw concrete into the forms from a great height which is always likely to cause defective work. For the same reasons forms for other shapes of columns shall be so designed that the forms can be build rapidly as the work proceeds.

3.4.9 In making centering for slabs, beams, lintels or arches in building sometimes chases, holes or recesses are kept for supporting centering without the use of props. This should not be done at the places of hearing of the beams, arches or lintels.

3.4.10 When cambers are required in slabs or beams these shall be carefully provided in the centering. The usual figures for central cambers and as follow and shall be adhered to unless some other cambers are specified.

a) slab-about 0.93 cm per 3.0 m of span
b) Beams – about 0.46 cm per 3.0 m of span.

3.4.11 Before arranging reinforcement in the forms the interior surface of the later which have to remain in contract with concrete shall be very lightly smeared with non- staining mineral oil, soap solution, line white wash other approved materials to prevent them from adhering to the concrete. The interiors of the forms shall be cleaned or any dust wood shavings or other extraneous materials before concrete is laid.

3.4.12 In some locations reinforced concrete is laid over or between masonry or concrete or over ground. In such cause forms are not required and reinforcedconcrete is to be laid over existing masonry or concrete the latter having been over previously moistened to prevent it from sucking on water from the from the cement concrete. When laid directly over earth in foundation the bed shall be watered and rammed hard and if too porous lined with paper or other approved water proofing materials, before this is done.

3.4.13 Measurement and Payment of Concrete.

Measurement and payment for cement concrete items shall be made on the basis of the actual volume of the concrete laid for finished items. No. deductions shall be made for the space occupied by reinforcement rods, embedded metal parts, equipments, electrical conduit lines etc. The quantity of concrete covered by the grooves for stop logs and gates in abutments and piers shall however be deduct from the total quantity to arrive at the concrete works under respective items. Thereinforcement steel shall be separately paid at the rates under items of tender schedule. The rate includes the cost of labour and material for fabrication of stuttering plates, cleaning, painting, fixing in position with centering, nuts and bolts, tie etc. and removing after specified period from the date of lying of concrete. All labour material plants etc. Involved in providing cement, slurry and mortar onconcrete and construction joints shall be deemed to be included in the unit rates for

the respective items. The unit rates for concrete items shall cover the labour charges for erection of first stage embedded metal parts. No payment shall however be made for providing grooves for gates and stop log gates, piezometer pipes and installation of the instrumentation, electrical conduits, the cost of which shall be deemed to be included in the rates. The rates shall include incidental operations like construction of coffer dam and dewatering etc.

4.0. REINFORCEMENT

4.1. Procurement of Steel

4.1.1. General

The reinforcement steel shall have to be arranged by the contractor. Steel reinforcement bars shall be used wherever shown in the drawings or and where directed by the Engineer-in-charge. Steel for reinforcement shall be plain M.S. bars conforming to I.S. 2062-1992 or Tor steel conforming to I.S. 1786-1986. The contractor shall prepare all details for bending, binding and placing the reinforcement which may be required to facilitate the fabrication and placement for all reinforcementbars at his own cost. The department shall furnish reinforcement design and drawing to the contractor.

4.1.2. Structural steel required for reinforcement should be procured sufficiently ahead of its use in the work subject to the observation of the following points.

4.2.3 The procurement schedule of steel required for the work should be submitted for approval of the Engineer-in-charge prior to its procurement.

4.2.4 Unless otherwise specified elsewhere, general requirements relating to the use and procurement of materials, inspection and testing shall conform to I.S. 1387-1959 with its latest amendments.

4.2.5 No materials should be dispatched/received from the manufacturer's or supplier's premises prior being certified by the contractor or his authorized representative as having fulfilled the tests are requirements laid down in this standard (IS-1387-1959 with amendments). Except where the or coil containing the bars is marked with the ISI certification Marks.

4.2.6 The contractor should make an arrangement with the manufacturers or suppliers so that the engineer-in-charge or his representative shall be at liberty to inspect and verify the steel makes certificates of cast analysis at the premises of the manufacturer or supplier. When the Engineer-in-charge required and actual analysis of finished analysis, the contractor must ensure that the manufacturers or suppliers carry the analysis at a place as agreed by the Engineer-in-charge.

4.2.7 The exact position, size and shape of reinforcement bars as shown in the drawing are subject reasonable alternations by the department without any compensation to the contractor. Where not shown reinforcement, design and drawings will be supplied to the contractor after final design.

4.2. Placing

4.2.1 Reinforcement shall be placed in concrete wherever shown as the drawings or where directed. Unless otherwise prescribed, measurements made in placing the bars shall be to the centre-lines of the bars.

4.2.2 Reinforcement shall be inspected for compliance with requirements as to size and shape before placement and as to length, spacing position and amount after placement.

4.2.3 Before reinforcement is placed, the surface of the bars and the surface of any mental bars, supports shall be cleared of heavy flaky-rust, loose dirt, grease or other foreign substances which in the opinion Engineer-in-charge are objectionable.

4.2.4 Reinforcement shall be accurately placed and secured in position so that they will not be placed during placing of concrete and special care shall be exercised to prevent

any disturbances of the reinforcement in the concrete that has already been placed. Metal chair and hangers, spares or other satisfactory support may be used for supporting reinforcement bars.

4.2.5 Special care shall be exercises to prevent any disturbances of the reinforcement in concrete that has already been placed. The reinforcement after being placed in position shall be maintained in clean condition until it is completely embedded in concrete.

4.2.6 Reinforcement shall be straightened or bent in a manner that will not injure or weaken the materials. Bars shall be bend cold to the shape and dimension shown in the drawing or as directed. Hearing of reinforcement bars to facilitate bending shall not be permitted.

4.2.7 The reinforcement provision, fixing, providing lap length etc. shall be in conformity with relevant provisions in I.S. 456-1978 and its amendments from time to time.

4.2.8 Wire for bending reinforcement shall be of 20 SWG or heavier gauge. Wires shall be of soft and annealed mild steel and shall conform to IS 280-1978. It shall have tensile strength of not less than 50 Kg/mm^2. The wire shall have minimum diameter of 1mm, chairs, hangers, spacers and others supports for reinforcement may be of steel or other approved materials.

4.2.9 Sufficient concrete coverage as indicated in the drawings should be provided to protect reinforcement from corrosion.

4.2.10 The minimum allowable clearance between parallel steel bars shall not be less than 1.5 times the diameter of the larger bars or 1.5 times the maximum size of aggregate whichever is greater. Bars crossing each other, where required shall be secured by binding wire in such manner, that they do not slip over each other at the time of fixing and concreting. Wire used for binding reinforcement shall not be measured for payment.

4.2.11 Bars bent during the transport or handling shall be straightened before being used on work.

1 U-type hook at the end of each bars shall invariably be provided if plain M.S round bars are used. The radius of the bend shall not be less than twice the diameter of round bar and the length of the straight part of the bar beyond the end of the curve shall be at least four times the diameter of the round bar.

2 MASONRY CONSTRUCTION

4.2.13 No welding generally permitted in steel rods less than 20mm diameter in size. Welding of joints in case of rods less than 20 mm diameter may be allowed in place of overlapping at the direction of the Engineer-in-charge, a approved locations as per IS 2751-1979 (with its latest amendments).

4.3 Measurement and Payment.

Measurement for payment for supplying and placing reinforcing bars and structural steel will be made only on the calculated of the material placed in concrete or fixed in auxiliary structure in accordance with the drawings or as directed by the Engineer-in-charge. The calculated weight of reinforcing bars and structural steel shall be determined as follows:

i) The weight per unit length of reinforcing bars and structural steel used shall be based on the standard weights as per Bureau of Indian Standards. The calculated weight of reinforcing bar for payment will bethe above weight per unit length multiplied by corresponding lengths of bars placed in concrete, which will be measured and should in no case, bemore than the length provided in the drawing, unless the Engineer-in- charge specifically approves. Splices shall not be measured for payment. Wastage of rods, chairs, ties, hangers etc. will not be measured. The binding wires shall not be measured.

ii) Payment for supplying and placing reinforcement bars shall be made at rate tendered thereof the schedule. The rates shall include the cost of preparing reinforcement as per detailed drawing including bar placing drawings, bar bending diagrams, submitting the drawings to the department preparing all necessary bar bending and cutting lines, cost of steel and binding wire, labour equipment for binding and welding at siteof work including all taxes, furnishing and attaching ties and cutting, bending, cleaning, placing and maintaining in position all reinforcing bars of jointing as per approved method etc. all complete finished to as shown on the drawings or directed by the Engineer-in-charge. The unit rate shall also include cost of and splices chairs, ties, hangers, wastage of bars due to cutting, incidental operations necessary to complete work as per specification, like dewatering, construction of cofferdam etc.

a. General

The masonry work will be built lines shown in the drawings and carried out in through workmen line manner with aid of templates. Scaffolding, hoisting arrangements, tools & plants etc. required for the proper execution of the work. The limits prescribed for Brick Masonry will be subject to such changes as will be authorized by the Engineer-in-charge.

The unit bid price of the tender and all conditions will hold good for such changes.

All brick masonry shall conform to I.S. 2212 1991. It shall consists of first class bricks cleaned and immersed in water for at least six hours before use and set in cement mortar.

5.2 Bricks.

The Bricks to be used in all masonry works should be kiln burnt bricks conforming to I.S: 2180-1988 unless otherwise specified in the drawings or directed by the Engineer-in charge. Bricks shall be table moulded (except where g round mending with equally good variety is specially permitted) of uniform size, shape and colour (generally deep red or copper) and must be well burnt so as to give a clear ringing sound when struck. They shall not break when thrown on the ground or against other bricks from a height of 1.8m, shall be clear, whole and free from flaws, cracks, stones and under burnt

lumps of any kind.

They have sharp edge and angles and even surfaces. The bricks shall not absorb more then 1/5th of weight when immersed in water for 6 hours.

b. Cement

Cement to be used in the mortar for the brick masonry should be ordinary Portland cement

conforming I.S:269-1976 and Portland Pozzolana cement (P.P.C). The cement is to be

arranged by the bidder at his own cost and it is the responsibility of bidder to being cement

to work site and to the mixer or mixing platform.

c. Sand and Water

Sand and water required to be used in the mortar for brick-masonry shall conform to

provisions relevant paragraphs out lines under concrete specifications Vide I.S: 156-1978.

Sand to be used confirm to I.S:2116-1980.

d. Mortar

The cement mortar to be used in brick-masonry shall be prepared in accordance with IS:

2250-1981 mortar shall conform to provision of relevant paragraphs outline under concrete

specifications.

5.5. Bond and

5.6. Joints

5.6.1. No bond / joints shall be thicker then 12mm and the thickness of bond / joints shall be

such that four course and three joints taken consecutively shall measure equal to 39 cm.

5.6.2. The face joints of brick work shall be finished by plastering or by pointing.

5.6.3. The joint shall be squarely raked out to a depth of 10mm while the mortar is still green for

subsequent plastering. The faces of the brick-work shall be cleaned with wire brush so as

to remove any splashed of mortar during the course of raising the brick work.

5.6.4. In pointing the joints shall be squarely raked quit to a depth of 15mm. while the mortar is still green and the raked joint shall be well brushed to remove dust and loose particles and well wetted and shall be later completely refilled with mortar to give required finish.

5.7. Scaffolding

Scaffolding shall be rigid and strong enough for its purposes. When single scaffolding is used, put log holes are necessary, the latter shall always be given in the headers courses and no more than one header brick shall be temporarily omitted for this purpose. No put log holes are permissible in pillars which are less than 3" wide or in masonry at or close to the springing of arches or bearing of beams and lintels. All put log holes shall be closed with sand bricks and mortar before any plastering or painting is done.

5.8 Storage and Handling of Materials.

5.8.1 Bricks

The bricks are to be arranged by the bidder. Bricks shall not be dumped at site. They shall be stacked in regular layers while unloading to minimize breakages and defacement of brick. The bricks shall be so arranged by the bidder that as far as possible at least two days requirement of bricks are available at site at any time.

Bricks required for different locations of works, shall be stacked separately.

5.8.2 Cement

The cement for brick-work is to be arranged by the bidder. It should be stored above ground level in perfectly dry and water-tight sheds. Cement shall be stacked notmore than eight bags high. The bags shall be stacked in a manner to facilitate removal and use in the order in which they are brought to site.

5.8.3 Mortars.

Mortars shall be well mixed and shall be transported from the mixer or mixing platform to the site of work in such a manner so as prevent formation of laitance or segregation.

5.9. Soaking of Bricks.

Bricks shall be soaked in water before use for a period that is sufficient for the water to just penetrate whole depth of the brick so as to remove the dirt, sand and dust from bricks. The bricks shall not be wet at the time of use as these are likely to slipon the mortar bed and there will be difficulty in ensuring plumbness of the wall.

5.10. Laying of Bricks Work

5.10.1. Bricks shall be laid on a full bed of mortar and should be slightly pressed so that the mortar gets into at pores of the bricks surface to ensure proper adhesion. Cross joints and wall joints shall be proper flushed and packed with mortar so that no hollow spaces are left in order to ensure maximum strength. The brick-work shall be built in uniform layers.

5.10.2. The corners and other advance works shall be racked back. No part of wall during construction rise more than one meter above the general construction level to avoid unequal settlement and improper jointing.

5.11. Protection Against Damage

5.11.1. Care shall be taken by the bidder during construction that edges of jambs, sills, head etc are damaged. In inclement weather, newly built works shall be coveredwith gunny bags or tarpaulin to prevent the mortar from being washed away.

5.12. Curing

5.12.1. The brick-work shall be kept constantly wet for a period not less than seven days in order to avoid mortar being dried up before it has attained final set and also to prevent crumbling.

5.13. Inspection.

5.13.1. The brick masonry should ensure its satisfactory performance and all recommended practice workmanship shall be adopted at every stage.

5.13.2. The Engineer-in-charge may inspect and reject the defective works which should be rebuilt at the cost of bidder for which no extra compensation what so ever will be entertained.

5.13.3. If necessary samples of bricks, sands cement etc. used in brick masonry shall be periodically tested in laboratory at the cost of the bidder in order to conform to the required standards.

5.14. Workmanship

The following shall be ensured at the time of construction of brick masonry.

a) All loose materials, dirt and set lumps of mortar which may be lying over the surface over which brick work is to be freshly stated, shall be removed with a wire

brush.

b) All brick shall be thoroughly soaked in clean water immediately before use.
c) The surface over which the brick-work is to be started shall be slightly wetted.
d) The first course shall be made horizontal by providing enough mortar in the joint to till up the undulations in the bed course.
e) Care should be taken to see that the required quantity of water is added to the mortar at the mixing platform itself and not over the course.
f) All the joints shall as far as possible be thin and per specification mentioned in as the earlier paragraphs.
g) Care should be taken to see there is no through joint and the lap is not less than half the width of the brick and all vertical joints are to be properly filled with mortar.
h) The vertically of the walls and horizontality of courses should be checked very often with plumber and spirit level respectively.
i) No portion of the brick work shall be left more than one meter lower than the other, where the masonry of one part has to be delayed due to unavoidable circumstances the brick work already done should be raked back suitably at an angle not exceeding 45^0 according to bond and toothed.
j) Care should be taken to ensure that the brick work is kept wet for seven days commencing from 24 hours after the course is laid.

5.15. Measurement and Payments.

5.15.1. Measurement for brick-work masonry shall be made on the basis of the volume of work calculated as actually contained within the profile as shown in the drawings or as directed by the Engineer –in-charge.

1 The unit bid price for brick masonry shall be inclusive of mobilizing, demobilizing, supplying all equipments. Cost of all materials, labour, supervision, curing and all incidentals works including all leads, lifts and delifts charges for loading, unloading, conveyance, taxes, royalties of all materials including scaffolding, shuttering and all other operations etc. complete.

2 FLOORING

6.1 Dry Brick Khoa

6.1.1 Dry brick Khoa rammed to 10 cm is very suitable as a base for ordinary light duty cement concrete artificial stone floors.

6.1.2 The khoa shall be sound and of 5 cm. gauge, clear dust free laterite gravel or stone metal of the soft variation 3./cm. gauge may be used instead of khoa without objection. Over the plinth filling 12.5 cm. thickness of brick khoa or other ballast and rammed hard with the help of water and 6 KG iron rammers to the thickness of 10 cm. shall be laid. The finished surface shall be uniform and un yielding through rough. Brick khoa should not be rammed so hard as to crush and powder the top surface.

The brick khoa shall be made from sound first and second class bats. Khoa is so brittee which crushes easily under rammers shall be made.

6.2 Rates shall cover rammed ballast. The rate shall include the cost of rammed khoa to 10 cm. depths with its conveyance, royalty taxes and labour etc. The payment shall be made by area.

6.3 Artificial Stone Flooring.

Artificial stone flooring shall be 2.5 cm thick unless greater thickness of providing is specified. The floor shall be laid in 2 simultaneous layers in cement concrete of the following mixes, no sand at all being used.

For the layer of 20mm thickness or more for floor paying thicker than 25mm. cement a part, stone ball 20 mm, gauge 3 parts. For the upper layer of 6mm thickness-

cement 1 part, stone aggregate 6mm gage 2 parts.

Concrete for both layers shall be mixed at the same time but kept separate. The base over which the floor is to be laid (rammed khoa, concrete, masonry etc.) shall be saturated with water and slightly roughened and divided into blocks not exceeding 5.24 sqm by means of rectangular wooden battens laid over the base in cement mortar to a height equal to the exact finished thickness of the floor. Re-entrant shall be avoided in forming the blocks, and sills should always form separate blocks by themselves. The cement concrete mixed with the minimum amount of water necessary shall now be laid over the base and beaten down quickly to a depth of 20mm. Over this will be laid immediately the finer concrete for the top level quickly beaten down and worked by means of straight edges to the correct thickness between the batterns. The beating and laying shall be completed within 20 minutes and polishing of the surface mostly within 30 minutes of mixing. Excessive trowelling does not result in a good polish. Use the trowel sparingly and give the final polishing strokes covering the entire surface just as the cement is taking its initial which may take half an hour or more after the cement is moistened. It should not usually be necessary to add any more cement to the top surface while polishing, but a little neatcement paste mixed at the same time as the concrete may be used if found essential to assist polishing.

6.3.1 48 hours after the floor has set or later, the battens shall be carefully removed so as not to break the edges. Alternate blocks shall be laid the same day and intervening blocks shall be laid on the third day of as may be suitable after removing the battens from the previous blocks. Junctions of floors and plaster or dadoes shall be rounded to a radius of 2.5 cm in floor material along with the floor of the plaster. Outer edges of the artificial stone over steps shall be finished with rounded nosing projecting 12mm beyond the face of the risers. Outer edges of the floor in verandah sills shall befinished with nosing or shall be rounded to a radius of 12mm according to order.

6.3.2 When laying the artificial stone between the existing blocks the edges of the finished blocks can be as guides. The dividing lines between the blocks shall be marked accurately and truly by stretching string over them and pressing it down while the surface is just setting. Any smear of cement over the surface of old finished blocks while laying intermediate blocks shall be cleaned by means of a moist rag before the smear has had time to set. On the day any block is laid it shall be left entirely undisturbed but the next day it shall be sprinkled with water and kept moist. On the day any block is laid it shall be left entirely undisturbed but the next day it shall be sprinkled with water and kept moist. On the third day it can be bonded or covered with sand or straw and cured in this manner for 10 days. Clay bunds discolor the surface and shall not be used for ponding.

6.4 Measurements and Payment

The payment for cement concrete A.S. Flooring shall be made by area.

6.5. Terrazzo Tile flooring (Marble Mosaic Tile)

The tiles shall conform to IS: 1237 having the colour and chips approved by the Engineer. The mosaic topping of lighter shade tiles hall be made of white cement with a shade pigment and natural shade tiles shall be of grey cement with an approved shade pigment. The type of tiles shall be as specific in respective items.

A bed of cement mortar consisting of one part of cement and 6 parts of sand shall be laid and properly leveled to an average thickness of 20mm. and the surface shall be kept slightly rough to form a satisfactory key for tiles. Neat cement paste of honey like consistency shall be spread over mortar bed, over such area at a time as would accommodate about 20 tiles. Tiles shall be soaked in water for at least 15 minutes and allowed to dry for the same duration. Tiles shall then be fixed with a thin coat of cement paste on back of each tile and then each tile gently tapped with a wooden

mallet till it is properly bedded and in level with adjoining tiles. Joints shall be file and as imperceptible as possible (not more than 1.5mm. wide.)

After tiles have been laid in a room or a day's fixing work is completed, surplus cement grout that may have come out of the joints may be wiped off gently andjoints cleaned. A thick slurry of coloured cement matching the colour of tiles shall be spread over it and rubbed so as to seal even the thinnest joint between the tiles and make it impervious and the flooring cured for 14 days. The floor shall be polished andfinished according to IS:1443.

6.6. KOTA STONE FLOORING.

The slabs shall be of selected quality, hard sound, dense, homogenous in texture, free from cracks, decay, weathering and flaws and of thickness as specified. The top exposed faces should have been roughly polished before bringing it to site. Unless otherwise specified the slabs should be cut to the required shape and size, by hand using fine chisel or machine cut as specified. All pieces should be of uniform size.

A bed of cement mortar 1:6 shall be laid and properly leveled to an average thickness of 20mm and the surface should be kept slightly ought to form a satisfactory key for the tiles. Neat cement paste of honey like consistency shall be spread over mortar bed over such an area so that the paste will not harden before laying tiles. Slabs shallbe soaked in water for 15 minutes and allowed to dry. The slabs shall then be fixed asper approved pattern with thin coat of cement paste on back of each slab. They willbe tapped with a wooden mallet till it is properly bedded in level with adjoining slabs. Joints shall not be more than 1.5mm. wide. The surplus cement grout that may have come out of the joints has to be wiped off gently and joints cleaned. The joints shall be filled up with grey or white cement with an admixture of pigments to match the shade of the slab. The flooring shall be cured for 14 days. Then it shall be polished according to IS: 1443, except that (1) First polishing with course grade carborandum shall not be done (2) Cement slurry with or without pigment shall not be applied before polishing.

6.7. Marble Works.

Marble shall be hard, sound, dense and homogenous in texture with crystalline and course grams. It shall be free from stains, cracks, decay and weathering. The place of quarring, colour and quality and thickness should be as specified. Every stone must be cut to required size and shape chisel dressed on all and joints so as to be free from waviness and to give truly vertical, horizontal, radial and circular joints as required. Chisel dressing shall also be done on exposed faces to remove any waviness. The side and top surfaces of marble slabls shall be machine rubbed with coarse sand before using. Marble slab in borders, joints and sof its of entrance, opening and skirting shall be in full width, Marble slabs in treat and risers of steps shall be in single pieces with rounded edges or angular edges as may be described.

The exposed edges of these are to be machine cut and polished smooth along with exposed faces all cases samples shall be got approved. Flooring slabs will be set in cement mortar 1:6 proportion 2.5mm thick and cement slurry. In other places slabs will be set in CM 1:3-20mm. thick. Polishing will be aspect IS 1443 except that (1) the first polishing with course grained carborandum shall not be done (2) cement slurry with or without pigments shall not be applied before polishing.

6.8 Cement Tile Flooring.

Cement tiles shall conform to ISI 12.37 and the size will be 250mm X 250 mm or 300 x 300 mm and should be 25 mm thick. They shall be of the colour approved and conform to IS 12.37. A bed of cement mortar 1.6 shall be laid and properly leveled toan average thickness of 20mm and the surface shall below slightly rough to form a satisfactory key for the tiles. In other aspects the tiles will be set and polished as per ISI 1443.

Contractor Senior Manager (Civil)

6.9 Glazed Tile Flooring, Dado & Skirting.

Glazed tiles from an approved manufacturer conforming to IS: 777 shall be ofspecified size and thickness and colour. All special viz. coves, internal and external angles, corners, beads etc. shall be used wherever directed. Under layer of 12mm average thickness of cement mortar 1:3 proportion shall be laid. Tiles shall be well soaked in water washed clean and set in cement grout and each tile being gently tapped with a wooden mallet till it is properly bedded and in level with the adjoining tiles. The joints shall be kept as thin as possible and in straight lines or to suit the required pattern. After the tiles have been laid, surplus cement grout shall be cleanedoff. The joints shall be cleaned off the grey cement grout will a wire brush or trowel toa depth of 5mm. and all dust and loose mortar removed. Joints shall then be flushed pointed with white cement if necessary mixed with colour to match the colour of the tile. The floor/dado shall then be kept wet for 14 days. After curing the surface shall be washed with mild hydrochloric acid and clean water. The finished floor/dado shall not sound hollow when tapped with a wooden mallet. The rate will include the cost of under layer of cement mortar.

6.10 In-situ Mosaic for Flooring, Dado & Skirting.

On a base coat of 12mm thick cement mortar 1:4 proportion, a top layer 10mm thick consisting of marble chips upto 10mm size approved coloured mixed with paste depending on the base colour required shall be laid and polished as required as per IS code IS 2114. or grey base, Portland cement shall be mixed with marble powder in 3:1 proportion. To this shall be added marble chips of approved colour and size in proportion of 4 of cement marble powder and 7 marble chips and thoroughly mixed by adding water gradually to have a uniform plastic mix. Within an hour of laying the base coat of cement mortar the top layer consisting of cement marble chips shall be laid in panels as instructed and the surface tamped lightly and finished perfectly level or shape with straight edges float and trowel. Within one hour of laying the surface shall be covered with polythene sheet and left undisturbed for 2 days. The surface shall then be rubbed by sand stone blocks and all cement slush removed. A neat cement marble powder dust wash shall then be given on the surface and leftundisturbed for six days.

Grinding and polishing in the case of flooring may be done by hand or machine. In the case of machine grinding the process shall start seven days after completion of laying. In the case of skirting, dadoing or flooring where hand grinding is allowed the grinding will start 2 days afer laying. Where the lengths are more than 1:2 meter dividing strips of glass or aluminum or any other prescribed materials shall beprovided at spacing as instructed by

For base other than grey, white cement will be used in place of grey cement with necessary approved pigment of permanent colour shall be used to get the necessary shade.

6.11 Khandelite Stone Cladding.

Khandelite stone tiles from an approved manufacturer shall be of specified size and thickness and colour. The specification for this work will cover same as specification of paragraph of Glazed tile flooring, Dado and Skirting.

6.12 Vineyle Flooring.

The type and thickness of sheet shall be as shown on drawings or described in the schedule of quantities or otherwise directed by the Engineer-in-charge. The floor surface including dado shall be washed with soap and soda water. Then the adhesive used shall be of good quality and approved by Engineer in charge. The sheet should be laid and finished as per the Indian standards code of practice for laying and maintenance of linoleum floors IS 1198.

6.13 Measurement and Payment.

Floors of any kind shall be laid on the basis of the surface area appearing between the plastered walls of the room Dado/Skirting shall be laid for the surface area upto floor level.

Tile facing shall be measured by their actual surface. The prices quoted shall include all special transition pieces, grooved moulds, corners etc.

7.0 PLASTERING.

7.1 General

The cement plastering over brick masonry is to be done in accordance with the required specifications as provided in the drawings.

Materials (Cement, Sand, Water), Cement, Sand and water to be used in the mortar for plastering should conform to the required specifications as mentioned in earlier paragraphs under concrete, Brick masonry vide Code- I.S. 456-1978.

7.2 Mortar

The composition, mixing and transportation of mortar to be used for plastering should conform to required specifications as provided in the drawings and mention in earlier paragraphs under Brick masonry.

For punning and skirting works the sand to be used shall be thoroughly screened and washed to remove all dust and silt. The skirting shall be finished smooth with neat cement to obtain the same finish as for granolithic flooring. The junction at the flooring shall be finished straight, vertical or rounded at the base as directed by the Engineer. The skirting shall be cured for at least 15 days. Continuous horizontal grooves at the top of the skirting shall be provided as per drawings or as directed by the Engineer. No extra will be paid for grooves.

7.3 Workmanship.

Before plastering is carried out all the vertical and horizontal joints shall be taken to a depth of 10mm while mortar is wet in order to obtain satisfactory adhesion between the plaster and brick work.

The corners between walls and ceilings shall be rounded of to a radius of 75 mm without any extra payment. Any concrete surface, if specially ordered to be plastered,shall be so roughened and racked to form key for plastering and given a wash of cement before applying the rendering coast.

The surface to be plastered shall be damped evenly, preferably with a frogs sprayer, to produce optimum suction, effect between the surface and the new plaster.

Cement mortar for plastering shall be used within 30 minutes after adding water to cement, provided it is kept agitated at intervals of at least 20 minutes.

After making the plaster surface even, cement punning shall be done by sprinkling neat cement powder evenly on the surface and rubbed smoothly with a towel to givea fine coating, at no extra cost. The plaster shall be kept wet for at least seven days and protected from extremes of temperature and weather during this period.

Quality of completed plaster work can be checked for by test opening of some places and these openings shall be made good by the contractor.

7.4 Curing.

Curing of plastering should be done continuously for a minimum period of 7 days commencing from 24 hours after the plastering is done.

7.5 Measurement and Payment

7.5.1 Measurement for cement of plaster shall be made on the basis of surface area of plaster actually contained within the profile as shown in drawings or as directed by the engineer-in-charge.

1 The unit bid price for plastering shall be inclusive of mobilizing, demobilizing and supplying all equipments, cost of all materials, labour, supervision, curing, and all incidental works including, taxes loyalities, scaffolding, shuttering and all operations etc. complete.

2 Doors and Windows, Aluminum Fittings.

8.1 **Description of Items.**

8.2. Carpentry & Joiner.

8.2.1. This specification deals with the requirements regarding materials, construction and workmanship of timber doors, windows and ventilators.

8.2.2. Materials and workmanship shall confirm with provisions of the following codes in particulars and with such other Standards as are mentioned hereinafter.

IS: 1003 Specification for timber paneled and glazed doors & windows.
IS: 2191 Wooden flush door shutters (Cellular & hollow core type).
IS: 2202 Wooden flush door shutters (Solid core type)
IS: 1141 Code of practice for seasoning of timber.
IS: 419 Specification for putty for use on wooden frames.

8.2.3. Materials used in the fabrication of timber doors, windows and ventilators shall be the best procurable and conforming to the relevant Indian Standard Specifications.

8.3. Timber

Timbers for doors, windows and ventilators shall be free from decay, fungal growth, boxed heart, pitch pockets, borer holes, splits, loose knots, flaws, sun-cracks or any other defects.

Unless otherwise specified, all timber shall be first class teak wood conforming to IS: 1141 before being planned to the required sizes. The finished components shall be given suitable preservative treatment.

8.4. Plywood

Plywood, when used for paneling of interior doors and windows, shall be of MPF-1 Grade conforming to IS: 303. Plywood shall not be used for panel of exterior doors and windows.

8.5. General Workmanship

All wood work shall be of a high quality of workmanship. Wood work shall be neatly and truly finished to exact dimensions and details as per drawings, without patting or plugging of any kind. Exposed work shall be finished smooth with well planned faces.

All assembly of shutters of doors, windows, ventilators and frames shall be exactly at right angles. In the case of frames, the right angle shall be checked from the inside surfaces of the respective members.

All doors land windows frames shall be clamped together so as to be square and flat at the time of deliver. Door frames without sills shall be fitted with temporarystretchers. Horns of frames and other parts that go into or butt against the masonry, shall be protected against moisture and decay with two coats of coal tar or other approved material.

All surfaces of the door, window and ventilators frames and shutters which are required to be painted ultimately shall be covered evenly by brush painting with a priming coat of a white lead based primer as specified in IS: 103. In the case of doorsto be polished or varnish shall be given before delivery. No primer shall be applied to the wood work until it has been inspected and passed by the Engineer.

8.6. Shrinkage & Tolerance.

The arrangement, joining and fixing of all joinery work shall be such that shrinkage in any part and in any direction shall no impair the strength and appearance of the finished work.

The tolerance on overall dimensions shall be within the limits prescribed in IS: 1003.

Any shrinkage and defects due to bad workmanship are detected after execution, the contractor shall at his own cost replace and reaffix such work, as may be required by Engineer.

8.7. Fixing.

Door and window frames shall generally be built at the time the walls are constructed. Alternatively, where permitted by the Engineer, the frames may be subsequently fixed into prepared openings, for which purpose holes to accommodate the hold fasts shall be left at the time of construction. The method of fixing shall be followed as described in relevant specification.

8.8. Frames & Shutters.

Shutters of flush doors shall be 38mm. thick block-board construction with smooth finish. Shutters shall be single leaf or double leaf type as mentioned on drawings. All necessary rebates, holes, recesses, required for fixture shall be worked to lines, centers and in workman like manner. Teakwood in frame shall also be specified above. Frames beadings, mullions, shutters, tipping, etc. shall be smoothened by sand paper.

8.9. Finishes

Finishes shall be strictly in accordance with the schedule of finishes, using approved make and colour of paint, finished with stippled and uniform texture.

8.10. Hardware for Doors

Hardware for doors shall conform to the hardware schedule given in drawings. All hardware shall be approved in advance by Engineer. Samples of all hardware fixture and fittings shall be collected by the approved in advance by Engineer. Samples of all hardware fixture and fittings shall be collected by the contractors for Engineerapproval and approved samples maintained on board in Engineer site office. Selected piece of hardware shall be used. All aluminum hardware shall be anodized.

a) Butt Hinges

Butt Hinges shall be steel with brass pins and washers of heavy duty type, first quality.

b) Projecting type hinges.

Projecting type hinges shall be pressed steel with brash washers and pins, quality.

c) Three way bolding devices.

Three-way bolting devices for emergency doors.

d) Tower bolts

Tower bolts shall be manganese brass, flush type vertical bolts, heavy duty 20 cm. half-round 35cm. at top and 20cm. at bottom of doubles shutters of first closing leaf (LH shutter locking from inside.)

e) Two point handles

Two points handles shall be manganese brass or cast-iron or die cast zinc base alloy.

f) Peg Stays. Peg stays shall be manganese brass or die cast zinc base alloy to keep the shutters at least open in three different positions upto 90^0. g) Motice Locks. i)

Shutters of flush doors shall be 38mm. thick block-board construction with smooth finish. Shutters shall be single leaf or double leaf type as mentioned on drawings. All necessary rebates, holes, recesses, required for fixture shall be worked to lines, centers and in workman like manner. Teakwood in frame shall also be specified above. Frames beadings, mullions, shutters, tipping, etc. shall be smoothened by sand paper.

8.9. Finishes

Finishes shall be strictly in accordance with the schedule of finishes, using approved make and colour of paint, finished with stippled and uniform texture.

8.10. Hardware for Doors

Hardware for doors shall conform to the hardware schedule given in drawings. All

hardware shall be approved in advance by Engineer. Samples of all hardware fixture and fittings shall be collected by the approved in advance by Engineer. Samples of all hardware fixture and fittings shall be collected by the contractors for Engineerapproval and approved samples maintained on board in Engineer site office. Selected piece of hardware shall be used. All aluminum hardware shall be anodized.

a) Butt Hinges

Butt Hinges shall be steel with brass pins and washers of heavy duty type, first quality.

b) Projecting type hinges.

Projecting type hinges shall be pressed steel with brash washers and pins, quality.

c) Three way bolding devices.

Three-way bolting devices for emergency doors.

d) Tower bolts

Tower bolts shall be manganese brass, flush type vertical bolts, heavy duty 20 cm. half-round 35cm. at top and 20cm. at bottom of doubles shutters of first closing leaf (LH shutter locking from inside.)

e) Two point handles

Two points handles shall be manganese brass or cast-iron or die cast zinc base alloy.

f) Peg Stays. Peg stays shall be manganese brass or die cast zinc base alloy to keep the shutters at least open in three different positions upto 90^0. g) Motice Locks. i)

8.11. Aluminum Doors and Windows.

Material and workmanship shall conform to I.S. 1948-1961 unless otherwise noted herein, and shall be the standard product of the manufacturer approved by Engineer. All sections shall be made of O.E.L. extruded. Aluminum surface in contact with concrete or masonry shall be given two coats of heavy bodied bituminous paint. The finish shall be polished and lacquered unless otherwise specified in the drawings. All joints shall be screwed (mechanical) type using cadmium plated screws.

8.12. Measurements.

Doors shall be measured for the area of the inside clear size of shutters closed. The rate shall include frames hardware, vision panels, hold-fasts and painting or polishing stipulated in the finish schedule. Motice locks, door closers will be paid extra.

9.0. FINISHED WORKS (Painting/ Distempering)

9.1. Description of Items.

9.2. Distempering

9.2.1. Oil Bound Distemper Ready mixed type oil bound distemper of approved make and tint shall be used. Manufacturer's instruction for use shall be followed. The primershall be of the same manufacturer as that of the distemper. The surface to be treatedshall be dry and cleaned

with sand paper and free from any unevenness. The prepared surface shall receive not less than 3 coats as specified below. First, a coat of primer shall be applied. The second and third coat shall be applied in oil

bound distemper.

9.3. SNOWCEM or similar Decorative Cement Finish.

"Snowcem" or approved equivalent make of required tint shall be used. Manufacturer's instructions shall be followed.

The surface shall be cleaned of all oil, grease and dirt using steel brushes or abrasive stone. Efflorescence on concrete surfaces shall be eliminated by wetting the surface and scrubbing it with a 20% solution of muriatic acid. One coat of cement wash used as primer shall be applied to new wall surface. Two or specified number of "Snowcem" coats shall be applied. First coat shall be well brushed

into the pores of the surface to form a good bond. Second coat shall be applied by re-brushing or spraying to produce a uniform shade. Each "Snowcem" or equivalent application shall be wetted at the end of the day with fine water spray. No additional water shall be added to the mix, if the same cannot be used within one hour of preparation due to delay in site conditions or otherwise.

9.4. Painting Metal Work

All rust and scales shall be removed by scrapping or by brushing with steel wire brushes. Hard skin of oxide formed on the surface or without iron during rolling whichbecomes loose by rusting, shall be removed. All dust and dirt shall be thoroughly wiped away from the surface. If the surface is wet, it shall be dried before priming coat is undertaken. The priming coat shall be of readymade primer of approved brandand manufacture. The primer shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off. The crossing and laying off consist of covering the area with paint,brushing the surface hard for the first time over and then brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction rightangle to the same. In this process no brush marks shall be left after the lying off is finished. The full process of crossing and laying off will constitute one coat. The priming coat shall have dried up completely before painting is started.

9.5. Painting over Timber

The timber to be painted must be properly seasoned and free from moisture, in its pores before application of paint of dry not may result. Before applying the paint the woodwork most be thoroughly cleaned and sand-prepared smooth knots shall be "killed" and covered with a preparation of red lead and glue size laid on hot called "Knotting". To kill knots in resinous woods, such as Deodar they shall be painted over with hot lime. After 24 hours the lime is scraped off and the knots painted over with "Knotting". When dry the surface shall be pumice stoned smooth. When the priming coat is dry, any cracks or holes shall be filled with putty and the whole surface (Except in case of lead paints) rubbed down with pumice stone or sand- paper and well dusted. The second coat shall then be applied consisting of paint of the desired colour and specification laid uniformly with the help of a spraying apparatus orregular paint brushes. If third coat is required the second coat will (except in case of lead paints) be rubbed down smooth with pumice-stone or sand paper. No brush marks should be visible on the completed surface. To effect uniformity in brush work as soon as the whole or convenient, area is covered the brush should be passed over it in a direction contrary to that in which it is to be finally laid off. This is called "Crossing". After "crossing the brush shall be laid off softly and carefully in a directioncontrary to the crossing, but with the grain of the wood, taking care that none of the crossed brush marks are left visible. In painting doors and windows, the putty round the glass must also be painted. After the completion of the final coat any paint stains on glass shall be cleaned with the help of turpentine or mentholated spirits or both. Sand preparing and dusting of intermediate coats shall not be done in case of lead paints as the operations cannot be performed without risk of rubbing paint against hands and inhaling dry lead paint dust. When repainting old painted woodwork, the old paint, if crusted or otherwise patchy and inferior shall first be removed. This shall be done either by a blow lamp or by application of some alkaline paint remover. A solution of equal parts of soda quicklime in water does this effectively. Apply the solution with a brush and after a few minutes wash it with hot water when the old paint will come off. Carefully clean off all the alkali with water and thin dry sand paper, after which it will be ready to receive new coats of paint. When the old paint issound and is declared fit by the Executive Engineer to take further coats priming is

not required. The old paint surface may be simply cleaned and rubbed down fairly smooth and renovated with one or two coat of paints as may be specified.

French polishing is only spirit polish which shall be applied after making the shutter surface very smooth and plane.

9.6. Rates and Payments.

Rates are generally given separately for one coat, two coats or three coats, but in all cases, they cover all the contingencies mentioned above, payment is being made by area.

10. STEEL WORKS

10.1. Steel Works

10.1.1. This specification deals with the requirements regarding material, fabrication and fixing of steel doors, windows and ventilators.

10.1.2. Materials and workmanship shall conform with the provisions of the following Codes in particular, and with such other standards as are mentioned hereinafter.

IS: 1038	Specification for steel doors, windows and ventilators.
IS: 1361	Specifications for steel windows for Industrial building.
IS: 1081	Code of practice for fixing & glazing of metal doors, windows and ventilators.

10.1.3. Materials used in the fabrications of Industrial doors, windows, ventilators, etc. shall be the best procurable and conforming to the relevant Indian Standard Specification.

10.2. Rolled Steel Section

The steel used shall conform to IS 226. The forms of sections, dimension and weights shall conform to relevant IS Codes for industrial sashes. The sections shall be cold straightened and finished goods shall be free from dents and/or other defects.

10.3. General Workmanship.

Doors, windows and ventilators etc. shall be truly square and flat, i.e free from twist and warp. They shall be constructed of sections which has been cut to the required lengths, revetted or welded at the corners. The general fabrication shall conform to IS: 1038 and IS:1361.

If the contractor is required to supply doors, windows, ventilators, etc., he shall obtain them from an approved manufacturer. The contractor shall first submit for the approval of the Engineer, the name and address of the manufacturer whose metal casements and doors and windows he intends to use, together with typical drawings and specifications, describing the details of construction for each type of door/windows.

The doors, windows and ventilators shall be either galvanized or painted. All steel surfaces shall first be thoroughly cleaned free of rust, scale or dirt and mill scale by picking or similar process and they shall be painted with one coat of an approved primer conforming to IS:102 before dispatch. Alternatively, they may be galvanized by the "Hot Dip", zinc sprayer electro-galvanizing process as described in IS: 1361.

10.4. Fixing.

Doors, windows and ventilators shall not be built in at the time the walls are constructed but shall be subsequently fixed into prepared openings, as laid down in IS: 1081. Holes to accommodate the fixing lugs are to be left or cut, and the casements fixed after all the rough masonry and plaster work have been finalized. The lugs of the casement shall be

jammed in cement concrete (150 mark) with stone chips (10mm down) after holding the casement in proper position, line and level.

The width of the clear unfinished opening in the wall should be 25mm. more than the overall width of the door frame to allow for 12.5mm. plaster on each jamb. The height of the unfinished opening shall depend upon whether a threshold is required or not. While fixing the door, care shall be taken to see that at least 6 mm. spaces are left between the door and the finished floor.

10.5. Fittings.

Hardware shall be fixed as late as possible, preferably just before the final coat of paint is applied. It shall be fitted in workman like manner, so that it may not work lost and in such a way that screws and pins are not marked and mutilated by hammers and screwdrivers. It shall be tested for correct operation.

Where specified, doors shall be fitted with a three way bolting device which can be operated from outside as well as inside, and a locking system, which can similarly be operated from either side. Solid steel bolt handles shall be provided, one on the outside and one on the inside of each shutter. In case of doors provided with a service, door, the lock shall be fitted on the service door. All materials shall be the best procurable and shall conform to the relevant IS specification.

10.6. Rolling Shutter

The mild steel shutters shall be power or hand operated as specified on the drawings and shall be obtained from an approved manufacturer. Unless otherwise specified, the shutter shall be made of 18 gauge, 75 mm. galvanized mild steel laths of convex corrugation, complete with one piece construction. These shall be fitted with press inside guides and pressed bottom rails, bracket, door suspension shafts and top rolling springs. They shall be provided with locking arrangements for pad-locks, pulling hooks, handles, top-cover, etc.

10.7. Collapsible Gate

Mild steel collapsible gates shall be obtained from an approved manufacturer. These shall be of mild bar type made out of 20mm channels and shall be top hung with roller bearings, and fitted with locking arrangement. Collapsible gates under 3.0meter height, shall generally have 3 seats of lattices and those over 3.0 meter height,4 sets of lattices. Guide tracks shall be fitted in the floor.

10.8. MS/ Grills, Railings and Gates.

Mild steel grills, railings and gates etc. shall be fabricated and fixed in position as specified on the drawings or by the Engineer. All intersections or meeting of members shall be welded and the workmanship shall be of good quality to the entire satisfaction of the Engineer. MS grills, gates, etc. shall be cleaned of dust, dirt, rust orscales and rubbed with emery paper, and given 2 coats of oil paint of approved manufacture over a coat of approved anti-corrosive primer.

10.9. Measurement and Payment,

Steel gates, shutters, doors and windows including fixtures shall be computed by weight. The unit rate shall also include cost, conveyance, taxes, royalty etc. of steel, with its making charges including wastage, all other incidental charges necessary to complete the work as per specification, design and drawing with all T & P, labour required to fix at site of work.

11. MISCELLANEOUS

11.1. Description of Item

11.2. Aluminum False Ceiling with Gypsum Board.

11.2.1. Scope

The work covered by this specification consists of furnishing and installation of the suspended ceiling specified herein and shown on the reference drawings and finish schedule.

11.2.2. Materials.

i. The ceiling material shall be as specified on the drawings ceiling insulation tiles shall be of approved make such as specified in the schedule of items, lay – in- unit type, not less than 12mm thick and of size 600 mm x 600 mm. of gypsum board. Units shall have square edges and standard finish and plain of perforated design. The tiles shall be free from sagging for the type of installation.

ii. Suspension System.

Suspension tile shall be of the exposed slum, grid system consisting of standard main and cross tees executed OEL section of approved equal, in natural finish, including aluminum edge trim angle of M.S Main and cross tees including MS edge firm angle section in paint finish, approved by Architect/Engineer. The Dimensions of grids shall be approx. 600 x 12mm or 600 x 600mm or as specified on the drawings.

iii. Hanger Rods.

M.S. hanger rods shall be 6mm diameter hooked at one end and painted with one coat of red-lead based paint.

iv. Fasteners.

Fasteners shall be either propriety fasteners of the type suited for the system being used or fabricated aluminum strap hangers.

11.2.3. Installation.

Units shall be laid out in the joint pattern as shown on drawing. Units shall be laid out from the mid-point of the long axis of area so that opposite borders will be of equal width, unless specifically indicated on the drawing. Cut-outs for ventilating and electrical outlets shall be provided as shown on the drawings. Joints shall be straight, true to line and exposed surfaces shall be flush and level. Unit shall be tightly butted and neatly jointed to connectingwork. Aluminum edge angles or M.S angles or M.S angles shall be provided along the perimeter or each ceiling area. The hanger rods for attaching aluminum framing shall not exceed 1200 mm centers on every main tees.

11.2.4. Measurement and Payment

Measurement shall be made on basis of Sqm. Of entire ceiling area on which gypsum board actually laid as per approved drawing, specification. The unit rate mentioned in schedule shall include cost of gypsum board with all aluminum fittings for suspension system, hanger rods, fasteners, all labour, T&P, scaffolding, conveyance of all materials and all other incidental charges including all taxes, royalty and with all leads, lifts, delifts etc. complete. No payment will be made for cut pieces not utilized in work, breakage and damage of ceilingmaterials during transportation and laying as the unit rate is deemed to include the cost of the same.

11.3. Roofer.

This specification deals with providing water proofing in roof with bitumen felts and lime concrete terracing. The materials and workmanship shall conform with the provisions of the following Codes and Standard Specifications in particular and with such other Standards as are mentioned hereinafter.

IS: 73,702,1322,1346

11.3.1. Cement, Fine and coarse Aggregates & Water.

Cement, fine and coarse aggregates and water used in construction shall conform to the provisions made specification.

11.3.2. Lime and Surkhi. Lime and surkhi used shall conform to the provision made in specification.

11.3.3. Brick Aggregates. Brick aggregates for lime terracing shall have nominal maximum size of 25cm. and be

made from first class brick conforming to specification. They shall be free from dirt and

other foreign materials.

11.3.4. Khunji "Khunji" used in lime terracing shall have the following ingredients for ten square meters terraching:

a) Pulse (URAD)	100gms.
b) Molasses	2 Kg.
c) Fruit (Bel)	1 Kg.
d) Catechue	60gms.
e) Water	50-60 liters
f) Methi	60gms.

11.3.5. Primer

Primer shall be a bituminous solution of suitable and approved viscosity which shall be applied to the roof surface to assist adhesion of the bonding materials.

11.3.6. Bonding Material

Bonding material shall be a bitumen adhesive conforming to IS: 702 for blown typebitumens and IS: 73 for residue bitumens.

11.3.7. Bitumen Felts.

Bitumen felts shall conform to IS: 1322.

11.3.8. Gravel and Grit.

Gravel used as surface finishing over bitumen felts shall be pre-sized, rounded and be of approved quality.

11.3.9. Lime Concrete Terracing.

The lime concrete shall have mix proportions of 2 parts lime, 2 parts, surkhi and 7 parts brick aggregate by volume. The brick aggregates shall be soaked in water for 3 hours before use. All the materials shall be mixed dry first and then water shall be added and mixed together to produce a thoroughly mixed wet concrete. The concrete shall then be placed, rammed and trimmed to falls. The terracing shall have a minimum run off gradient of 1 in 60. Thickness of terracing shall be as specified in the drawing and have a minimum thickness of 75mm. The concrete shall be beaten with wooden mallets for 7 days or more until mallets rebound from the surface readily when struck on it. While beating the concrete surface, it shall be moistened. The mortar which has been brought to the surface by beating shall be smoothened and worked to a finish with steel trowels. The surface shall be kept thoroughly saturated with water for at least 25 days after completion.

At junctions of roof and parapet or other vertical walls, the terracing shall be provided to a raised thickness with suitable covering as indicated in the drawing. Unless otherwise specified, such treatment shall be 50mm high and 100 mm radius.

11.3.10. Measurement and payment

These shall be computed on the basis of Geometrical surfaces actually constructed in Sqm.

11.4. Drainage.

This specification deals with drainage in the works.

11.4.1. The materials and workmanship shall conform with the provisions of the following Codes or Standard specifications in particular and with such other standards as are mentioned hereinafter IS: 783 and IS: 1742.

11.4.2. Materials

All Pipes shall conform to the sizes and materials shown on the drawings. They Bitumen felts shall conform to IS: 1322.

11.3.8. Gravel and Grit.

Gravel used as surface finishing over bitumen felts shall be pre-sized, rounded and be of approved quality.

11.3.9. Lime Concrete Terracing.

The lime concrete shall have mix proportions of 2 parts lime, 2 parts, surkhi and 7 parts brick aggregate by volume. The brick aggregates shall be soaked in water for 3 hours before use. All the materials shall be mixed dry first and then water shall be added and mixed together to produce a thoroughly mixed wet concrete. The concrete shall then be placed, rammed and trimmed to falls. The terracing shall have a minimum run off gradient of 1 in 60. Thickness of terracing shall be as specified in the drawing and have a minimum thickness of 75mm. The concrete shall be beaten with wooden mallets for 7 days or more until mallets rebound from the surface readily when struck on it. While beating the concrete surface, it shall be moistened. The mortar which has been brought to the surface by beating shall be smoothened and worked to a finish with steel trowels. The surface shall be kept thoroughly saturated with water for at least 25 days after completion.

At junctions of roof and parapet or other vertical walls, the terracing shall be provided to a raised thickness with suitable covering as indicated in the drawing. Unless otherwise specified, such treatment shall be 50mm high and 100 mm radius.

11.3.10. Measurement and payment

These shall be computed on the basis of Geometrical surfaces actually constructed in Sqm.

11.4. Drainage.

This specification deals with drainage in the works.

11.4.1. The materials and workmanship shall conform with the provisions of the following Codes or Standard specifications in particular and with such other standards as are mentioned hereinafter IS: 783 and IS: 1742.

11.4.2. Materials

All Pipes shall conform to the sizes and materials shown on the drawings. They laid or fixed, from inside of one manhole/catch pit to the inside of the other manhole/catch pit. The length shall be taken along the centre line of the pipe or the length of the open drain.

The rate shall include the cost of excavation refilling, shorting and timbering in trenches,and cement concreting, including encasing, R.C.C. pipe or P.V.C/H.C.I pipe shuttering etc.all labor and materials.

11.5. Random Rubble Rough Stone Dry Packing.

Stone protection work for loose apron of the structures both in upstream and downstream are to be provided as per relevant drawings.

Rough stone dry packing has to be provided on the side slopes of approach road for development of site.

Fitter satisfying relevant I.S. specification should be provided in slopes of road and in the location as indicated in the drawing and as directed by the Engineer-in-charge.

11.5.1. Material for Stone pitching

The pitching material shall consist of the most durable rock fragments of approved quality selected for the purpose. Stone shall be procured from the approved quarries and if required shall be subjected to inspection and approval by the Engineer-in- charge. The quality of individual stone shall be dense, sound and free from conglomerate, bonds and other defects that would tend to increase their susceptibilityto destruction by water and weathering actions. Stones having thickness less than 50% of their maximum dimension shall not be used for pitching.

11.5.2. Size of Stones.

For stone pitching, no stones shall be 0.015m^3 to 0.03m^3 in size. At least 15% of stones to be used for pitching shall have depth equal to the thickness of pitching. Thelist thickness of the laterite stone shall be 17.5.cm. The contractor will be held responsible for suitability of the stone used in the work.

11.5.3. Stone Pitching.

11.5.4. Slope Cutting.

The compacted road the slope of which is protected with stone pitching shall be

trimmed to the lines and slopes as prescribed on drawings or as directed by the Engineer-in-charge from time to time. The earth obtained from this trimming shall be laid on top of the road if required or as directed by the Engineer-in-Charge. The pitching shall be hand placed on side slope of the road.

11.5.5. Thickness of Pitching

The thickness of pitching shall be as indicated on the drawings. The thickness shall be measured normal to the slope.

11.5.6. Method of Placement Pitching

a) Before laying the pitching on level ground or on sides of the slope, the receiving surface shall be trimmed to the required slopes and profiles put by means of lines andpegs at regular intervals. Depressions shall be filled up and thoroughly compacted. Pitching on inverted filter if any shall be started from the end and built in courses upwards. Stones shall be placed by derrick or by hand and so placed that the largest dimensions are perpendicular to the face of the slope. The largest stones shall be placed in the bottom course and for use as headers for subsequent courses.

b) All interstices between adjacent stones shall be filled with spills of proper sizes and wedged in with hammer to ensure tight packing.

11.5.7. Measurement and Payment

Measurement for payment will be made on the basis of cubic meter of the finished works for the respective items as mentioned earlier. All measurement will be made by finished level section. Where level section measurement is not possible due to un-avoidable reasons, measurement of stone to be made in regular closely packed stacks and then used in the work.

The unit rate is inclusive of trimming the earth to required profile, slopes and grade and/ or preparing level strips at suitable intervals as directed to have uniform base, cost conveyance, royalty and other taxes of all materials, supply of equipments, labour, grouting with sand where specified in schedule, other contingency like cost of construction of coffer dam and dewatering etc. complete.

TECHNICAL SPECIFICATION OF CIVIL PORTION OF WORK

Materials of following specification are to be used in work. The Tenderer are expected to possess and be well conversant with the following IS standard and code of practice.

1. Cement Will be as per I.S. 269/455 (However the grade of cement to be selected by the Engineer-in-Charge of work and complex cube test before commencement of work in each batch).
2. Steel I.S. 2062 and IS: 1786 (SAIL / TATAMake)
3. Vibrator I.S. 7246
4. Aggregate I.S. 383, I.S. 515
5. Water for mixing and curing Shall be clean, free from injurious amount of oil, salt, acid, vegetable Materials and other substances and harmful to concrete in conformity to I.S. 456 and I.S. 3025.
6. Sand / Fine Aggregate I.S. 2116, 383
7. Binding wire I.S. 280 (galvanised minimum 1 mm)
8. Rain water pipe I.S. 2527
9. Construction joints I.S. 3414
10. Steel Window Frame I.S. 1038/83
11. Steel Door Frame I.S. 4351/75
12. Fitting & Fixtures for journeyworks Conforming to I.S. 7452/82 strictly conform to I.S. specification and as per direction of Engineer-in-Charge.

Note : For road work (Approach Road) specification as per road and bridges (latest edition) published by I.R.C & M.O.R.T..&.H. shall be followed. In case of any doubt and absence of provision, regarding specification I.S. shall be referred (Indian standard).

ITEM OF WORK

1. Concrete shall be with conformity to I.S.456.
2. Foundation shall be with conformity to I.S.1080.
3. Stone masonry (R.R.) shall be with conformity to I.S.1597 (Part-I)
4. C.R. Masonry shall be with conformity to I.S.1597.
5. Brick masonry shall be with conformity to I.S.2212.
6. Cement plastering shall be with conformity to I.S.9103 & 6925.
7. Mortar shall be with conformity to I.S.2250
8. White and colour washing shall be with conformity to I.S.6278.
9. CC in foundation shall be with conformity to I.S.2571.
10. Anti-Termite Treatment shall be with conformity to I.S.6813. (Part – I & Part – II)
11. Painting to all surfaces shall be with conformity to I.S.2395 (Part – I & Part – II)
12. DPC shall be with conformity to I.S.3067
13. Tarfelt treatment shall be with conformity to I.S.1346
14. Mosaic flooring with conformity to I.S.2114
15. Steel painting shall be with conformity to I.S.1477 (Part – I & Part – II) I.S.1661

Contractor Senior Manager (Civil)

(**B) BUILDING MATERIALS:**

(a) Bricks:

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper colored, free from cracks and flows, well shaped, uniform in size, homogeneous in textures and shall omit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm2 and shall not absorb water more than 20% by weight.

(b) Cement Mortar:

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. Or 0.035 Cum. In volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

(c) Cement:

Cement should confirm to IS-269/IS-455.

(d) Sand:

Locally available best river sand medium size.

4. Course Aggregates:

The course aggregate shall be of hard granite stone and shall generally confirm to I.S. 389. Porous Course aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Course aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded soas to produce a dense concrete.

5. Reinforcements:

Mild steel Round Bars, coild twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall confirm to I.S.;226/1962 standard quality or IS: 432/1966 – Grade-l. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used).

Contractor Senior Manager (Civil)

FORMS & ANNEXURES

FORM – A
STRUCTURE AND ORGANISATION

1. Name of Tenderer ……
2. Nationality of Tenderer ……
3. Office Address ……

   ……..
4. Telephone No.

   Land phone ……

   Mobile ……

   Fax No ……

   e-mail id ……
5. Location of establishment ……
6. The tenderer is

a. An individual

b. A proprietary firm

c. A limited company or limited corporation

d . A member of a group of companies (If yes, give names, address and present description of other companies.

e. A subsidiary of large organization

(If yes, give names, address of the present organization)

f. If the company is subsidiary state what involvement if any, will the parent company have in the project.

Attach the organization chart showing the structure of the organization including the names of the Directors position of officer.

7. Number of year of experience

a. As a prime Contractor

   I In own country

   II Other country (specify country)

Contractor Senior Manager (Civil)

ANNEXURE-A

(AFFIDAVIT)

(To be submitted in original in legal stamp paper duly registered)

1. The undersigned hereby certifies that, all the statements made in the required attachments are true and correct.

2. The undersigned also hereby certify that, neither our firm_____nor any of its construction partners have abandoned any project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.

3. The undersigned hereby authorized and request (s) bank, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Corporation to verify this statement or regarding my (our) competency and general reputation.

4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Corporation.

(Signed by an Authorized of the firm)

Title of Officer

Name of Firm

Date.

Contractor Senior Manager (Civil)

ANNEXURE-B

CERTIFICATE OF NO-RELATIONSHIP

I/We hereby certify that I/We am/are not related to any officer of Govt. of Odisha/OCC Ltd of the rank of Asst. Executive Engineer and above and any officer of the rank of Under Secretary and above in the W.R. Department. I/We am/are aware that if the facts subsequently proved to be false my/our contract will be rescinded with forfeiture of EMD & security deposit and I/We shall be liable to make good the loss or damage resulting from such cancellation.

I/We also note that, non- submission of this certificate will render my/our tender liable for rejection.

Signature of the Contractor

Name_____

Address _____

_____

Date :_____

Contractor Senior Manager (Civil)

ANNEXURE-C

BANK GUARANTEE FOR ADDITIONAL PERFORMANCE SECURITY (APS)

To

.....(name of Employer)

WHEREAS the bid of ---------- (name and address of Contractor) (hereinafter called "the Contractor") has been accepted vide letter of acceptance (LoA) No. _____dated_____of Odisha Construction Corporation Ltd., ---------- ---------- to execute the work_____[name of work] (hereinafter called "the contract")

AND WHEREAS it has been stipulated by you for the said Contract that the Contractor shall furnish you with a Bank Guarantee by a Nationalized/Scheduled Bank in India, counter guaranteed by its local branch at Bhubaneswar towards Additional Performance Security (APS), for compliance with his obligations in accordance with the conditions of Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee.

NOW THEREFORE we hereby affirm that we are the Guarantors and responsible to you, on behalf of the Contractor, up to a total of Rs_____[amount of guarantee] _____ [in words], such sum being payable in the types and proportions of currencies in which the contract price is payable, and we undertake to pay you upon your first written demand declaring the Contractor to be in default under the contract and without cavil or argument, any sum or sums within the limits of_____[amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

Contractor Senior Manager (Civil)

This guarantee shall be valid up to_____day of_____20_____i.e. up to 3 (three) months beyond the date stipulated for completion of work. We also agree for extension of this guarantee for a further period in response to the Employer's written request for such extension, which should be presented to us before the expiry of the guarantee.

We_____(Name of Bank) hereby also undertake to have it counter guaranteed by our local branch at Bhubaneswar,_____(name and address of Local Branch at Bhubaneswar, Odisha).

(Signature of the authorized officer of the Bank)

……..

……..

Name and designation of the officer

……..

Seal, name & address of the Bank and address of the Branch

We_____(name and address of Local Branch at Bhubaneswar, Odisha) are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee depending on the filing of claim and only if it is served upon to us by the employer at our Bhubaneswar Branch by a written claim or demand and received by us at our Bhubaneswar branch on or before Dt. _____(subject to further extension on the Employer's written request for such extension before expiry of this guarantee), otherwise bank shall be discharged of all liabilities under this guarantee thereafter.

(Signature of the authorized officer of the Bank)

……..

……..

Name and designation of the officer

……..

Seal, name & address of the Bank and address of the Branch

Contractor Senior Manager (Civil)

ANNEXURE-D

UNDERTAKING TO PAY ROYALTY

We do hereby undertake that, Royalty for stone products, sand, moorum and Borrow earth etc. are to be recovered from work bills as per prevailing Govt. Notification during the time of execution.

Signature of the Bidder

Name_____

Address _____

_____

Date :_____

Contractor Senior Manager (Civil)

ANNEXURE-E

UNDERTAKING TO PAY MINIMUM WAGES

We do hereby undertake that, we shall pay wages of each labour at the rate not less than the wages as per Minimum Wages Act in force during the time of execution and asmay be amended from time to time. The "Engineer-in-Charge" has the right to enquire into and decide on any complaint of the Labourers relating to non-payment or less payment of wages to them and his decision will be final and binding on us.

Signature of the Bidder

Name_____

Address _____

_____

Date :_____

Contractor Senior Manager (Civil)

ANNEXURE-F

FORMAT OF BID SECURITY DECLARATION FROM BIDDERS IN LIEU OF EMD

I/We the authorised signatory of M/s_____participating in the tender for the work "_____**"** vide Tender Call Notice No._____do hereby declare:

That, in the event we withdraw/modify our bid during the period of validity Or I/We fail to execute formal contract agreement within the given timeline Or I/Wecommit any breach of Tender Conditions/Contract which attracts penal action of forfeiture of EMD and I/We will be suspended from being eligible for bidding/award ofall future contract(s) of Odisha Construction Corporation Limited/ Government of Odishafor a period of three years from the date of committing such breach.

Signature and seal of Authorised signatory of the Bidder

Name of authorised signatory_____

Company Name_____

Address _____

_____

Date :_____/2022

Contractor Senior Manager (Civil)

DRAWINGS

Drawing can be collected from the O/o the Senior Manager, Subarnarekha Canal Group of Project, Laxmiposi from 24.11.2025 to 08.12.2025 during office hour.

Contractor Senior Manager (Civil)

SECTION-VI

PRICE ADJUSTMENT/PRICE VARIATION

Contractor Senior Manager (Civil)

GOVERNMENT OF ODISHA
WORKS DEPARTMENT
******

OFFICE MEMORANDUM

File No. -07-WORKS-CC-0242019- 15847 /W, dt. 19-11-19

Sub:- Codal / contractual provisions regarding Price Adjustment in works contract

Codal / contractual provisions regarding Price Adjustment in works contract was under active consideration of Government. After careful consideration, Government have been pleased to make the codal / contractual provisions regarding Price Adjustment clause due to increase or decrease in rate and price of labour, materials, fuels & lubricants and plant & machineries spare component to be incorporated in DTCN / condition of Contract as per Annexure-"A".

1- This Office Memorandum shall be a part of the relevant clauses of DTCN and Agreement and shall take effect from the date of issue.

2- This has been concurred in by Finance Department vide their File No. FIN-WF1-MISC-0031-2019 (OSWAS) dt.23.10.2019 and Law Department vide their UOR No.2218/L dt.29.10.2019.

Commissioner - cum - Secretary to Government

Memo No. 15848 /W, dated, 19-11-19

Copy with copy of enclosure forwarded to Principal Secretary to Hon'ble Chief Minister, Odisha for information and necessary action.

18.11.19

FA - cum- Addl. Secretary to Government

Memo No. 15849 /W, dated, 19-11-19

Copy with copy of enclosure forwarded to P. S. to Hon'ble Minister, Works, Odisha / P. S. to Hon'ble Minister, Finance, Odisha for information and necessary action.

18.11.19

FA - cum- Addl. Secretary to Government

(P.T.O)

Works DepartmentLetter No-15847_2.jpg

Memo No. 15850 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to OSD to Chief Secretary, Odisha / Sr. P.S. to Development Commissioner-cum-Additional Chief Secretary, Odisha / Sr. P.S. to Principal Secretary, Finance Department for information and necessary action.

19.11.19

FA - cum- Addl. Secretary to Government

Memo No. 15851 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to the Principal Accountant General (A&E), Odisha, Bhubaneswar / Principal Accountant General (E & S R Audit), Odisha, Puri Branch, Puri for information and necessary action.

19-11-19.

FA - cum- Addl. Secretary to Government

Memo No. 15852 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to All Departments / Managing Director, CB & CC Ltd., Bhubaneswar / Managing Director, OCC Ltd., Bhubaneswar / Chief Architect, Odisha, Bhubaneswar for information and necessary action.

19.11.19

FA - cum- Addl. Secretary to Government

Memo No. 15853 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to EIC (Civil), Odisha / All Chief Engineers, Odisha / All Superintending Engineers / All Executive Engineers (under Works Department) for information and wide circulation among subordinate offices.

19.11.19.

FA - cum- Addl. Secretary to Government

Memo No. 15854 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to OSWAS Control Room with a request to upload it in the web-site of Works Department.

19.11.19.

FA - cum- Addl. Secretary to Government

Memo No. 15855 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to the Director, Printing, Stationary & Publication, Odisha, Cuttack by e-mail (deputydirectorogp@rediffmail.com) for publication of this Office Memorandum in the next issue of Odisha Gazette and supply 20 (Twenty) copies to this Department for official use.

19.11.19

FA - cum- Addl. Secretary to Government

Memo No. 15856 /W, dated. 19-11-19

Copy with copy of enclosure forwarded to A/C-I Section / A/C-II Section / Road Section / Plan Section / Building Section / Budget Section / N.H. Section / FC & AA Section / EAP Cell / Legal Cell, Works Department for information and necessary action.

19.11.19

FA - cum- Addl. Secretary to Government

2

ANNEXURE-A

Clause 31 :- Price Adjustment

31.1 : Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in following Paras.

(a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.

(b) The price adjustment shall be determined during each month from the formula given in following Paras

(c) Following expressions and meanings are assigned to the work done during each month :

R= Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month, less the amount of secured advance recovered, if any during the month. It will exclude value for works executed for extra items under variations.

31.2 : To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

The formula (e) for adjustment of prices are:

31(a) (i): Adjustment of Other Materials Component

Price adjustment for increase or decrease in cost of local materials other than cement, steel, bitumen, pipe and POL procured by the contractor shall be paid in accordance with the following formula

$V_M = 0.85 \times P_m/100 \times R \times (M_1 - M_0)/M_0$

V_M = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local materials other than cement, steel, bitumen and POL.

M_0 = The all India wholesale price index (all commodities) on 28 days preceding the date of opening of Bids, as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

M_1 = The all India wholesale price index (all commodities) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_m = Percentage of local material component (other than cement, steel, bitumen and POL) of the work.

Contractor Senior Manager (Civil)

31(a)(ii): Adjustment for Cement Component

Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

V_c = $0.85 \times P_c/100 \times R \times (C_1 - C_0)/C_0$

V_c = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for cement

C_0 = The all India wholesale price index for Ordinary Portland Cement (OPC) on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry , Government of India, New Delhi

C_1 = The all India wholesale price index for Ordinary Portland Cement (OPC) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_c = Percentage of Cement Component of the work

31(a)(iii): Adjustment for Steel Component

(iii) Price adjustment for increase or decrease in the cost of steel procured by the contractor shall be paid in accordance with the following formula:

V_s = $0.85 \times P_s/100 \times R \times (S_1 - S_0)/S_0$

V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel

S_0 = The all India wholesale price index for steel (Mild Steel long products) on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry , Government of India, New Delhi.

S_1 = The all India wholesale price index for steel (Mild Steel long products) for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_s = Percentage of steel component of the work

Note: For the application of this clause, index of (Mild Steel long products) has been chosen to represent steel group.

Contractor Senior Manager (Civil)

31(a)(iv): Adjustment of Bitumen Component

Price adjustment for increase or decrease in the cost of bitumen shall be paid in accordance with the following formula:

V_b = 0.85 x P_b/100 x R x $(B_1 - B_0)/B_0$

V_b = Increase or decrease in the cost of work during the month under consideration due to changes in the rate for bitumen.

B_0 = The official retail price of bulk bitumen at the IOC / BPCL depot at nearest center on the day 28 days prior to date of opening of Bids.

B_1 = The official retail price of bulk bitumen at IOC / BPCL depot at nearest center for the 15th day of the month under consideration.

P_b = Percentage of bitumen component of the work

31(a)(v): Adjustment towards differential cost of Pipes.

Price adjustment for increase or decrease in the cost of pipe shall be paid in accordance with the following formula:

V_{pi} = 0.85 x P_p/100 x R x $(P_{i1} - P_{i0})/P_{i0}$

V_{pi} = Differential cost of pipe i.e. amount of increase or decrease in rupees to be paid or recovered during the month under consideration.

P_{pi} = Percentage of pipe component of the work

P_{i1} = All India Whole sale price index of pipe for the period under consideration as published by the Ministry of Commerce and Industry , Government of India, New Delhi.

P_{i0} = All India Whole sale price index of pipe on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry , Government of India, New Delhi.

18.11.19

Contractor Senior Manager (Civil)

31(b): Adjustment of Labour Component

Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:

V_L = $0.85 \times P_l/100 \times R \times (L_1 - L_0)/L_0$

V_L = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local labour.

L_0 = The minimum wages for unskilled labour as Notified by Government of Odisha as prevailed on the last stipulated date of receipt of tender including extension, if any.

L_1 = The minimum wages for unskilled labour as Notified by Government of Odisha as prevailed on the last date of the Month previous to the one under consideration.

P_l = Percentage of labour component of the work.

31(c): Adjustment of POL(fuel and lubricant) Component

(v) Price adjustment for increase or decrease in cost POL (fuel and lubricant) shall be paid in accordance with the following formula:

V_f = $0.85 \times P_f/100 \times R \times (F_1 - F_0)/F_0$

V_f = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for fuel and lubricants.

F_0 = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC / BPCL/ HPCL at nearest center on the day 28 days prior to the date of opening of Bids

F_1 = The official retail price of HSD at the existing consumer pumps of IOC / BPCL/ HPCL at nearest center for the 15th day of the month under consideration

P_f = Percentage of fuel and lubricants component of the work

Note : *For the application of this clause, the price of High Speed Diesel oil has been chosen to represent fuel and lubricants group.*

Contractor Senior Manager (Civil)

31(d): Adjustment for Plant and Machinery Spares Component

(vi) Price adjustment for increase or decrease in the cost of plant and machinery spares procured by the Contractor shall be paid in accordance with the following formula:

$V_P = 0.85 \times P_p/100 \times R \times (P_1 - P_2)/P_2$

V_P - Increase or decrease in the cost of work during the month under consideration due to changes in the rates for plant and machinery spares

P_2 - The all India wholesale price index for manufacture of machinery for mining, quarrying and construction on 28 days preceding the date of opening of Bids as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_1 - The all India wholesale price index for manufacture of machinery for mining, quarrying and construction for the month under consideration as published by the Ministry of Commerce and Industry, Government of India, New Delhi.

P_p - Percentage of plant and machinery spares component of the work

Note : For the application of this clause, Index of manufacturing of machinery for mining, quarrying and construction has been chosen to represent the Plant and machinery Spares group.

Regarding wholesale price index (WPI) for appropriate commodity for payment of price adjustment, due to change of base year of WPI from 1993-94 to 2004-05 & 2011-12, it is observed that, the commodity 'Bars and Rod', 'Cement', 'Heavy machinery and parts' noticed in the list of WPI 1993-94 series are not mentioned as such in the WPI 2004-05 & 2011-12 series. Therefore, the following items in the WPI 2004-05 & 2011-12 series shall be considered corresponding to items in WPI 1993-94 series:

Sl. No.	Item in WPI 1993-94 series	Item in WPI 2004-05 series	Item in WPI 2011-12 series
1.	Cement	Grey Cement	Ordinary Portland cement
2.	Bars & rods	Rebars	Mild steel long products
3.	Heavy Machinery & parts	Construction Machinery	Manufacture of machinery for mining, quarrying & construction.

19.11.19

Contractor Senior Manager (Civil)

31(e): APPLICATION OF ESCALATION CLAUSE:

The contractor shall for the purpose of availing reimbursement/refund of differential cost of steel, bitumen, cement, pipe, POL and wages keep such books of account and other documents as are necessary to show that the amount of increase claimed or reduction available and shall allow inspection of the same by a duly authorized representative of Government and further shall at the request of the Engineer-in-Charge, furnish documents to be verified in such a manner as the Engineer-in-Charge may require any document and information kept. The contractor shall within a reasonable time of 15 days of his becoming aware of any alteration in the price of such material, wages of labour and /or price of P.O.L. give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition along with information relating to them to which he may be in a position to supply.

Percentage Table

Sl No.	Category of works		% Component (cost wise)		
			Labour (P_l)	POL (P_f)	Steel (P_s)+ Cement (P_c)+ Bitumen (P_b) +Pipes (P_p) + Plant & Machinery Spare &Component(P_m) + Other Materials*
1	R&B works (% of component)	Road Works	5	5	90
		Bridge works	5	5	90
		Building works	5	5	90
2	Irrigation works (% of component)	Structural work	5	5	90
		Earth, Canal & Embankment work	5	5	90
3	P.H. Work	Structural work	5	5	90
		Pipeline Work	5	5	Pipe- 70% *Machinery + Other material -20%
		Sewer Line	5	5	Pipe- 70% *Machinery + Other material -20%

*Note:- Further break up may be worked out considering the consumption of Cement, Steel, Bitumen, pipe and Plant & Machinery Spare Component in the concerned works and shall be provided in the bid document in shape of "Schedule of Adjustment Data" as an "Appendix to Bid". (enclosed herewith)

14.11.19

Contractor Senior Manager (Civil)

Appendix to Bid
Schedule of Adjustment Data

[For all works, adjustment factor for Labour and POL shall be considered @ 5% each. Steel, Cement, Pipes, other Materials and Machinery shall contribute to 90% of Price Adjustment, and shall be calculated for each work separately during preparation of estimate, shall be approved by the authority during technical sanction as a 'Schedule of Adjustment Data' and shall form part of the Bid Document]

Cl. No-31 of F2/ P1 Contracts Sl. No	Index description	Source of Index	Base value*	Base Date*	Weightage of Item**
31 (a)(i)	Other Materials	All India Whole sale price index (all commodities) as published by the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.			
31 (a)(ii)	Cement	Whole sale price Index for Cement (Ordinary Portland Cement) as published by the office the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.			
31 (a)(iii)	Steel	Whole sale price index for Steel (Mild Steel-Long Products) as published by the office of the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry.			
31 (a)(iv)	Bitumen (VG-30)	Official retail price of bulk bitumen at the nearest IOC/ HPCL depot			
31 (a)(v)	Pipes	Whole sale price index for the type of Pipe under consideration, as published by the office the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry			
31 (b)	Labour	Minimum Wage notified by the Labour and Employee's State Insurance Department of Government of Odisha, India			5%
31 (c)	POL	Official retail price of HSD at nearest IOCL/ HPCL/ BPCL Consumer pump depot.			5%
31 (d)	Plant and Machinery	Whole sale price index for Manufacture of Machinery for Mining, Quarrying and Construction as published by the office the Economic Advisor to the Govt. of India, Ministry of Commerce and Industry			
			Total		100%

* Values to be filled up at the time of draw of contract
**Values to be filled up in the bid document

18/11/19

Contractor Senior Manager (Civil)