



**NAYA RAIPUR DEVELOPMENT AUTHORITY**

## **Tender document**

### **for the Infrastructure Development of Nawagaon Khapri Village at Sector-28 of Naya Raipur (2<sup>nd</sup> Call)**

**(Following Three-Envelope Tender Procedure)**

## **TENDER DOCUMENT (PART ONE)**

**NIT No.: 26/ NK VDP/ EE C-IV / CE(E) / NRDA / 2012-13, Raipur,**

**Dated: 06.04.2013**

**Issued by:** Chief Executive Officer,  
Naya Raipur Development Authority (NRDA)  
Near DKS Bhawan, Old Mantralaya  
Raipur 492 001, Chhattisgarh  
Tel: (0771) 4066011, Fax: (0771) 4066188,  
E-mail: ceo@nayarapur.com

## Tender Document Contains

- (a) Only schedule "A" and Section-I of schedule "D" are to be filled & signed by the tenderer
- (b) All the certificates as per pre qualification criteria shall be appended with relevant forms of schedule "D"

### 1. PART ONE (NRDA F-1)-(Attached herewith, to be submit along the tender)

#### Part (A)

- a) Press Notice
- b) Detailed NIT

#### Part (B)

##### a) Schedule-A

- (i) Cost Abstract
- (ii) Bill of Quantities

- b) Schedule-B –NIL
- c) Schedule-C –NIL
- d) Schedule-D

#### Section-I..... Technical tender forms

- (i) Letter of Technical Tender
- (ii) Tenderer's Information Sheet
- (iii) Annual Turnover
- (iv) Specific Construction Experience
- (v) Declaration
- (vi) Check list for Technical tender evaluation

#### Section –II .....Scope of work

#### Section –III.....Technical specifications of work

#### Section –IV.....Special Conditions of Contract

#### Section –V.....List of approved makes

#### Section –VI.....Drawings

- e) Schedule-E
- f) Schedule-F

### 2. PART TWO (NRDA F-2/3 )-Standard form (Not Attached herewith, and not to be submitted along the tender)

**Important note: - Link site [http:// nayaraipur.com/documents/gcc.pdf](http://nayaraipur.com/documents/gcc.pdf)**

1. General Guidelines
2. Tender
3. General rules and directions
4. Conditions of contract
5. Clauses of contract
6. Model rules relating to labour, water supply and sanitation in labour camps safety code
7. Contract forms
  - (a) Draft Format for Performance Security
  - (b) Earnest Money Deposit Form (Bank Guarantee)
  - (c) Format of Contract Agreement
  - (d) Draft Format for Performance Guarantee for Water Proofing and Anti-termite Works
  - (e) Indemnity Bond
  - (f) Indenture Bond
  - (g) Notice for Appointment of Arbitrator
8. Proforma of schedules (Schedule 'A' to Schedule 'F')

Signature of Contractor.....

Signature of NRDA.....

# Press Note

 <b>NAYA RAIPUR DEVELOPMENT AUTHORITY</b> Near DKS Bhawan, Old Mantralaya, Raipur-492001, Chhattisgarh Ph:0771-4066011 Fax:0771-4066188, Website: <a href="http://www.nayaraipur.com">www.nayaraipur.com</a>						
<b>Tender Notice</b>						
Dated: 06.04.2013						
Sealed tenders are invited from registered contractor with any Central / state Govt./local body or PSU in appropriate class, who fulfill the Pre-Qualification criteria, for the work as detailed below.						
Registered Contractor in CGPWD or equivalent	Time allowed inc. rainy season	Estimated Cost (INR Crore)	EMD (INR Lacs)	Cost of Tender Doc. (INR )	Pre -Qualification Criteria	
					Avg. Annual turnover in last 3 financial years (INR Cr.)	Should have completed satisfactorily following works during last 5 years i.e. after 31/03/2008, in any Central / state Govt./local body or PSU as below: -
<b>Name of the Work : Construction of Jail &amp; Home Guard Building at Sector-19 of Naya Raipur (2<sup>nd</sup> Call)</b> <b>NIT No. : 25/ J&amp;HG/ EE C-IV / CE(E) / NRDA / 2012-13, Raipur</b>						
A5 Class (unlimited)	18 months	8.84	9.00	10,000	6.00	One Building construction work costing not less than INR 7 crores OR Two Building construction works costing not less than INR 4.5crores each.
<b>Name of the Work : Infrastructure Development for Nawagaon Khapri Village at Sector 28 of Naya Raipur (2<sup>nd</sup> Call)</b> <b>NIT No. : 26/ NK VDP/ EE C-IV / CE(E) / NRDA / 2012-13, Raipur</b>						
A5 Class (unlimited)	24 months	11.93	12.00	10,000	6.00	One road and allied construction work costing not less than INR 10 crores OR Two road and allied construction works costing not less than INR 6 crores each.
<b>Name of the Work: Construction of Cremation &amp; Burial Ground at Sector-24 of Naya Raipur (2<sup>nd</sup> Call)</b> <b>NIT No. : 27/ C&amp;BG/ EE C-IV / CE(E) / NRDA / 2012-13, Raipur</b>						
A4 Class and above	12 months	3.90	4.00	10,000	4.00	One civil construction work costing not less than INR 3 crores OR Two civil construction works costing not less than INR 2 crores each.
Tender documents can be downloaded from the website <a href="http://www.nayaraipur.com">www.nayaraipur.com</a> from <b>08.04.2013</b> . The duly completed documents can be submitted by speed post/registered post/ courier so as reach the office latest by <b>15.00hrs on 23.04.2013</b> . Technical Documents shall be opened thereafter on same day after <b>16.00hrs</b> . <b>Amendment in tender, if any, will only be uploaded on the website and shall not be published in any newspaper.</b>						
						Chief Executive Officer

Signature of Contractor.....

Signature of NRDA.....

## NAYA RAIPUR DEVELOPMENT AUTHORITY (NRDA) RAIPUR, CHHATTISGARH

### DETAILED NIT

NIT No.: 26/ NK VDP/ EE C-IV / CE(E) / NRDA / 2012-13, Raipur,

Dated: 06.04.2013

Last date and time for submission of tenders: 1500 hrs on 23.04.2013

1. Item Rate Tenders are invited in the prescribed tender documents by the Chief Executive Officer, Naya Raipur Development Authority (NRDA), Raipur, Chhattisgarh from eligible contractors registered with any Central/ state/ semi Government of India or public sector undertaking. Who fulfill the prequalification criteria,
2. **The detailed NIT is as under:-**

Name of work	Infrastructure Development of Nawagaon Khapri Village at Sector-28 of Naya Raipur (2 <sup>nd</sup> Call)
Estimated Cost (INR in Crores)	11.93
EMD (INR in Lacs)	12.00
Time allowed including rainy season	24 months
Cost of Tender (In INR)	10000.00
Tender to be uploaded on NRDA website to enable download	08-04-2013
Pre tender Clarification/ amendments	Available in the NRDA Website
Last Date and time of submission of Tender	23-04-2013 at 15.00Hrs
Date and time of opening of Tender	23-04-2013 at 16.00Hrs

Intended eligible Tenderers may obtain further information from the office of Employer and inspect the Tender Document at, NRDA Raipur from 11 AM to 4 PM on all working days.

3. **Pre Qualification Criteria** -To be eligible under the contract, the intending tenderer should meet the following mandatory criteria **3.1 and 3.2 (A & B)**:

#### 3.1 Financial Criteria

**Average Annual Turnover:** Minimum average annual gross turnover of the bidder shall be INR 6.00Crores during last three complete financial years (i.e 2009-10, 2010-11 & 2011-12). (Audited balance sheet duly signed by CA should be enclosed).

Annual turnover is total certified payments received for contracts in progress or completed during the financial year.

**For above, the Tenderer has to submit audited balance sheets of their financial turn over/ accounts along with profit and loss account for the last three(3) years, along with the Tender. Where necessary, the Employer can make enquiries with the Tenderer's Bankers.**

#### 3.2 Technical Criteria

A	Intending tenderer shall be enlisted or registered contractor with any Central/ state Govt. or PSU (in A-5 and above category in CG PWD or equivalent).
AND	

Signature of Contractor.....

Signature of NRDA.....

<b>B</b>	<p>Should have completed satisfactorily following works during last 5 years i.e after 31/03/2008, in any Central/ State Govt / Local Body/ PSUs as below: -</p> <p style="text-align: center;"><b>(a) One civil construction work costing not less than INR 10.00Crores.</b></p> <p style="text-align: center;"><b>OR</b></p> <p style="text-align: center;"><b>(b) Two civil construction work costing not less than INR 6.00Crores each.</b></p>
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**Note: -**

- a) *The sub vendor shall be engaged in landscape/irrigation and electrical works.*
- b) *The contractor should engage a sub vendor who is specialized agency in the particular field and should have successfully completed work in any central/ state Govt./ PSU in respect of particular component as below.*
  - i. *One completed work of 80% of the value of that component*
  - OR**
  - ii. *Two completed works of 50% of the value of that component.*

*In a Central/State Govt. department/PSU*

*The sub vendor shall be got approved from NRDA by providing his credentials before start of particular component of work.*
- c) *In case of landscape sub vendor, the experience of the work with reputed private sector shall also be considered.*
- d) *Ongoing project / part project experience shall not be considered for evaluation.*
- e) *For the benefit of the intending tenderer's a checklist is enclosed at Schedule-D (vi), for the documents to be submitted along with tender.*

**Certificates:**

- a) All tenderers should submit the valid registration certificate. Commercial tax certificate, balance sheet with profit and loss statement for at least 3 years.
- b) The tenderers shall also submit satisfactory completion certificates in support of each quoted experience along with work order. The satisfactory completion certificate should be signed by an officer not below the rank of Executive Engineer concerned in case of Government department or the rank of General Manager in case of public sector as the case may be.
- c) **All the documents to be submitted shall be duly notarized.**
4. The tender document for the above work is available on NRDA's websites: [www.nayaraipur.com](http://www.nayaraipur.com) and [www.cg.gov.in](http://www.cg.gov.in) Tenderer will have to download the tender document, and shall submit the tender along with the tender cost as mentioned in the Para 2 above. For tender cost, DD drawn in favor of "CHIEF EXECUTIVE OFFICER, NRDA" should be enclosed. The tenderers shall attach the cost of tender document along with EMD as mentioned in the Para 2 above.
5. Three envelope Tender procedures shall be followed. Tenderer has to submit three sealed envelopes containing the documents as detailed below simultaneously, enclosed in a **Fourth Envelope duly mentioned in the top the name of work, NIT No. and firm address.**

<b>ENVELOPE-1</b>	EMD & Cost of tender in the prescribed format
<b>ENVELOPE-2</b>	Technical Tender consisting of the documents/certificate in proof of prequalification criteria PART ONE (NRDA F-1) excluding schedule-A
<b>ENVELOPE-3</b>	Financial Tender PART ONE (Schedule-A) <b>(Price Bid should also be submitted as soft copy in MS Excel 2007, in CD)</b>

All the three tenders shall be put in a fourth envelope which shall be dully sealed. **All the 4 envelopes shall be super-scribed with the Name of Work and Name of intending tenderer. Respective envelopes**

Signature of Contractor.....

Signature of NRDA.....

shall also be marked as envelope 1, envelope 2, and envelope 3 as detailed above. Tenders who do not conform to the specified requirements will be held non-responsive.

Initially, only the **envelope-1** shall be opened, if found responsive then the **envelope-2** (Technical tender) shall be opened at the date and time given in the Tender Document. The Price tender shall remain sealed and unopened in the custody of NRDA.

After technical evaluation, date and time of opening of price bid shall be communicated by NRDA to the successful tenderer in technical evaluation. The Price tenders of only the tenderer found qualified as per the PQ criteria shall be opened in presence of the tenderer who wish to be present. The Contract shall be awarded to the tenderer whose tender has been determined to be the lowest evaluated as per tender conditions.

6. All Tenders must be accompanied with the
  - a) **Earnest money** as mentioned in the Para 2 above. The Earnest money shall be payable in favour of Chief Executive Officer NRDA, in the form of a **Bank Draft payable at Raipur drawn from a nationalized bank/ Scheduled Bank** which shall be valid for a period of 90 (Ninety) days from the date of submission of tender.
  - b) Cost of tender as mentioned in the Para 2 above. The Cost of tender money shall be payable in favour of Chief Executive Officer NRDA, in the form of a **Bank Draft payable at Raipur drawn from a nationalized bank/ Scheduled Bank** which shall be valid for a period of 90 (Ninety) days from the date of submission of tender.
7. Tenders shall be submitted at the address below on or before due date. Tenders received after the due date or time for tender submission (Late tenders) will either not be accepted or if inadvertently accepted, will not be opened and shall be rejected and returned back to the tenderer subsequently.
8. (a) NRDA reserves full rights to reject any or all the tenders without assigning any reason, and to seek any further information from the tenderers. The selection shall be at the entire discretion of NRDA and the NRDA's decision in this respect shall be final and binding. Further NRDA reserves right to split the contract in two or more parts. This shall be at the entire discretion of NRDA and NRDA's decision in this matter shall be final and without appeal.  
(b) The competent authority on behalf of NRDA does not bind himself to accept the lowest or any other tender, and reserves to himself the authority to reject any or all of the tenders received without the assignment of a reason. All tenders in which any of the prescribed conditions is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer, shall be summarily rejected.
9. Tenders shall be valid for 180 days from the last date of submission of the tender. NRDA will not be responsible for any costs or expenses incurred by Tenderers in connection with the preparation or delivery of Tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance/ intent, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the NRDA, then the NRDA shall, without prejudice to any other right or remedy, be at liberty to forfeit entire amount of Earnest Money as aforesaid.
10. Pre tender meeting with the tenderers will be held as mentioned above in the Office of **Chief Executive Officer**, NRDA, Raipur. Tenderers are advised to participate in the pre-tender meeting. The intending tenderers are advised to send their queries to NRDA either by post or by email to [ceo@nayarapur.com](mailto:ceo@nayarapur.com) and [cee@nayarapur.com](mailto:cee@nayarapur.com) upto the date mentioned in the para 2 as above.
11. **Clarification/ amendments, if any shall be uploaded on website only.**
12. Period for completion of work as mentioned above at Para 2 is inclusive of rainy season.
13. Approved hard copy of the standard document is available in the office of the employer and could be seen on any working day during office hours at the following address:-  
*Chief Engineer (Engg), NRDA*  
*Near Rakhi Police Station, Naya Rakhi Village, Sector -25, Naya Raipur, Pin 492002*
14. The intending tenderers are advised to cross check the downloaded version of the tender document with the hard copy available with NRDA.

Signature of Contractor.....

Signature of NRDA.....

15. In case of any discrepancy between the downloaded tender and the approved hard copy, the approved hard copy shall hold good for contractual as well as legal purposes.
16. Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders, as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general, shall themselves at their own cost obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect the execution of work and shall incorporate the cost of such effects while quoting the tender, A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed, The tenderer shall be responsible for arranging and maintaining at his own cost all materials tools & plants, water, electricity, access facilities for workers and on all other services required for executing the work unless otherwise specifically provided in the contract documents. Submission of tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and local conditions and other factors having a bearing on the execution of the work.
17. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
18. The successful tenderer shall be required to execute an agreement on a non judicial stamp paper of appropriate value with the **Chief Engineer (Engineering), NRDA** in the Proformas annexed to the tender document, within 7 days of the issue of letter of acceptance/ award by the NRDA. The cost of non judicial stamp paper shall be borne by contractor. In the event of failure on the part of the successful tender to sign the agreement within 7 days, the entire earnest money will be forfeited and tender shall be cancelled.
19. The successful tenderer, upon issue of letter of acceptance, in addition to execution of an agreement on a non judicial stamp paper of appropriate value, shall also be required to furnish an irrevocable Performance Bank Guarantee of requisite amount to the **Chief Engineer (Engineering), NRDA** in the Performa annexed to the tender document, within 7 days of the issue of the letter of acceptance/ award of Tender by the NRDA. In the event of failure on the part of the successful tenderer to furnish the Performance Bank Guarantee within 7 days, the earnest money will be forfeited and tender shall be cancelled.
20. This Notice Inviting Tender shall form a part of the contract document. In accordance with clause 1 of the contract, the letter of acceptance/ award shall be issued in favour of the successful tenderer/ contractor. After submission of the performance guarantee, by the contractor, the General arrangement drawings and other details for commencement of work shall be issued. The contract shall be deemed to have come into effect on issue of communication of letter of acceptance of the tender. On such communication of acceptance, the successful Tenderer/ Contractor shall, within 7 days from such date, formally sign the agreement consisting of:-
  - a) PART ONE of the Tender documents along with detailed NIT as issued to the contractor at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto and
  - b) PART TWO of the Tender document i.e. "General conditions of contract duly modified/ corrected to the extent as specified under PART ONE (though not issued to the contractor but always available for inspection on written demand at the office of the officer inviting tenders specified under Schedule F of PART ONE of the Tender Document) and deemed to have been consulted, inspected, understood and considered by the tenderer before quoting and submitting his tender.
  - c) Agreement signed on non-judicial stamp paper of appropriate value as per prescribed proforma of tender documents.
21. **GCC is available as a standard NRDA Publication and can also be downloaded free of cost from the NRDA web site under title "General conditions of contract" for Contractors in construction Contracts" However contractors are advised to refer to PART ONE of the tender document carefully and thoroughly for corrections/ modifications in the "General conditions of contract" Standard form NRDA**

Signature of Contractor.....

Signature of NRDA.....

**F-2/3 is also available for inspection in the office of the Engineer in charge on written demand from contractors. Link site <http://nayaraipur.com/documents/gcc.pdf>**

22. While submitting the tender the contractor shall clearly and legibly write his full mailing address including PIN code, Telephone/ mobile no./ Fax Numbers/ e-mail address etc for communication purposes and shall inform the Engineer in Charge about any change from time to time in his postal/ mailing address. The communication shall be dispatched only at the contractor's such latest informed address and NRDA shall in no way be responsible for non-receipt of correspondence by the contractor.
23. It is found that the contractor has misrepresented that facts or has attempted to secure or has secured the work by misrepresenting the facts or by submitting false or forged documents then the Entire Earnest Money submitted by the contractor and or the Performance Guarantee and/ or the Security Deposit as the case may be, shall be liable to be absolutely forfeited and such contractor/ individuals shall also be liable to be prosecuted for cheating/ forgery/ fraud etc as per law.
24. **Bill of quantities is enclosed with tender document, the rate shall be quoted against each item separately in figures as well as in words**

During price Tender evaluation, the Employer will correct arithmetical errors on the following basis:

- a) if there is a discrepancy between words and figures, following procedure shall be followed:
    - i. the unit price which correspond to the total price for the item worked out by the Tenderer shall be followed;
    - ii. If the total price of an item is not worked out by the Tenderer or it does not correspond with the rates written either in words or figures then the rate quoted by the Tenderer in words shall be taken as correct.
  - b) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected;
  - c) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
  - d) The unit wise amounts will be rounded to the nearest rupee
  - e) The tendered rates of items against which no rate or price is entered by the tenderer will be taken as zero and the price of the same shall be deemed to have been covered by the rates/ amount quoted in other items.
25. The tender document shall be written legibly and free from erasure, overwriting or conversion of figure. Any correction where unavoidable shall be made by crossing out, rewriting and attestation by the tenderer.
  26. All royalties be paid by the contractor as also all tolls, duties, local and other levies including sales tax, insurances & workman compensation act etc.
  27. Contractor will be bound to follow CG Model rules relating to its water supply & sanitation in labour camp.
  28. The contractor shall pay not less than the minimum wages to labours engaged by him on the work.
  29. Department reserves the right to take up the work departmentally or to award any work on contract in the vicinity without prejudice to the terms of contract.
  30. If the rate quoted by the lowest (LI) of the tenderer is considered unbalanced (in relation to the Department's estimate of cost of work to be performed under the contract) by the CEO, NRDA, then tenderer shall submit detail price/rate analysis of major items of the work within 7 days of such notice so as to demonstrate the internal consistency of these price/rate(s) with his quoted price/rate(s). After evaluation by tender sanctioning authority CEO, NRDA may require the tenderer to submit additional Security upto 5% of the estimated cost put to tender for the performance of the agreement in the shape of F.D. or a BG receipt in favor of the CEO, NRDA before signing of the agreement, which shall be refunded along with the normal S.D. after Completion of work. If he fails to complete the work or leave

Signature of Contractor.....

Signature of NRDA.....



the work in complete, this 5% additional SD, shall also be forfeited by the department, & the agreement shall be terminated and action shall be taken in accordance of relevant contract clause of the agreement.

31. **Important Instructions to Tenderers:** The tenderers who have down loaded the tender documents from the web site, should read the following important instructions carefully before actually quoting the rates & submitting their tender on the tender document downloaded from the web site:

- a) The tenderer should see carefully & ensure that all the pages of PART ONE (NRDA F-1) of the tender document including schedule of quantities of items of work (NRDA F-1 Schedule-A) has been down loaded properly & completely.
- b) The printout of the downloaded tender document shall be taken on A-4 size plain white paper only & the printer settings shall be dept to ensure that the downloaded document is printed in the same manner and pattern/ setting as appearing on the web site & there is no change in the formatting, number of pares etc.
- c) The tenderer should ensure that no page in the down-loaded tender document is missing and all pages in the down-loaded tender document as printed are legible & clear & are printed on a good quality paper.
- d) The tenderer should ensure that every page of the down-loaded tender document is signed by tenderer himself.
- e) The tenderer should ensure that the down loaded tender document is properly bound and wax sealed before submitting the same in the envelope. **Loose/ Spiral binding** shall be liable to be rejected.
- f) In case of any correction/ addition/ alteration/ omission in the downloaded tender document vis a vis that in the **Standard DRAFT Tender Document** available in the office of NRDA, it shall be liable to be rejected.
- g) The tenderer shall furnish a declaration to this effect that no addition/ deletion/ corrections have been made in the downloaded tender document being submitted by him and it is identical to the tender document appearing on the Web-site and with the **Standard DRAFT Tender Document** available in the officer of the office inviting the tenders.

**Chief Executive Officer,**  
NRDA, Near DKS Bhawan, Old Mantralaya,  
Raipur 492 001 Chhattisgarh  
Phone No (0771) 4066011, 4268643.

Signature of Contractor.....

Signature of NRDA.....

# **SCHEDULE- D**

## **Section-I**

### **Technical Tender Forms**

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**Schedule-D**  
**Section I - Tender Forms Technical**

This Section contains the forms which are to be completed by the Tenderer and submitted as part of his  
PART ONE (NRDA F-1).

**Table of Forms**

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Signature of Contractor.....

Signature of NRDA.....

## (i) Letter of Technical Tender

Date: \_\_\_\_\_

Tender Package No.: \_\_\_\_\_

NIT No.: \_\_\_\_\_

To:

Chief Executive Officer,

NRDA, Near DKS Bhawan, Old Mantralaya, Raipur 492 001,

Chhattisgarh.

Ref for NIT no:-----

**Subject:** Name of the work:- -----

Dear Sir,

I/We, the undersigned, declare that:

- (a) I/We have examined and have no reservations to the Tender Document, including Addendum if any, minutes of meeting, clarification to the queries etc.
- (b) I/We offer to execute the subjected under in conformity with the Tender Documents and the addendums.
- (c) I/We have satisfied ourselves as to the location of the site and working conditions, examined the requirements of NRDA and have obtained all the information necessary for the successful and timely completion of the work.
- (d) I/We have submitted the Earnest Money Deposit as specified in the tender document which will not bear any interest and shall be subjected to forfeiture on following defaults.
  - (i) if we withdraw our Tender during the period of tender validity as specified in Detailed NIT para 9 or
  - (ii) if we fail to:
    - furnish a Performance Security in accordance with Detailed NIT Para 19 or
    - sign the Contract in accordance with Detailed NIT Para 18; or
    - accept the correction of its Tender Price pursuant to Detailed NIT Para 24.
  - (iii) if we have given the false documents in support of qualification with the technical tender.
- (e) My/Our Tender shall be valid for a period of 90 days from the date fixed for the tender submission deadline in accordance with the Tender Document, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If my/our Tender is accepted, we commit to obtain a Performance Security in the amount as specified in the tender document for the due performance of the Contract and sign the agreement;
- (g) I/We are not participating, as Tenderers, in more than one Tender in this Tendering process, in accordance with the Tender Document;
- (h) My/our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, has not been declared ineligible by NRDA, Raipur;

Signature of Contractor.....

Signature of NRDA.....

- (i) I/We understand that this Tender, together with your written acceptance thereof included in your letter of acceptance, shall constitute a binding contract between us, until a formal Contract is prepared and executed;
- (j) I/We understand that you are not bound to accept the lowest evaluated tender or any other tender that you may receive.
- (k) I/We hereby pay the Earnest Money Deposit of required amount in the form of a demand draft/ bank guarantee on a nationalized bank (-----Bank Name and address) and operatable at Raipur in favour of the 'Chief Executive Officer, NRDA, Raipur' for the said amount and is attached.
- (l) I/We hereby declare that, the entire work including Addendum/ Corrigendum, if any, shall be completed in all respect within the time limit specified in the NIT.
- (m) I/We here by authorize the Employer to get all bank guarantee verified and got confirmed from concerned Bank.

Signature: -----

Signed by: -----(Name)

Designation: -----

For and on Behalf of -----(Name of Tenderer)

Date:

Signature of Contractor.....

Signature of NRDA.....

## (ii)Tenderer's Information Sheet

Tenderer's Information		
Tenderer's legal name		
Tenderer's legal address		
Tenderer's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	Name:	Address:
	Telephone : Fax :	E-Mail:
Tenderer's details of Incorporation	Place of incorporation/ registration:	Year of incorporation:
<p><b>Attached are copies of the following original documents.</b></p> <p><input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above.</p> <p><input type="checkbox"/> 2. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law.</p>		

### Details of the office closest to Raipur (if available)

1.	Address of Office	
2.	Telephone :	Contact :
3.	Fax :	E-Mail :

Signature of Tenderer

Date:\_\_\_\_\_

Signature of Contractor.....

Signature of NRDA.....

### (iii) Annual Turnover

Annual Turnover Data for the Last 3 Years			
Year	Amount and Currency	Exchange Rate if any	INR Equivalent
2009-10			
2010-11			
2011-12			
Average Annual Turnover for the last 3 years in INR			

All Tenderers are requested to complete the information in this form

The information supplied should be the Annual Turnover of the Tenderer in terms of the amounts billed to clients for each year for contract in progress or completed, converted to INR at the rate of exchange at the end of the period reported.

As a proof of the above, the contractor shall submit the copies of the balance sheet for last three years along with audited profit & loss statement duly signed by the chartered accountant.

Signature of Tenderer

Date: \_\_\_\_\_

Signature of Contractor.....

Signature of NRDA.....

### (iv) Specific Construction Experience

Fill up one (1) form per contract.

Details of Contract			
Contract No . . . . . of . . . . . .	Name of work		
Award Date		Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Sub-contractor	
Total Contract Amount	INR		
Employer's Name Address Telephone/Fax Number E-mail			
Description of the work executed			

**Note:** Attach copies of work order and satisfied completion certificates in support of each quoted experience. The completion certificate should be signed by the officer not below the rank of concerned Executive Engineer in case of Government department or in the rank of General Manager in case of public sector/private sector as the cases may be.

Signature of Tenderer

Date: \_\_\_\_\_

Signature of Contractor.....

Signature of NRDA.....



## (v)DECLARATION

### (TO BE SIGNED BY THE TENDERER SUBMITTING THE TENDER ON DOWNLOADED TENDER DOCUMENT)

I/We hereby declare and certify that:

1. I/We are submitting the tender in the tender document downloaded by me/ us from the website & we certify that there is no change in formatting, numbering of pages etc. In the downloaded documents.
2. I/We are submitting the tender in the tender document which is exactly similar and identical to the one available on the website and also as available with the officer inviting tenders.
3. I/ We have no made any modifications/ corrections/ additions/ omissions etc in the tender documents downloaded from web by me / us.
4. I/ We have checked that no page in the downloaded tender document is missing and all the pages as per web site are available & that all the pages of tender document submitted by us are clear & legible.
5. I/ We have signed (with stamp) all the pages of the tender document before submitting the same.
6. I/ we have wax sealed the tender documents properly before submitting the same.
7. I/ We have submitted the application for issue of tender documents on the prescribed format separately along with the cost of tender documents and also the attested Xerox copies of the eligibility documents prescribed for respective work in the NIT.
8. I/ We have read carefully & understood the entire Tender document including important instructions to the tenderers submitting the downloaded tender.
9. In case at any stage whatsoever at a later date it is found/ revealed that there is a difference in our downloaded tender documents from the original **Standard DRAFT Tender Document**, NRDA shall have the absolute right to take any action as deemed fit without any prior intimation to me / us.
10. In case at any stage whatsoever at a later date it is found that there is difference in our downloaded tender document from the Standard DRAFT Tender Document, we clearly understand that our work shall be liable to be cancelled and Earnest Money/ Performance Guarantee/ Security deposit etc all are liable to be forfeited by NRDA and in such an eventuality I/ We shall have no right or claim for any damages/ compensation from NRDA on this account. Further in such case I/ We may also be debarred by NRDA for further participation in the tendering in the concerned NRDA & be removed from the approved list of contractors of NRDA.

Dated.....

(TENDERER)

(SIGNATURE WITH SEAL/ STAMP)

Signature of Contractor.....

Signature of NRDA.....

## (vi) CHECK LIST FOR TECHNICAL TENDER EVALUATION

Name of the Agency:						
S. No	Document	Details			Enclosed at annexure	
					Page No	
			From	To		
1	Tender Document Cost	<b>Downloaded from NRDA Website</b>				
		<b>Details of DD</b>				
		Amount				
		Name of the Bank & Branch				
		Date				
		D.D no & Photo copy attached	Yes	No		
2	Earnest Money Deposit (EMD)	Amount				
		Form of EMD				
		Issuing Bank & Branch				
		No & Date	Yes	No		
		Photo copy attached				
	Contractor Registration Certificate	Class in which registered				
		Name of Department				
		Registration Number & Date				
		Validity				
		<b>Notarized</b>	<b>Yes/No</b>			
4	Commercial Tax Certificate	Registration Number:				
		Name of the Office				
		<b>Notarized</b>	<b>Yes/No</b>			
5	Average Annual Turnover in Lacs	2009-2010				
		2010-2011				
		2011-2012				

Signature of Contractor.....

Signature of NRDA.....

Name of the Agency:				
S. No	Document	Details	Enclosed at annexure	
			Page No	
			From	To
		Chartered accountant certificate in original or photo copy duly notarized can be submitted		
6	Details of the projects/works completed as pre-qualification criteria	Name of the Work		
		Work Completed	Yes/No	
		Cost of the Project		
		Certificate Enclosed	Yes/No	
		<b>Notarized</b>	Yes/No	
		Name of the Work		
		Work Completed	Yes/No	
		Cost of the Project		
		Certificate Enclosed	Yes/No	
		<b>Notarized</b>	Yes/No	

Note: The above check list only provides for those documents which are mandatory for the tender pre-qualification criteria. Tenderers are required to append, other documents also with the technical tender as required in the detailed NIT or elsewhere in the PART ONE (NRDA F-1).

Signature of Tenderer

Date: \_\_\_\_\_

Signature of Contractor.....

Signature of NRDA.....

# **SCHEDULE– D**

## **Section-II**

### **Scope of work**

Signature of Contractor.....

Signature of NRDA.....

## Works Requirement

This section contains the brief idea of scope of work, supplementary information drawings etc. regarding the work to be executed under instant tender, may vary as per site requirement. In case of any change the decision of Engineer-in-charge will be final and binding to the contractor. The work however shall be executed as per BOQ and working drawings.

### **A. GENERAL REQUIREMENTS APPLICABLE FOR ALL SCOPES OF WORK**

- 1. WORKING DRAWINGS :** The Contractor shall at all times maintain on site, in good order and condition, a complete set of all drawings duly laminated and documents necessary for the proper execution and checking of the Works. These drawings and documents shall be made available on request to the Engineer in Charge or other authorized persons on site. Any amendment shall be indicated on the drawing, dated and signed by the Authorized person in charge, with reasons stated if possible.
- 2. AS-BUILT DRAWINGS:** The Contractor will supply four hard copies & a soft-copy of the approved built-up drawings on completion of work. The cost of preparing all such items of work shall be deemed to have been included in the respective rates/ prices quoted by the Contractor in the "Bill of Quantities.
- 3. SHOP DRAWINGS:** The contractor shall also provide shop drawings for various sub-parts of the tender for approval by the Engineer in Charge. Areas of detailing shall include (but will not be limited to) Plumbing, Electrical, Landscaping Works .The shop drawings shall be conformance to the actual site conditions.
- 4. SAMPLES:** The contractor shall submit to the Engineer in Charge samples of all materials for approval and no work shall commence before such samples are duly approved. The cost of the samples shall be borne by the contractor.
- 5. TESTS:** The entire mandatory test shall be carried out at the frequency as mentioned in the specification. All materials and methods of tests shall conform to the latest rules, regulation and/or individual specifications as laid out in the technical specifications. The Engineer in Charge will have the option to have any of the materials tested and if the test results show that the materials do not conform to the specifications, such materials shall be rejected. A reasonable number of representative tests will be deemed to be included in the rates tendered.
- 6. SITE CLEANING:** Upon completion of the scope of the work all the areas should be cleaned. All floors, doors, windows, surface, etc. shall be cleaned down in a manner which will render the work acceptable to the Engineer in Charge and employer. All rubbish due to any reason, shall be removed daily from the site at the cost of the contractor and all such costs are deemed to have been included in the price quoted by the contractor.
- 7. MAINTENANCE IN DEFECT LIABILITY PERIOD:** The Contractor shall be obliged to remove / repair / replace/ the defects for the entire system during defect liability period (DLP) of twenty four (24) months after the final official hand over date of the civil work/other installation, duly approved by the consultants and project managers. This period shall include maintenance replacement of parts, regular periodic visit by qualified personnel of the Contractor and attending to emergency call at short notice.

Signature of Contractor.....

Signature of NRDA.....

**8. WARRANTIES/GAURANTEES-** The contractor shall also make available to NRDA all the warranties/guarantees by the respective manufacturers for all material and equipment installed in the project along with the user/training manuals, test reports, contact details etc. as along with the built-up drawings of the project upon completion of project.

**9.** Maintaining the work in finished condition against defects for a minimum of specified defect liability from the date of commissioning and imparting training to the workers/staff as asked for maintaining the work as per IS requirement and exercising.

**10.** Items not covered under these specifications due to any ambiguity or misprints, or additional works, the work shall be carried out as per specifications or the latest N.B.C. manual up to date amendments as applicable in the work.

**11.** The contractor shall be responsible for making good the surfaces and cut-outs wherever provided on account of plumbing, electrical & other allied work cross-overs and shall hand-over the site in finished condition.

## **B. SCOPE OF WORK**

The broad scope for the proposed work such as

- i. Survey, Soil investigation for all works.
- ii. Road network and Drainage system.
- iii. Landscaping work
- iv. Water supply system
- v. Sewerage system.
- vi. Electrification Works.

### **(i) Contract Drawings:**

- a) Layout plan considered for tenders is tentative.
- b) Two copies of general arrangement drawings for roads and structures for execution of works shall be furnished free of cost to the Contractor by the Engineer progressively according to the work programme submitted and accepted by the Engineer. After careful study of these standard drawings, detailed working drawings based on joint field survey with Engineer in Charge and villagers for the work including temporary work with, design calculations shall be prepared by the Contractor at his own cost and forwarded in triplicate to the Engineer at least 30 days in advance of actual constructional requirements. The Engineer will check and return one copy of the same for the Contractor's use with amendments, if any, noted in red ink. Such approval shall not relieve the Contractor of any of his responsibilities in connection with works. The Contractor will supply four copies of the approved drawings for the Engineer's use. The cost of preparing all such items of work shall be deemed to have been included in the respective rates/ prices quoted by the Contractor in the Bill of Quantities."
- c) The Contractor will supply four hard copies & softcopy of the approved drawings on complete work.
- d) The cost of preparing all such items of work shall be deemed to have been included in the respective rates/ prices quoted by the Contractor in the "Bill of Quantities."

### **(ii) Road Works**

The Works shall, inter alia, include the following, as specified or as directed.

- a) Site clearance, removal of tree stumps and dismantling of obstructions, encroachments etc.

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Signature of NRDA.....

- b) True and proper setting-out and layout of the Works, setting of bench marks, preparation of working drawings and provisions of all necessary labour, instruments, and appliances in connection therewith;
- c) Analysis, interpretation and reporting of the results thereof in accordance with the provisions of IRC: 37-2001 (Indian Roads Congress: Guidelines for design of flexible pavements), IRC: 75-1979 (Guidelines for the Design of High Embankments) and IRC Special Publication 19 (Manual for Survey, Investigation and preparation of Roads Projects);
- d) Carry out special tests as directed and mentioned in technical specifications.
- e) Construction of new road inclusive of all Earthwork, Subgrade, Granular Sub-Base, Cement Concrete Pavement, Wet Mix Macadam, Drains, footpath etc. with requisite plant and equipment;
- f) Provision of suitably designed protective works;
- g) Plantation and Landscaping of the road way verges and Medians;
- h) Provision of Street Lighting with necessary accessories;
- i) Any other item of work as may be required to be carried out for completing the road works in all respects in accordance with the provisions of the Contract.
- j) During the period of the Contract, the Right of Way and all existing roads shall be kept open for traffic and maintained in a safe and usable condition. Residents along and adjacent to the Works are to be provided with safe convenient access to their properties at all times. Traffic control and traffic diversions shall be used as necessary to protect the Works and maintain them as directed by the Engineer.
- k) Designs of storm drain shall be carried out using Manning formula for design of gravity rain water and taking in to consideration ground water minimum flow velocity, peak factor, and maximum depth of flow, based upon the design criterion. Design parameters as prescribed in the CPHEEO Manual and relevant Codes of practice will be adopted
- l) The slope of the drain is adopted as per the ground slope of the study area. The manning constant is assumed as per the guidelines given in IRC: SP: 50-1999. The open channel design for the storm water drain is prepared based on the manning's formula for open channels and the flow velocity is calculated. The adequacy of the drain is checked by comparing the actual flow in each drain and the full carrying capacity of the proposed drains.
- m) Survey and investigation of existing storm drain system.
- n) Identifying the problem in existing system and proposed modification
- o) Hydraulic design.
- p) Preparation of R.C.C drains
- q) Renovation of existing drains section by de silting and re sectioning wherever requires.
- r) Water bodies improvement by diverting sullage through the interceptor.
- s) The work of design and construction of primary drains in flood prone area is having the highest priority. Other works will facilitate to minimize the storm water surface runoff and may be taken up in phases as per the availability funds.
- t) All aspects of Quality Assurance of various components of the Work.
- u) Clearing of site and handing over of the Works;
- v) Rectification of the defects in the completed works during the Defects Liability Period;
- w) Submission of As Built Drawings and other related documents

**(iii) Water Supply System.**

- a) Providing, laying, jointing and commissioning of rising mains from UGR to respective sectors. The size of rising main pipe shall be 200 mm dia. DI class K-9 and branch line pipes 16mm dia. & 110mm dia. HDPE pipes of PE-100 grade.
- b) The pipe lines laid should be hydraulically tested successfully competition.

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- c) Providing, laying, jointing and commissioning of valves etc.
- d) Construction of RCC valve chambers
- e) Any other item of work as may be required to be carried out for completing the water supply works in all respects in accordance with the provisions of the Contract.
- f) All aspects of Quality Assurance of various components of the Work.
- g) Clearing of site and handing over of the Works;
- h) Rectification of the defects in the completed works during the Defects Liability Period;
- i) Submission of As Built Drawings and other related documents

**(iv) Sewerage system**

- a) Carry out confirmatory survey for checking the ground levels from the reference level bench marks.
- b) The excavated areas should be barricaded so as to prevent accidents.
- c) Providing, laying, jointing testing and commissioning of sewer DWC HDPE pipe class SN8, Construction of prefabricated HDPE manhole with frames and covers and other materials as required as per specifications, and maintain their safe custody and for proper installations and availability as per the programmers of work.
- d) Providing laying, jointing, testing and commissioning sewer network DWC HDPE pipe class SN8.
- e) Providing, laying, jointing testing and commissioning and construction of High Density Poly Ethylene (HDPE) circular manhole conforming to EN 13598-2:2009.
- f) The pathways damaged during construction have to be reinstated to at least original level after completion of the work in that section.
- g) The pipe lines laid should be hydraulically tested from man hole to manhole as per specification.
- h) Removal of defects in laying and jointing of all sewers, fittings and manholes during construction, testing, commissioning and during defect liability period.
- i) Any other item of work as may be required to be carried out for completing the water supply works in all respects in accordance with the provisions of the Contract.
- j) All aspects of Quality Assurance of various components of the Work.
- k) Clearing of site and handing over of the Works;
- l) Rectification of the defects in the completed works during the Defects Liability Period;
- m) Submission of As Built Drawings and other related documents

**(v) Electrification Works**

- a) Provision of incoming supply through 11kv underground cable form sector -27 to Nawagaon Village.
- b) 11kv cable should be upto distribution transformer through Ring Main Unit.
- c) Supply installation, testing and commissioning of distribution transformers & Ring Main Unit as per the specifications.
- d) HT & LT supply distribution through DWC & NP-3 pipes within village area.
- e) LT supply connection should be providing up to energy meter of every house.
- f) Supplying, fixing, installation and commissioning of feeder pillar as per specifications.
- g) Supplying, fixing, installation and commissioning of street light as per specifications.
- h) Dismantling of existing items like poles, conductors, transformer etc. as required.

**Note: -**

❖ Surveying & Measuring Equipments: Equipments for surveying and measurement of the work shall be procured by the Contractor for his use. The same shall also be made available to the Engineer at site for any work connected with the Contract without any Charges.

Signature of Contractor.....

Signature of NRDA.....



- ❖ For carrying the topographic survey for establishing the levels and site layout of all the components, no payment shall be made to the contractor. The survey work shall be carried out on the approval of Engineer Incharge. All the details of survey report in soft and hard copies and profile shall be submitted to the EIC prior to start of work.
- ❖ Any additional surveys, if due to change in approved alignment because of unavoidable reasons required, shall be carried out on the approval of Engineer Incharge and shall be paid seperately. Otherwise survey is a part for preperation of working drawing and shall not be paid seperately.
- ❖ The successful tenderer will be expected to complete the Works within 24 Months from the date of commencement of the Works.

### C. PAYMENT TERMS

- 2.1 The Contractor, at the time of bidding, will be responsible to ensure the completeness and adequacy of his Bid Price to fulfill the entire responsibilities as described above.
- 2.2 After completion of plantation works, the contractor will also have to maintain it for a minimum period of 1 year which includes removal of weeds, watering, providing manures and fertilizers and maintaining the same. Total payment against these items should only be released after 3 months of completion of plantation work. However, 50% of the amount shall be released after satisfactory plantation work, and balance amount shall be released on start of O& M Period
- 2.3 Quarterly payment for the item of annual maintenance of the plantation and other allied works during maintenance period shall be made as detailed below.
  - a) On completion of 1st Quarter : Cumulative 25% of price quoted for complete item
  - b) On completion of 2nd Quarter : Cumulative 50% of price quoted for complete item
  - c) On completion of 3rd Quarter : Cumulative 75% of price quoted for complete item
  - d) On completion of 4th Quarter :Cumulative 100% of price quoted for complete item
- 2.4 The cost of chemicals, manure, weedicides, pesticides etc. and other consumables for operation and maintenance of the system during the maintenance period will be borne by the Contractor; however power charges shall be paid by contractor and shall be reimbursed by the authority on submission of proof of actual payment along with the monthly bill. The costs towards the Contractor's Representative and other operating personnel during the said period of contract will have to be borne by the contractor, along with cost of tools and spare parts, which are required for operation and maintenance of the plant and equipment.

On completion of work i.e. after O&M period of one year, the contractor shall handover all the machineries, equipments & fixtures such as bore well, pump, motor, sprinklers fountain accessories etc. in good working condition to NRDA, including plant/hedges/tree/lawn etc

Signature of Contractor.....

Signature of NRDA.....

# **SCHEDULE- D**

## **Section-III**

### **Technical Specification of Works**

Signature of Contractor.....

Signature of NRDA.....

## I. Brief Specifications:

All the specification for item of works for Building works , Road works and Electrical works has been followed with reference to the CG PWD, CPWD, MOSRTH, CPHEEO and relevant IS Specifications.

**Material of construction** - The materials of construction to be used in the work shall be governed by the MORTH/ IRC specifications for Rural roads/ other IRC Publications and their manual/ latest CPWD specifications/ PWD specifications/ IS codes, for buildings and the relevant Indian standard specification with amendments and revisions Issued up to the date of tender notice Where ever any material has ISI mark such material alone has to be used.

**Workmanship-** The work shall be carried out according to the specification referred to hereinafter and according to sound engineering practice. The decision of the Executive Engineer, in respect of workmanship will be final.

**Specification for Building Work: - (Including water Supply and sanitary fittings.)** - The contractor shall execute the work In conformity with the standards and procedure laid down latest CPWD specifications/PWD specifications/IS codes for buildings or special specification when ever enclosed separately and in accordance with the approved drawings.

**Specification of Electrical Works:** The work will be carried out as per the approved drawing and as directed by the Engineer-in-charge. The work will be governed by "General specifications" for the Electrical works applicable in Chhattisgarh PWD. All electrical materials must bear 'ISI' mark. All samples of electrical accessories should be got approved from the Engineer- in- Charge to their use in work. Contractor will have to arrange and afford all facilities for their inspection and rectify the defects pointed out by them.

## II. Double Wall Corrugated Duct HDPE pipe

1. **Scope of work:** This specification covers the requirements for manufacturing, supplying, transportation, handling, stacking, installation, jointing, and testing of Class SN 8 Structured Double Wall (Non-Smooth External Annular Corrugated wall & Smooth Internal wall) Polyethylene Piping System for non-pressure underground Sewerage & Drainage Applications herein after called the DWC PE Piping System.
2. **Applicable Codes:** The manufacturing, testing at factory, supplying, transportation, handling, stacking, installation, jointing, and testing at sites shall comply with all currently applicable statutes, manuals, regulation, standards & codes. In particular, in addition to all relevant National Standards, following International standards with latest revisions shall be referred. If requirements of these specifications are at variance with any other standards, this particular document shall govern the proceedings.

EN 13476-1	Plastics piping Systems for non-pressure underground drainage and sewerage- Structured-wall piping systems of Polyethylene (PE) Part 1 : General requirements and performance characteristics
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Signature of Contractor.....

Signature of NRDA.....

EN 13476-3	Plastics piping Systems for non-pressure underground drainage and sewerage- Structured-wall piping systems of Polyethylene (PE) Part 3 : Specifications for pipes and fittings with smooth internal and profiled external surface and the system, Type B
ISO-21138-3	Plastics piping Systems for non-pressure underground drainage and sewerage- Structured-wall piping systems of Polyethylene (PE)

3. Other International Codes / Standards (EN/ ISO) which are integral part of above two standards as normative references form a significant portion of this specification document
4. **Manufacturing:** The DWC PE Piping System of stiffness class designation SN 8 shall confirm to the European Union standards as mentioned above and shall be configured as per the indicative Cross-sectional & Profile Drawings (Annexure A &B) annexed herewith. Each pipe shall be coupler (on-line or off-line) and spigot type along with rubber sealing ring (as designated under above international specifications).
5. **Transportation:** The arrangement of loading the pipes in a telescopic manner is advised, i.e. smaller diameters inserted into the next higher sizes of pipes. While loading the pipes onto the truck, care should be taken that the coupler- end should be arranged alternatively in the corresponding layers so as to avoid the damage to the coupling/ socket ends.
6. **Handling :**Following Recommendations shall be followed while handling the pipes:
  - Adherence to National Safety requirements
  - Pipes to be smoothly lowered to the ground
  - Pipes should not be dragged against the ground to avoid the damages to the Coupler/pipes.
  - 800mm and larger diameter pipes are carried with Slings at two points spaced approximately at 3 Meters apart
  - For smaller diameters (400mm – 800mm) one lift point shall be sufficient & can be handled either manually or mechanically
  - Do not use a loading Boom or Fork Lift directly on or inside pipe.
7. **Pipe Storage at Site**
  - Stockpiling shall be done temporarily on a Flat Clear Area.
  - For avoiding collapse of Stacks, use Wooden Posts or Blocks
  - Stacking shall not be higher than 2.5 Meters
  - While stacking, alternate the socket/coupler ends at each row of stacked pipes
8. **Lowering, Laying & jointing of Pipes:** The width of a Sewer Trench depends on the soil condition, type of side protection needed and the working space required at the bottom of Trench for smooth installations. Increase in width over required minimum would unduly increase the load on pipe and cost of road restoration. Considering all above factors, the Minimum Trench Width is specified as per direction of Engineer.

Signature of Contractor.....

Signature of NRDA.....

The pipe segment between two manholes shall be laid approximately in straight line without any vertical undulations. However, on the strength of its flexibility, the DWC PE Piping system can be laid in very smooth curve if found necessary. The piping system shall rest on the carefully prepared bedding portion of the Backfill Envelope (ref. Annexure A) and at appropriate jointing locations the trenches shall be excavated deeper to accommodate the bulges of coupler-spigot joints. However, special care shall be ensured as mentioned below:-

- Excavation of trenches shall be carried out in accordance with the drawing & specifications and as directed by the field engineer as well.
- The piping system shall be laid and jointed in true to gradient with the help of sight rails and boning rods as detailed in CPHEEO, MoUD, GoI Manual on Sewerage and sewerage treatment. The levels need be checked with calibrated modern Levelling Instrument. Specific care shall be taken to prevent entry of sand / mud /slush/ any other foreign material etc into the system during the installation operation.

The structural property of the system suggests that a minimum cover of 300 mm adequate even for maximum quantum of superimposed (live) load.

In case of wider trenches than required (above table), the permission of the competent authority shall be necessary.

The bedding area is an essential portion of Back fill Envelope and shall be constructed with proper bedding material as computed in accordance with appropriate international code of practice for structural bedding design mentioned in the list of normative references under EN 13476. The bedding shall be laid to specified thickness and gradient with proper manual compaction of the aggregate.

The moulded on-line coupler (or separate coupler integrated to the pipe in case of lower sizes) will have a suitable internal surface for push-fitting the said end over the spigot end of the next pipe. On first valley of the corrugation of said spigot end (destined to receive the pushed coupler) the sealing rubber ring of standard (EN 13476) quality shall be placed so that the coupler end of the pipe smoothly but tightly slides over the sealing ring for making an absolute watertight joint. Similar system is also used for fabricated accessories or moulded fittings required such as Tee, Bends, Elbows, Reducer end caps for the purpose of installation of the system related to drainage/sewerage.

For quality connections following steps are to be ensured, failing which the performance aspects are to be severely compromised:-

1. The non-coupler (socket) end needs to be thoroughly cleared and shall be free from any foreign material
2. Clean and lubricate the coupler end of the pipe, if required.
3. Lubricate the exposed Gasket in the same manner, if required.
4. Keep the non-coupler end free from dirt, backfill material, and foreign matter so that the joint integrity is not compromised.
5. Push the coupler into non-coupler and align properly. Always push coupler end into non-coupler end.

Signature of Contractor.....

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For smaller diameter pipes simple manual insertion shall be sufficient. It should be ensured that the coupler end is adequately 'homed' within non-coupler end to ensure installation and tight joining seal. Therefore prior to insertion always place a 'Homing Mark' on appropriate corrugation of the 'Non-Coupler End'.

**9. Construction of backfill envelope and final backfilling of the trenches**

DWC PE Piping System with well compacted Backfill Envelope along with the bottom and sides of trench (native soil) work together to support soil overburden and superimposed (traffic) loads. The carefully constructed Backfill Envelope has three distinct but non-isolated stages (ref. Annexure A). The construction need to be done stage by stage as per the sequence stated below:

- Bedding portion
- Up to Haunch level
- Remaining portion

The material for backfill envelope shall be in accordance with the structural design of flexible buried conduit as per relevant international codes. It can be the same material that were removed in the course of excavation or it can be fine sand/course sand/gravel / morum /other form of course / fine aggregates depending on the effected Design Load [Overburden + Superimposed (Live) load]. However, in no circumstances, the flexible pipe should not be embedded in cement concrete (un- reinforced or reinforced) which invariably induces undesired rigidity in the system.

- The remaining portion of backfilling which do not contribute to the structural integrity of the system may be the materials that were removed in the course of excavation or any other foreign material as may be required to suit the particular site condition. These materials shall consist of at least clean earth and shall be free from large clod or stone above 75 mm, ashes, refuse and other injurious materials.
- After completion of bedding portion of the Backfill envelope and subsequent lying of pipes, etc, first the haunch portion & then upper portion of Backfill Envelope shall be constructed as per design around the pipe. Voids must be eliminated by knifing under and around pipe or by some other indigenous tools.
- The compaction, by hand rammers or compactors with necessary watering to a possible maximum level of proctor density shall be ensured.
- Backfilling shall start only after ensuring the water tightness test of joints for the concerned sewer segments. However, partial filling may be done keeping the joints open.
- Precautions shall be taken against floatation (if at all necessary) as per the specified methodology and the minimum required cover.

- 10. Continuity Test /Hydraulic Testing:** Continuity of the pipe segments in between two manholes is required to be ensured in the same modality as practiced for non-pressure RCC pipeline. Hydraulic testing of pipes shall be done, if specifically asked for by the client for any specific stretch. The procedure for hydraulic testing shall be similar to that for non-pressure RCC pipes.

Signature of Contractor.....

Signature of NRDA.....

### III. PREFABRICATED HDPE MANHOLE

1. **Scope of work :** Prefabricated Polyethylene (PE) manhole chamber with ID 1000mm provides access for cleaning and inspection by personnel (as per EN 476: 2011) and are to be used in buried drains and sewers for gravity system to a maximum depth of 6m from ground level. It provides for all maintenance works with access for personnel as well introduction of cleaning / inspection and test equipment.

It is made of PE material in accordance to EN 13598-2:2009 and is intended for use in non pressure underground drainage and sewerage system conforming to EN 1401-1:2009 and EN 13476-1:2007 for installations in pedestrians or vehicular traffic areas outside building structures such as carriage ways, hard shoulders and parking areas.

2. **Manufacturing process:** PE manhole chambers are manufactured by rotational molding process out of virgin polyethylene compound (in powder form). The PE compound contains incorporated required additives (carbon black) and no further treatment is required prior to use.

3. **Special: Manhole covers / rubber seal joints / ladder steps/Uplift Retention:**

PE manhole chamber are compatible with standard commercial **FRP manhole covers and frame with locking arrangements**. The cover and frame to be rested on a precast RCC load bearing ring or distribution ring.

- For use of the chambers in house hold connections or in green areas, PE manholes can be supplied with “walkable PE” manhole covers, surface water-tight with labyrinth seal for direct shift-free assembly on the PE-chamber.
- For connection of the sewer pipes to the chamber inlets, specially designed rubber seals (EPDM or SBR as per EN 681-1) are used which provide complete tightness with the pipes produced to EN 1401-1: 1998 or EN 13476-1:2007.
- The same rubber seals can be used also to connect the pipes to any position on the riser shaft, after drilling a hole with special size cup saw.
- The chamber spigot outlets are manufactured according to the requirements for spigot dimensions in EN 1401-1:1998 and EN 13476-1:2007 and allow direct connection of pipes with rubber seal sockets as per same standards. This allow for tightness of the seal at pipe deflection up to 5°.
- The fixations for ladder steps incorporated in the PE chambers as well as the steps made of GFR material have minimum vertical load strength and pull-out resistance in accordance to EN 13598-2 (EN 14396).
- PE manholes should be designed to withstand uplift pressure due to ground water by virtue of the strategically placed external horizontal ribbing all along the outside shaft of the manhole, as mentioned in section 2 above. The solid horizontal ribbing interlocks with the soil to prevent uplift.

4. **Product properties and quality control:** Raw material and finished products are subjected to quality control as per Quality Assurance Plan

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Properties	Test Method	Requirements
<b>1) PE-molded compound</b>		
1.1) Density, g/cm <sup>3</sup>	ISO 1183	≥ 0.937
1.2) Tensile stress & yield, MPa	ISO 527	> 17
<b>2) Finished Product (in-process control)</b>		
2.1) Outside diameter	RML spec.	
- Riser shaft, mm		1020 ± 5
- Top		613 ± 3
- Outlet DN 110 mm		109.0 ÷ 110.4
DN 160 mm		159.0 ÷ 160.5
DN 200 mm		199.0 ÷ 200.5
DN 250 mm		249.0 ÷ 250.5
DN 315 mm		314.0 ÷ 315.5
2.2) Length of spigot, mm	EN 1401-1	
DN 110		> 60
DN 160		> 80
DN 200		> 100
DN 250		> 125
DN 315		> 132
<b>3) Mechanical properties (final product inspection)</b>		
3.1) Stiffness of riser shaft, kN/m <sup>2</sup>	EN 13598-2 (EN 14982)	≥ 2
3.2) Resistance of base (vacuum test) to ground water pressure at -0.1 H bar (but min. -0.2 bar), 100hrs where H = depth in meters	EN 13598-1 (EN 1277)	No damage to the base structure and residual deformation of the spigot profile ≤ 10mm
3.3) Water tightness of sealing ring joints @ 23°C, 10% spigot deflection, 5° socket deflection	EN 13598-2 (EN 1277)	No leakage No leakage ≤ 0.27 bar
3.4) Impact resistance 1 kg; 2.5 meters; r = 50mm; T = (23 ± 2)°C	EN 13598-2 (EN 744)	No cracks or other damages impairing the function of the base
3.5) Ladder steps:	EN 13598-2 (EN 14396)	Deform. ≤ 10mm remaining ≤ 5mm No pull out
- Vertical load 2kN		
- Pull out force 1kN		

Notes: Wall thickness measurement by ultrasonic measuring device calibrated with the same molding material.

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**5. Handling, storage, delivery:**

The low weight of PE manholes allows all sizes to be handled manually by few persons during loading / unloading operations.

The chamber can be handled / stored in horizontal or vertical position. Care should be taken during storage and transportation to avoid scratches to the chamber spigot.

There are no particular requirements for storage of the PE manholes. They can be stored in any open storage in direct sunlight up to 12 months. However, it is recommended to place the chamber upside down to avoid deformation of the spigot during long term storage.

6. **Access Manholes for water mains and appurtenances:** 1000mm diameter manholes shall be used, unless otherwise noted on the approved plans, to access water main appurtenances.

A variety of manhole diameters and configurations may be utilized on various water main appurtenances and devices in accordance with the Standard Drawings and as directed by the District Engineer.

7. **Drop Manholes:** 1000mm diameter drop manholes shall be used for sewer applications and constructed only at locations shown on the approved plans.

8. **Joint Sealing:** Joint Sealant shall be used to form a continuous watertight seal on the concrete base and between successive precast concrete manhole or vault sections.

9. **Vacuum Testing of manholes:** Vacuum testing of manholes is intended for testing precast concrete manhole sections to demonstrate the integrity of the installed materials and construction procedures.

10. **Crushed rock base and backfill materials:** Crushed rock base and backfill materials shall be in accordance relevant section.

**11. Manholes frames and covers**

- Manholes frames shall be 560mm opening in diameter with two concentric covers, FRP the Standard Drawings and the Approved Materials List. Covers shall incorporate a “pic-hole” for lifting purposes.
- Locking frames and covers, in accordance with the Standard Drawings, are required in areas located outside of the public right of way, in remote areas or when determined by the District-Engineer.
- Frames and covers shall be designed for H-20 highway wheel loading.
- Castings shall be smooth, clean and free from blisters, blowholes, and shrinkage, Mating surfaces of the frame and cover shall be machined to prevent movement of the lid. Frames and covers shall be match marked in sets before shipping to the site.
- All castings shall be dipped twice in a preparation of asphalt or coal tar and oil applied at a temperature of not less than 143.3 degrees C (290 degrees F) or more than 154.4 degrees C (310 degrees F) and in such a manner as to form and tenacious coating.

12. **Joint Sealing Compound:** Joint sealing compound shall be mastic-type material in a flexible rope or rolled form with removable wrapper sized to fit into the key of manhole or vault sections. Joint sealing compound shall be selected from the copular or as per standard.

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### 13. Manhole Base

- During construction of cast-in-place bases, all sewer mains and stub piping shall be in place, including ring-type seals, before concrete placement. Pipe grade and alignment shall be verified immediately upon placement of concrete to assure that the pipelines are in proper position prior to the concrete taking an initial set. The invert elevation and flow line of the piping shall be as shown as on the Approved Plans and Standard Drawings. Bottom PCC should be 150mm thickness, Grade of concrete as shown in drawing.
- Cast-in-place bases shall set a minimum of 24 hours before the manhole construction is continued. In certain critical situations, the setting time may be reduced upon approval of the District Engineer.

### 14. Installing Manhole Sections

The installation consists for 5 steps:

- Excavate - 60 cm wider and 15 cm deeper
- Connect Inlet - use EN 681-1 inlet seal
- Connect Outlet - slip pipe socket on manhole spigot
- Backfill & Compact - in layers ensuring proper compaction
- Install Cover - adjust height of the manhole up to 250mm by cutting and then install FRP frame and cover

15. **Methodology:** The work shall include excavation, installation of the manhole on a bed of mix PCC- 1:3:6 (cement: sand: aggregate) of 150mm thickness complete with pipe connections as per drawing using EN 681-1 seals. Refilling with approved non-cohesive Earth of particle size less than 20 mm/quarry dust/filling sand as approved by the Engineer in layers not exceeding 20 cm thick, consolidation with PRR vibratory roller/Vibromax roller/Mini Vibratory roller, watering and compacting to required density as per MORTH (min Dpr = 97%). At the top FRP manhole cover and frame conforming to IS No.12592/2002 or other approved cover and frame with clear dimension of 600mm diameter and appropriate loading as approved by the Engineer shall be placed on a RCC load distribution ring. The RCC load distribution ring shall be prefabricated of 150mm thickness, 1050mm OD and 635mm ID and designed to handle heavy traffic load as approved by the Engineer. The prefabricated RCC load distribution ring shall rest on 200mm RCC There shall be an overlap of 75mm between the top surface of the prefabricated RCC load distribution ring and top end of the PE manhole. **Care should be taken to ensure that RCC load bearing ring is not in direct contact with PE manhole.**

- Paved Areas: Top of cover shall be flush with the finished paving surface.
- Traveled way: Top of cover shall be flush with the existing surface where it is in a traveled way.
- Shoulder Areas: Top of cover shall be equal to the existing surface where outside the limits of a traveled way. Vaults shall not be placed in roadside ditches without the prior approval of the District Engineer.
- Unpaved easements: Top of cover shall be 150mm (6") above the ground surface. Guard Posts around the vault may be required in this area as directed by the District Engineer.

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- Secure the manhole frame to the grade ring with mortar in accordance with the Standard Drawings.
- Locking manholes shall have covers locked to the frame. The frame shall be attached to the top precast section by drilling four (4) 316 stainless steel, all-thread anchor bolts set in epoxy in addition to the mortar collar around the frame in accordance with the Standard Drawings.
- After the frame is securely set the cover shall be installed. All necessary cleaning of foreign materials from the frames and covers shall be accomplished to ensure a satisfactory fit.
- Piping installation adjacent to the manhole and connection to the base or shaft sections shall be performed as shown on the Standard Drawings and approved Plans. Piping installation into flexible pipe connectors shall be in accordance with the manufacturer's recommendations for assembly, lubricants and limits of deflection.
- In order to prevent accidental use of the new sewer before completion and acceptance, the new inlet to existing tie-in manholes(s) and the outlet of the first new upstream manholes(s) shall be sealed with expandable plugs. The District Engineer shall approve the specific location of these plugs. Plugs shall be removed at the time of final inspection or as directed by the District Engineer. Removal of all construction debris and water shall be completed prior to removal of plugs.
- New connections to existing manholes, where stubs have not been provided, shall be made by core drilling through the walls or base as directed by the District Engineer. Flexible seals selected from the Approved Materials List and installed in accordance with the Standard Drawings shall be used for the pipe penetration. Apply a protective epoxy coating to the cored concrete and the ends of any reinforcing steel exposed in accordance relevant section.

#### 16. Distribution Ring

- A distribution precast RCC ring shall be cast around manhole frames within paved and traveled areas in accordance with the Standard Drawings. Distribution ring below RCC M20 grade concrete thick 200mm with 1.5 dia. around manhole.
- Replacement of asphalt or concrete pavement shall be in accordance with the requirements of the agency having jurisdiction.

17. **Cement Concrete Channel** :The channel for the chambers shall be constructed in cement concrete of PCC mix 1:2: 4 with graded aggregate of 20mm and below. Both sides of the channel shall be taken up to the level of the crown of the outgoing sewer. They shall be benched up in concrete and rendered in cement mortar (1:1) of 20 mm thickness and formed to a slope of 1 in 12 towards the channel.

18. **Pipe Entering or Leaving Manhole / Inspection Chamber** : Whenever a pipe enters or leaves a manhole / inspection chamber, bricks on edge must be cut to a proper form and laid around the upper end of the pipe so as to form an arch. All around the pipes, there shall be a joint with gasket or cement mortar (1:2) 13 mm thick.

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19. **Chamber Footrests:** Footrests shall be fixed inside the manholes for access from top. Foot rests shall be of minimum 6mm thick plastic encapsulated (as per IS 10910) on 12 mm dia grade Fe415 steel bar (as per IS 1786).

20. **Cement:** For all types of sewerage works, sulphate resistance Portland cement, confirming to IS 12330 shall be used in the works with a prior approval of the engineer. This includes, all structures related to sewage contamination such as pipes, Manholes, chambers and other related structures.

## 21. Vacuum Testing of Manholes

- Vacuum testing of manholes is required and shall be performed as directed in the presence of the District Engineer.
- Vacuum testing equipment shall be as manufactured by **P.A. Glazier**, Inc. or equal.
- Manholes shall be tested after assembly and prior to mortaring the joints or backfilling. In the case of manholes incorporating a PVC liner and polyurethane coating, the testing is to take place prior to mortaring the joints, welding the liner seams between sections, applying the coating, or backfilling.
- All lift holes shall be plugged with an approved grout prior to testing.
- All pipes entering the manhole shall be plugged, and bracing installed, to prevent the plug from being drawn into the manhole.
- The test head shall be placed inside the top of the cone section and the seal inflated in accordance with the manufacture's recommendations.
- A vacuum of 254 mm (10") of mercury shall be drawn. The time shall be measured for the vacuum to drop to 229 mm (9"). The manhole shall pass the test if the taken for the drop is greater than 60 seconds.
- If the manhole fails the test, necessary repairs shall be made and the test repeated until acceptable results are obtained. The leak(s) shall be located and repaired according to their nature with material-in-kind.

22. **Drop manholes:** Wherever the drop depth for sewer line exceeds 0.60 m drop manholes are provided. Drop manhole shall be constructed on the sewers in the position shown in the drawings or in such position as the engineer may direct. The work shall be done strictly in accordance with the detailed specification / drawings except where alterations are required by the engineer. The Cast Iron drop pipe connection outside the manholes shall be secured by suitable M 25 concrete shall be built in as the work proceeds in accordance with the drawings.

Any variation in locating the drop manholes and subsequent revision in levels during execution if found necessary, shall be carried out by the tenderer at his cost.

## 23. Testing and Commissioning

### Field Hydrostatic Testing

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After laying and jointing of pipes and before back-filling the trenches, the entire section of the sewer is to be checked for water tightness as per Sub-Clause 7.1.5.1 of CPHEEO manual on "Sewerage and Sewage Treatment", second edition.

The pipeline shall be tested for Water tightness of joints. The test shall be carried out from manhole to manhole. All pipe ends in the manholes except those of the section under testing, shall be closed and the pipeline shall be filled with water so that water level is up-to the top of the manholes.

The pipeline shall be subject to a test pressure of 2.5 meters head of water at the highest point of section under test for 10 minutes. The leakage or quantity of water to be supplied to maintain the test pressure during the period of 10 minutes shall not exceed 0.2 lit/mm dia. of pipe per km length per day.

For non-pressure pipe it is better to observe the leakage for 24hrs if feasible. If any leakage is visible, the defective part of the work shall be removed and made good. Excessive sweating from a particular pipe or joint shall be taken as indicating a defect and the defect is to be made good by the Contractor.

The pipe section shall be retested after rectification of defects In case joints are found to leak, they shall be repaired or redone and test shall be repeated until the joints are approved by Engineer-in-Charge, at no extra cost to the owner.

After completion of the test all temporary seals will be removed, the test water shall be drained out / pumped out and the line cleaned properly.

#### **Test for Obstruction**

Before commissioning the cleanliness of the pipeline IS to be checked by the following tests.

#### **Torch & Mirror Test**

In this method of testing, a torch will be held one end of the pipeline inside a manhole and its image through the pipeline will be reflected and seen on a mirror held at the opposite end of the pipeline, inside the next manhole. Any obstruction / debris / major mis-alignment will not give a clear image in which case the pipeline will again be cleaned / rectified and the test re-done.

#### **Ring Test**

In this method of testing two steel, Wooden rings of suitable thickness and design shall be fixed facing each other at a distance of 2 feet or more. The block of rings shall be inserted from one end of the pipeline, inside manhole and pulled by a rope fixed to the block from the other end of the pipeline, inside the next manhole. The rings shall be of dia 2" less than the inside dia of pipe under testing. The rope used or pulling the ring block may be inserted in the pipeline by suitable means. Any construction / debris / major mis-alignment will prevent the ring to pass through the pipeline in which case the pipeline will again be cleaned / rectified and the test are done, and no extra payment will be made.

The ring test shall be performed for the complete network of the sewer system before the same is put in commission.

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**Commissioning**

After satisfactory testing of the entire sewer lines including laterals, branch and mains shall be commissioned for operation.

**Maintenance**

The sewer and structures executed by the Contractor shall be maintained for a period of one year from the date of commissioning or as per agreement. During this period of maintenance, any defects of any kind in manufacture, laying, jointing and construction etc., and in any other works within the scope of the Contractor shall be rectified by the Contractor as per the same specifications as that of the item of work done.

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# **SCHEDULE– D**

## **Section-IV**

### **Special Conditions of Contract**

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## Special Conditions of Contract

### 1. GENERAL

The Special Conditions of Contract are to be read in conjunction with General Conditions of Contract. If there are any variations or discrepancies or conflicting provisions, the provisions in Special Conditions shall take precedence over the provisions in the General Conditions of Contract.

All additional facilities/ equipment/ office etc to be provided by the contractor, as mentioned in the tender, document outside the BOQ shall not be paid separately, and shall be deemed to have been included in the rates quoted by the contractor.

### 2. ACCESS

The Contractors are to verify the work site details including:-

- a) Access,
- b) Availability of water supply and electrical energy,
- c) Space for dumping stores and materials and
- d) Space for erection of site office,

The Contractors are deemed to have catered for all contingencies connected with the site, access, water & electricity.

### 3. SUPPLY OF WATER

Water will not be supplied by NRDA and the Contractor shall make his own arrangements. NRDA will give recommendatory letter to the concerned authority if so requested by the Contractor. However, NRDA shall be in no way responsible for obtaining permission and no claim on account of this will be entertained.

### 4. ELECTRIC SUPPLY

- (a) Electric power both for construction and lighting shall not be made available to contractor. Contractor shall arrange at his own cost power with necessary switch boards, energy meter etc. and shall be responsible for their maintenance.
- (b) Further distribution by the Contractor at his cost shall be done as per approved layout. He shall provide required clearances for overhead lines to facilitate easy movement of heavy machinery such as cranes etc. These shall be shifted and rerouted at Contractors cost during execution of work if the same are found to obstruct any other work of any agency working at site or requires shifting due to unforeseen reasons.
- (c) On completion of the work the Contractor shall remove all wiring installed by him and make good to the satisfaction of Engineer if any disturbance or damage is done.
- (d) The Contractor shall employ an Electrical Agency as approved by the Engineer for carrying out this work.
- (e) The Contractor has to keep alternative arrangement ready at his own cost for any failure/interruption of electric power that takes place and under no circumstances can this be deemed to be reason for any consequential delay in the works.
- (f) Any disputes in sharing of power obtained directly/ indirectly from CSEB with other agencies shall be resolved by the contractor at his risk and cost. NRDA shall not be responsible or a party for such disputes.

### 5. DEFECT LIABILITY

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The Contractor shall be responsible for rectification of defects, during the defect liability period as per clause 17 of GCC after the certified date of completion by the NRDA. This period shall be known as Defects Liability period as defined in CL. No. 17 of the General Conditions of Contract. Subsequent to the taking over of the works and after it has been in use, its removal/correction of defects would be the responsibility of the Contractor. Any defects or failures during this period shall be rectified by Contractor within one week of intimation in writing. If the same is not carried out in the stipulated time, NRDA shall have the right to get it repaired departmentally or through any other agency, entirely at the risk and costs of the Contractor as detailed in the GCC clause. No. 17.

## **6. SAMPLES**

### **6.1 Material**

(a) The Contractor shall furnish to Engineer for approval, with reasonable promptness and with reasonable time for consideration, adequate numbers of samples of all the materials to be used in the work, irrespective of whether material/product is from approved list given in tender. He shall permit and account for all costs in his quotation toward supply, testing, examination at site or at any approved place by the Engineer. The choice of approval of materials rests with NRDA unless otherwise specified.

(b) All material samples shall be delivered to the Engineer's office at the Contractor's cost. Each sample shall be in duplicate and properly labelled as under-

- Name of Project
- Name of Contractor
- Name of Product
- Name of Manufacturer
- Item reference of BOQ
- Date of Submission

(c) Samples shall be accompanied with technical specifications/ catalogues/ test results of manufacturer.

(d) In case the Contractor intends to keep an approved sample in his possession, he shall submit additional set of samples for Engineer's approval.

### **6.2 Standards of Acceptability**

(a) In order to establish the standards of acceptability for materials and finishes, the Contractor shall finish in all respect a mock up for each pro-type room. The material used in this shall be as approved and special attention shall be paid to establish the workmanship and finishing standards to be achieved for the project. Works such as form finished concrete & finishing items such as joinery, floor finishes, false ceiling, wall finishes, toilets including sanitary fittings and fixtures, electric fitting and fixtures etc. shall be provided as per drawings and specifications. All mock-ups, except for exposed concrete finish to be made within the building blocks. For exposed concrete finish a maximum of 3 (three) mock-ups (approx. 36 (thirty six) SqM each), independent of the main building block shall be prepared for approval jointly by C E & Architect.

(b) The Contractor shall give notice in writing in this respect and shall obtain approval through Engineer in Charge from the CE NRDA. Approval should be taken well in advance so as not to delay execution of work.

## **7. TESTING OF MATERIALS IN OTHER LABORATORY**

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As a valedictory measure, in addition to establishing testing a fully fledged site laboratory, 10 % (ten percent) of the samples shall be sent every month for testing in one of the following laboratory:-

- i) Chief Engineer (PWD) Laboratory, Raipur
- ii) National Institute of Technology, Raipur
- iii) Govt. Engineering College, Raipur
- iv) B.I.T., Durg
- v) Sriram Test House N. Delhi
- vi) National Test House N. Delhi

**7.1** In case, certain testing facility for typical/ special materials are not available in Chhattisgarh, then it can be tested at a recognized laboratory anywhere in India.

**7.2** All testing charges for the above shall be borne by the Contractor. In case, the testing charges demanded by the testing authorities is not paid by the Contractor within 15 (fifteen) days, then the same will be paid by NRDA with due recovery from the Contractor's bill for the project.

#### **8. CRECHE FACILITIES FOR THE CHILDREN OF CONSTRUCTION LABOURER**

Contractor undertakes to provide creche facilities for the children of construction labour through a volunteer agency within one month from start of work. The facility is open to children of construction labourers employed by the Contractor. In case the Contractor fails to provide this facility within stipulated time, following charge shall be levied on the Contractor.

Range of Contract Amount	Amount of Creche fund
Upto Rs. 50 lacs	Nil
Above Rs. 50 lacs to Rs. 5 Crores	Rs. 50000/-
Above Rs. 5 Crores	Rs. 5 lacs.

8.1 The amount shall be recovered if such facility is not provided by the Contractor from running account bills in one or more instalments but not exceeding 6 (six) instalments.

8.2 If the facility is provide after 3 months 50% of the amount shall be refunded to the contractor, after 6 month 25% will refunded.

#### **9. SUBMISSION OF DETAILED BAR/ PERT CHART OF COMPLETION**

The Contractor shall, within the stipulated time in Tender, submit to the Engineer for his approval a detailed programme covering-

- a) Descriptive note explaining sequence of various activities.
- b) Network (PERT/ CPM), bar chart.
- c) Quarterly programme of supply of materials by the Employer.
- d) Quarterly cash flow indicating money to be earmarked by the Employer for the purpose of the contract.
- e) Programme for supply of working drawing.
- f) Phased requirements of plant and equipment to be deployed by the Contractor.

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## 10. Method of Working

After Contract award and before starting Work at the site, Contractor, NRDA's representative/ Engineer, and Architect shall together make a thorough survey of the grounds where Work under this Contract will occur and areas to be used as access ways to the Work areas. Contractor shall list, and photograph, if Contractor desires, existing conditions not requiring alterations, shall note discrepancies between Drawings and existing conditions, and shall designate areas of storage and routes of access agreed upon by NRDA.

The Contractor shall, within the stipulated time in Tender, submit to the Engineer for his approval the following information,

- a) A general tentative lay-out plan of construction plant and equipment for the execution of work within time period stipulated in schedule.
- b) Drawings or prints showing the location of major plants and other facilities which he propose to put up at the site, including any changes in the general layout, at least 15 (fifteen) days prior to the commencement of the respective work.
- c) Layout and details of temporary works that the Contractor wants to carry out to fulfill his obligation under the contract.
- d) Indication of shuttering system to be followed.

## 11. Project Monitoring

- 11.1 Within 7 (seven) days the Engineer shall give their approval to proceed with the work, with or without modification. However acceptance of programme and method of working as submitted by the Contractor or with any modification there to in the opinion of the Engineer, shall not relieve the Contractor of any of his contractual obligation.
- 11.2 All these programmes and plans submitted by the Contractor and approved by the Engineer shall become part of the contract.
- 11.3 The acceptance of programmes as submitted by the Contractor or with any modification thereto in the opinion of the Engineer, shall not relieve the Contractor of any extension of time unless delay, if any, is expressly sanctioned by the Engineer.
- 11.4 **Construction Photographs-**  
A General: Contractor will provide construction photographs taken, developed, printed, and mounted by a recognized commercial photographic studio or reputable photographer acceptable to Owner, in the number and type and at construction stages enumerated below:-
  - (i) Before Starting Work: Have photographs taken at site from different points of view sufficient in number to show site (and conditions at existing structures) but not fewer than 30 photographs.
  - (ii) During Progress of the Work: Have not fewer than 15 photographs taken at least once a week from points of view (both inside and outside), as necessary to show progress of construction and site development for each part of the Work. Co-ordinate taking photographs with utility Work and back filling. Photograph each buried utility line before back filling. During later stages of

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the Work, have photographs taken from suitable locations inside the building showing the progress of various stages of the Work, such as piling, centering, reinforcement, water proofing, concreting, etc. Size of photographs will be 125 mm X 250mm. Photographs shall be supplied with negatives/ CD to the Engineer. Each photograph shall be attached with date of photograph and location of work. These photographs shall be from location as fixed by the Engineer at start of work

## **12. QUARRY RELATED DEDUCTIONS**

The royalty for Minor minerals used in the work like murrum, stone metals, sand, rubble etc. will be levied as per prevailing practice in PWD of Chhattisgarh and shall be recovered suitably through R.A./ Final bill and will be kept in deposit. The above royalty charges kept under deposit shall be refunded as soon as the Contractor submits relevant NOC from Collector, Raipur, Chhattisgarh.

## **13. CONTRACTORS ALL RISK POLICY (C.A.R. POLICY)**

The successful Contractor shall take out a C.A.R. policy from any approved company by IRDA India. Chhattisgarh Govt., administered by Directorate of Insurance. The policy so obtained shall cover the entire period of construction (including all extensions) and also shall cover the defects liability period. The policy shall be for the total contract amount including cost of free supply material by NRDA, if any. All amounts/ charges towards premium etc. on this account shall be borne by the Contractor.

## **14. INDEMNITY BOND**

The Contractor shall require to execute an Indemnity Bond for satisfactory performance of the entire project on stamp paper of Rs.100/- (Rupees Hundred only) in the format approved by the NRDA Ltd. This Indemnity Bond shall remain in force for the Defect Liability period after completion of the project to be furnished in contract form E of GCC.

## **15. ACCIDENTS**

Should any accidents, fatal or otherwise occur, a detailed report about the same shall be made promptly by the Contractor to the Engineer. The Contractor should at all times during execution of work keep the NRDA fully indemnified against all risks, claims, litigations and financial burdens arising out of all incidental operations on work and accidents.

## **16. TRAFFIC**

The Contractor shall have to make all necessary arrangements for regulating traffic day and night during the period of construction and to the entire satisfaction of the Engineer. This includes the construction and maintenance of diversion, if necessary, at no extra cost to the NRDA. The Contractor shall provide necessary caution boards, barricades, flags and lights, watchmen etc. so as to comply with the latest Motor Vehicle Rules and Regulations and for traffic safety. The Contractor shall be responsible for all claims for the accidents which may arise due to his negligence whether in regulating traffic, in stacking materials on the road or by any other reason. The contractor must comply with the following:-

A. *General:* Plan and control use of site and access to site in co-operation with Owner and other contractors working at site to minimise disruption of use of other facilities; portions of buildings and site areas affected by this Contract and to remain in use; and the work of other contractors.

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- B. *Temporary Access Drives:* Construct on the premises as necessary, and maintain in good usable condition; remove when no longer needed. Until permanent improvements have been completed, when necessary to prevent excessive dust, periodically water temporary unpaved access roads.
- C. *Construction Site Access:* Use most direct route from public streets as agreed to by Owner. Construction traffic elsewhere on Owner's property is prohibited.
- D. *Driveways Between and Around Combustible Storage Piles:* Maintain at least 15 feet wide and free of accumulation of rubbish, equipment, and materials.
- F. *Access for Fire-Fighting Equipment:* Maintain.
- G. *Access:* Refer to other sections for requirements to keep access to site and buildings open to Owner, other contractors, and fire-fighting equipment.
- H. *Use of Streets and Sidewalks on Public Property:* Make arrangements with authorities having jurisdiction for use. Restrictions shall be those of the Municipal Authorities. Be solely responsible for adherence.
- J. *Roadways, Driveways, and Walkways:* Where outside indicated Contract limit on Owner's property and on public property, keep open to pedestrian and vehicular traffic at all times. When temporary closing of a roadway, driveway, or walkway is absolutely unavoidable, provide alternative access routes. Such temporary closings shall be approved by Owner in each case and shall be for the shortest possible time. Strictly adhere to requirements of governmental authorities having jurisdiction.
- K. *Parking:* Owner will issue temporary parking permits for use by construction personnel and will make available, at the location shown. Construction personnel shall not park in any other location on Owner's property, even when bearing permits. Access to allocated parking spaces shall be by most direct route from public streets. Construction personnel shall not drive vehicles elsewhere on Owner's property and shall take the most direct pedestrian way along walks and roadways (not on lawns) from parking lot to construction site.
- L. *Barricades and Signs:* Should barricades or directional signs for traffic control be necessary, prepare and install such signs and barricades of approved size, colour, and lettering or other markings. Remove signs when no longer needed, or at Substantial Completion, whichever is latest.
- M. *Restricted Use of Premises:* Enforce Contract requirements, local ordinances and Owner's instructions pertaining to signs, fires, smoking, trucking, parking, and other use of premises.
- N. *On-Site Storage:-*
1. *General:* Extent of Work and site area available limits amount of on-site material and equipment storage. Do not unnecessarily encumber job site with excess materials or equipment and means of delivery of materials, equipment, and supplies, removal of rubbish, and, hours during which deliveries may be made. Determine, and take into account in the Work, limitations on storage space and of times, rates, and means of deliveries to and removals from the job site whether such limitations are imposed by laws, rules, ordinances, or physical conditions. Owner will not pay extra amounts due to such limitations. Co-ordinate arrangements for delivery and storage of materials.
  2. *Paved Areas:* Do not use paved areas on Owner's property to stockpile excavated materials or to store construction materials except where shown. Use of paved areas on public property is subject to requirements of authorities having jurisdiction, and arrangements for such use are solely Contractor's responsibility.
  3. *Protection and Repair:* Protect roadways, walks, and other permanent site improvements, and access ways subject to damage. Satisfactorily repair improvements and surfaces damaged during construction operations, or remove damaged

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improvements or surfaces and provide new acceptable improvements or surfaces. Except where new Work is required, return areas used for temporary access to original condition.

#### **17. ALIGNMENT AND BENCH MARKS**

The alignment of the work to be carried out under the contract shall be marked on the ground as per the drawing and as per the instructions of the Engineer. For the purpose of facilitating the work, the series of temporary bench marks on masonry pillars will have to be established. These pillars will be constructed along with the alignment and such other locations as may be initiated by the Engineer. The temporary bench-marks shall be established for the work line-out and its connections to other proposed roads in Naya Raipur using the DGPS instrument and Total Station software. All expenses involved in the process of marking alignment on ground, checking the alignment, constructing masonry pillars in establishing bench marks thereon, shall be borne by the Contractor. It will be responsibility of the Contractor to ensure that the masonry pillars so constructed are not damaged during the period of work in progress.

#### **18. PREVENTION OF MOSQUITO BREEDING AT CONSTRUCTION SITE**

The Contractor shall on the respective construction site install mosquito proof and accessible water storage tanks or to cover/protect the present water storage tanks properly. The Contractor shall periodically give larvaecidal treatment to water storage tanks, sites of water stagnation, water collection.

Any expenditure that may be incurred by NRDA to ensure that the above conditions are fulfilled by the Contractor will be debitable to Contractor's account and will be recovered from the bills of the Contractor from time to time.

#### **19. INSPECTION OF SITE AND SUFFICIENCY OF THE TENDER**

If the NRDA is not in a position to deliver to the Contractors the site of the Contract work for any reason whatsoever at the agreed time, delaying the commencement of the contract work, or part thereof not beyond 50 % (fifty percent) of contract period for completion, such omissions of the NRDA shall not be breach of any its obligations under the contractor and the Contractor shall not be entitled to claim from the NRDA for loss or damage, if any, caused thereby, but shall be entitled to a reasonable extension of the period agreed for the completion of contract work. If the contractor shall be obstructed in the execution of the work by any person other than an agent or servant of the NRDA, the Contractor shall exclusively deal with such set by the due process of law but shall not be entitled to attribute thereby the beach of any obligation under the contract to the NRDA compensation for damage or loss, if any, thereby suffered but shall be entitled to an appropriate extension of period agreed for the completion of the contract work, provided that the contractor has reported to the NRDA every such act of obstruction with particular soon after its occurrence and the NRDA has after enquiry found the same to be substantially true and has determined the duration of such obstruction.

#### **20. PROGRESS OF WORK**

The Contractor shall carry out the work as per the programme approved by the Department from time to time. He will also not be allowed to proceed with the work in a scattered manner.

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## 21. FIELD LABORATORY

The Contractor shall establish a field laboratory for the various field tests for items like concrete cubes, cement, aggregates, sand, blocks for masonry, tiles, wood and for similar items as directed by the Engineer.

The Contractor shall keep all relevant IS/ BIS/ special publications at site lab for various items of works covered in the present Contract.

## 22. ENGINEER

22.1 Engineer for this project shall be the Engineer or the person nominated or appointed by NRDA from time to time and shall include any person duly authorised by them.

22.2 Engineer shall be responsible for the execution of the project with regards to management and supervision. Instructions issued by the Engineer to the Contractor shall be deemed to be the Employer's instructions in respect of-

1. Day to day supervision including material testing using ISO formats proforma of which should be got approved from Engineer.
2. Approval of material and workmanship using ISO formats proforma of which should be got approved from Engineer.
3. Matter of urgency involving safety or protection of person or property.
4. Monitoring progress of work using System Application of Projects (SAP). (Refer 3.5 hereunder).
5. Interpretation of drawings
6. Interpretation of specifications
7. Issue of additional drawings
8. Certification of measurements and bills and issue of certificates accordingly for interim and final bills.

22.3 Engineer shall hold fortnightly progress meetings at site for evaluation and execution of works. The Contractor shall assist in providing revised programmes, cash flow charts in the format required by Engineer/ NRDA.

22.4 The Engineer shall coordinate works at site of all agencies appointed by the Employer.

## 23. EXCAVATED OBJECTS

All the materials obtained during the process of excavation shall remain the property of the NRDA and shall be disposed off as instructed by the Engineer. The Contractor is supposed to use the selected materials for filling in plinth, pipe bedding, and providing embankment where required, filling the trenches and also filling low lying areas. All operations including loading, unloading, transportation of materials where required with all leads and lifts and handling them and leveling at disposal site etc., shall be included in the quoted cost and no extra payment whatsoever shall be made to the Contractor on the account.

## 24. AS BUILT DRAWINGS

The Contractor shall during the course of execution, prepare and keep updated a complete set of 'as- built' drawings recording all works on the blue prints, which shall be corrected daily, if necessary, to show each and every change from the Contract Drawings as a approved working drawings, shop drawings and the exact 'as-built' location, sizes and kinds of work etc. This set of drawings shall be kept on the site and shall be used for record purposes. Changes recorded shall

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be countersigned by the Engineer and the Contractor. Copies of 'as-built' drawings shall be supplied to the CE), NRDA/ and the Engineer on request.

The Contractor shall submit complete 'as-built' drawings on reproducible tracings and ammonia prints 10 (ten) sets in form of hard copies and Compact Discs 2 nos. for building work and all services as directed by the Engineer within 30 (thirty) days of the completion of entire work by using AutoCAD facility. Maintenance manuals and original warranties shall be submitted at the time of submitting the As-built drawings. In case the Contractor fails to submit complete 'as-built' drawings as aforesaid [in form of hard copies [10 (ten) sets] and Compact Discs [2 (two) nos.], he shall be liable to pay a sum equivalent to 0.1 percent of the value of work subject to maximum of Rs.10 lakhs (Rupees ten lac only) or as may be fixed by NRDA and this decision shall be final and binding. Pre-final & Final Bill shall not be released until all the as-built drawings are submitted & approved.

## **25. ENGINEER'S SITE OFFICE**

26. The Contractor shall provide site office for the Engineer's use of area admeasuring about 60 (Sixty) Sq.mt. with Split Air Conditioners & ceiling insulation for entire office premises including conference hall (Upto 8 person) as per the detailed drawings approved for the site office. There should be provision toilet facilities for the use of Engineers in charge and PMC usages.
27. Broad details about construction of office and other facilities to be provided at the minimum shall be as follows:-
28. (a) Overall size of the office shall be 10m x 6.0 m. This shall include individual cabins (minimum 4 nos.), Conference hall and Computer rooms.
29. (b) The above office shall be fully furnished including furniture, fittings, fixtures etc. such as Lockers, Chairs, Sofas for waiting, Cabinets for storage of drawings/ tracings, Cabinets for storage of books, Cupboards for storage of box files & flat presentations, Soft boards – 3 nos for display of CPM charts, White board - 2 nos, 1 no. Refrigerator, Office stationary incl. papers, CDs, envelopes, pen holders etc .Minimum equipments required for providing tea /coffee / snacks etc shall be arranged by the contractor.
- 30.
31. The Contractor shall arrange to maintain this office by daily sweeping the floor and keeping the premises clean. The Contractor shall also arrange to deploy two office boys for the pantry and for Engineer.
32. Cost of all this shall be deemed to have been included in the tender as incidentals and no separate payment shall be made for providing these facilities.
33. If the facilities are not provided by the contractor, the same will be got executed at the cost of the contractor and will be recovered from their RA bills.

## **34. TRANSPORTATION**

Deleted

## **35. PROVIDING COMPUTER & OTHER EQUIPMENTS AT SITE OFFICE**

Deleted

## **36. TELEPHONE CONNECTION**

Deleted

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### **37. TIME SCHEDULE FOR COMPLIANCES**

The tenderer's should please note the following time schedule for various compliances and follow the same:

a) The Initial Security Deposit shall be paid within 15 (fifteen) days of receipt of Letter of Acceptance.

The Contractor should construct the site office within 1 (one) month of date of work order. The site office should be as per relevant clause in the tender document.

The CAR policy and Labour license shall be taken by the Contractor within 1 (one) month from the date of work order.

### **38. APPROVAL OF ENGINEER**

The foundation strata as well as steel reinforcement provided in all RCC members shall be got approved from the NRDA/ Engineer or his authorised representative. At every stage of work, approval of the Engineer shall be taken by the Contractor. Before starting any work like concreting, block masonry, water proofing, concrete, etc. detailed information of the work in the prescribed proforma shall be given to the Engineer and his approval shall be taken by the Contractor. It is the responsibility of the Contractor to get all the hidden measurements like foundation work, reinforcement, etc. recorded before covering the same. All the measurements shall be taken jointly by NRDA's representative and the Contractor's authorized representative and then only the measurements will be forwarded by the Engineer, who will forward it for payment to Chief Executive Officer, NRDA through Chief Engineer, NRDA and directions on any matter whether mentioned explicitly or otherwise.

### **39. PERMISSION FOR CONSTRUCTION OF SITE OFFICE/ GODOWN/ LABOUR HUTS:**

The Contractor shall be permitted to construct temporary structures such as site office, godown, labour huts, Engineer site office, etc. on the land of NRDA within 1 Km radius of site.

The Contractor will have to submit requirement of land for Godown/ Labour Camp/ Batching Plant etc. with logistic layout in Technical Bid. The land shall be provided to the Contractor on Lump sum lease rent of Rs. 100/- (Rupees Hundred only) per year with Lease Agreement as per prevailing NRDA format. However the Contractor shall require permission of NRDA for erecting site office, labour huts. In the event the Contractor fail to remove site office/ godown and labour huts from the land immediately after construction is over, NRDA will charge rent as per the rules prevalent at the time. No final bill payment shall be made, unless the site is cleared by the contractor in all respects.

The Contractor shall number the structures and display name of the Company, period for which permission is granted, etc. at such approved sites.

No final bill payment shall be made unless the site is cleared in all respects by the Contractor.

### **40. CONDITIONAL TENDER**

The Tenderer shall note that the clarifications shall be obtained in the pretender meeting and the tender should be submitted without any conditions, whatsoever. Clarifications given to the various tenderers in the pre-tender meeting would be summarized by NRDA and would be issued to every tenderer as "Minutes of Pre-Tender Meeting". The same will be binding on all the tenderers irrespective of whether they have attended the pre-tender meeting or not. The Minutes of the Pre-Tender Meeting would form part of the Contract Agreement and the Tenderers should submit the Financial Offer taking into consideration the same. The Tender submitted with conditions would be summarily rejected.

### **41. SITE ORDER BOOK & OTHER BOOKS REQUIRED**

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The Engineer will maintain Site Order Book at the site of work. The Contractor or his authorized representative shall sign all the instructions received therein, in token of having received the same and shall comply with them forthwith.

All other books of record at site shall have to be maintained as required in the CPA Code of works.

#### 42. POURCARD SYSTEM

Pour card system/RFI system to be introduced for approval of individual activity. Format to be got approved from engineer before start of work.

#### 43. CLEANING OF SITE

- a) All water which may accumulate on the site during the progress of the works or in trenches and excavation shall be removed from the site to the satisfaction of the Engineer at the Contractor's cost. Site shall be maintained free from rubbish. Proper stacking of scaffolding material, shuttering material bricks/ brickbats, steel pieces, etc. needed for work on day to day basis shall be organized in proper stacks. Heaps of material lying around in unplanned manner and disorderly fashion shall not be permitted. Engineer's decision in this matter shall be final.
- b) The Contractor shall not, at any time, do cause or permit any nuisance on the site or do anything which shall cause unnecessary disturbance or inconvenience to Employer, tenants or occupiers of other properties near the site and to the public in general. The Contractor shall install mosquito proof and accessible water storage tanks for construction and drinking water.
- c) The Contractor shall periodically give largasidal treatment to water storage tanks, sites of water stagnation, water collection.
- d) Prior to handing over the contractor shall appoint Professional Cleaning Agency to clean the building works prior to handing over. The Agency shall have minimum 5 (five) years prior experience in the hospitality industry and shall be appointed with the prior approval by the Engineer.
- e) Any expenditure that may be incurred by NRDA to ensure that the above conditions are fulfilled by the Contractor will be debitable to Contractor's account and will be recovered from the running bills of the Contractor from time to time.
- f) *Cleaning*: Remove staining or reactive materials from new surfaces immediately during course of the Work.
- g) *Debris*: Remove hazardous accumulations of debris promptly, at least daily.
- h) *Dust*: Confine dust producing operations during painting and finishing. Vacuum immediately after completion.
- i) TRASH DISPOSAL
- j) *General*: Keep new buildings and site free from accumulations of waste materials.
- k) *Removal*: Remove cartons, crates, wrappings, lunch trash, and other trash from each room daily. Provide trash receptacles on each floor of each building and in convenient locations on the site.
- l) *Burning*: Do not burn trash or other materials on Owner's property.
- m) *EXCESS MATERIAL*: General: Remove excess materials, including demolished materials, excess earth, and excess building materials from Owner's property and dispose of legally.
- n) *Clean*: Keep paved drives on Owner's property and public streets and alleys clean, by cleaning daily, or more often if necessary, of earth and debris spillage from trucking involved in construction operations.

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#### 44. FENCING

During the construction, care shall be taken so that, areas around are not polluted and where required Hessian cloth shall be tied around, while work is in progress.

Further, it is obligatory on the part of the Contractor to fence the area allotted and earmarked by NRDA for labour camp, batching plant of the Contractor within a month of issuance of work order. The temporary fencing shall be provided in the area as directed by Engineer using vertical blinds using corrugated GI sheets about 3m high with necessary metal frame work and staging to cordon off the view of the premises. The Contractor shall maintain the fencing properly throughout the construction period.

#### 45. WATCH AND WARD

The Contractor shall make necessary watch and ward arrangement for a period of three months from the date of total completion of work. No claim shall be paid to the Contractor towards the watch and ward during this period.

Protection General Requirements:

- a) **Laws:** Comply with applicable laws, ordinances, rules, regulations, and orders of authorities having jurisdiction for safety of people and protection of property from damage, injury, or loss.
- b) **Responsibility:** Be solely responsible for initiating, maintaining, and supervising safety precautions and programs concerning Project security, but obtain Owner's approval of methods to be used and location of safeguards. Submit to NRDA, through Engineer, drawings and written description of methods and devices Contractor intends to use and do not begin Work at the site until such means and methods are mutually agreed on by Owner and Contractor.
- c) **On Public Property:** In addition to other means used in the interest of safety or security, comply with the requirements of governmental agencies having jurisdiction
- d) **Safeguards:** Erect and maintain, as required by conditions and progress of the Work, necessary safeguards, for safety and protection, including temporary fences, guards, railings, barricades, canopies, lighting, shoring, directional and danger signs, signals, and other warnings against hazards.
- e) **Security:** Protect and secure the site, new materials and equipment from theft and damage by whatever reasonable means are effective. Use methods such as the following, singly or together: locks, fences, signs, patrols, radio, alarms, locked storage on-site, and off-site warehousing.
- f) **Wall Closures:** Unless other acceptable means are provided, provide temporary closures for openings in walls along adjoining to make the building and site secure. Secure temporary closures when Work is not in progress using suitable means such as dead bolts inaccessible from the public side or locks or padlocks construction master keyed in accordance with Section, "Finish Hardware."
- g) **Entrances:** Do not block entrances to premises to remain in use or in any way inhibit access to them.
- h) **Design Live Loads:** Do not permit placing materials or equipment on new to exceed design load of structure or endanger structure or people.
- i) **Trenches:** Do not permit trenches to remain open for prolonged periods without adequate board covering or fencing.
- j) **Broken Glass:** Be responsible for glass broken during construction period; at

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completion, replace broken glass.

- k) **Weather Protection:** During construction, provide protection against weather (rain, wind, storms, frost, or heat), and maintain work, materials, apparatus, and fixtures free from damage. At end of each workday, cover new work likely to be damaged.
- l) **Dust:** Take precautions necessary to keep Work under this Contract and adjoining property reasonably free of dust.
- m) **Protection of Construction Materials:** Refer to other specification sections for specific requirements.
- n) **Materials Hoist:** Do not permit transporting of people on materials hoisting facilities.
- o) **Removals:** Except for fences, remove temporary construction and protection specified in this section promptly when no longer needed and when removal is approved.
- p) Maintain temporary fences until date of Substantial Completion, unless approval is obtained for earlier removal; then remove the temporary fence.
- q) **Damaged Site Improvements:** Repair and restore to condition at beginning of construction, or better, existing site improvements, such as pavements, curbs, buildings, fences, lawns, plantings, and lighting which are not to be removed under this Contract but are damaged or defaced by Contractor's operations, except where new Work is required by the Contract.
- r) **First Aid Equipment:** Provide at the site. Also provide continually available trained and qualified personnel to render first aid when needed.
- s) **Emergency Signs:** Provide signs posted at telephones listing telephone numbers of emergency medical services, physicians, ambulance services, and hospitals.

#### 46. MOBILISATION PERIOD

This clause shall be read in continuation of Clause No 10 (B) (ii) of GCC. The mobilization advance shall be limited up to 5% of value of work order. The mode of release of mobilization advance shall be as follows:-

- (i) 1% shall be released after issue of work order.
- (ii) 2% shall be released after completion of activities listed below.
- (iii) 2% shall be released after successful installation of Batching Plant.

Mobilization period for the Contractor shall be 30 (thirty) days from date of letter of intent. It shall be in phases and the Contractor is obliged to adhere to these timings.

##### Phase I

This shall be of 15 (fifteen) days and the Contractor shall carry out following:

- Compound/ Fencing to Site where required as per directives of Engineer.
- Contractor's Site Office (part). Engineer's Site Office.
- Construction of temporary hutment of labour.
- Arrangement for water supply.
- Arrangement for electric supply.
- Submission of Bar Chart programme for approval by Engineer with details of temporary works, plants, equipment and machinery list.

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## Phase II

This shall be of balance 15 (fifteen) days and shall cover the following activities:-

- Establishing full site godown for cement and steel yard.
- Establishing internal water supply for construction activities. Establishing internal electric network for construction activities.
- Submitting for approval a list & appointment of specialized sub contractors intended to be engaged at site with detailed credentials/ profile of the contractors.
- Appointment of Anti-termite sub-contractor.
- Establishing laboratory with testing equipments.
- Submitting proposal for concrete mixes and casting trial cubes.
- Approval of Bar Chart programme by Engineer with details of temporary works, plants, equipment and machinery list.
- Arrival of centering & shuttering material.
- Line out including establishing of grid lines for project and its approval by Architect through Engineer. Line-out shall include the establishing of the critical Capitol Complex line-out and its connections to other proposed roads in Naya Raipur.

## 47. METHOD OF CARRYING OUT THE WORKS

The Contractor shall, within 15 (fifteen) days of receipt of the Employer's order to commence work under respective clause of General Conditions of Contract submit for his approval a detailed programme and statement with drawings and diagrams showing how he proposes to carry out the works based on the tender programme. The statement shall describe the methods to be employed in carrying out the works, the Constructional Plant and temporary works which the Contractor intends to supply or use and shall include a list, classified into trades of labour force envisaged. The programme shall give the estimated dates on which the various sections of the works will commence together with the estimated date of completion and estimated output so that the whole of the works may be completed within the Contract Period.

- a) In addition, the Contractor shall submit to the Engineer drawings and full particulars of Temporary Works he intends to construct at least 8 (eights) days before he intends to commence such works. The Engineer may require modifications to be made if he considers the proposals to be insufficient and the Contractor shall give effect to such modifications at his own cost but shall not be relieved of his responsibility for the sufficiency thereof.
- b) The Contractor shall prepare a detailed survey of existing services on the site which he shall clearly mark up on a drawing for the approval by the relevant service authorities prior to commencement of the works.
- c) The Contractor is to progress the works thoroughly and to take such action as is necessary in order to ensure that the approved programme is strictly adhered to in all its stages. The Contractor shall submit detailed programmes of the various sections of the works as and when required by the Engineer, the Contractor shall take all precautions and cover all contingencies to ensure that adequate spare equipment and materials are available at all times to ensure completion of this work in accordance with the agreed programme.
- d) The acceptance of programmes as submitted by the Contractor or with any modification thereto, in the opinion of Engineer, shall not relieve the Contractor of his responsibility to complete the work within period specified in as per Annexure 'A' unless extension of time limit is expressly sanctioned under respective clause of

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standard General Conditions of Contract or Special Conditions of Contract.

- e) The Contractor shall prepare the CPM programme on computer and the same to be monitored by proper installation of PC and printer facilities at the site.
- f) The bills shall be on computer and the programme will incorporate the deductions of Mobilisation Advance and other items.

#### **48. CONTRACTOR RESPONSIBLE FOR SUFFICIENCY OF MEANS EMPLOYED**

The Contractor shall take upon himself the full and entire responsibility for the sufficiency of plant, centering, scaffolding, timbering, machinery, tools or implements and generally for all means used for the fulfilment of the Contract. In the event of any of these means proving insufficient, the Contractor is still fully and entirely responsible for the sufficiency of these means notwithstanding any previous approval or recommendation that may have been given by the Engineer.

#### **49. DRAWINGS**

The Contractor will receive from the Engineer, 2 (two) prints of the tender drawings listed hereof, together or thereafter with any further drawings issued for Road, Water Supply Net Work, Sanitation Electrical, Landscaping Works, etc. Working drawings shall be progressively issued as per the approved construction schedule submitted by the contractor & approved by NRDA.

#### **50. STANDARDS**

In various places throughout this specification and the bills of quantities, reference is made to the standards, specifications and byelaws issued by the Indian Standard Institutions and other similar organizations. These references shall in every case be deemed to include the latest edition or issue of such standards, specifications and byelaws including all revisions, amendments and addendum subsequently issued. Where materials are not specified and standard exists in respect of such materials, then the materials shall in all respects comply with relevant and current I.S.I. In such cases where I.S.I. do not exist, the best manufacturers' specification shall be followed; in absence of all these, Engineer's instruction shall be followed.

#### **51. SUPERVISORY STAFF (As per clause 36 (i) of schedule F of the tender)**

The Contractor shall engage on the work a qualified and experienced Engineers, Supervisor, capable of managing and guiding the work properly as detailed in Cl 36(i) of schedule F of the tender Form F-1. This supervisor shall be authorized by the Contractor in writing to receive the orders issued by the Engineer from time to time. The Contractor shall be responsible for carrying out these orders promptly.

#### **52. FIRE PRECAUTIONS**

The Contractor shall comply with fire regulations of the controlling authority in force at the site of the works relating to the precautions to be taken against fire hazards.

#### **53. USE OF SITE**

The Contractor shall not use any portion of the site for purpose not connected with the works without the prior written approval of the Engineer. He shall maintain permanent and site access roads free of spillage and shall not interfere with the flow of traffic. Also same shall apply to

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terraces and other developed areas. This clause shall be read in conjunction with clause no. 15 of the Special Conditions of Contract.

#### **54. SAFETY ENGINEER**

The Contractor shall employ and depute at site on full time basis a fully qualified Safety Engineer(s) who shall be responsible to ensure observance of safety precautions and measure required to be taken at site. Further he shall make sure stipulations laid down in safety code as provided in GCC.

#### **55. QUALITY ASSURANCE MANUAL AND SAFETY MANUAL**

Successful tenderers will be required to submit Quality Assurance Manual and Safety manual made as per applicable specification for various items of work and get the same approved from Engineer before start of work and the adhere the same during actual execution of work.

##### **i. Quality Assurance Manual (QAM)-**

A quality assurance manual constituting a base document outlining quality policy of the agency, procedures, name of action, compliance, acceptance criteria and documentation etc. Shall be prepared by the successful tenderer and submitted to the Engineer for approval within 15 (fifteen) days from the date of receipt of work order. The QAM shall be prepared in such a way that it follows all the applicable specifications. The document shall generally cover aspects listed below, but not limited to the same.

##### **Scope of work**

- a) Planning for items to be executed including method statement and resource deployment both physical and financial.
- b) Identification of all parties involved in QA and their inter-relationship.
- c) Execution plan of Quality System giving reference - standard - frequency and acceptance criteria.
- d) Levels of cross checking/ verification in case of multiple verifications/ controls, including systems of inspection and audit, wherever applicable.
- e) Organization of personnel, responsibilities and lines reporting for QA purpose.
- f) Testing and statistical analysis.
- g) Inspection reports at the end and during defect liability period/ maintenance period.
- h) Items to be covered for maintenance manual,
- i) Check list viz. Forms and formats.

##### **ii. Inspection of Works at Factory/ Workshop**

For any visits that maybe necessary for the purpose of performance of testing, inspection of factory made goods/ equipments, at a location other than the site ,or Raipur, the actual cost of travel (to & fro airfare/ train A/c 1st class), boarding & lodging, local transport & per diem (per person per day) costs at the rate of Rs. 3000 (Rupees three thousand only) for any visit made by officials from NRDA/ PMC/ Architect/ Consultant (maximum 3 (three) persons per instance), shall be borne by the Contractor. Such visits may be necessary for the inspection of chillers, panels, elevators, transformers, DG sets, fabricated doors, etc. that require inspection prior to shipping from the place of its manufacture. Any other item

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which is required to be tested before being processed/ fabricated in the factory, such visits shall require the prior written approval from the NRDA.

## 56. QUALITY ASSURANCE SYSTEM

A quality assurance procedure covering all aspects of the work shall be adopted for this work to ensure the desired quality. Details of the procedure shall be decided by mutual consultation between the Engineer and the contractor at the start of the works.

- a) The contractor shall submit within the time stipulated by the Engineer in writing, the details of actual methods that would be adopted by the contractor for the execution of any item as required by the Engineer at each of the locations, supported by necessary detailed drawings and sketches including those of the equipment and machinery that would be used, their locations, arrangements for conveying and handling materials etc., and obtain prior approval of Engineer well in advance of starting of such item of work.
- b) The Engineer reserves the right to suggest modifications or make complete changes in the methods proposed by the contractor, whether accepted previously or not, at any stage of work, to obtain the desired accuracy, quality safety and progress of work which shall be binding on the contractor and no claim on account of such change in method of execution will be entertained by the Employer so long as Specifications of the items remains unaltered.
- c) The Contractor shall furnish within the period of 15 (fifteen) days a detailed programmed schedule using PERT/ CPM technique in quadruplicate including the date of actual start, the monthly progress expected to be achieved and the anticipated completion date of each major item of work to be done by him, also indicating, plant and machinery and material procurement schedule.
- d) The schedule is to be such as is practicable of achievement towards the completion of the whole work in the time limit and of the particular items, if any, on the due date specified in the contract and shall have the approval of the Engineer. No revised schedule shall be operative without such acceptance in writing. The Engineer is further empowered to ask for more detailed schedule or schedules say weekly for any item or items, in any case of urgency of work as will be directed by him and the contractor shall supply the same as and when asked for.
- e) The contractor shall furnish sufficient plant, equipment and labour as may be necessary to maintain the progress schedule. The working and shift hours for operations to be done under.
- f) Further, the contractor shall submit the progress of work in forms and statements etc. at periodical intervals in the form of progress charts, forms, statements and/ or reports as may be approved by the Engineer.
- g) The contractor shall maintain proforma, charts, details regarding machinery, equipment, labour, materials, periodical returns thereof as may be specified by the Engineer.

## 57. EQUIPMENT MAINTENANCE MANUAL

The Contractor shall mention the list of machinery procured at site for the work in this manual. This manual shall also reflect the name of the manufacturer, age of machinery and the agency entrusted with the maintenance work of the machinery listed in the manual.

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## 58. MINIMUM PLANTS, EQUIPMENTS AND SHUTTERING

Sr. No.	Particulars	Quantity
1	Mechanical Mixer Machine	2 Nos.
2	JCB	2 Nos.
3	<b>Vibrators</b>	
A	Electric with low noise	2 Nos.
B	Petrol ( Stand by)	2 Nos.
C	Needles - 20	4 Nos.
D	Needles - 40	4 Nos.
E	Needles - 65	4 Nos.
4	Bar Bending Machine up to 40mm dia.	2 Nos.
5	Bar cutting Machine up to 40mm dia.	2 Nos.
6	Material Hoist	As per requirement
7	Curing Pumps	2 Nos.
8	Pan mixer of not less than 0.5 Cum	2 Nos.
9	Plate Vibrators of 1 ton capacity	2 Nos.
10	Minimum shuttering material to be provided by the contractor (Good quality steel plates inc steel propos etc.)	500sqm

Note: The details referred to herein above are only for the purpose of quantitative assessment. The specifications & qualitative aspects of the shuttering material shall be in accordance with the BOQ & Technical specifications. The details are to be provided with in 30days after award of contract.

## 59. SUBMITTALS:

Unless otherwise specified or directed by NRDA, the Contractor shall submit to NRDA for his review and approval all Co-ordinated services drawings, shop drawings, samples, materials lists, equipment date, instruction manuals, record documents, manufacturers' equipment manuals, design calculations for proprietary items of work, technical submittals, and other information required by the Contract Documents. Submittals and their contents including deviation shall be properly prepared, identified, and transmitted as provided herein or as the Owner may otherwise direct. Except for record documents and instruction manuals for operation and maintenance, submittals including deviation shall be approved before the material or equipment covered by the submittal is delivered to the site. The contractor shall furnish an authority if required from material suppliers.

## 60. PLANT, MACHINERY AND SHUTTERING

The contractor is required to submit details of plants and machineries to be deployed by him in a Proforma indicating all details such as make, year of manufacture, registration etc be submitted. The details are to be provided with in 30days after award of contract.

## 61. SUB-CONTRACTORS

All specialised works will be carried out by licensed (where applicable) sub contractors approved by NRDA.

- It may be noted that the contractors will have to submit credential of the selected contractors to NRDA for approval.
- It may further be noted that even if the contractor has in house licensed sub-

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contractors for these works, they will have to select and engage contractors with prior approval of NRDA.

- iii. All specialists, merchants, tradesmen and other agency executing any work or supplying and fixing any goods which items have been included in the Schedule of Quantities and/ or Specifications or for Extra/ Substituted items of works, who may be nominated or selected by the Engineer/ Contractor are hereby declared to be Sub-contractors employed by the Contractors. No nominated Sub-contractor shall be employed on or in connection with the works against whom the contractor shall make reasonable objection or (save where the Engineer and contractor shall otherwise agree) who will not enter into a contract provided:

1. That the nominated sub-contractor shall indemnify the Contractor against the same obligations in respect of the sub-contractor as the contractor is under in respect of this contract.
2. That the nominated sub-contractor shall indemnify the Contractor against claims in respect of any negligence by the Sub-contractor, his servants or agents or any misuse by him or them or any scaffolding or other plant, the property of the Contractor or under any Workmen's Compensation Act in force.
3. That the nominated sub-contractor shall submit his bills to the Contractor.
4. That the Contractor shall make payment to the nominated Sub- Contractor within 3 (three) days of the Contractor's receipt of the payment from NRDA against the Engineer certificates of payment providing that before any Certificate is issued, the Contractor shall upon request, furnish to the Engineer proof that the nominated sub-contractor's accounts included in previous certificates have been duly discharged in default whereof NRDA may pay the nominated Sub-contractors upon a certificate of the Engineer and deduct the amount thereof from any sums due to the Contractor. The exercise of this power shall not create privity of contract as between NRDA and Sub-Contractors.
5. The Engineer in his absolute discretion may recommend payment to the nominated Sub-Contractor directly by NRDA and deduct the amount thereof from any sums due or which may become due to the Contractor or recover the same amounts from the Contractor.
6. No Labor contracts shall be permitted.
7. Prior approval of the Sub-contractor by the NRDA is mandatory.
8. Required 2 No. of contractors as choice would be of NRDA
9. Further sub-contracting/ sub-letting of the work shall not be permitted.
10. NRDA shall not permit under any circumstances Assigning, Transferring or Subletting of entire work or substantial part of work to be executed under this contract. If the Contractor attempts or assigns, transfers and sublets the entire or substantial work, the contract shall be terminated by the NRDA without prejudice to any right or remedy which shall have accrued or shall accrue thereafter to the NRDA.
11. The Contractor shall not be permitted to give power of attorney for executing the work to any other agency or person on their behalf. The power of attorney for executing the work shall only be given to regular employee of the agency with prior approval of NRDA.

**iv. Works to be Sub-Contracted & Prequalification criteria:-**

The details of work to be subcontracted and PQ criteria shall be governed as mentioned in detailed NIT.

**v. ESSENTIAL CONDITIONS FOR ELETRICAL WORKS:-**

1. The Sub-contractor for carrying out the electrical works under the contract should strictly be in accordance with the above criteria.
2. All above referred works will have to be carried out under the supervision of

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Engineer.

3. Power supply distribution scheme given in tender document is only for guideline purpose. However, successful agency will be responsible for obtaining necessary sanctions to over all power supply distribution scheme, from CSEB/ applicable local authority and Engineer before starting execution of work. No extra charges will be paid for obtaining necessary approvals/ sanctions to power supply distribution scheme sanctioned by concerned power supply authority CSEB/ applicable local authority, successful agency will have to take up and complete the work accordingly.

4. Successful agency will have to obtain the required approvals to the total electrical works such as, HT/ LT distribution, Sub-station, Meter rooms, DG sets, etc from CSEB/ applicable local authority/ concerned power supply authority, Electrical Inspector, authority or any other statutory body at their own cost before starting execution of the work and the original sanctions obtained should be submitted to NRDA's concerned Electrical Division before execution of the work. Any statutory cost for obtaining the approval will be reimbursed on production of original receipts.

5. It will be the responsibility of the agency to get the energy meters of the DG sets approved/ tested/ sealed from the necessary authorities.

6. The electrical works under the scheme should be carried out strictly in Co-ordination with the concern CSEB/ applicable local authority and necessary approvals should be obtained from time to time.

7. Activity Bar Chart and the makes of material should be submitted for electrical works for necessary approvals from the competent authority from NRDA before execution of the work and work should be started only after the approvals.

8. It will be the agency's responsibility to obtain the following listed documents from CSEB/ applicable local authority. Electrical Inspector authority and other concerned Statutory Body towards completion of the work at their own cost, without which work will not be treated as completed.

a) Sanction papers for the total external electrification works along with BOQ of material, demand note for supervision charges, if any.

b) Charging permission of the installation.

c) Inspection report of the various equipments & material supplied under the electrification work certified by CSEB/ applicable local authority and NRDA authorities.

d) Manufacturers test certificates and guarantee certificates in original for all the equipments and material supplied for execution of electrification work under the scheme.

e) As Built drawings as stated Volume I for substation, HT/LT network, meter room, etc. showing all the details and certified by CSEB, Electrical Inspector authority (along with soft copy).

f) As Built Drawings as stated Volume I for internal electrification work, area lighting work, water pumps, etc. (along with soft copy)

g) Earth test report for the total installation.

h) Work completion report from CSEB/ applicable local authority for the total electrification work including substation, HT/LT distribution, Meter Room etc. should be submitted.

i) Handing over of the total electrification work under the scheme, such as substations, including equipments, HT/LT distribution, meter room with energy meters to

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CSEB/ applicable local authority. The letter in writing for taking over of the installation as above addressed to Engineer should be obtained from CSEB and should be submitted along with details of scheme.

j) Separate guarantee, from the electrical agency should be submitted to NRDA against the electrical works carried out under the scheme, for a period of 24 (twenty four) months including defects liability period in order to avoid any inconvenience in connection with releasing and common services under the scheme and also to attend any defects in installation during this period.

k) Required electrician/ Helpers are to be deployed round the clock for Operation & Comprehensive Maintenance of total Utility works & installations for a period of 24 (twenty four) months from the date of completion OR taking over of the installation whichever is later.

9. All material & equipments to be supplied under this contract shall be offered for inspection at the manufacturing place. No material shall be supplied by the agency without the clearance from the Engineer.

10. The total electrification work under the scheme will have to be carried out as per the terms & conditions mentioned in various sections of the Tender Document.

11. Electrical works under the contract will not be treated as completed unless and until above listed activities are completed by successful agency.

**62. Subject** work is strictly to be completed within stipulated work completion period and in accordance with the activities listed below completely as per the directives from Engineer. The charges and the expenses for completing the following listed activities should be included in the quoted offer and no separate payments against this will be made.

1. Successful agency will have to obtain and submit the Contractor All Risk Insurance Policy (CAR) in original within 1 (one) week from date of work order from Director of Insurance, Government Insurance Fund, Raipur, Chhattisgarh. The Contractors All Risk (CAR) Policy as said above shall be inclusive of insurance coverage under workman's compensation insurance policy for all workmen employed by contractor to complete the works covered under present contract. Further the contractors All Risk Policy period completely as stated in the tender. In case of time period extension (If any), it is essential that, premium of CAR policies should be timely paid by agency in order to ensure the continuity of CAR policy without any break in the same, suitable action will be taken against defaulters as per General Conditions of Contract unless and until the Contractors All Risk Policy as stated in above manner is submitted to the office of Engineer no payments will be released against any work executed.

2. Obtaining necessary scheme sanctions in detail towards execution and completion of subject work in all respect, from concerned CSEB/ applicable local authority. This activity includes required co-ordination and follow-up with concerned CSEB/ applicable local authority for obtaining necessary scheme sanctions. The scheme sanction should be inclusive of specifications and required layout and other drawings etc. completely as per the requirement.

The payment towards the supervision charges of CSEB/ applicable local authority shall be paid directly to CSEB/ applicable local authority on behalf and in the name of NRDA by the agency.

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The original scheme sanctions along with original certified drawings, specification details, quotations, payment receipt against supervision charges etc. should be submitted to the Engineer.

The supervision charges paid in the name of NRDA as mentioned above shall be reimbursed on submission of original payment receipts.

3. If required, preparation and submission of execution drawing in co ordination with concerned planning authority of NRDA by engaging Govt. approved Surveyor for confirmation and marking of proposed cable routes, location of control pillar, existing services along the proposed route under the present contract as per the sanctioned scheme obtained from CSEB Reports and marked computerized plans duly certified by surveyor in 3 sets of should be submitted after carrying out the details survey as mentioned above.

4 Obtaining necessary road/ soil/ footpath etc. cutting permission for cable trenching from concern authorities like NRDA/ CSEB/applicable local authority/ RMNN/ PWD etc. as applicable along the approved route and submit the approval in original along with the drawings and permission to Engineer.

The charges required for obtaining the approvals and permission as mentioned above should be directly paid on behalf and in the name of NRDA by the agency.

The charges paid in the name of NRDA as mentioned above shall be reimbursed on submission of original payment receipt to the Engineer

5. Preparation and submission of shop/ execution drawing to Engineer for approvals. Submitting list of Makes of various items and material to be used under present contract for approvals.

The Contractor or his qualified engineer having updated technical knowledge for execution of the subject work should invariably remain present and co-ordinate during every inspection and testing programme at manufacturers works, similarly during every joint site visits and when required.

7. After supply of material at site, all the documents such as delivery challan, excise gate pass, material test report (in original), etc. should be submitted to Engineer for obtaining installation clearance.\*

The complete work under the present contract shall be carried out with required supervision, stage-wise inspection from concerned authority of CSEB/ applicable local authority & Electrical Inspector authority in co-ordination with Engineer complete with required power shutdowns. The record of all inspection and shutdowns shall be submitted to Engineer.

8. The execution work of cable trenching/ foundation for poles/ foundation of feeder pillar/excavation and trenching in all types of surfaces rocks, soils etc. shall be carried out as per approved route plan by using appropriate tools and machines in close co-ordination with concerned authorities from NRDA, CSEB/ applicable local authority, etc. completely as per the requirement so as to avoid the damages to the existing services.

9. Obtaining clearance certificate from concern authority of NRDA, RNN, PWD, CSEB/ applicable local authority, etc. as applicable, towards completion of re-surfacing work of cable trenches, excavated surfaces and removal of debris and submission of this clearance certificate in this regard obtained from concerned authorities to Engineer.

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\* In absence of activity No. 1 & 15 above, the payment towards cable trenches erection and installation will not be released.

10. Arranging and carrying out pre & post testing and commissioning of the completed installation in presence of Engineer, his representative and the representative of any other statutory authorities like CSEB/ applicable local authority & Electrical Inspector etc. as required.

11. Excess saving statement as per final execution of work, item wise measurement break up in detail and escalation claim as applicable along with detail calculations and copies of confirmed indices etc. to be submitted to Engineer.

It is mandatory to complete all the activities listed above from Sr. No. 1 to 11 for releasing the final payment.

**63.** Following conditions are the essential conditions of contract for carrying out and completing the subject work in all respect within stipulated time period. The successful agency will be responsible for completing the same as per the directives of Engineer. The charges and expenditure if any required for completing the same should be including in the quoted offer, and no separate payments against this will be made.

1. The contractor shall visit the site to access the actual quantum of work and period required for completing the same before quoting the offer.

2. Scheme specifications and quantity of the material to be used for the subject work under the contract and specified in the tender document is only for guideline purpose. However it will be the responsibility of the successful agency to obtain the measurements and specifications in detail of each and every item before starting the execution of work and complete the work in accordance with the approvals, clearances obtained for the same. All cost required for completion of work as per statutory approval, shall deemed to have included in the offer quoted.

3. The foundation and excavation for feeder pillar and control pillar, grouting of frames in wall/ ground etc, are require to be carried out by the agency, and cost for the same shall be include in the offer quoted.

4. It will be Agency's responsibility to obtain necessary sanctions and permissions by paying necessary charges towards;

a) Obtaining necessary scheme sanctions and permissions for completing the subject work in all respect from any concerned statutory authority.

5. The successful agency will be completely responsible for accidents occurred if any during the execution of work as well as during 24 (twenty four) months defect liability period under this contract. It will also be the responsibility of agency, for making police complaints against any thefts and accidents etc. under intimation to NRDA.

6. Charges against following listed activates should be included in the quoted offer itself and no separate payments will be made against same.

a) Arranging and carrying out the material inspecting at respective manufactures unit as stated in Annexure - I.

b) Arrangements for performing site visits and other connected activities as and when required by Engineer or his representative.

c) Carrying out necessary co-ordination and follow up with concern authorities for obtaining necessary sanctions and permissions as required towards completion of work

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in all respects.

d) Appointing Govt. approved surveyor for carrying out site survey and preparation of computerized shop drawing, Execution drawing, As built drawing etc. with soft copy.

e) Any other incidental charges required towards completion of work in all respect.

7. Bills submitted against the executed and completed works at site, will be processed further by Engineer, after necessary scrutiny and verification.

**64.** The services/ tasks/ works as referred to under clauses shall be suitably applicable to all Utility services executed by the contractor, whether specifically mentioned herein above or no.

**65. Safety, Security and Protection of the Environment**

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

(a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons,

(b) provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others, and

(c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

**66. HANDING OVER PROCESS**

The handing over process shall be based on a performance comprising individual activities. The process shall be approved by the Engineer.

**67. EROSION AND SEDIMENTATION CONTROL**

i. **General:** Prevent pollution of land, air, and water; control erosion, washout, and surface runoff of earth and stockpiled materials. Preclude sedimentation in general and especially in existing on-site and public storm-water system and public right of way.

ii. **Procedures:** Perform erosion, sedimentation and temporary storm-water control. Follow procedures stipulated in local laws and regulations and as shown on Site work drawings.

iii. **Maintenance:** Maintain controls in place until permanent controls are functioning. Remove when no longer needed.

**68. NOISE AND VIBRATION CONTROL**

Noise and Existing Building Structure Vibration Generated by Construction Procedures, Equipment, Tools, and Operations: Keep to minimum practicable during demolition and

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removal from building and site, including loading and removing storage containers. Equipment generated noise levels shall not exceed the following in decibels:-

1. Concrete mixer: 85
  2. Concrete pump: 82
  3. Crane: 83
  4. Materials elevator: 5
  5. Pumps: 76
  6. Generators: 78
  7. Compressors: 81
  8. Pneumatic tools: 86
  9. Saws: 78
  10. Vibrators: 76
  11. Other tools: 85
- i. Operation of Air Hammers, Compressors, and Reciprocating Equipment: Not permitted inside existing buildings unless specifically approved in writing by Owner.
  - ii. Laws: Comply with applicable noise control laws, ordinances, and regulations.
  - iii. Acoustical Enclosures: Stationary equipment may be enclosed to produce required sound attenuation subject to continued maintenance of such enclosures to ensure that specified sound levels are not exceeded.
  - iv. Violations: Where field sound measurements reveal sound levels exceeding those specified, cease operating such equipment and repair or replace it with equipment that complies with the sound levels specified.
  - v. Cutting and Drilling Concrete: Use only rotary or core drilling for holes through concrete. Do not use impact tools to cut or otherwise remove concrete or to install inserts.
  - vi. Power-Activated Tools: Not permitted in or immediately adjacent to existing buildings, except with Owner's written approval in each specific case, except where such use is specifically specified.

**69. EXISTING CONDITIONS**

- i. Contractors Examination of Site:-
  1. By executing Contracts, Contractor and subcontractors represent that they have:
    - a. Visited the site and made due allowances for difficulties and contingencies;
    - b. Compared Contract documents with existing conditions and informed themselves of conditions to be encountered, including work by others, if any, being performed; and
    - c. Notified Architect of ambiguities, inconsistencies, and errors they have discovered within Contract documents or between Contract documents and existing conditions.
  2. Failure to visit the site and become familiar with conditions shall not relieve Contractor or a subcontractor from furnishing materials or equipment or completing the Work in accordance with Contract documents at no additional cost.

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3. Contractor or subcontractors will not be given extra payment for Work related to conditions they can determine by examining the site and Contract Documents.
4. Contractor or subcontractors will not be given extra payment for work related to ambiguities, inconsistencies, or errors within Contract documents, or between Contract documents and existing conditions, when such ambiguities, inconsistencies, or errors are known to Contractor or subcontractor before Contract execution unless Contractor or subcontractor has notified Architect in writing of such condition before execution of Agreement Between Owner and Contractor.
- ii. Make use of public property and make arrangements for that use. No extra compensation will be paid due to costs associated with using public property.
- iii. Access by Contractor to portions of Owner's property beyond the actual area of Work under this contract is denied, except where necessary to perform the Work, and then only with specific written approval in each case. Refer to other sections for additional requirements.
- iv. Contractor shall accept the site in the condition in which they exist at the time Contractor is given access to begin the Work.
- v. Damage caused by Contractor to existing structures, grounds plants, pavements, utilities, work by others, fixtures, or furnishings, shall be repaired by Contractor and left in as good condition as existed before the damaging, unless such existing work is shown to be removed or replaced by new Work.
- vi. Immediately upon entering the site for purposes of beginning Work, locate general reference points and take such action as is necessary to prevent their destruction; lay out Work and be responsible for lines, elevations, and measurements, and Work executed under this Contract. Exercise proper precautions to verify figures shown on Drawings before laying out Work. See Section "Field Engineering" for additional requirements.
- vii. Contractor and each subcontractor, before starting work, shall verify governing dimensions at the premises, including floor elevations, floor-to-floor heights, and column locations and shall examine adjoining Work on which Contractor's or subcontractor's Work is in any way dependent. No "Extra" or additional compensation will be allowed on account of differences between actual measurements and dimensions shown. Submit differences discovered during the Work to Architect for interpretation before proceeding with associated Work.
- viii. Employment of local labour shall be given priority wherever possible. However,
- ix. this shall not in anyway affect/ dilute the Contractors obligations listed within the Tender document.

## 70. LAMINATION OF DRAWINGS

All drawings issued to site shall be kept in lamination condition.

### 1. Maintenance of installed equipments, machineries and fixtures:

The Contractor, at the time of bidding, will be responsible to ensure the completeness and adequacy of his Bid Price to fulfil the entire responsibilities for Maintaining the installation of all installed equipments, machineries and fixtures minimum for a period

Signature of Contractor.....

Signature of NRDA.....

of 1 year from the date of commissioning and imparting training to the workers/staff as asked for maintaining the installations as per IS requirement and exercising.

**2. Handing Over:**

At the time of handing over after completion of work, all the equipment, spare including standby equipment etc. must be in good working order as were taken over before commencement of defect liability period.

**3. Penalties for failure to achieve the functional guarantees during Defect liability Period**

In case of failure to deliver the required quality of work, liquidated damages shall be imposed for such failure to meet the performance criteria, as described below. The Employer will be entitled to recover any such damages from the security deposits of the contractor or any other sum due to him. However, the contractor shall be allowed to take up routine/ periodical maintenance as per IS guidelines, with prior permission of the Authority.

- i. Non redressal of any complaint or instruction given in writing by NRDA within 48 hours: Penalty @ Rs. 6000.00 for each such complaint.

**71. ORDER OF PRECEDENCE**

In case of any discrepancy between the items mentioned in the BoQs/Specifications/Drawing, the Order of precedence should be as follows:

- i. Item details as mentioned in the BoQs, read along with the specification shall prevail. However in case of conflict specification shall hold good.
- ii. Drawings.

**72. PAYMENT**

- i. The Contractor, at the time of bidding, will be responsible to ensure the completeness and adequacy of his Bid Price to fulfill the entire responsibilities as described above.

Signature of Tenderer

Date :

For

Chief Executive Officer,  
NRDA, Near DKS Bhawan, Old  
Mantralaya, Raipur 492 001,  
Chhattisgarh.

Date :

Signature of Contractor.....

Signature of NRDA.....

**SCHEDULE– D**  
**Section – V**  
**List of Approved Makes**

Signature of Contractor.....

Signature of NRDA.....

For the items missing in the list, the relevant IS Code and specification should be binding on the contractor. The contractor should take approval wrt the approved vendor list prior to any procurement from the Engineer in charge.

APPROVED MAKE LIST

Sr. No.	Item	Approved Make or Equivalent
	<b>Civil Works</b>	
1	Cement PPC/OPC	Ultratech/Lafarge/Ambuja/ACC/Birla /Century
2	TMT	TATA/SAIL/RINL/Jindal/ Essar
3	Fly ash bricks	Fly ash bricks confirming to IS 12894-1989
4	Water proofing compound	Siko/Foas rock/BASF/MC bauchemie/Dr. Fixit
5	MS Steel (Angle/channel/I beam etc )	Jindal /SAIL/ TATA
6	Aluminium standard tubular sections/ Appropriate Z sections and other section	Jindal/ Hindalco
7	Glass/Mirror	Saint Gobain / Modi /Pilkington
8	Plastic Emulsion Paint	Asian/Berger/Nerolac
9	Synthetic Enamel Paint /Primer	Asian/Berger/Nerolac
10	Wall putty	Birla , JK
11	Spider Fittings, WCP profiles ,Patch Fittings	Dorma/ Dline/Heffle/Hattich
12	Texture Paints (Exterior)	Heritage/ Ultratech/Asian Paints
13	Texture Paints(Interior)	Heritage/Ultratech/Asian Paints
14	GRC Screens/Louvers	Unistone
15	Composite Aluminium Panels	Alucobond/Eurobond
16	Polycarbonate Sheets	G.E. / WILSON
17	Adhesives, Grouts and Sealers	FerrousCrete / Weber (Saint Gobain) / Laticrete / Bal-Endura
18	Water Proofing Admixtures	Dr.Fixit/ Pidilite/ Kryton/ McBouchair /Forsroch/ BASF
	<b>Interior Finishes</b>	
19	Gypsum Ceiling	Lafarge/ Saint Gobain / India Gypsum
20	Mineral Fibre Grid Ceilings	Armstrong / DIAKIN
21	Metal Ceilings	Armstrong / Hunter Douglas
22	Acoustical Ceiling tiles	Armstrong / Anutone
23	Wooden Finish Ceilings	Armstrong / Anutone
24	MDF Boads	Panelmax (Greenlam) / TESA(action),
25	Precast concrete tiles	Ultra/ Eurocon/ Duracrete
26	Glass mosaic tiles	Nitco/Bissazza/Alitalia
27	Ply, Commerical board, Blockboards, Particle Boards	Tesa(Action)/ARCHID/Century/Bhutanboard
28	Veneers and Laminates	Greenlam / Century/Merino/Euro
29	Vitrified Tiles/Ceramic Tiles	NITCO/ HINDWARE /ASIAN/ KAJARIA/RAK
30	Precast interlocking concrete paver blocks.	Ultra Spectra/ Eurocon/ Duracrete
31	Cement Board	Everest/Bison/Hyderabad Industries
32	Anti termite Treatment	Pest & Hygiene / equivalent
	<b>PLUMBING WORKS</b>	
1	Sanitary ware	Hindware/Parryware /Cera/RAK

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2	Concealed Cisterns	Hindware/ Parryware /Cera/Jaguar
3	C.P. Fittings	Jaquar/ Parko / Parryware/Hindustan (Hindware)
4	HDPE pipe	Duraline
5	uPVC pipe	SUPREME/KML CLASSIC/Oriplast
6	Ductile Iron(DI) pipe	Electro steel casting Ltd./Jindal saw Ltd.
7	Sluice valves and non return valves	Kirloskar/ IVC/IVI
8	GRP Pipes	Graphite India
9	Specification for EPDM Gasket	Anand Reddiplex, Enviro Seals
10	Manhole Covers & Frame SFRC	K.K/ PERGITY/Neco/SRIF
11	CPVC Pipes & Fittings up to 50 mm dia	ASTRUL/Ashirvad/Supreme
12	CPVC Pipes & Fittings above 50 mm dia	ASTRUL/Ashirvad/Supreme
13	CPVC Valves up to 50 mm Dia	ASTRUL/Ashirvad/Supreme
14	S.S. Sink	Franke / Jayna / Nirali
15	G.I. Pipes	Jindal-Hissar/ Tata/Zenith
16	G.I. Fittings	Unik/ K.S./ Zoloto
17	Gunmetal Valves	Zoloto/ Leader/ Sant/ Kilburn
18	Brass stop & Bib Cock	L&K/ Jaquar/Hind
19	Ball valve with floats	Zoloto/ Leader/ Sant/ Jayco
20	DWC HDPE Pipe	ALOM / Equivalent
21	HDPE Manholes	ROMOLD / Equivalent
<b>Electrical Works</b>		
1	Distribution Transformers	EMCO/ Vijay/ Volt Amp/ Kirloskar/ Approved vender of CSPDCL
2	11 KV Lightning Arrestor	Lamco/ Elpro/ Oblum/ Areva/ Raychem
3	HT Panels	Schneider/ L & T/ Siemens/ ABB/ C & S/ Legrand
4	Indicating Lamps	L & T/ Siemens/ Schneider
5	Energy Analyser	Ducati/ L & T/ Schneider
6	Push Buttons	L & T/ Siemens/ Schneider
7	Timers	L & T/ Siemens/ Schneider
8	ACB	L & T/ Siemens/ Schneider/ ABB/ C & S
9	HRC	L & T/ GE/ Schneider/ Standard/ ABB/ C & S
10	Metal clad rewirable porcelain switch fuse unit	SSK/ Standard/ Havells/ C & S
11	Switch disconnecter fuse unit	GE/ L & T/ Schneider/ Siemens/ ABB/ C & S
12	Changeover switch	

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i	Onload	HPL/ Gerard/ GE/ L & T/ C & S/ ABB
ii	Off Load	Standard/ Havells/ C & S/ Gerard
13	Volt meters, Ampere meters	
i	Analog type meters	Mecon/ ESSVEE/ AE
ii	Digital type meters	Mecon/ ESSVEE/ C & S
14	Current Transformer	C & S/ AE/ Kappa
15	Selector Switches	GE/ C & S/ Siemens/ ABB
16	Static watt-hour meter (kwh meter)	L & T/ Sems/ Genius/ Approved vender of CSPDCL
17	Starters/Contactors	GE/ L & T/ Schneider
18	Relay	Siemen/ ABB/ Schnieder
19	MCCB	GE/ L & T/ Schneider/ Siemens/ Legrand/ Andrew Yule/ ABB/ Hagger
20	Connectors	Elmex/ Connect well/ Raychem/ Andrew Yule
21	MCB/ Isolator/ RCCB/ DBs/ enclosures	L & T/ ABB/ GE/ Schneider/ Legrand/ Andrew Yule/ Hagger
22	Metal Clad industrial plug top & socket	
i	Pin & sleeve type	Havells/ Legrand/ Schneider/ ABB
ii	Butt Type	BCH/ Millborn
iii	Self Extinguishable Polymer type	Legrand/ Schneider/ ABB
23	Capacitors	
i	Standard duty	Epcos/ Ducati/ Areva/ Unistar/ Schneider
ii	Heavy duty	
iii	Gas filled	
24	Power Switch (upto 32A)	L & T/ GE/ Schneider/ Siemens/ ABB
25	Exhaust Fan/ Light Fitting T-5	GE/ Crompton/ Bajaj/ Orient/ Usha/ Havells
26	Ceilling Fans	GE/ Crompton/ Bajaj/ Orient/ Usha/ Havells
27	Fresh Air Fans	GE/ Crompton/ Bajaj/ Orient/ Usha/ Havells
28	Wall mounting/ Cabin/ Pedestrial Fans	GE/ Crompton/ Bajaj/ Orient/ Usha/ Havells
29	Switches & Sockets	Northwest/ Mafaic/ Legrand/ Crabtree(Varuna)
30	Light Fittings	Philips/ Wipro/ Bajaj/ Schreder/ Thorn
	Lamps	Osram/ GE/ Philips
	LED	Osram/ CREE/ Philips
31	Storage Water Heater and accessories	Bajaj/ CG/ Usha/ Racold/ Jaguar
32	Solar Heating System	Tata/ BP/ BHEL
33	Air Conditioner	LG/ Voltas/ Samsung/ General/ Hitachi/ Diakin

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34	Wires	Finolex/ Polycab/ RR Cables/ Gloster/ Havells
35	LAN, UTP Wires	As per IS code
36	Earthing	As per IS code
37	LT Cable	Finolex/ Universal/ Polycab/ Ravin cables/ Gloster/ CCI/ Havells
38	Cable Accessories:	
i	Brass Gland	Comet/ Metal Craft Industries/ Raychem
ii	Aluminium Lugs	Dowells/ Metal Craft Industries/ Raychem
39	Unarmoured Telephone Cable	Delton/ Finolex/ National/ Havells
40	Armoured Telephone Cable	Delton/ Finolex/ National/ Sterlite/ Birla Erricson/ Havells
41	XLPE insulated 33 & 11 KV HT cable	Universal/ Gloster/ CCI/ Polycab/ Ravin cable
42	Outdoor straight through joint	Denson/ Raychem/ 3M
43	Heat shrinkable type indoor/ outdoor terminations/ joint	Denson/ Raychem/ 3M
44	Push-on type indoor/ outdoor terminations/ joint	Denson/ Raychem/ 3M
45	MS cable tray	Venus/ Pasco/ Dolphin/ Metalem/ Asian Ancillaries
46	Copper Bus Trunking arrangement	L & T/ Schneider/ EAE(Alcu-Bar)
47	PVC Pipes	Precision/ BEC plast/ Thermoplast
48	DWC HDPE Pipes	C-Rex/ Tirupati/ Reliance
49	Power transformers 33/11 KV	Crompton/ BHEL/ EMCO/ Vijai/ Volt Amp
50	Ring Main units 11 KV & 33 KV	Crompton/ BHEL/ Siemens/ ABB/ Schneider/ Areva
51	11/33 KV Vacuum Circuit Breaker	BHEL/ Crompton/ Siemens/ Schneider/ ABB/ Bienco lawrie/ Jyoti/ Andrew Yule/ Areva
52	Load break switch	Areva/ Crompton/ BHEL/ L & T/ Siemens/ ABB/ Schneider
53	Octagonal Poles	Bajaj/ Transrail/ Valmont
54	Tubular Poles	As per IS code & specification
55	DG Set with panel board	Cummins/ Kirloskar/ Caterpillar/ Jackson/ Sterling Wilson
56	Lift	Otis/ Jhonson/ Thyssen Krupp/ Mitsubishi/ Schindher
57	Packed Substation: (All the components in the Packed substation shall be as per the list only)	Crompton Greeves/ Schneider/ ABB/ C & S/ Siemens
<b>Mechanical works</b>		
1	Submersible Pumping Sets	Kishor/ KSB/ Grundfos/ Kirloskar
2	Motors	Kirloskar/ Jyoti/ Crompton Greaves
3	MS Pipes	Confirming to IS 2062

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4	Valves	IVC/ Kirloskar/ IVI
5	Water Cooler	Blue Star
6	Water Purification System	Aquaguard
7	Pump - variable frequency drive :	Centrifugal Pump
a	Centrifugal Pump	Grundfos /Jyoti
b	Diaphragm Tank	Grundfos
8	Fountain	Moonbeam Enterprises/
a	Laminar Jets	Himalaya/ Relab/ Fontona
b	Fog Jets	Himalaya/Relab/ Fontona
C	Crown Jets	Himalaya/Relab/ Fontona
d	Chasing Jets	Himalaya/Relab/ Fontona
e	Central High Jet	Himalaya/Relab/ Fontona
f	Digital Valve	Himalaya/ Instrutech/ OVC
g	Global Valve	Himalaya/Baiqiang/Flow Technology
h	Screwed Branch Pipe	Himalaya/ Flow Technology/Suzhou Chengjian
i	Main Pipe	Himalaya/ Flow Technology/Suzhou Chengjian
j	Curve Pipe	Himalaya/ Flow Technology/Suzhou Chengjian
k	Flange	Himalaya/ Flow Technology/Suzhou Chengjian
l	Pump Flange	Himalaya/ Flow Technology/Suzhou Chengjian
m	Fountain Pump	Himalaya/Jiangsu Jiang Jin Co.Ltd./ Shakti Pumps/ Grundfos Pumps
n	Underwater Light	Himalaya/ Light Wave/ Fontona
o	Light Bracket	Himalaya/ Light Wave/ Fontona
p	Underwater Cable	IEC Standard
q	Control Cabinet	Himalaya/ LE
r	Motor Control	Himalaya/ LE
s	Light Control	Himalaya/ LE
t	Software editing	Himalaya/ LE
<b>Instrumentation Works</b>		
1	Pressure Gauge	
i	Bourdon type	Fiebig/ H Guru Instrumrnts Pvt Ltd/ Resrohel
ii	Diaphragm type	
2	Pressure Transmitter	Rosemount/ YBL/ Micro
3	Level Switches	V Automat/ Levcon/ Petrole Services/ NIVO/ Siemens

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4	Ultrasonic flow meter	Krohne Marshall/ Emerson/ Rosemount / Yokogawa/
5	PLC/ SCADA system	Schneider/ Allan Bradley/ ABB/ Siemens
6	Remote Control Desk	Crompton/ Andrew Yule/ Siemens/ Sellwin electrical/ Positronics
7	PVC Conduits	Precision / Allwin / Berlia
8	Electromagnetic flow meter	Krohne Marshall
<b>Irrigation Works</b>		
1	Filtro Master 4"/30"x2 80m <sup>3</sup> /hr-F.A. Duplex	Jain Irrigation / Netafim / Azud
2	Super Clean Filter 80m <sup>3</sup> /hr YF 4" Deluxe	Jain Irrigation / Netafim / Azud
3	uPVC pipe	Jain Irrigation / Supreme / Finolex
4	Adjustable arc, 50-360 degrees, plastic riser, with Check Valve (I 25)	Hunter/Toro/Rain Bird
5	Adjustable arc, with plastic riser and check valve (I 20)	Hunter/Toro/Rain Bird
6	MP3000 Adjustable Radius 6.7 m - 9.1 m, Adjustable Arc 90-210°, Female Threaded (Blue)	Hunter/Toro/Rain Bird
7	Shrub sprinkler, 2.7 bar (40 PSI) regulator	Hunter/Toro/Rain Bird
8	1/2"x30cm standard swing joint, 4 swing elbow 3/4"x30cm standard swing joint, 4 swing elbow	Jain Irrigation /Hunter/Rain Bird
9	Drip Lateral16mm 2.4 lph 30cm CL2 400MTRNPC	Jain Irrigation/ Netafim/Azud
10	POLY TUBE 12 MM. CL III	Jain Irrigation/ Netafim/Azud
11	Dripper 8 lph	Jain Irrigation/ Netafim/Azud
12	Poly Grommet Take Off 16 x 13 mm	Jain Irrigation/ Finolex/Toro
13	Lateral End Stop "8" Shape 16 mm	Jain Irrigation/ Finolex/Toro
14	Barbed Poly Joiner 16 mm	Jain Irrigation/ Finolex/Toro
15	Service Saddle 63 mm x 1/2" - HD, 63 mm x 3/4" - HD, 75 mm x 3/4" - HD, 75 mm x 1/2" - HD	Jain Irrigation/ Finolex/Toro
16	AIR RELEASE CUM VACUUM BR. VALVE 1"	Jain Irrigation / Bermad / Netafim/Azud
17	PVC. BALL VALVE 75 mm & 50 mm	Jain Irrigation/ Netafim/Plastro/Azud
18	Pressure Relife Valve Plastic 2" Threaded	Jain Irrigation/ Finolex/Toro
19	C. I. Non Return Valve 4"	Kirloskar / IVI/ IVC/ Netafim/ Finolex
20	VALVE BOX 10"	Jain Irrigation/ Hunter/Rain Bird
21	ACC decoder controller, 99 station capacity, plastic pedestal	Hunter/ Toro/ Rain Bird
22	Solenoid Valve 2.5" & 1.5" (plastic)	Hunter/ Toro/ Nelson/Rain Bird
23	Voltage Stabilizer 230 / 24 VAC	Telemech

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24	Star Delta Timer 24-240 VA/DC	Selectron
25	Toggle Switch	ISI mark
26	Jacketed Decoder Cable, Gray, 14/2, Bundle Length 762m Bundle	Paige Electric
27	PVC Conduit Pipe	Jain Irrigation/ Finolex/Toro
28	Poly tube	Jain Irrigation / Netafim / Finolex

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**SCHEDULE– D**  
**Section – VI**  
**Drawings**

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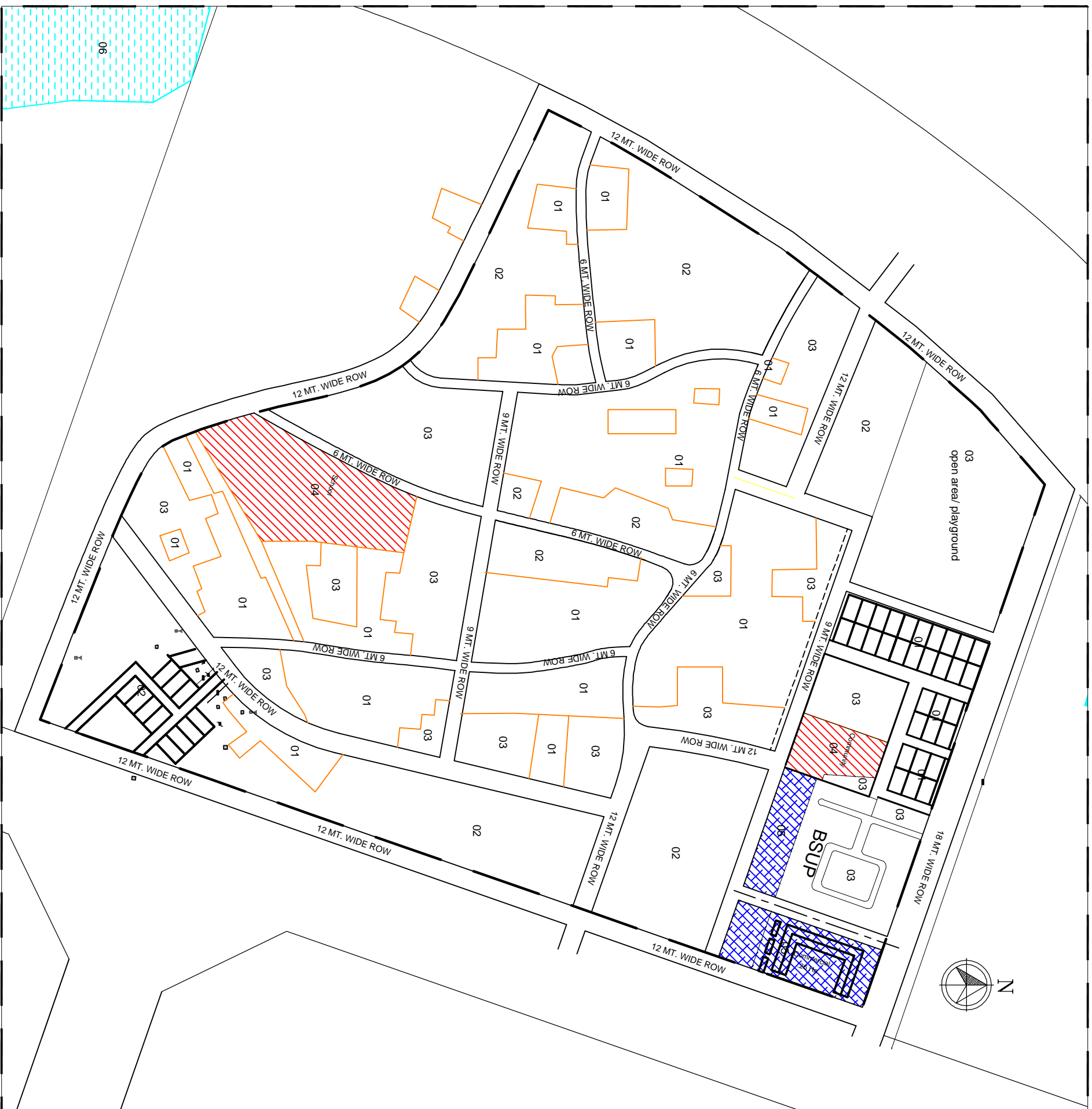
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LIST OF DRAWINGS

Sr. No.	DRAWING NO.	DRAWING TITLE
1	NRDA-PSC-RD-TD-28000	ROAD LAYOUT PLAN

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Signature of NRDA.....



NOTES:

**AUTHORITY:**



NAYA RAIPUR DEVELOPMENT AUTHORITY

Infront of Mahanadi Dwar of Mantralaya.

Raipur, Chhattisgarh

Prepared By: INFRA PSC

PROJECT:

## INFRASTRUCTURE DEVELOPMENT FOR VILLAGE

NAWAGAON KHAPRI AT SECTOR - 28,

NAYA RAIPUR

DRAWING TITLE:

## ROAD LAYOUT PLAN

Drawing No.:

NRDA-PSC-PL-TD-28000

Rev. N  
0

0

Date

FEB 2013

Scale :

N.T.S

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Designed	Checked	Approved
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Approved

## **SCHEDULE- E**

### **Reference to General Conditions of contract.**

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## **SCHEDULE-E**

### **Reference to General Conditions of contract:**

**Name of Work:** Infrastructure Development of Nawagaon Khapri Village at Sector-28 of Naya Raipur. (2nd Call)

- Estimated cost of work : Rs. 11.93 Crores
- (i) Earnest Money : Rs. 12.00 Lacs
- (ii) Performance : 5% of tendered value  
Guarantee
- (iii) Security Deposit : 5% of tendered value

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# **SCHEDULE- F**

## **General Rules & Directions**

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## **SCHEDULE-F**

### **GENERAL RULES & DIRECTIONS:** Officer inviting tender

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3: See below

#### **Definitions:**

2(v)	Engineer-in-Charge	<b>Executive Engineer ( EE C-IV ), NRDA or Any Officer Appointed by CEO, NRDA</b>
2(viii)	Accepting Authority	<b>Chief Executive Officer, NRDA</b>
2(x)	Percentage on cost of materials and Labour to cover all overheads and profits:	15 %
2(xi)	Standard Schedule of Rates	<b>CG SoR with Updated Amendments</b>
2(xii)	Department	Naya Raipur Development Authority

#### **Clause 1**

- |      |   |               |
|------|---|---------------|
| (i)  | Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance | <b>7 days</b> |
| (ii) | Maximum allowable extension beyond the period provided in (i) above                                 | <b>7 days</b> |

#### **Clause 2**

Authority for fixing **CEO, NRDA**  
compensation under clause 2

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## Clause 2A

Whether Clause 2A shall be applicable **No**

## Clause 5

Number of days from the date of issue **15 days**  
of letter of acceptance for reckoning  
date of start

Mile stone(s) as per table given below:-

***To be submitted by the tendered on award of work***

Sl. No.	Description of Milestone (Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non achievement of mile stone
1.		NA	
2.		NA	
3.		NA	
4.		NA	
5.		NA	

Time allowed for execution of work: **24 months including Rainy Season**

Authority to decide:

- (i) Extension of time **CEO, NRDA** (Engineer-in-Charge or Engineer-in-Charge of Major Component in case of Composite Contracts, as the case may be)
- (ii) Rescheduling of mile stones **Chief Engineer (Engineering)**

## Clause 6, 6A

Clause applicable - (6 or 6A) **6A**

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## Clause 7

Gross work to be done together with **Rs 40 Lakhs**  
net payment /adjustment of advances  
for material collected, if any, since the  
last such payment for being eligible to  
interim payment

## Clause 10A

**All the materials as per contract**

1. .... 2. .... 3. ....  
4. .... 5. .... 6. ....

## Clause 10B(ii)

Whether Clause 10B (ii) shall be  
applicable

**Applicable subjected to Clause as per Special  
conditions of contract**

## Clause 10C

Component of labour expressed as  
percent of value of work

**Applicable**

## Clause 10CA

**Applicable**

Sl. No.	Material covered under this clause	Nearest Materials (other than cement, reinforcement bars and the structural steel) for which All India Wholesale Price Index to be followed	Base Price of all Materials covered under clause 10 CA*
1.			
2.			
3.			
4.			

\* Base price of all the materials covered under clause 10 CA is to be mentioned at the time of approval of NIT.

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## Clause 11

Specifications to be followed for execution of work

**Tender specification attached with Tender document, CPWD, MOSRTH, CPHEEO and relevant IS Specifications.**

## Clause 12

12.2. & 12.3 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building and allied infrastructure work.....

**25%**

12.5 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work.....

**25%**

## Clause 16

Competent Authority for deciding reduced rates.

**Chief Engineer (Engineering), NRDA**

## Clause 18

List of mandatory machinery, tools & plants to be deployed by the contractor at site:-

**As per relevant Clause of Special Conditions of Contract**

## Clause 36 (i): Minimum Technical Representative(s) and recovery Rate

Sl. No.	Designation (Principal Technical/ Technical Representative)	Number	Educational and Relevant Experience	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 36(i)
1#	Site Engineer	03	Graduate in Civil Engg. With Experience of at least 5years/ Dip. In Civil Engg. With 8 years of experience in site supervision of construction projects.	1000/day/head
2#	Office Attendant	01	HSC Certificate	300/day/person

# 1No. Site Engineer and Office attendant should be placed with Engineer in Charge of NRDA in his office within ten days from the signing of agreement and up to 30 days beyond the date of completion of work. He shall assist the Engineer in charge in day to day activities. The above Technical Representative shall be got approved from Engineer in Charge prior to deployment. The monthly attendance of Technical

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Representative shall be monitored by EIC and any recovery shall be levied in the none fulfilling the designated technical manpower.

#### Clause 42

- (i) (a) Schedule/ statement for determining theoretical quantity of cement & bitumen on the basis of C.G.S.O.R **Not Applicable**
- (ii) Variations permissible on theoretical quantities:
- (a) Cement  
For works with estimated cost put to tender not more than Rs. 5 lakh. 3% plus/minus.  
For works with estimated cost put to tender more than Rs.5 lakh. 2% plus/minus.
- (b) Bitumen All Works 2.5% plus & only & nil on minus side.
- (c) Steel Reinforcement and structural steel sections for each diameter, section and category 2% plus/minus
- (d) All other materials. Nil

#### RECOVERY RATES FOR QUANTITIES BEYOND PERMISSIBLE VARIATION

Sl. No.	Description of Item	Rates in figures and words at which recovery shall be made from the Contractor	
		Excess beyond permissible variation	Less use beyond permissible variation
1.	Cement	NA	NA
2.	Steel Reinforcement	NA	NA
3.	Structural Sections	NA	NA
4.	Bitumen issued free	NA	NA
5.	Bitumen issued at stipulated fixed price	NA	NA

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