BID DOCUMENT

Development of Surface Parking in front of Nexa Showroom on Percentage Basis.

2025 –26

ROURKELA
SMART CITY LTD.

December– 2025

Rourkela Smart City Limited
1st Floor, RMC City library Udit Nagar,
Rourkela-769012

INVITATION FOR BIDS (IFB)

NATIONAL COMPETITIVE BIDDING

ROURKELA
SMART CITY LTD.

Bid Id No. RSCL/1774/2025/ Dated 9/12/2025
NATIONAL COMPETITIVE BIDDING

	Development of Surface Parking in front of Nexa Showroom on Percentage Basis
Date of Invitation of Bid	12/12/2025
Pre- bid	19/12/2025 at 12:30 Hrs.
Last date and time for receipt of bids	29/12/2025 at 17:00 Hrs.
Last date of Physical Submission of Bid	29/12/2025 at 15:00 Hrs.
Time and date of opening of bids	29/12/2025 at 16:00 Hrs.
Place of Sale/Receiving of bids	Online mode only
Officer inviting bids	The Chief Executive Officer, Rourkela Smart City Limited, Rourkela, Odisha
Officer of Accepting bids	The General Manager(E&T), Rourkela Smart City Limited, Rourkela, Odisha

CHECK LIST TO BE ENSURED BY THE BIDDER

S.No.	Particular	Reference to DTCN Clause	Whether		Reference to Page no.
			Yes	No	
01	Cost of tender paper Rs.11,800.00 Including GST (Scanned copy of financial instrument shall be furnished)	No.4 & 5(i)			
02	E.M.D	No.5(i) & 20			
03	Copy of valid Registration Certificate	No.5 (i) & 21			
04	Copy of PAN Card	No.5 (i) & 21			
05	Turn over certificate	No. 111 (h)			
06	No Relationship Certificate in Schedule – A	No.35			
07	Information regarding current litigation, debarring /expelling of the tender or abandonment of the work by the tenderer (Schedule-D)	No.49			
08	Affidavit (Schedule-E)	No.49			
09	Works Experience : List of projects under execution/ executed that are similar in nature to the work	Schedule-F & Schedule -C			
10	M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid HT/LT/MV. license;	Not Applicable No. 8 & Schedule – J			
11	Affidavit for Eligible Class of Contractor e-mail ID & Contact no	Schedule K to Schedule-O			

CONTRACT DATA

A.GENERAL INFORMATIONS

S. No.	Item		Detail
1	Name of Work		Development of surface parking infront of Nexa Show room on Percentage Rate Basis
2	Employer		Rourkela Smart City Limited
3	Employer's Representative		The Chief Executive Officer
4	Estimated Cost		Rs.56,73,258/- (Rs.Fifty Six Lakhs Seventy Three Thousand and Two Hundred Fifty Eight Only) Excluding GST
B. BID INFORMATION			
5	Intended completion period/Time		Six (6) Calendar Months
	period assigned for Completion		
6	Last Date & time of online submission of Bid		Date: 29/12/2025.
			Time 17:00 hours
7	Cost of Bid Document		
	i	Bank draft amount	Rs.11,800/- Including GST
	ii	in favour of	RSCL (Smart City Mission Grant Fund)
	iii	payable at	Rourkela
8	Earnest Money Deposited		
	i	In Form of Bid DD,TDR,FDR BG etc.	Rs.60,000/- (Rs. Sixty Thousand only)
	ii	In favour of	RSCL(Smart City Mission Grant Fund)
	iii	payable at	Rourkela
	iv	Type of instrument	As specified in the bid document
9	Period of submission of original Bid security and Demand draft towards cost of Bid documents in the office of the Chief Executive Officer, Rourkela Smart City Ltd, Rourkela		Date: 09/12/2025 to 30/12/2025 15:00 Hours
10	Bid validity period		90 days
11	Currency of Contract		Indian Rupee
12	Language of Contract		English
13	Retention Money		5(five)%
14	**Price Adjustment in Not Applicable in this tender**		

Instruction to Bidders (ITB) e- procurement
(Relevant clauses in the DTCN/Bid document shall be superseded)

1. NOTICE INVITING BID AND OBTAINING BID DOCUMENTS:

1.1. The authority belonging to the major discipline is competent to invite tender of composite bids. He will also nominate the G M (E &T), Rourkela Smart City Limited, who will deal with all matters relating to the bids in the invitation of bids.

1.2. For composite tender, estimated cost of each component should be clearly indicated in addition to combined estimated cost put to tender. The eligibility of bidders will correspond to thee combined estimated cost of different components

1.3. The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules / amendments issued there under from time to time. If he fails to do so, it will be considered a breach of the contract and the GM (E&T) may at his discretion Without prejudice to any other right or remedy available under law, cancel the contract. The contractor shall also be liable for any pecuniayy liability arising on account of any violation of the provisions of the said Act by him.

1.4. The contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices quoted in the Bill of Quantities, all of which shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, plant & services or of contingencies for which there is a Provisional Sum) and all matters and things necessary for the proper execution and completion of the work and the remedying of any defects therein.

1.5. The successful bidder shall complete the works by the intended completion date specified in the Contract data.

1.6. Throughout these bidding documents, the terms “bid and tender” EMD and Bid Security and their derivatives (bidder / tenderer, bidding / tendering, etc.) are synonymous.

1.7. In case the tender for composite work includes in addition to main work / building work all other ancillary works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads, paths ,sculpture and mural paintings etc. , the bidder apart from being a registered civil Contractor of appropriate class must associate himself with agencies of appropriate class those who is eligible to tender for sanitary and water supply drainage, electrical , horticulture works, artistic & sculpture works in the composite tender. Intending Employers are not required to produce any documents viz. copy of Registration, PAN at the time of purchase of tender documents but will be required for verification purpose at later stage.

1.8. PARTICIPATING IN THE BID IN THE E-PROCUREMENT PORTAL: The Contractor/ Bidder intending to participate in the bid is required to register in the Portal with some information about the firm/Contractor. This is a onetime activity for registering in Portal. During registration, the contractor has to attach a Digital Signature Certificate (DSC) to his / her unique user ID. The DSC used must be of appropriate class (Class II or Class III) issued from a registered Certifying Authority such as n-Code, Sify, TCS, MTNL e-Mudra etc.

1.8.1 To log on to the portal the Contractor/Bidder is required to type his/her username and password. The system will again ask to select the DSC and confirm it with the password of DSC. For each login, a user's DSC will validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in system database. The system checks the unique ID, password and DSC combination and authenticates the login process for use of portal.

1.8.2 The tender documents uploaded by the Tender Inviting Officer in Website www.tendersodisha.gov.in, will appear in the section of Upcoming Tender" before the due date of tender sale. Once the due date has arrived, the tender will move to "Active Tender" Section of the homepage. Only a small notification will be published in the newspaper specifying the work details along with mention of the specific website for details. The publication of the tender will be for specific period of time till the last date of submission of bids as mentioned in the 'Invitation for Bid' after which the same will be removed from the list of Active tenders. Any bidder can view or down load the bid documents from the web site.

1.8.3 Contractor exempted from payment of EMD/ Bid security will be able to participate the tender directly by uploading documentary evidences towards his eligibility for such exemption.

1.8.4 If the software application has the provision of payment of cost of tender document through payment gateways of authorized bankers by directly debiting the account of the bidders, bidders will be required to avail on-line payment.

1.9 The bidder intending to participate in the bid on-line shall prepare the bid security and demand draft towards cost of bid as per IFB (except for exempted contractors) and up load the scanned copy of the draft and bid security to the portal against the bid where he is participating and the original shall be deposited to the tender inviting officer within the period specified in the "contract data". If the Bidder fails to deposit the original bid security and demand draft towards cost of bid within the stipulated time his bid shall be rejected and action as per prevailing rule shall be taken.

1.10 In the case of any failure, malfunction, or breakdown of the electronic system used during the e-procurement process, the tender inviting officer shall not accept any responsibility for failures or breakdowns other than in those systems strictly within their own control.

1.11 Any third party/company/person under a service contract for operation of e- procurement system in the State or his/their subsidiaries or their parent companies shall be ineligible to participate in the procurement processes that are undertaken through the e-procurement system irrespective of who operates the system.

2. ELIGIBLE BIDDERS:

2.1 This Bid is open to all Civil Contractors of 'B' Class contractors as per OPWD Code, registered with the State Governments and Contractors of Equivalent Grade/ Class Registered with Central Government/ MES/ Railways for execution of civil works. The Bidders are required to enclose the proof of registration from the registering authority along with the Bid subject only the registration in the portal using his/her DSC for on-line bids. Contractors not registered with Govt. of Odisha can participate in the e-procurement after necessary enrolment in the portal but have to subsequently register themselves with the appropriate registering authority of the state Govt. before award of the work as per prevalent registration norms of the state.

2.2 All bidders shall provide a statement that the bidder is neither associated, nor has been associated, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Engineer-in-Charge to provide consulting services for the preparation or supervision of the works, and any of its affiliates shall not be eligible to bid.

2.3 If the bidder has a relative employed as an Officer in the rank of an Assistant Engineer/Under Secretary and above in the Government of Odisha in the concerned Department, he shall inform the same in Schedule-G of the bid document mentioning the exact details in a covering letter along with the tender, failing which his bid will not be considered. Also, if the fact of relationship subsequently comes to light, his contract will be rescinded. The bid security or the performance security will be forfeited, and he shall be liable to make good any loss or damage resulting from such cancellation. In case the bidder has no relationship with any of the officers mentioned above he shall have to furnish with his bid an undertaking to that effect.

2.4 He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the concerned Department. Any breach of this condition by the contractor would render him liable for penal action for suppression of facts.

2.5 No Engineer of gazetted rank or other gazetted officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Odisha is allowed to work for contractor for a period of two years after his retirement from Government service, without prior permission of the Government of Odisha in writing. Such a contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of Odisha as aforesaid before submission of the tender for engagement in the contractor's service.

3. QUALIFICATION CRITERIA:

3.1 For submission of Bids through the E-Procurement Portal, the bidder shall up-load the scanned copy/copies of documents listed under clause 3.2 in prescribed format wherever warranted in support of eligibility criteria and qualification information. The L-1 bidder shall have to produce the original documents in support of the scanned copies and statements uploaded in the portal within 5 days of opening of price bid. Bids from Joint ventures are not acceptable.

3.2 The bid shall include following information and documents.

a) Copy of valid contractor's registration certificate, PAN card, GST Registration
should accompany the technical bid.
b) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory.
c) The contractor shall furnish ownership documents for those machineries which he is planning to deploy for the tendered work.
d) Details of work under progress as per tender documents.
e) Details of works executed during the last five years and works in hand (list of on-going works) as per bid documents.

3.3 The Bidders are subject to be disqualified if they have:

a) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
b) Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
c) Indulged in unlawful & corrupt means in obtaining bids
d) Been black listed/their registrations by the competent authority.

4. ONE BID PER BIDDER:

4.1 Each bidder shall submit only one bid for one package. A bid is said to be responsive if accompanied by cost of bid document and appropriate bid security . The system shall consider only the last bid submitted through the E-Procurement portal.

5. COST OF BIDDING:

5.1 The bidder shall bear all costs associated with the preparation and submission of his bid, and the Engineer-in-Charge will in no case be responsible and liable for those costs.

5.2 All the rates and prices in the bid shall cover all taxes, viz. or any other local taxes, ferry, tollage charges and royalties and any other charges except GST

5.3 The rate of royalties and taxes prevailing on the date of measurement shall be considered while making deductions in the bills.

5.4 The successful bidder shall make his own arrangement for all materials unless otherwise specified in the conditions of contract.

6. SITE VISIT :

6.1 Bidders 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 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 obtain all necessary information as to risks contingencies and other circumstances which may influence or affect their bid. A Bidder shall be deemed to have full knowledge of the site whether he inspects it not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The Bidder shall be responsible for arranging and maintaining workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidder 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 of conditions and rates at which tools and plant, etc. Will be issued to him by the Government and local conditions and other factors having a bearing on the execution of work.

6.2 The bidder, in preparing the bid, shall go through the site Investigation Reports provided in the Contract Data before filling up the Bid document.

6.3 The Officer inviting the bid / Engineer-in-Charge will clarify queries on the Contract Data on requisition by the intending Bidder. The bidder may ask question in the e-procurement portal using his DSC; provided the questions are raised before the date mentioned in the home page under critical dates.

BIDDING DOCUMENTS

7. GENERAL INSTRUCTIONS:

7.1 The description of the work is as mentioned under Invitiation for Bid

7.2 The bids uploaded by the Tender Inviting Officer may consist of general arrangements drawings or typical sections of the project. . Bidder may down load these drawings and take out the print for detail study. Any other drawings and documents pertaining to the works available with the officer inviting the Bid as well as in the office of the RSCL) as mentioned in the contract data will be open for inspection during working hours on all working days by the bidders. The bidder is required to down-load all the documents including the drawings for preparation of his bid. It is not necessary on the part of the Bidder to up-load the drawings other Bid documents (after signing) while up- loading his bid. He is required to up load documents related to his qualification information and Bill of Quantities duly filled in. It is assumed that while participating in the bid, the bidder has referred to all the drawings and documents uploaded by the Officer Inviting the Bids. Seeking any revision of rates or backing out of the bid claiming for not having referred to any or all documents provided in the Bid document by the Officer Inviting the Bids will be construed as plea to disrupt the bidding process and in such cases he will suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per OPWD/ELBO or Cancelation of Empanelment (registration of from ELBO/ OPWD) action will be taken RSCL.

7.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, scope of work, technical specifications, bill of quantities, forms, Annexes and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk.

8. CLARIFICATION OF BIDDING DOCUMENTS:

8.1 Bid documents consisting of drawings, plans, specifications, the schedule of quantities of the various items of work to be done and the set of terms & conditions of contract to be complied with by the contractor who intends to bid and other necessary Documents can be seen in the office of the officer inviting the Bid during office hours every day except on Sundays & Public Holidays till last date of sale of tender paper.

8.2 No paper copy of the bid shall be sold.

8.3 The Contract Data to bid shall be filled and completed in the office of Officer inviting bid before issue of bid documents. If the documents are issued to the intending bidder without having been so filled in & completed, he shall request the officer inviting the bid to have this done before he completes and delivers his bid.

8.4 The bidder can seek clarification on the bids which he received earlier than 14 days prior to the deadline for submission of bids. The Employer's response will be uploaded in e-tendering portal before deadline for submission of bid.

8.5 PRE-BID MEETING: As scheduled in the NIT

(One request for each interested Participant will be entertained only)

9. AMENDMENT OF BIDDING DOCUMENTS:

9.1 Before the deadline for submission of bids, the officer inviting the Bid may modify the bidding documents by issuing addenda.

9.2 Any addendum thus issued shall be part of the bidding documents and shall be notified in the website www.tendersodisha.gov.in / notice board and through web site of Rourkela Municipal Corporation www.rmc.nic.in.

9.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Officer inviting the Bid if also happens to be the Engineer-in-Charge with the permission of the higher authority may, at his discretion, extend as necessary the dead line for submission of bids.

C. PREPARATION OF BIDS

10. LANGUAGE OF THE BID:

10.1 All documents relating to the Bid shall be in the English language. Bids submitted in any other language shall be summarily rejected.

11. DOCUMENTS COMPRISING THE BID:

11.1 Following documents will be deemed to be part of the bid even if not submitted with the bid.

i. Invitation for Bids (IFB)
ii. Instructions to bidders (ITB)
iii. Conditions of Contract
iv. Contract Data
v. Specifications

11.2 All the volumes/documents shall be provided in the portal by the Officer inviting the bid. The bidder shall carefully go through the document and prepare the required documents and up load the scanned documents in Portable Document Format to the portal in the designated locations of Technical Bid. He will fill up the percentage rate in the BOQ down loaded for the work in designated Cell and up- load the same in designated locations of Financial Bid. Submission of document shall be effected by using DSC of appropriate class.

A. Cost of "Bid document" & "Bid Security " shall comprise

i. Cost of Bid Document
ii. Bid Security .

B. "Technical Bid" shall comprise.

i. Declaration under the Official Secret Act, 1923
ii. Qualification Information and supporting documents,
iii. Certificates, undertakings, affidavits,

C. "Financial Bid "shall comprise".

i. Priced Bill of Quantities

12. PROPOSAL BY THE BIDDER:

12.1 In the E-Procurement Portal, an intelligent Bill of Quantity in Microsoft Excel format shall be made available to the bidder.

12.2 Deleted

12.3 In case of percentage rate tender, the bidder will only fill in the designated cell and activate "less" or "excess" to indicate how much his price offer is excess or less (Up to two decimal Place) than the estimated amount.

12.4 The bidder shall bid for the whole works as described in the Bill of Quantities.

12.5 Bidders shall submit offers that fully comply with the requirements of the bidding documents, Minutes of meeting of the Pre-Bid meeting, Including the Conditions of Contract basic technical design as indicated in the drawing and specification.

Conditional offer or alternative offers will not be considered in the process of bid evaluation.

12.6 All duties, taxes, excluding GST and other levies including Building and other Construction Workers Welfare Cess @ 1% payable by the contractor under the contract, or for any other cause shall be included in the rates, prices by the bidder. GST, purchase tax, turnover tax or any other tax on material in respect of this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same.

12.7 The contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices stated in the Bill of Quantities, all of which shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, plant & services or of contingencies for which there is a Provisional Sum) and all matters and things necessary for the proper execution and completion of the work and the remedying of any defects therein.

12.8 The contractor shall conform in all respects, by giving all notices and paying all fees, with the provisions of:

i. Any national or State Statue, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted authority in relation to the execution and completion of the works and remedying of any defects therein, and
ii. The rules and regulations of all public bodies and companies whose property rights are affected or may be affected in any way by the works.

12.9 FOR COMPOSITE BIDS: DELETED.

13. CURRENCIES OF BID AND PAYMENT:

13.1 The estimated unit rates and the prices are in Indian Rupees.

14. VALIDITY:

14.1 Bids shall remain valid for a period not less than 90 days or the period mentioned in the Contract Data, after the deadline date for submission of bid as specified in the notice inviting the Bids. A Bid valid for a shorter period shall be rejected by the Engineer-in-charge as non-responsive.

14.2 In exceptional circumstances, prior to expiry of the original time limit, the Officer inviting the Bid may request the bidders to extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable or by e-mail.

15. BID SECURITY:

15.1 The Bidder shall furnish, as part of his Bid, a Bid security for the amount mentioned under Contract Data. The bidder shall scan all the written pages of the bid security and up load the same to the system in designated place . The successful Lowest bidder will produce the original of all scanned documents for verification within 5days of opening of all tender (Price Bid). In the eventuality of failure on the part of the successful bidder to produce the original documents, he will be may debarred in future from participation in tender as per Govt of Odihsa, it may be lost her Empanelment (registration of OPWD) and / or suspend/prohibit/ and will be blacklisted by the competent authority as per OPWD Code/ELBO. In s u c h a situation, successful L-2 bidder will be required to produce his original documents for consideration of his/her tender at the negotiated equal to L-1 bidder.

15.1.1 Fixed deposit receipt of any scheduled bank approved by the Reserve bank (OFDC approved) of India/Indian Post Office Time deposit/National Saving Certificate/Kissan Vikas Patra duly pledged in favour of The Chief Executive Officer, Rourkela Smart City Limited, Rourkela with six month validity as per notice inviting bid by the Department.

15.2. The Bid shall be declared non-responsive and shall be rejected if submitted without an acceptable Bid Security and not secured as indicated in Sub-Clauses 15.1.

15.3. Combined bid security for more than one work is not acceptable.

15.4. In the case of Government Undertakings, Co-operatives Societies, Diploma or Degree holders in Engineering who are registered with the Government of Odisha, the rules framed by government from time to time about Cost of Bid documents, Bid security , performance security will apply.

15.5. Bid Security of unsuccessful bidders will be returned within 28 days of the end of the validity period specified in sub clause 14.1

15.6. Bid Security of successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security and Additional Performance security if any

15.7. The Bidder may be lost her Empanelment (registration of ELBO/OPWD) and / or suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per OPWD Code.

15.7.1. If the bidder withdraws the bid after opening of the bid but within the period of validity.

15.7.2. If the Bidder seeks any revision of rates or backs out of the bid claiming for not having referred to any or all documents provided in the Bid by the Officer Inviting the Bids.

15.7.3 In the case of a successful bidder, if the bidder fails within the specified time limit to

15.7.3.1 Sign the Agreement; or

15.7.3.2 Furnish the required Performance Security including additional performance security if any

16. FORMAT AND SIGNING OF BID:

16.1. The bidder can download the tender of his choice and save it in his system and undertake the necessary preparatory work off-line and upload the completed tender at his convenience within the final date and time of submission. The bidder shall only submit single copy of the required documents and Price Bid in the portal. In the Financial bid, the bidder cannot leave any figure blank. He has to only write the figures; the words will be self-generated. The Bidders are advised to up-load the completed Bid document well ahead of the last date & time of receipt to avoid any last moment problem of power failures etc.

16.2 The Bidder shall go through the Bid carefully and list the documents those are asked for submission. He shall prepare all documents including cost of Bid Document, Bid Security, Declaration form, price bid etc and store in the system.

16.3. The bidder shall log on to the portal with his DSC and move to the desired tender for up-loading the documents in appropriate place one by one simultaneously checking the documents. Once the Bidder makes sure that all the documents have been up-loaded in appropriate place, he clicks the submit button to submit the bid to the portal.

16.3.1 Tender cannot be pre-opened and cannot be submitted after due date and time. Therefore, only after satisfying that all the documents been uploaded, the Bidder should activate submit button.

16.3.2 . In the e-procurement process, each process is time stamped. The system can identify each individual who has entered into the portal any bid and the time of entering into the portal.

16.3.3 The Bidder should ensure clarity of the document up-loaded by him to the portal, especially the scanned documents by taking out sample printing. Non-submission of legible documents may render the bid non- responsive. However, the Officer inviting the Bids if so desires, can ask for legible copies for clarification within a stipulated period of 7 days, provided such document in no way alters the Bidder's price bid. If the Bidder fails to submit Such documents with in the stipulated date, his bid shall be evaluated on it's own merit.

D. SUBMISSION OF BIDS

17. SECURITY OF BID SUBMISSION:

17.1 All bid data uploaded by the Bidder to the portal will be encrypted by the DSC of the opener(s). The system shall require all the mandatory forms and fields filled up by the contractor during the process of submission of the bid/tender.

17.2 The Bid shall be received in encrypted format by the system which can only be time.

18. DEADLINE FOR SUBMISSION OF THE BIDS:

18.1. The online bidding will remain active till the last date and time of the bid submission. Once the date and time (Server date and time) is over, the bidder will not be able to submit the bid. The date & time of bid submission shall remain unaltered even if the specified date for the submission of bids declared a holiday for the Officer inviting the Bid.

18.2. The officer inviting the bid may extend the deadline for submission of bids by issuing an amendment in accordance with Sub-Clause 9.3, in which case all rights and obligations of the officer inviting the bid & Engineer-in-Charge and the bidders previously subject to the original deadline will then be subject to the new deadline.

19. LATE BIDS:

19.1. The system shall reject submission of any bid through portal after closure of the receipt time. For all purpose the server time displayed in the e-procurement portal shall be the time to be followed by the bidder and concerned officers.

20. MODIFICATION AND WITHDRAWAL OF BIDS:

20.1 In the E-Procurement Portal, it is allowed to modify the bid any number of times before the final date and time of submission. The bidder shall have to log on to the system and resubmit the documents as asked for by the system including the price bid. In doing so, the bids already submitted by the bidder will be removed automatically from the system and the latest bid only will be admitted. But the bidder should avoid modification of bid at the last moment to avoid system failure or malfunction of internet or traffic jam or power failure. If the bidder fails to submit his modified bids within the designated time of receipt, the bid already in the system shall be taken for evaluation.

20.2 In the E-Procurement Portal, with-drawl of bid is allowed. But in such case he has to write a letter with appropriate reasons for his withdrawal addressed to the Officer inviting the bid and up load the scanned document to portal in the respective bid before the closure of receipt of the bid. The system shall not allow any withdrawal after expiry of the closure time of the bid.

E. OPENING AND EVALUATION

21. OPENING OF THE BID:

21.1 Bid opening dates are specified during tender creation or can be extended vide corrigendum. These dates are available in IFB, tender document as well as the home page of portal. Bid opening can be done by the authorized users which are defined during the tender publication / approval stage. The bids are encrypted using there public keys and can be decrypted only on or after the Bid Opening due date. The bid openers private key will be required to open the bids and all the openers have to log on to the portal during that time.

21.1.1. The bidders who participated in the on-line bidding can witness opening of the bid from any system logging on to the portal with the DSC away from opening place. Contractors are not required to be present during the bid opening at the opening location if they so desire.

21.1.2. Each activity is date and time stamped with user details. For time stamping, server time is taken as the reference.

21.2. In the event of the specified date of bid opening being declared a holiday for the Officer inviting the Bid/Engineer-in-Charge, the bids will be opened at the appointed time on the next working day.

21.3. In case bids are invited for more than one package, the order for opening of the "Bid" shall be that in which they appear in the "Invitation for Bid".

21.4 During bid opening, the covers containing original demand draft towards Cost of bid in the form specified in the Invitation for Bid, received after last of receipt of bid and before opening of the bids shall be opened and declared. The original copy of the Bid Security and period of validity in conformity with clause 15 shall be checked and announced. The list of bidders who have submitted the original copy of the cost of Bid and Bid Security shall be prepared and announced.

21.4.1 Combined bid security for more than one work is not acceptable. If the bid security /EMD has not been furnished in the form specified in Clause 15, the bid will be declared non- responsive and rejected.

21.5 The Bid openers; who have been pre-defined shall log on to the portal with their respective DSC. Unless all the Officers who have been declared as Opening officers, log on the portal with their DSC the Tender cannot be opened.

21.5.1 The Opening Officers will systematically check the scanned demand draft towards cost of the bid document and the scanned document of Bid security with that of the original submitted. If found in order, they will continue opening of all other documents in the system provided under Technical Bid.

21.5.2. The bids accompanied with appropriate bid cost and valid bid security /EMD will be taken up for evaluation with respect to the qualification Information and other information furnished in Part - I pursuant to Clause 3.

21.5.3. Immediately on receipt of these clarifications, the Evaluating Officers; predefined in the system for the bid, will finalize the list of responsive bidders. They will log on to the site with their DSC and record their comments on the Technical evaluation page in the system. The Officer Inviting the Bid if also the accepting authority, shall log on to the system with his digital signature and check technical evaluation. He can either accept or pass on to the evaluating officers for re-evaluation. Upon acceptance of technical evaluation by the Accepting authority in the system, the system shall automatically generate letter to all the responsive bidders and the system shall forward the letter to all the responsive bidder that their technical bid has been evaluated responsive with respect to the data/information furnished by him and the letter shall also intimate him the date & time of opening of financial bid. The system shall also inform the non- responsive bidders in their email ID that their bid has been found non- responsive.

21.6 The Technical evaluation of all the bids will be taken up as per the information furnished by the Bidders. If any of the information/ statements/documents/ /certificates furnished by the bidder is found to be false/fabricated/bogus, his registration in the portal shall be blocked and the bidder is liable to be blacklisted.

21.7 After technical evaluation of the bidders and selection of the qualified bidders, the financial bids of the technically qualified bidders shall be opened on the due date of opening. Members of the bid opening committee log on to the system in sequence and open the financial bids for the technically qualified bidders. The opening of financial bid by the opening officer using their DSC shall decrypt the financial bids.

21.7.1 Opening of price bid and evaluation of lowest bidder is subject to satisfaction of other qualification information asked for in the bid pursuant to

Clause-3.

21.7.2 The Officer inviting Bid shall ensure that all the Bidders are individually intimated about the date, time & venue of opening of the financial bid along with the responsiveness of the Technical Bid.

21.7.3 The Financial Bid will be opened on the notified date & time in the presence of bidders or their authorized representative who wish to be present.

21.7.4 At the time of opening of "Financial Bid", the names of the bidders whose bids were found responsive in accordance with Sub-Clause 24.1 will be announced. The bids of only those bidders will be opened. The remaining bids will be rejected.

21.7.5 The responsive bidders names, percentage rates, any discounts and withdrawals, and such other details as the officer inviting the tender may consider appropriate, will be announced by him or his authorized representatives at the opening.

21.7.6 Special conditions and/or rebate/discount offer if any uploaded to the system shall be declared and recorded first.

21.7.7 The Financial bid of the bidders shall be opened one by one by the designated officers. The system shall auto-generate the Comparative statement.

21.7.8 The Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.

22. PROCESS TO BE CONFIDENTIAL:

22.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence the officer inviting the bid, processing of bids or award decisions may result in the rejection of his bid.

23. CLARIFICATION OF BIDS:

23.1To assist in the examination, evaluation, and comparison of bids, the officer inviting the bid may, at his discretion, ask any bidder for clarification of his rates including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable or by e-mail, but no change in the bid price or substance of the bid shall be sought, offered.

23.2 Subject to sub-clause 23.1 , no bidder shall contact the officer inviting the bid on any matter relating to his bid from the time of the opening to the time the contract is awarded. If the bidder wishes to bring additional information to the notice of the officer inviting the bid, it should do so in writing.

24. EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS:

24.1 During the detailed evaluation of "Technical Bids", the officer inviting the bid will determine whether each bid:-

24.1.1 Whether the Bid security is confirmed by issuing institution/Bank.

24.1.2 Has submitted legible documents for evaluation

24.1.3 Meets the eligibility criteria defined in Clause 3 and;

24.1.4 Is substantially responsive to the requirements of the bidding documents.

24.2 During the detailed evaluation of the "Financial Bid", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawings.

24.3 A substantially responsive "Financial Bids" is one, which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one

24.3.1 Which affects in any substantial way the scope, quality, or performance of the works.

24.3.2 Which limits in any substantial way, inconsistent with the bidding documents, the right of the officer inviting the bid or the bidder's obligations under the contract or

24.3.3 Whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

24.4 If a "Financial Bid" is not substantially responsive, it will be rejected by the officer inviting the bid, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

24.5 On opening of the price bid the system shall arrange the financial bids in order of their value (L1 first, followed by L2, L3 ….) for subsequent evaluation. The evaluation status (Sheet) will be visible to all the participating bidders after opening on their respective logins. Each activity is recorded in the system with date and time stamping.

25. EVALUATION OF BIDS:

25.1 If the officer inviting the Bid in his opinion judges that the price quoted by the lowest qualified bidder is high or a special condition imposed by the bidder is to be

withdrawn, the bidder shall be invited for negotiation by the officer inviting the Bid or by an officer authorised by him in writing.

F. AWARD OF CONTRACT

26. AWARD CRITERIA:

26.1 The officer inviting the bid will award the contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated price.

26.2 On acceptance of the tender, the Contractor shall name in writing his accredited representative(s) who would be responsible for taking instructions from the Engineer-in-Charge.

26.3 Competent Authority reserves to himself the right of accepting the whole or any part of the bid and the bidder shall be bound to perform the same at the rate quoted.

26.4 The successful bidder registered under other State Government / MES / Railways / CPWD in equivalent rank has to register under state PWD before signing of the agreement if required.

27. OPTIONS IF THE BIDDER BACKS OUT FROM BIDDING PROCESS:

27.1 In case the 1st lowest Bidder or even the next lowest Bidder withdraw in series one by one, thereby facilitating a particular Bidder for award, then they shall be penalized with Appropriate action i.e. Cancelled the (registration of OPWD) and / or suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per Guiding of OPWD/Govt. of Odisha Guiding.

27.2 The bidding process shall be deemed to be complete after the issue of letter of acceptance. If the bidder fails to sign the agreement within the stipulated period mentioned under clause 29.2, his bid security shall stand forfeited.

28. RIGHT TO ACCEPT OR REJECT ANY OR ALL BIDS:

28.1 The competent authority on behalf of Rourkela Smart city Limited, does not bind him to accept the lowest or any other tender and reserves to him the authority to reject any or all the tenders received without assigning any reason.

28.2 All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidder shall be summarily rejected.

29. NOTIFICATION OF AWARD AND SIGNING OF AGREEMENT:

29.1. In the E-Procurement Portal, the system shall generate the template of award letter and the Officer Inviting the Bid shall mention the amount of Performance Security and additional security required to be furnished in the letter and intimate the bidders in his e-mail ID. The issue of the letter of acceptance shall be treated as closure of the Bid process and commencement of the contract.

29.2 The bidder shall within 15 days of issue of letter of acceptance, furnish the Performance security & additional Performance security (if any) in the form & the work programme & shall sign the agreement in prescribed format, failing which the Engineer-in-Charge shall without prejudice to any other right or remedy available in law, be at liberty to either he will suspend/prohibit/debar/blacklist from

participating in bidding in any contract of the State or Cancelation as per OPWD code/ of Empanelment (registration of from OPWD) action will be taken or both. The agreement will incorporate all agreements between the officer inviting the bid and the successful bidder. If L1 bidder does not turn up for agreement after finalization of the tender, then he will suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per OPWD Code and /or Cancelation of Empanelment (registration of from OPWD) action will be taken . In that case, the L2 bidder, if fulfils, required criteria would be called for drawing agreement for execution of work subject to the condition that L2 bidder negotiates at par with the rate quoted by the L1 bidder otherwise the tender will be cancelled.

In case a contractor is blacklisted, it will be widely published and intimated to all departments of Government and also to Govt. of India agencies working in the state.

(Amendment to Para-3.5.14 Note-I of OPWD Code Vol.-I by inclusion).

29.2.1 Following documents shall form part of the agreement.

29.2.1.1 The notice inviting bid, all the documents including additional conditions, specifications and drawings, if any, forming the bid as issued at the time of invitation of bid and acceptance thereof together with any correspondence & documents leading thereto & required amount of performance security including additional performance security as per sub clause 29.2 hereof.

29.2.1.2 Standard Bid Document P.W.D. Form P-1

29.3 The letter to proceed with the work shall be issued by Engineer-in-charge only after signing of the agreement. The notification of award will constitute the formation of the contract subject only to the furnishing of performance security and additional performance security in accordance with the provisions of the agreement.

29.4 On acceptance of the composite bids by the competent authority the letter of award will be issued by the Engineer-in-Charge of the major component of the work.

29.5 Upon signing of the agreement by the successful bidder, the Engineer-in-Charge will promptly notify the other bidders that their bids have been unsuccessful.

30. CORRUPT OR FRAUDULENT PRACTICES:

30.1. The Engineer-in-Charge will reject a proposal for award if he determines that the bidder recommended for award has been engaged in corrupt or fraudulent practices in competing for the contract in question. He will report to the Officer Inviting Bid / next higher authority.

30.2 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 for rejection.

DETAILED TENDER CALL NOTICE

Sealed percentage rate bids are invited in double cover system from the Civil Contractors of 'B' Class contractors registered with the State Government and contractors of equivalent Grade / class registered with Central Government / MES / Railways having registration for Civil, Electrical and P.H works for execution of Civil / E.I. / P.H. works on production of definite proof from the appropriate authority in prescribed form to be eventually drawn in P.W.D. FORM P-1 for the work/Project : "Development of Surface Parking in front of Nexa Showroom on Percentage Basis." an estimated cost of Rs. 56,73,258/- Fifty Six Lakhs Seventy Three Thousand and Two Hundred Fifty Eight Six Only) Excluding GST Contractors not registered with Govt. of Odisha can participate in the e- procurement after necessary enrolment in the portal but have to subsequently register themselves with the appropriate registering authority of the state Govt. before award of the work as per prevalent registration norms of the state.

a) This tender is of composite nature and consisting of Civil, Electrical, fire fighting and PH works.
b) This detailed Tender Call Notice along with the Pre-Bid Meeting minutes, clauses mentioned herein shall form a part of the contract and agreement.

2. The Bid documents are available on official website of Government: https://www.tendersodisha.gov.in & www.rmc.nic.in, from 12.12.2025 17:00 Hrs to 29.12.2025 17:00Hrs.The last date and time of submission of Bid is as per contract data.
3. The Technical Bid documents (Cover–I) will be opened by the assigned officer in the office of Chief Executive Officer, RSCL at 16:00 Hours on 30.12.2025.in the presence of the bidders or their authorized representatives who wish to attend. After evaluation of the documents contained in Cover-I, the Cover-II containing price bid/s of the technically responsive bidder/s will be opened. The date, time and place of opening the price bid will be intimated to the eligible qualified bidders through system generated E-mails.
4. The cost of Bid documents in shape of demand draft issued from any Nationalized / Scheduled bank may be prepared in the name of RSCL(Smart City Mission Grant Fund), and payable at Rourkela for Rs.11,800/- towards tender paper cost. The online bid must be accompanied with scanned copies of demand draft towards cost of tender paper.
5. The bid is to be submitted in two covers.
   i. Cover-I is to contain scanned copy of EMD and Cost of bid document, Registration Certificate, PAN, Profit Loss statement, GST Registration Certificate, List of similar nature of works, work in hand, affidavit, turn over certificate and all other documents required as per the relevant clauses of this DTCN. Before award of final contract, such bidders will have to produce the GST clearance certificate. ii) The similar nature of work are of following types: Laying of Paver blocks.
   ii. Cover-II is to contain the PRICE BID duly filled in and signed by the bidder.

6. Furnishing scanned legible copy of Original Registration certificate, PAN card & GST Registration Certificate along with the Technical Bid is mandatory otherwise his/ her bid shall be declared as non responsive and thus liable for rejection.
7. Deleted
8. Deleted

The contract will be drawn in P.W.D. P-1 contract form and will constitute all civil, electrical and PH works.

The contract shall be drawn & signed by Chief Executive Officer on behalf of Rourkela Smart City Limited.

i. The entire works of the Agreement shall be supervised measured and check measured by the Engineer in Charge.

9. If an individual makes the application, the individual should sign (with DSC) above his full type written name and current address.

10. If the application is made by proprietary firm, it shall be signed (with DSC) by the proprietor & furnish full type written name and the full name of his firm with its current address in a forwarding letter.

11. If the application is made by a firm in partnership, it shall be signed (with DSC) by a partner holding power of attorney for the firm in which case a certified copy of the power of attorney shall accompany the application. A certified copy of the partnership deed and current address of all partners of the firm shall also accompany the application.

12. If the application is made by a limited company or a corporation, it shall be signed (with DSC) by a duly authorized person holding power of attorney for signing the application in which case a certified copy of the power of attorney shall accompany the application. Such limited company or corporation will be required to furnish satisfactory evidence of its existence along with the technical bid.
13. The tender should be strictly in accordance with the provisions as mentioned in the tender schedule. Any change in the wordings will not be accepted.
14. The work is to be completed (Construction work) in all respects within Six (6) calendar months from the date of issue of work order. Before acceptance of tender, the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and in case of failure on the part of the agency to achieve the milestone liquidated will be imposed (Amendment to Para-3.5.18 Note-VIII of OPWD Code Vol.-I).
15. All tenders received will remain valid for a period of 90 days from the last date prescribed for receipt of tenders and validity of tenders can also be extended if agreed by the tenderers and the Department
16. The tenderer shall carefully study the tentative drawings and specifications applicable to the contract and all the documents, which will form a part of the agreement to be entered in to, by the accepted tenderer and detailed specifications for Odisha, and other relevant specifications and drawings, which are available. Complaint at a future date that the tenderers have not seen plans and specifications cannot be entertained.
17. The drawings furnished with the tender are tentative and subject to revision or modification as tendered during the execution as per actual necessity and detail test conducted. But the tendered rates quoted by the tenderer will hold good in case of such modification of drawings during the time of execution and shall in no way invalidate the contract and no extra monetary compensation will be entertained. The work shall however be executed as per final approved drawing to be issued by the Engineer-in- Charge as and when required.
18. By admission of a tender for the work, a tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the work, about the quality and availability of the required quantity of material, and that rates quoted by him in the tender will be adequate to complete the work according to the specifications attached there to and that he had taken in to account all conditions

and difficulties that may be encountered during its progress and to have quoted rates including labour and materials with taxes, octroi, other duties, lead, lifts, loading and unloading, freight for all materials and all other charges necessary for the completion of the work, to the entire satisfaction of the Engineer-in Charge of the work and his authorized subordinates. After acceptance of the contract rate Government will not pay any extra charges for any reason in case the contractor claims later on to have Misjudged as regard availability of materials, labour and other factors. For the purpose of estimate, the approved quarry lead is to be provided judiciously. Engineers in charge would be responsible for ensuring the quality of the materials supplied. The contractors would, however, be responsible for procurement of material from authorized sources and voluntarily disclose the source of procurement for the purpose of billing. Besides, the bidder would be required to submit the details of quarry for procurement while submitting the bids.

(Amendment to Para-3.4.16 (a) (vii) of OPWD Code Vol.-I by substitution). Design,

19. The bid must be accompanied by Bid security accepting, that if the bidder withdraw or modify its bid during the period of validity .i.e. not less than 90(Ninety) days from the bid due date or if the bidder is awarded the contract and fail to sign the contract or to submit a performance security and Addition Performance Security. Tender Not accompanied with Scanned copy of Bid security shall be declared as non-responsive and thus liable for rejection. The bid security should remain valid minimum of 45(Forty-five)days beyond the bid validity period

20. The tender should be accompanied with the Scanned copies of the valid Registration certificate of Class of Contractor , GST Registration Certificate and PAN card which are mandatory, otherwise his/her bid shall be declared as non- responsive and thus liable for rejection.
21. The tender containing extraneous conditions not covered by the tender notice are liable for rejection and quotations should be strictly in accordance with the items mentioned in the Tender Call Notices. Any change in the wording will not be accepted.
22. The department reserves the right of authority to reject any or all tenders received without assigning any reason whatsoever.
23. The earnest money of the L-1 bidder will be retained and will be dealt with as per terms and condition of O.W.P.D Code.The retention of E.M.D with the Department will carry no interest.
24. The Engineer-in-charge will notify the bidder / tenderer whose bid has been accepted of the award prior to expiration of the validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the conditions of Contract called the "Letter of Acceptance") will state the sum that the Engineer-in-charge will pay the contractor in consideration of the execution and completion of the Works by the contractor as prescribed by the contract (Hereinafter and in the contract called the "Contract Price").

    The Notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security (Initial Security Deposit) in form of Deposit receipt of Schedule Bank / Kissan Vikash Patra / Post Office Savings Bank Account/National Savings Certificate/ Post Office Time Deposit Account/Bank Guarantee of Nationalised Bank /Schedule Bank of India counter guaranteed by local Branch at Rourkela with validly of One year / duly pledged in favour of the Chief Executive Officer Rourkela Smart City Limited. Rourkela & payable at Rourkela and in no other form, which including the amount already deposited as bid security (earnest money) shall be 2% of the value of the tendered amount and sign the agreement

in the P.W.D. form No. P-1 (Schedule XLV No. 61) for the fulfilment of the contract in the office of the Chief Executive Officer and payable at Rourkela or as directed. The security deposit together with the earnest money and the amount withheld according to the provision of P-1 agreement shall be retained as security for the due fulfilment of this contract and additional performance security in accordance with the provisions of the agreement.

The agreement will incorporate all agreements between the officer inviting the bid/ Engineer-in Charge and the successful bidder within 15 days following the notification of award along with the Letter of Acceptance. The successful bidder will sign the agreement and deliver it to the Engineer-in Charge. Following documents shall form part of the agreement.

a) The notice-inviting bid, all the documents including additional conditions, specifications and drawings, if any, forming the bid as issued at the time of invitation of bid and acceptance thereof together with any correspondence leading thereto & required amount of performance security including additional performance security.
b) Standard P.W.D. Form P-1 with latest amendments. Failure to enter in to the required agreement and to make the security deposit as above shall entail either he will suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per OPWD CODE and or Cancelation of Empanelment (registration of from ELBO/OPWD) or both No contract (tender) shall be finally accepted until the required amount of initial security money is deposited The security will be refunded after 12 (Twelve) months of completion of the work and payment of the final bill and will not carry any interest. As concurred by Law Department & Finance Department In their U.O.R. No 848, dt.21.05.97 .O.R.No.202 W.F.D. dt.06.03.98 respectively the E.M.D. will be forfeited case, where tenderers back out from the offer before acceptance of tender by the competent authority.

25. The contractor should be liable to fully indemnify the Department for payment of compensation under workmen compensation act. VIII of 1923 on account of the workmen employed by the contractor and full amount of compensation paid will be recovered from the contractor.

26. Tenderers are required to liable by fair wages clause as introduced by Govt. of Odisha Works Department letter No.VII (R&B) 5225, dt.26.2.55 and No.II, M-56/61-28842 (5), dt.27.9.61.

27. The contractor shall bear cost of various incidentals, sundries and contingencies necessitated by work in full within the following or similar category.

a) Rent, royalties, cess and other charges of materials, Octroi and all other taxes except prevailing GST from time to time. Ferry tolls, conveyance charges and other cost on account of land buildings including temporary building required by the tenderer for collection of materials, storage, housing of staff or other purpose of the work are to be borne by the contractor at his own cost. No rent will be payable to Govt. for temporary occupation of land owned by govt. at the site of the work for bonafide use of the land for work and all such construction of temporary nature by the contractor shall be done after obtaining written permission from the Engineer-in-Charge of Civil portion of the work and all such construction shall have to be demolished and debris removed and ground made good and cleared after completion of the

work at no extra cost.

b) Royalty will be recovered from each bill as notified by Govt. from time to time unless K Forms are enclosed. Refund of royalty at later date after passing of the bills cannot be entertained as the recovery of royalty is being credited to revenue.

c) Labour camps or huts necessary to a suitable scale including conservancy sanitary arrangements therein to the satisfaction of the local labour laws and health authorities shall have to be provided by the Contractor.

d) Arrangement of suitable water supply including pipe water supply where available for the staff and labour as well as for the execution of the work is sole responsibility of the Contractor and no extra cost for carriage of water will be entertained.

e) All fees and dues levied by Municipal, Canal or Water Supply Authorities are to be borne by the Contractor.

f) Suitable safety equipments and dresses, gloves, life belts etc. for the labour engaged in risky operations are to be supplied by the contractor at his own cost.

g) Suitable fencing barriers, signals including paraffin and electric signals where necessary at work and approaches in order in project the public and employees from accident has to be provided by the Contractor at his own cost.

h) Compensation including cost of any legal suit for injury to persons or property arising out of execution of the work and also any sum, which may become payable due to operation of the workmen compensation act, shall have to be borne by the contractor.

i) The contractor has to arrange adequate lighting arrangements for the work wherever necessary at his own cost.

29. No payment will be made for layout, benchmark, level pillars, profiles and benching and levelling the ground required, which has to be carried out by the contractor at his own cost. The rates to be quoted should be for finished items of work inclusive of carriage of all materials and all incidental items of work.

30. After the work is finished all surplus materials should be removed from the site of work, preliminary work such as vats, mixing platforms, etc. should be dismantled and all materials removed from the site and premises left neat and his should be inclusive in the rates. No extra payment will be made to the Contractor in this account.

31. It should be understood clearly that no claim what-so-ever will be entertained to extra items of works quantity of any item besides estimate amount unless written order is obtained from the competent authority and rate settled before the extra items of work or extra quantity of any items of work is taken up.

32. The tenderers shall have to abide by the C.P.W.D. safety code rules introduced by the Govt.of India, Ministry of Works and Housing & Supply in their standing order No.44150, dt.25.11.57.

33. No part of the contract shall be sublet without written permission to the concerned Engineer In Charge or transfer to be made by the power of attorney authorizing others to receive payment on contractor's behalf.

34. Bid documents consisting of plans, specifications, the schedule of quantities and the set of terms and conditions of contract and other necessary documents can be seen in all he offices issuing the documents and office of the under signed during office hours every day except on Sundays and Public Holidays till last date of sale and receipt of tender papers. Interested bidders may obtain further information at the same address. But it must be clearly understood that tenders must be received in order and to instructions in complete shape. Incomplete tender is liable for rejection.

35. No Relation Certificates.

The contractor shall furnish a certificate along with the tender to the effect that he is not related to any officer in the rank of an Assistant Engineer & above Rourkela Smart City Limited. or Assistant/Under Secretary & above in the Department. If the fact subsequently proved to be false, the contract is liable to be rescinded. The earnest money & the total security will be forfeited & he shall be liable of make good to damages the loss or damages resulting for such cancellations. The proforma for no relationship certificate is contained in a separate sheet vide Schedule-A

36. Payment for variation in price : **Not Applicable**

36(a) Deleted

36.(a) (ii) Deleted

36.(b) Deleted

36(c) Deleted.

36(d) Deleted.

36(e) APPLICATION OF ESCALATION CLAUSE: Deleted

Price/rates or Firm during pendency of the contract/execution of Contract

37. If any advance / Secured advance is granted by the Department the same will bear Interest at the rate of 18% P.A.

38. All items of work as per schedule of quantities of this tender should confirm to Odisha Detailed Standard Specification. I.R.C. & I.S.I. Codes & Bridge code section I, II, III, IV & VII & latest design criteria for pre-stressed concrete bridge specially for Roads & Bridges issued by MoRT&H, Government of India, Compacting shall have to be carried out with help of mechanical vibrators from the range of I.S.:2505, I.S.:2006, I.S.:2514. I.S.:4656.

39. Centring & Shuttering shall be with suitable steel shutters in side of which shall be lined with suitable sheeting and made leak proof and watertight. All joints in formwork shall be properly sealed preferably with P.V.C. joints sealing tapes & compounds.

40. Form work including complete false work shall be designed by the Contractor without any extra cost to employer and the Department will have the right to inspect scaffolding, centering and shuttering made for the work and can reject partly of fully such structures, if found defective in their opinion. Any eventually such as loss of lives or properly due to failure of centering and shuttering shall be the responsibility of the Contractor regarding compensation of all claims thereof.

41. Cement shall be used by bags and weight of one bag of Cement should be 50 (fifty) Kg. net & the Engineer-in-Charge or his representative shall have the right to test the weight & quality from time to time.

42.The tenderers shall make all arrangements for proper storage of materials but no cost for raising shed for store and pay of security guard etc. will be borne by the Department.

The department is not responsible for any theft or loss of materials at site. It is contractor's risk. Under any such plea, if the tenderer stops the work he shall have to pay the full penalty as per clauses of the contract.

43. Approach road to site of work for transport of materials to site of work is

sole responsibility of the Contractor. Statutory traffic restriction in the town area for Transport of construction material to site of work is to be taken in to consideration before tendering and no consideration for extra time or compensation thereof shall considered.

44. The contractor should at his own cost arrange necessary tools and plants required for efficient execution of work and the rates quoted should be inclusive of transportation, hire and running charges of such plant and cost of consumables.
45. The contractor shall properly co-ordinate with the execution of P.H. , Fire and Electrical works and take care of the safety of workers.
46. The machineries if available, with the department may be supplied on hire as per charges noted in the enclosed statement and may be changed from time to time subject to the condition that the contractor will execute in advance an agreement with the Engineer-in-Charge.
47. No claim whatsoever will be entertained for supply of machineries. No extension of time will be granted to the contractor under this ground under any circumstances.
48. The tenderer should furnish along with their tender a list of works executed during the last five years duly certified by the concerned Engineer-in-charge indicating the satisfactory completion for Civil, P.H & Electrical works as per the Performa enclosed in a separate sheet of Schedule-C.
49. The tenderer or any of its constituent partners of whose contract for any work has been rescinded or who has abandoned any work in the last five years prior to the date of Bid shall be debarred from qualification. The tenderer is to furnish an affidavit at the time of submission of tender paper about the authentication of tender documents. An affidavit to this effect is to be furnished in Schedule-E and information in Schedule-D.
50. It should be clearly understood that:

a) The joints of the bars are to be provided with lapping, welds or bolts nuts as well be directed by the Engineer-in-charge.

b) Concrete test specimens 150mm × 150mm × 150mm in size (whether plain or reinforced concrete) for the testing shall be taken for each structural member by a representative of the contractor in the presence of responsible officer of the rank not lower than that of an Assistant Engineer or sub-Divisional Officer. The contractor shall bear the cost so involved in testing. The test specimen in cube should be carried out in the Departmental Control and Research Laboratory Cuttack or Rourkela. Test should be carried out in accordance with the stipulation in Bridges code section-III.

c) Test specimens shall be formed carefully in accordance with the standard method of taking test specimen and no plea shall be entertained later on the grounds that the casting of the test specimen was faulty and that the result of the specimen did not give a correct indication of the actual quality of concrete.
d) Plain concrete and reinforced concrete specimens will be tested in Quality Control and Research Laboratory as per direction of Engineer-in- charge. Cost of testing of all specimens and samples will be borne by the Contractor.

51. The rates quoted should be inclusive of carriage of water required in connection with execution of the work. No claim for carriage of water whatsoever will be entertained.

52. The contractor shall employ one or more Engineering Graduate or Diploma holders as apprentice at his cost if the work as shown in the tender exceeds Rs.2,50,000.00. The apprentices may be selected by the Chief Executive Officer, Rourkela Smart City Limited. The period of employment will commence within one month after the date of work order and would last till the date, when 90% of the work

is completed. The fair wage to be paid to the apprentices should not be less than the emolument of personnel of equivalent qualification employed under Government.

53. List of tool & plants in running condition in possession of contractor is to be furnished in a separate sheet.

54. It is the responsibility of the contractor to procure and store explosive required for blasting operation if necessary. Department may render necessary possible help for procuring license.

55. For submission of a tender for the work, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the work about the quality and availability of the required quantity of materials, Medical aid, labour and Flood stuff etc and that the rates quoted by him in the tender will be adequate to complete the work according to the specifications attached thereto and that he had taken in to account all conditions and difficulties that may be encountered during its progress and to have quoted labour rates and materials with taxes, Octroi and other duties lead, lifts, loading and unloading freight for materials and all other charges necessary for the completion of the work to the entire satisfaction of the Engineer-in-charge of the work and his authorized subordinates. After acceptance of the contract rates RSCL will not pay any extra charges for any reason in case the contractor finds later on to have misjudged the conditions as regards the availability of materials, labour and other factors. The contractor will be responsible for any misuse, loss or damages due to any reasons whatsoever of any departmental material during the execution of work. In case of loss, damage or misuse, recovery at the rate at 5 times the cost of the materials will be deducted from the bills or his other dues.

56. The prevailing percentage of I.T. Department of the gross amount of the bill towards income tax will be deducted from the contractor's bill.

57. Deleted.

58. It must be clearly understood that under no circumstances any interest is chargeable for the dues or additional dues if any payable for the work executed and final bill pending disposal due to any reason whatsoever.

59. No extra payment will be made for removing spreading and consolidating salvaged metals and materials.

60. Under section 12 of contractors labour (Regulation and Abolition) Act. 1970 the contractor who undertakes execution of work through labour should produce valid license from licensing authorities of labour Department.

61. Performance Security:

61.1 If the rate quoted by the bidder is less than 15% of the tendered amount, then such a bid shall be rejected and the tender shall be finalized basing on merits of rest bids. But if more than bid is quoted at 14.99% (Decimals up to two numbers will be taken for all practical purpose) less than the estimated cost, the tender accepting authority will finalize the tender thorough a transparent lottery system where all bidders / their authorized representatives, the concerned CEO and CFO will remain present.

(Amendment to Appendix-IX, Clause-36 of OPWD Code Vol.-II by inclusion).

61.2 Additional performance security shall be obtained from the bidder when the bid amount is less than the estimated cost put to tender. In such an event, the bidders who have quoted less bid price/rates than the estimated cost put to tender shall have to furnish the exact amount as per mentioned in below table i.e.

S.No	Range of Difference between the estimated cost put to tender and Bid amount	Additional Performance Security to deposited by the Successful Bidder
i	Below 5%	No Additional Performance Security
ii	From 5% and above and below 10%	50% of (Difference between Estimated cost put to tender and Bid Amount)
iii	From 10% and above	150% of (Difference between estimated cost put to tender and Bid Amount)

as Additional Performance Security in shape of Demand draft/ Bank Guarantee from Nationalised Bank, Schedule Bank for validly of one year/ Term Deposit Receipt of Schedule Bank/ Nationalized Bank pledged in favour of the Chief Executive Officer, Rourkela Smart City Limited and payable at Rourkela before signing the Agreement. The additional performance security in any other from will not be accepted. If the Contractor fails to complete the work, the amount so furnished as additional performance security will be forfeited in addition to the other penal clauses, if any to be imposed.

RSCL has already been appointed Project Management Consultant to supervise "Development of Surface Parking in front of Nexa Showroom on Percentage Basis." and his role & responsibility as follows :

- Project Planning and Construction Supervision
- Supervision Manual
- Design, drawings and tender specifications
- Material Testing Quality Control
- Environmental Protection and Safety during Construction
- Certification of Interim and final payments
- Contract Administration
- Operation & Maintenance Manual Approval
- As Built Drawing approval
- Certification in Defect Liability Period
- Any Contract Dispute and assist in case of Arbitration.

The contractor has to assist and obey the technical assistants and guidance's of the consultant.

62. Sample of all material - The contractor shall supply sample of all materials fully before procurement for the work for testing and acceptance as may be requiring by the concerned Engineer in Charge.
63. All reinforced cement work should conform to Odisha Detailed specification and should be of proportion as per Contract Agreement having desired compressive strength (in work test) in 15 Cm cubes at 28days, after mixing and test conducted in accordance with IS 456 and IS 516.
64. Bailing out of water from the foundation, pipeline trenches S. Tanks / Soak pits/ Sumps/ M.H. etc. either rainwater or sub-soil water if necessary should be borne by the contractor. No payment will be made for benchmarks. Level pillars, profiles and benching and levelling the ground wherever required. The rates quoted should be for finished items of works inclusive of these incidental items of work. It should be understood clearly that no claims whatsoever would be entertained.
65. The tenderer shall have to abide by the C.P.W.D. safety code rules introduced by the Government of India, Ministry of work Housing and Supply in their standing order No-44150 dt .25.11.57.

66. The Contractor will have to submit to the PMC monthly return of labour both skilled and unskilled employed by him on the work.
67. All fittings for doors and windows , P.H. ,Fire & Electrical works as supplied by the Contractor should be of best quality and conform to relevant I.S. specification and should be got approved by the Engineer-in-charge/PMC of the respective wing before they are used on the work.
68. After completion of the work the contractor shall arrange at his own cost all requisite equipments for testing buildings, if found necessary and bear the entire cost of such test, including the inspection of Electrical Inspectorate.
69. The Tenderer should furnish along with their tender 1. A list of works, which are at present in their hand Schedule-F 2. List of work executed (Schedulele-C) in the prescribed proforma(s) enclosed herewith in appropriate place of bid document.

70. All reinforced cement concrete works should be finished smooth Extra charges for plastering if required to any R.C.C. structures like roof slab, Columns, Chajjas, fins, parapets, shelves etc. shall not be paid.
71. Deleted
72. Deleted
73. The tenderer may at his option quote reasonable rate for each item of work carefully so that the rate for one item should not be unworkable low and for others too high.
74. The contractor has to arrange the samples of materials required for execution to be got tested and approved by the Department before taking up the work and during course of execution required from time to time. All such samples will be tested at any of the Govt. of Odisha /Govt. Of India accredited Laboratory, at the cost of the Contractor with no extra cost to the Department.

75. If there is any damage to the work due to natural calamities like flood or cyclone or any other cause during the course of execution of work or up to 24 months after completion of work or if any, imperfection becomes apparent to the work within 24 months from the date of final certificate of completion of work the contractor shall make good of all such damages at his own cost with no extra cost to the Department. No claims, whatsoever, in this regard will be entertained.

76. The K. B. Bricks should be well burnt and of good qualities. The bricks should be approved by the Engineer-in-Charge before use in the work and should confirm to the minimum strength and other criteria as per National Building Code.

77. Under Section 1 of contract labour Regulation and Abolition Act 1970 the contractor who undertakes execution of work through labour should produce valid license from the licensing authority of labour Department.

78. Standard co-efficient for linear measurement will be adopted while calculating consumption of steel and no claim whatsoever regarding difference in co-efficient of steel will be entertained. The rates quoted shall be inclusive of any eventuality of difference for co-efficient for linear measurements.

79. Engineer Contractor desirous to avail the facility of exemption of E.M.D is required to submit an affidavit to the effect that he has not yet availed the facility / participated in the tender for more than two works (Excluding this work) during the current financial year. The name of work for which participated and the authority to whom the tender was submitted must be mentioned in the affidavit, failing which the tender will be rejected.

80. That for the purpose of jurisdiction in the event of disputes if any of the contract would be deemed to have been entered in to within the State of Odisha and it is agreed that neither party to the contract will be competent to bring a suit in regard to the matter by this contract at any place outside the State of Odisha.

81. SPECIAL CONDITIONS (PART OF THE CONTRACT)

(I) All materials before they are being used in the items of works as per this Schedule of quantities and also the finished items of work where tests are applicablee shall have to be tested through the Engineer-in-charge of the respective wing at appropriate Laboratories according to the relevant I.S. specifications of the materials and the said items of works and the cost of all such tests shall have to be borne by the Contractor and the rates of the items of works should be inclusive of cost of such tests.

(II) The tests have to be planned & carried out such that the progress of work is not hampered

(III) The tests are mandatory as per the prescribed frequencies and I.S specifications. However, these are not exhaustive and the Engineer-in-charge/PMC has the right to prescribe other required test if any as will be considered from time to time.

82. In case of ambiguity between clauses of this D.T.C.N. and the P-1 contract form, the relevant Clauses of the P-1 contract form shall prevail over the D.T.C.N. The clauses not covered under P-1 contract form shall be governed by the clauses of the D.T.C.N.

83. Schedule of quantities is accompanied in Cover-II (Price Bid). It shall be definitely understood that the Government does not accept any responsibility for the correctness or completeness of this schedule and that this schedule is liable for alternation or omissions, deductions or alternations set forth in the conditions of the contract and such omissions, deductions, additions or alternations shall no way invalidate the contract and no extra monetary compensation, will be entertained.

84. In case of any complaint by the labour working about the non-payment or less payment of his wages as per latest minimum Wages Act, the Engineer in Charge will have the right to investigate and if the contractor is found to be in default, he may recover such amount due from the contractor and pay such amount to the labour directly under intimation to the local labour office of the Govt. The contractor shall not employ child labour. The decision of the Engineer in Charge is final and binding on the contractor.

85. The contractor should arrange the materials like Steel, Cement, paint and bitumen etc. of approved quality and specification at his own cost for completion of the work with the time schedule. No extension of time will be granted on the application of the contractor due to delay in procurement of materials.

86. Wastage of bars and unnecessaryary lapping will not be considered for measurement and payment).

87. The contractor is required to pay royalty to Govt. as fixed from time of time and produce such documents in support of their payment to the concerned Engineer in Charge with their bills, falling which the amount towards royalties of different materials as utilized by them in the work will be recovered from their bills and deposited in the revenue of concerned department.

88. Trial Boring - The foundation level as indicated in the body of the drawings are purely Tentative and for the general guidance only. The RSCL has no responsibility for the suitability of actual strata at the foundation level. The contractor has to conduct his own boring before starting the work and get the samples tested at his own cost to ascertain the S.B.C. and credibility of the strata at founding level while quoting his rates for tender the contractor shall take in to account of the above aspects.
89. Any defects, shrinkage or other faults which may be noticed within 12 (Twelve Month) months from the completion of the Construction/Installation/Fixing work arising out of defective or improper materials or workmanship timing are upon the direction of the Engineer-in-Charge to be amended and made good by the contractor at his own cost unless the Engineer for reasons to be recorded in writing shall be decided that they ought to be paid for and in case of default Department may recover from the contractor the cost of making good the works.. The RSCL will deduct retention money /ISD which will be Retention Money (5%) five percent from each running bill after correction if any by RSCL + Additional percentage to be deducted & withheld from each payment invoice after correction , if any by RSCL for repair/replacement of the work during defect liability period of 365 days from the date of completion of original work. Performance Security will be release after the Completion of Defect Liability Period (DLP) 365 days. Additional Performance security will be release after the Completion/Implementation of work.

90. From the commencement of the works to the completion of the same, they are to be under the contractors charge. The contractor is to be held responsible to make good all injuries, damages and repairs occasioned or rendered necessary to the same by fire or other causes and they hold the RSCL harmless for any claims for injuries to person or structural damage to property happening from any neglect, default, want of proper care or misconduct on the part of the contractor or any one in his employment during the execution of the work. Also no claim shall be entertained for loss due to earthquake, flood, cyclone, epidemic, riot or any other calamity whether natural or incidental damages so caused will have to be made good by the contractor at his own cost.
91. Gradation of ingredients: The coarse and fine aggregate shall meet the grade requirement as per the latest provision of relevant. I.S. Code / I.R.C. code / MoRT&H specifications.
92. Where it will be found necessary by RSCL, the Officer-in-Charge of the work shall issue an order book to the contractor to be kept at the site of the work with pages serially numbered. Orders regarding the work whenever necessary are to be entered in this book by the Rourkela Smart City Corporation Limited Officer-in-Charge with their dated signatures and duly noted by the contractor or his authorized agents with their dated signature. Orders entered in this book and noted by the contractor's agent shall be considered to have been duly given to the contractor for following the instructions of the Department. The order Book shall be the property of the Rourkela Smart city Limited and shall not be removed from the site of work without written permission of the Engineer In Charge and to be submitted to the Engineer-in charge every month.
93. The contractor should attach the certificate in token of payment deposit with the registration authority as per recent circular of the Government relating

to his registration.

94. In case of any discrepancy in printing or omissions of statutory specifications or any other part or portion of the approved document during download of the bid document, the decision of the officer inviting the bid will be binding on the bidder.

95. The rates quoted by the contractor shall cover the latest approved rates of SOR excluding GST i.e., Labours, Materials, P.O.L. and Royalties. Arrangement of borrow areas i.e. Land, Approach Road to the building site etc. are the responsibility of the contractor.

96. The rate for each work of concrete items wherever dewatering is imperatively necessary the term dewatering shall mean the execution or operation of the items due to standing water as well as due to percolation of water. The quoted rates will be inclusive of this.

97. The contractor shall make requisition of claim book from the date of commencement of the work from the RSCL and shall maintain in proper P.W.D. form with pages serially numbered in order to record items of works are not covered by his contract and claimable as extra. Claims shall be entered regularly in this book under the dated signature of the contractor or his duly authorized agents at the end of each month. A certificate should be furnished along with the claim to the effect that he has no other claim beyond this claim up-to-date. If in any month there are no claims to record, a certificate to that effect should be furnished by the contractor in the claim book. Each claim must be defined and should be given as for as possible regarding the quantities as well as the total amount claimed. The claim book must be submitted by the contractor regularly by 10^{th} and 16^{th} days of each month for orders of the Engineer-in- Charge or competent authority. Claims not made in this manner or the claim book not maintained from the commencement of the work is liable to be summarily rejected. The claim book is the property of the Rourkela Smart city Limited and shall be surrendered by the contractor to the Engineer-in-charge after completion of the work or before recession of the contract by the Department whichever is earlier for record.

98. Number of test s as specified in I.R.C. / MoRT&H / I.S.I specification required for the construction of roads / bridges / buildings or any other structural works or any work will be conducted in any Govt. of Odisha /Govt. Of India accredited Laboratory to be decided by the Engineer-in-charge. Testing charges including expenditure for collection / transportation of samples /specimens etc. will be borne by the contractor. The collection of samples and testing are to be conducted for both prior to execution and during execution as may be directed by the Engineer-in-charge and on both the accounts the cost shall be borne by the contractor.

99. Even qualified criteria are met, the bidders can be disqualified for the following reasons, if enquired by the Department

a) Making a false statement or declaration.
b) Past record of poor performance.
c) Past record of abandoning the work half way/ recession of contract.
d) Past record of in-ordinate delay in completion of the work.
e) Past history of litigation.

100. In case the 1st lowest tenderer or even the next lowest tenderers

withdraw in series one by one, thereby facilitating a particular tender for award, then they shall be penalized with adequate disincentives with forfeiture of EMD unless adequate justification for such back out is furnished. Appropriate action for black listing the tenderers shall also be taken apart from disincentives against the tenderer.

101. The following documents which are not submitted with the Bid, will be deemed to be part of the Bid :

S.No.	Particular
1	Notice Inviting tender
2	Instruction to the Bidder
3	Conditions of Contract
4	Contract data
5	Specifications
6	Drawings
7	Pre-Bid Meeting Minutes

102. ELIGIBILITY CRITERIA:

I. To be eligible for qualification, applicant s shall furnish the followings. Non-furnishing of the following particulars shall be treated as ineligible. The facility for exemption of EMD & ISD , either in full or in part ,as per instruction/guidelines of Govt. of Odisha / OPWD Code/Govt of India/direction of Hon'ble Courts in India(with specified limitation and liberty) can be availed by intending and eligible class/category of Bidder(Contractors with Physical Disabilities/Engineer Contractors/ ST or SC Contractors/Such other Agency(s) conferred with this exemption facility if any). However this facility availed by any bidder for the above mentioned work shall be treated as genuine and admissible / Accept able subject to submission of required documentary evidence/support in hard copy as described in DTCN and subsequent Verification of the same by RSCL..

II. Scanned copy of required E.M.D as per the Clause No. 5 (i) and Clause No.20 of DTCN.

III. Scanned copy of demand draft towards cost of tender paper as per Clause No.4 and 5(i) of DTCN.

IV. After the date & time of receipt of bid is over, the original Bid security and Demand draft towards cost of Bid documents shall be submitted in the office of the undersigned on or before date & time of opening of Bid as specified at Contract data above, and as per date mentioned in contract Data during office hours on working days failing which the bid will be rejected.

V. Scanned copy of valid Registration Certificate, PAN card along with the tender documents and the originals of all scanned documents & VAT clearance certificate in form VAT 612/GST Clearance Certificate of the successful lowest bidder only are to be produced within 5(five) days after opening of Cover-II of the tender in the office of the Chief Executive Officer, RSCL otherwise his/her bid shall be declared as non-responsive he will suspend/prohibit/debar/blacklist from participating in bidding in any contract of the State as per OPWD Code and /or Cancelation of Empanelment (registration of from OPWD) action will be taken by the competent authority. In such a situation , successful L-2 bidder will be required to produce his original documents for consideration of his tender at the negotiated rate equal to L-1 bidder

VI. License criteria as per Clause No.8 of DTCN and Schedule-H need to be furnished

VII. Joint Ventures are not accepted

VIII. 1. Bidder/ Firm should furnish list of similar works executed during last five years stating the Agreement No., date of commencement and completion, actual date of completion duly certified by the employer. The certificate to that effect has to be obtained from an officer not below the rank of Executive Engineer concerned with the work under report. The bidder must have completed /Substantial Completed (80 % of awarded cost) any type of Civil Works /Projects during last five years from one month prior of bid due date up to value of 50% of the Project cost i.e. Rs. 30.00 Lakhs.".

Bidder should submit all the credentials along with all experience certificates. Copy of Completion Certificate / Work order / Agreement any other document in support of successful completion of job along with Reference of person under whom jobs are executed. Substantial Completion shall be based on 80 (eighty) percent value wise or more works completed under the contract and Completed value must be equal or more than **Rs. 30.00** Lakhs**.**

2. The Bidder should have average annual turnover of **Rs. 30.00 Lakhs. (Rs. Thirty Lakhs).**in during last five (5) financial years. Turnover of previous year will be escalated @10% per financial year (on compound basis) shall be considered on the value of annual turnover of the preceding years and cost of completed / executed similar nature of work shall be given additional weightage of percentage per year to bring them to current price level to account for price escalation as illustrated below:

Year	Turnover	Effective cost executed work at previous completed financial year's price level
2020-21	E	1.61 x E
2021-22	D	1.46 x D
2022-23	C	1.33 x C
2023-24	B	1.21 x B
2024-25	A	1.10 x A

Similar work of previous year will be escalated @10% per financial year (on compound basis) shall be considered on the value of executed similar nature of work shall be given additional weightage of percentage per year to bring them to current price level to account for price escalation as illustrated below:

Year	Similar Work	Effective cost executed work at previous completed financial year's price level
2020-21	E	1.61 x E
2021-22	D	1.46 x D
2022-23	C	1.33 x C
2023-24	B	1.21 x B
2024-25	A	1.10 x A

Note: 1.Technical Bud must be accompanied by the annual turnover Certificate or Audited Financial Statement (P/L and B/S)of the Bidder for the last 5 (five)

financial years, preceding the year in which the bid is submitted. In case the annual accounts for the latest financial year i.e. 2023-24 is not audited and therefore the bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor/Chartered Accountant shall certify the same. In such case, the Bidder shall provide the annual turnover for 5 (five) years preceding the year for which the Audited Annual Report is not being provided. i.e.

2019-20	2020-21	2021-22	2022-23	2023-24

I. Scanned copy for information regarding current litigation, debarring / expelling of the applicant or abandonment of work by the applicant in schedule "D" and scanned copy of affidavit to that effect including authentication of tender documents in schedule "E" & furnish the original affidavit in Schedule-E within 5 (five) working days of opening of Cover-II as per clause 49.
II. No Relationship Certificate in Schedule – A
III. List of projects under execution in Schedule-F
IV. List of projects executed that are similar in nature to the work as per Schedule-C
V. Affidavit of eligibility from schedule –K to O
VI. Certificate of employment of unemployed Engineering Graduate as per format Schedule-G for 'A' Class and above Regd. Contractor
VII. Undertaking of Bidder as per format Schedule G.
VIII. Declaration of relation in the Dept. if any in Schedule I
IX. MOU with Electrical Contractor in Schedule –J Applicable.
X. List of equipment on Owned/lease basis in Schedule K
XI. Affidavit for SC/ST Bidder in format Schedule-L
XII. Affidavit for Physically Handicapped Bidder in format Schedule-M
XIII. Affidavit for Engineering Contractor in format Schedule-N
XIV. Affidavit for Bidder not registered in EPFO in format Schedule-O
XV. BID CAPACITY Declaration:- Vide Works Department Office Memorandum No.6300 dtd. 16.06.2011) **Not Applicable.**

Applicants who meet the minimum qualification criteria will be qualified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the Project.

The available Bid Capacity will be calculated as under.

Assessed Available Bid Capacity= (A*N*2-B), where

A = Maximum value of Civil Engineering works executed in any one year during the last five years (updated to the current price level) rate of inflation may be taken as 10% per year(escalation factor) which will taken into account the completed as well as works in Progress.

N = 1.50 Year (In word One and half Year) Number of years prescribed for completion of the works for which the bids are invited.

B = Value of Current price level of the existing commitments and on-going works to be completed during the next years(Period of completion of work for which Bids are invited. The Statement showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer-In-Charge not below the rank of an Executive Engineer. Escalation factor: Following enhancement factors will be
issued for the Cost of works executed and the financial figures to a common base value for works completed in India.

Year Before	Multiplying Factor
One	1.10
Two	1.22
Three	1.33
Four	1.46
Five	1.61

(Applicant should indicate actual figures of costs and amounts for the works executes by them without accounting for the abovementioned factors)
In case the financial figures and value of completed works are in foreign currency the above enhanced multiplying factors will be applied . Instead , current market exchange rate (State Bank of India BC selling rate as on the last date of submission of the Bid) will be applied for the purpose of conversion of amount in foreign currency into Indian Rupees.

103. Time Control :- (Vide Works Department Office Memorandum No.24716 dtd.24.12.2005 and No.8310 dtd.17.05.2006) Progress of work and Re-scheduling programme.

a)

i. The Engineer-in-Charge shall issue the letter of acceptance to the successful contractor.
The issue of the letter of acceptance shall be treated as closure of the Bid process and commencement of the contract.

ii. Within 15 days of issue of the letter of acceptance, the contractor shall submit to the Engineer-in- Charge for approval a Programme showing the general methods, arrangements, and timing for all the activities in the Works along with monthly cash flow forecast.

iii. To ensure good progress during the execution of the work the contractors shall be bound in all cases in which the time allowed for any work exceeds one month to complete, 1/4th of the whole time allowed under the contract has elapsed, ½ of the whole of the work before ½ of the whole time allowed under the contract has elapsed, 3/4th of the whole of the work before 3/4th of the whole time allowed under the contract has elapsed.

iv. If at any time it should appear to the Engineer-in-Charge that the actual process of the work does not conform to the programme to which consent has been given the Contractor shall produce, at the request of the Engineer-in-Charge, a revised programme showing the modifications to such programme necessary to ensure completion of the works within the time for completion. If the contractor does not submit an updated Programme within this period, the Engineer-in-Charge may withhold the amount of 1% of the contract value from the next payment certificate and continue to withhold this amount until the next payment after the date

on which the overdue Programme has been submitted.

v. An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

vi. The Engineer-in-Charge's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer-in- Charge again at any time. A revised Programme is to show the effect of Variations and Compensation Events

c) Extension of the Completion Date.

If the contractor fails to maintain the required progress in terms of clause-2 of P-1 Contract or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Municipal Commissioner (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day / month (as applicable) that the progress remains below that specified in Clause-2 of P-1 Contract or that the work remains incomplete. This will also apply to items or group of items for which a separate period of completion has been specified. Compensation @ 1.5% per month of for delay of work, delay to be completed on per Day basis. Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Tendered Value of work or to the Tendered Value of the item or group of items of work for which a separate period of completion is originally given. The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Government. In case, the contractor does not achieve a particular milestone mentioned in contract data, or the rescheduled milestone(s) in terms of Clause-2.5, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time. Withholding of this amount on failure to achieve a milestone shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However no interest whatsoever shall be payable on such withheld amount.

d) Bonus for early completion

Deleted

e) Management meetings

i. Either the Engineer or the Contractor may require the other to attend a management meeting. The business of management meetings shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

ii. The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken to be decided by the Engineer either at the management meeting or after

the management meeting and stated in writing to all who attended the meeting.

Rescission of Contract (Amendment as per letter No.10639 dt.27.05.2005 of Works Department, Odisha):- To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Municipal Commissioner shall be conclusive evidence), 20% of the value of left over work will be realized from the contractor as penalty.

104. Building and other Construction Workers Welfare Cess @ 1% of the estimated cost as per tender notification read with latest corrigendum if any will be proportionately deducted from the contractor's bill at the time of making payment of each bill.
105. The tenderers are required to go through each clause of P.W.D. Form P-1 carefully in addition to the clauses mentioned here in before tendering.

106. A Contractor may be black listed as per amendment made to Appendix XXXIV to OPW D Code Vol.-II on rules for black listing of Contractors vide letter no.3365 dt.01.03.2007 of Works Department, Odisha.

As per said amendment a Contractor may be blacklisted

a) Misbehaviour/threatening of Departmental & supervisory officers during execution of work/tendering process.
b) Involvement in any sort of tender fixing.
c) Constant non-achievement of milestones on insufficient and imaginary grounds and non-adherence to quality specifications despite being pointed out
d) Persistent and intentional violation of important conditions of contract.
e) Security consideration of the State i.e. any action that jeopardizes the security of the state.
f) Submission of false/ fabricated / forged documents for consideration of a tender.

107. The safety certificate of the E.I. work will be furnished by the agencies after getting necessary verification from the electrical inspector / equally competent authority responsible for the work prior to Energisation of the building.
108. Percentage rate contract (vide Works Department letter no.8310 dt.17.05.2006) In case of percentage rate tender:-

i. The Contractor has to mention percentage excess or less over the estimated cost (In figures as well as words) in the prescribed format appended to the tender document.

ii. Contractors participated in the tender for more than one work may offer conditional rebate. Rebate offer submitted in separate sealed envelope shall be opened, declared and recorded first. The rebate so offered shall be considered after opening of all packages called in the same Tender Notice. The Contractors who wish to tender for two or more works shall submit separate tender for each. Each tender shall have the Bid Identification No., Name & Sl. No. of the work (as per IFB) to which they refer, written on the envelope.

iii. Only percentage quoted shall be considered. Percentage quoted by the Contractor should be accurately filled-in figures and words, so that there is no discrepancy.

1) If any discrepancy is found in the percentage quoted in words and

figures, then the percentage quoted by the Contractor in words shall be taken as correct

2) If any discrepancy is found in the percentage quoted in percentage excess/ less and the total amount quoted by the Contractor, then percentage will be taken as correct.
3) The percentage quoted in the tender without mentioning excess or less and not supported with the corresponding amount will be treated as excess.
4) The percentage quoted in the tender without mentioning excess / less supported with corresponding amount does not tally with either to percentage excess or less then it will be treated as percentage excess.
5) The percentage quoted in the tender without mentioning excess / less supported with corresponding amount if tallied with the percentage then it will be treated as to which side the amount tallies.
6) The Contractor will write percentage excess/ less up to two decimal points only.
7) The tender shall be written legibly and free from erasures, over writings or corrections of figures. Corrections, over writings & interpolations where unavoidable should be made by making out, initialing, dating and rewriting.

iv. In the contract P1 time is the essence. The contractor is required to maintain a certain rate of progress specify in the contract.

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

vi. The period of completion is fixed and cannot be altered except in case of exceptional circumstances with due approval of next higher authority.

vii. Bills for percentage rate tenders shall be prepared at the estimated rate for individual items only and the percentage excess or less shall be added or subtracted from the gross amount of the bill.

APPROVED
Chief Executive Officer
Rourkela Smart City Ltd.

Tenderer (s) is/are required to submit the information in the following Schedules

SCHEDULE - A

CERTIFICATE OF NO RELATIONSHIP

/We hereby certify that I/We* am/are* related / not related(*) to any officer of Rourkela Smart City Limited of the rank of Assistant Engineer & above and any officer of the rank of Assistant /Under Secretary and above of the Works Department, Govt. of Odisha I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and I/We* shall be liable to make good the loss or damage resulting from such cancellation.

(*) - Strike out which is not applicable

Signature of the Tenderer Date:-

SCHEDULE – B

A. Brief Company profile

SL.NO.	PARTICULARS Name of Bidder	DESCRIPTION OR DETAILS
1	Name of Bidder	
2	Legal status of Bidder (company, Pvt. Ltd., LLP etc.)	
3	Main business of the Bidder	
4	Registered office address	
5	Incorporation date and number	
6	GST Registration Certificate (State And Central)	
7	PAN details	
8	Primary Contact Person (Name, Designation, address, mobile number, fax, email)	
9	Secondary Contact Person (Name, Designation, address, mobile number, fax, email)	
10	EMD	

B. Certificate of Incorporation

(To be submitted by sole Bidders)

C. Financial Turnover
(To be submitted by Sole Bidder)

The financial turnover of the company is provided as follows as per Clause no 102 of DTCN

	2020-21 (Y5)	2021-22 (Y4)	2022-23 (Y3)	2023-24 (Y2)	2024-25 (Y1)
Annual Turnover					

Copy of audited financial statements of last five financial years or declaration from the appointed Chartered Accountant to be provided as proof of the financial turnover with UDIN no. on its certificate.

SCHEUDLE – C

WORK EXPERIENCE

LIST OF SIMILAR NATURE OF PROJECTS EXECUTED AS PER CLAUSE NO 102 OF

i.

S.No.	Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Actual date of completion of the work	Completion Value of the Project	Reasons for delay in starting/ completion if any
	1	2	3	4	5	6	7	8	9
1									
2									
3									
4									
5									
6									
7									

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer vide Completion Certificate.

Signature of the Tenderer

Date.

SCHEDULE – D

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

1	a)	Is the tenderer currently involved in any litigation relating to the works.	Yes / No
	b) If Yes : given details:		
2		Has the tenderer or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years.	Yes / No
3	a)	Has the tenderer or any of its constituent partners failed to perform on any contract work in India during the last 5 years.	

b) If yes, give details

Note:

If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of Tenderer

SCHEDULE – E
AFFIDAVIT

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Tenderer)
Title of Officer
Name of Firm
Date:

Original Affidavit sworn before Notary Public or Executive Magistrate\

Schedule-F

EXISTING COMMITMENTS AND ON-GOING WORKS:

i.

S.No.	Description of works	Place & State	Contract No.	Name & Address of Employer	Value of Contract (`In lakh)	Stipulated Period of Completion	Value of works* remaining to be completed (`In lakh)	Anticipated date of completion
1								
2								
3								
4								

Schedule-G

Certificate of Employment of Unemployed Graduate Engineer
(For Above A Class Contractors only)

I/We herby certify that at present , the following Engineering Personnel are working with me/in our firm/Company and their bio-data are furnished below:

:

S.No.	Name of Engineering Personnel appointed for supervising Contractor s work with Address	Qualification	Date of Appointment	Monthly Emoluments	Whether full time engagement and continuous	if they are superannuated/ retired/dismissed or removed personnel from State Govt. /Central Govt./ PSU/Pvt. Companies or any one ineligible for Government Service
1	2	3	4	5	6	7
2						
3						
4						
5						
6						
7						

Schedule-H

UNDERTAKING

This is to certify that

1. My firm has neither been associated , directly or indirectly , with the Consultant or with any other entity that has prepared the design ,specifications, and other documents for the Project nor has any person associated with been proposed as Project manager for the Contract.
2. My firm has not engaged any agency and any of its affiliates engaged by the Engineer in Charge to provide Consulting services for the preparation or supervision of this work.
3. My firm has not engaged any Engineer of Gazetted rank employed in Engineering or Administrative duties in an Engineering Department of the Government of Odisha or other Gazetted Officer retired from Government Service during last two years without prior permission of the Government of Odisha in wining before submission of this tender. I am aware that my contract is liable to cancelled if either i or any of my employees is found any time to be such a person who had not obtained the permission of the Government of Odisha as aforesaid.
4. I/We have visited the site and have fully acquainted with the local condition regarding the materials labour and factors pertaining to work for completion in all respect before submitting the tender.
5. I/We have carefully studied the conditions of the Construction ,specification, contract condition and all other documents relating to this work and agree to execute the same accordingly.

6. I/We solemnly pledge that I/We shall sincere in discharging my/our duties as responsible contractor and complete the work within the prescribed time limit. In case there are deviation from the Construction Programme , I/We shall abide by the decision of Engineer –In-Charge for revision of programme and arrange for the labours, materials, equipments etc accordingly.
7. In the event of award of the work to me/us. I/We undertake the entire responsibility for the structural stability to reconstruct/replace the whole or part of the Component of the structure in the event of failure or improper functioning /Improper Construction within a period of one year from the date of completion without asking extra payment from the account of department.

8. I/We undertake that I/We shall not claim any escalation of cost on account of material,labour taxes from any account in connection with work with execution of the work till the actual completion period and shall not be entertained by Rourkela Smart City Limited,

9. In case of vaiolation of contents of department's tender documents in shape of extra conditions or in any form , my offer/tender shall be rejected by the department without any intimations to me/us.

Signature of the
Tenderer

Date:

SCHEDULE –I

RELATIONSHIP DECLARATION

To,

Chief Executive officer,

Rourkela Smart City Limited

Subject: (Name of Work"…… Bid reference number)

Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship			
Name:			
Office			
Address			
Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department.			
S.No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship
			Name:
			Designation
			Office
			Address
			Relationship
			Name:
			Designation
			Office
			Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely
Signature of the Tenderer

SCHEDULE –**J**

MEMORANDUM OF UNDERSTANDING

First Party I Sri/Smt.……, Aged …. years, S/O- ……..……..,

At / P.O. / Dist-…… (Hereinafter called the First Part)

AND

Second Party I Sri/Smt.……, Aged …. years, S/O-

…….…., At / P.O. / Dist-…… (Hereinafter called the Second Part) having HT/M.V./LT

license registration No……. valid up to ……..

AND WHEREAS the First Party of 1st part is the managing partner of ……. AND WHEREAS

the First Party willing to appoint the Second Party to execute the E.I. portion for the tender work, "……."

AND WHEREAS the Second Party accepted the offer of First Party.

NOW THIS DEED OF AGREEMENT WITNESSES AS FOLLOWS;

1) That, the Second Party shall do all E.I. works, if the tender is awarded to First Party.

2) That, the Second Party shall fulfill all the E.I. works as per the tender schedule by instruction of Engineer-in-Charge.

3) That, the First Party shall receive payment, signing the bill the document for the concerned work.

4) That, the Second Party shall abide the rules, regulations and specification of E.I. works of above said matter.
In witness where of both the party have signed in presence of

WITNESS
W1 –

W2 –

Schedule-K

Information (Machineries owned/possessed on lease/hire) Details of machinery possessed owned / leased/ hired

SL No	Name of the Machineries	No of Machineries	Owned/Hired/Leased
1	Excavator	1	
2	Compactor	1	
3	Concrete ,mixture	1	
4	Water tanker	1	

NB. Scan copies of Owned or leased or hired receipts/Agreements of the above machineries must be uploaded into Technical Cover.

Schedule-L

AFFIDAVIT

(Applicable for SC/ST Bidders)

1. I, Sri/Smt/Ms……,Son/Daughter/Wife of ……..., hereby declare that;

   a. I am a registered ……..Class ST/SC Contactor under Govt. of Odisha

   Or

   b. The Partnership Firm/PrivateLtd. Company named/titled, as "…… ……" is a registered SC/ST Contractor under Govt. of Odisha within the ambit specified in Works Department Resolution No. 27748 dt. 11.10.77 and I, Sri/Smt/Ms…….…… …… …, Son/ Daughter/ Wife of ……..., is authorized signatory on behalf of the Firm/Company (scanned authorization copy with my signature duly certified and attested/identified has been submitted on-line with our tender).
   [Tick (a) or (b) above whichever is applicable and fill up accordingly.]

2. As per Works Department, Govt. of Odisha Resolution No.27748 dt.. 11.10.77, I/My Firm am/is entitled for exemption of 50% EMD & ISD and accordingly, I/My Firm have/has submitted tender for the work.
3. I/My Firm hereby submit willingness to avail price preference as ST/SC category Civil Contractor as entitled in the aforesaid resolution.
4. Necessary documentary evidence(s) as prescribed in the Tender Notice at * in support of my/our aforesaid claim for exemption of EMD & ISD have/has been duly up-loaded on- line/submitted along with my/our tender for the aforesaid work.
5. In addition to those, other documents and original(s), as required by CEO, RSCL to sustain my/our aforesaid claim shall be submitted by me/us within a week from the date of instruction/intimation of CEO,, RSCL through telephone/letter/e-mail failing which my/our tender shall be liable for rejection .
   (*) –Strike out which is not applicable.

(Deponent)

(Signature of the Tenderer/Authorised Signatory in case of
Partnership Firm/Company with Seal of the Firm/Company) . Original Affidavit sworn before Notary Public or Executive Magistrate

Schedule-M

AFFIDAVIT
(Applicable for Contractors with Physical Disabilities)

1. , Sri / Smt / Ms ……,Son / Daughter / Wife of ……, hereby declare that I am a registered ……..Class Contactor with Physical Disabilities within the ambit prescribed in Works Department, Odisha- Resolution No.23934 dt.8.11.91

2. As per the said Resolution, I am entitled for exemption of EMD & ISD and accordingly , I have submitted tender for the work.

3. Necessary documentary evidence(s) as prescribed in the Tender Notice at in support of my aforesaid claim for exemption of EMD & ISD have/has been duly up-loaded on- line/submitted along with my tender for the work.
4. In addition to those, other documents and original(s), as required by CEO, RSCL to sustain my aforesaid claim shall be submitted by me within a week from the date of instruction/intimation of CEO, RSCL through telephone/letter/e-mail failing which my tender shall be liable for rejection.

(Deponent)

Original Affidavit sworn before Notary Public or Executive Magistrate

Schedule-N

AFFIDAVIT

(Applicable for Engineer Contractors Intending to Avail Exemption of EMD & ISD as per OPWD Code)

1. I, Sri/Smt/Ms……. hereby declare as the Contractor/as the authorized signatory on behalf of the Contractor,"……."(Strike out whichever is not applicable) do hereby solemnly affirm and state as follows.
2. That, I/we am/are a registered …….. Class Engineer

   Contractor
3. That, I/we herewith claim exemption of EMD during the Year……. For participation in the tender for this work.

4. That, I/we have not exhausted the facility available to me/us an Engineer Contractor during the year…… for exemption of EMD & ISD as per Works Deptt. Guideline & OPWD Code.
5. That, I/we shall ensure production of my/our valid Original Contractor's Registration Certificate (license) after or during opening of bids (as per direction of CEO, RSCL for the above work for verification and also for subsequent entry of exemption of EMD and ISD (if selected as the contractor for this work and availed the exemption of EMD and ISD in my/our license as per direction of CEO,RSCL, within such time as directed by him failing which action, as decided by RSCL, may be taken against me/us and appropriate steps may be taken by RSCL to facilitate execution of the tendered work

(*)- Strike out which is not applicable

(Deponent)

(Signature of the Tenderer /Authorised Signatory in case of Partnership Firm/Company with Seal of the Firm/Company)

Original Affidavit sworn before Notary Public or Executive Magistrate

Schedule-O

Affidavit

(Applicable for the Bidder not registered under EPF)

I, Sri/Smt/ Ms.…….hereby declare as the Contractor /as the authorised signatory on behalf of the Contractor ……(Strike out whichever is not applicable) do hereby solemnly affirm and state as follows.

1. That as on date, I/We am/are not registered with RPFC(Regional Provident Fund Commission) and solemnly affirm that, I/We shall follow the " Employees Provident Fund and Misc Provision Act, 1952 & Rules /Schemes" made there under, in case the work is awarded to me/us
2. That I/We shall submit, after execution of work and before payment of any bill, the detail list of labours, such as

    a) Name:
    b) Father's name:
    c) Place of Permanent Residence:
    d) Statement of Wages paid to them till the completion of the Work

3. The RSCL Authority will be at liberty to deduct 26% of the labour component amount of the Contract & shall retain it as an additional security with RSCL.
4. That. In case I/We submit the EPF Registration Certificate, then the said additional security shall be released to me /us by RSCL without any interest subject to fulfilment of other Compliances/conditions.
5. That , this affidavit is required to be produced before the authority of Rourkela Smart City Limited for tender purpose.

That the facts stated above are true to the best of my /our knowledge.

(Deponent

(Signature of the Tenderer/Authorised Signatory in case of Partnership Firm/Company with Seal of the Firm/Company)

Original Affidavit sworn before Notary Public or Executive Magistrate

ANNEXURE-I

FORM OF AGREEMENT

(First page to be filled up and signed in non –judicial stamp paper of worth Rs.100/-)

This contract made on Dt……between Rourkela Smart City Limited (RSCL) , hereinafter called " the employer" and ……..(name and address of the selected bidder), hereinafter called "the Contractor"

Whereas, the employer is desirous that the Contractor shall execute "Development of Surface Parking in front of Nexa Showroom on Percentage Basis".

vide Bid Reference no……/Dt……,,,,,,,(hereinafter called "the work") and the employer has accepted the bid of the Contractor for execution and completion of such works and rectifications of defects , if any, at an accepted tender/contract price of Rs…… ……(Rupees) only.

Now, therefore, it is herby agreed upon by RSCL and the Contractor as follows:

1. In this contract, words and expressions shall have the same meanings as are respectively assigned to those in this DTCN and the Contract form as a whole. The DTCN and agreement shall be deemed to form and be read as construed as part of this contract with a view to maintaining the sanctity of this contract for successful execution and completion of the work unless otherwise clarified/redefined at a later stage during the Contract remains in force including the defect liability period.
2. In consideration of the payments to be made by the employer, the Contractor herby covenants with the employer to execute and complete the work and rectify the defects therin, if any , in conformity with the provisions of this contract.
3. The employer hereby covenants to pay the Contractor in consideration of the execution and completion of the work and for rectification of defects , if any , wherein the contract price or such other sum, as may become payable under the provisions of the contract and in the manner prescribed under this Contract.
4. The following documents shall be deemed to form, read and construed in conjunction with other portions/clauses/conditions of this contract and DTCN.

    I. DTCN invited for the work including the Short Notice
    II. Contractor's Bid and negotiation correspondence , if any
    III. Letter of Acceptance/Letter of Intent for the Work(LOA/LOI)
    IV. Notice to proceed with the work (Work Order) to be issued by RSCL and subsequent instructions of RSCL to the selected Bidder subject to confirmation of the same, if required , by RSCL through written notice to the selected bidder.
    V. P1 Agreement which includes Items, Quantities, Rates and Amounts of the work to be duly signed by RSCL and the Contractor.
    VI. Copy of agreements drawn by the contractor with electrical Contractor vide scope of work of DTCN for Electrical Works.
    VII. Instruction/intimation of RSCL for execution of extra work/item/quantity found essential for the work and corresponding rates not

covered in the agreement/DTCN /Financial Bid and also curtailment/exclusion of any items of the Financial Bid from execution.

VIII. Drawing, design, work programme or part thereof submitted by the contractor and duly approved by RSCL with or without modification.

IX. Letter/ Intimation/ Instruction(including physically and over telephone) of RSCL for repair/replacement/ defect rectification, if any, with respect to modified quality/specification for such repair/ replacement/ defect rectification work and allowed time to accomplish the same either during the execution of the work or during the defect liability period of 1825 days from the officially declared /notified/noted date of completion of the whole work including additional/curtailed items/ quantities of the work as per direction of RSCL. RSCL reserve the right to declare/ note the date of completion of the original work and date of expiry of defect liability period which will be binding upon the Contractor.

In witness whereof , the aforesaid two parties have entered into this contract on the date mentioned above.

Binding Signature of Employer signed by……..
(for and on behalf of Rourkela Smart City Limited-Employer)

Binding Signature of Contractor signed by……..
(authorised signatory in case of firm/company with applicable authorisation letter/declaration attached to this Contract)

In presence of witnesses

1. Name:
   Address:
   Tel No: Signature
2. Name:
   Address:
   Tel No: Signature

Signature of Contractor
(Authorised Signatory with Seal)
(Authorised Signatory with Seal)

Signature of Employer
(Authorised Signatory with Seal)

Annexure-III

All Financial Transaction Related to the Project must be abide with the Following Instruction

Category-1(Banks with composite score 55 and above with Branches 100 and above)

As per Govt. of Odisha Finance Department No. 32775 /F Dt.30.11.2023 or any amendment "Selection of Banks for handling business and deposits of State Public Sector Undertakings (SPSUs) and State Level Autonomous Societies (SLASs) for the years 2021-22 followings banks have been selected for handling Business & Deposits (Copy attached) for Ref.:-

Public Sector Banks		**Private sector banks**	
1	Bank of Baroda	11	Axis Bank Ltd
2	Bank of India	12	Bandhan Bank
3	Canara Bank	13	HDFC Bank
4	Central Bank of India	14	ICICI Bank
5	Indian Bank	**RRBs & OSCB**	
6	Indian Overseas Bank		
7	Punjab National Bank		
8	State Bank of India	15	Odisha Gramya Bank
9	UCO Bank	16	Utkal Grameen Bank
10	Union Bank of India	17	Odisha State Co-Op. Bank
Category-II (Bank with composite secore 65 and above with Branches 50-99)			
Private Sector Bank		**Small Finance Bank**	
18	DCB Bank	19	IDBI Bank
20	Jana Small Finance Bank		
CATEGORY.III: Category III Banks with Branches 30 to 49			
21	Bank of Maharashtra		
22	IDFC First Bank		

Annexure-IV

FORM OF BANK GUARANTEE
[Performance Security/Additional Performance Security]

To

_____ [name of Authority]

_____ [address of Authority]

WHEREAS_____[name and address of Contractor]

(hereafter called the "Contractor") has undertaken, in pursuance of Letter of Acceptance (LOA) No. _____Dated_____ for construction of _____[name of the Project] (hereinafter called the "Contract").

AND WHEREAS the Contract requires the Contractor to furnish an {Performance Security/ Additional Performance Security} for due and faithful performance of its obligations, under and in accordance with the Contract, during the {Construction Period/ Defects Liability Period and Maintenance Period} in a sum of Rs….. Lakhs. (Rupees ……..….. Lakhs) (the "**Guarantee Amount**"[1]).

AND WHEREAS we, …….. through our branch at ……. (the "**Bank**") have agreed to furnish this Bank Guarantee (hereinafter called the **"Guarantee**") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Contract, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of General Manager of Rourkela Smart City Ltd., that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Contract shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Contract and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them

[1] Guarantee Amount for Performance Security and Additional Performance Security shall be calculated as per Contract.

pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Contract or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Contract or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Contract and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Contract or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Contract.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****[$]. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

[$]Insert date at least 12 (Twelve) Month from the date of issuance of this Guarantee (in accordance with Clause 29 of the DTCN).

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Contract.

12. This Guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

13. This guarantee shall also be opera table at our……. Branch at Rourkela , from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation

14. Bank Detail of Rourkela Smart City Ltd.

S.No.	Particulars	
1	Name of Bank	State Bank of India
2	Name of Branch	Udit Nagar Branch
3	A/c No	36450132867
4	Type of A/c	Saving Bank A/c
5	IFSC	SBIN0007474

Signed and sealed this ……. day of …….., 20…… at ……..

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Annexure-IV

Format for Power of Attorney for signing of BID
(Refer Clause Annexure-II)

Know all men by these presents, We…….. (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (name), …… son/daughter/wife of …… and presently residing at ……., who is presently employed with us/ the Lead Member of our Joint Venture and holding the position of……. , as our true and lawful attorney (hereinafter referred to as the" Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID for the "Development of Surface Parking in front of Nexa Showroom on Percentage Basis." . (the "Authority") including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our BID for the said Project and/ or upon award thereof to us and/or until the entering into of the EPC Contract with the Authority. AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ……., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS …… DAY OF ……. 2…..

For ……..
(Signature, name, designation and address) of person authorized by Board Resolution (in case of Firm/ Company)/ partner in case of : Partnership firm "Copy enclosed"

Witnesses

1.

2.

Accepted

……

(Signature)

(Name, Title and Address of the Attorney) **(Notarised)**

(Person identified by me/ personally appeared before me/)

Attested/ Authenticated*

(*Notary to specify as applicable)

(Signature Name and Address of the Notary)

Seal of the Notary

Registration No. of the Notary

Date:……

SCOPE OF WORK AND TECHNICAL SPECIFICATION

For

Development of Surface Parking in front of Nexa Showroom on Percentage Basis.

1. SCOPE OF WORK

1.1 Broad Scope of Work.

The scope of works consists of preparation **of Carrying out topographical survey, submission of site layout plan along with all physical details**.

The scope of work covered in this tender shall be as per the Bill of Quantities, specifications, drawings, instructions, orders issued to the contractor from time to time during the pendency of work.

The Work Shall be executed on Preparation of Working Drawings, Procurement and Construction Basis. Successful bidder shall undertake confirmatory survey for accuracy and completeness of data. It is in scope of successful Bidder to undertake all Site surveys, , obtaining all required approvals from the relevant authorities. The successful bidder shall have to prepare and submit 'As Built Drawings' depicting the exact construction carried out on site, in soft and hard copy format.

The quantities of various items as entered in the "BILL OF QUANTITIES" are indicative only and may vary depending upon the actual requirement. The contractor shall be bound to carry out and complete the stipulated work irrespective of the variation in individual items specified in the bill of quantities. The variation of quantities will be governed as per conditions of contract.

1.2 Safety

- Contractor has to take care of all safety measures as per Owner / Engineer-in-charge's HSE requirements. Local barricading shall be provided around the other work areas, where main barricading of 15m was not provided. No extra payment shall be made for the local barricading works provided for protection.
- Proper management of loose earth, mud, water, oily material is to be ensured to avoid making the area messy and slippery.
- Working area needs to be properly cordoned off and proper care is to be taken so that surrounding equipment, instruments etc. are not damaged during the construction.
- An experienced safety engineer shall be deployed to site to ensure that the construction work is carried out in a safest manner and shall work in coordination with Owner / Engineer-in-charge's safety Engineer.
- Following codes shall be followed as applicable as per direction of engineer.

CONSTRUCTION SAFETY	IS 3696 (Part 1):1987 Reaffirmed 2017	Safety code of scaffolds and ladders: Part 1 Scaffolds(first revision)
CONSTRUCTION SAFETY	IS 3696 (Part 2):1991 Reaffirmed 2017	Safety code of scaffolds and ladders: Part 2 Ladders(first revision)
CONSTRUCTION SAFETY	IS 7969:1975 Reaffirmed 2017	Safety code for handling and storage of building materials.
CONSTRUCTION SAFETY	IS 8989:1978 Reaffirmed 2015	Safety code for erection of concrete framed structures.

1.3 Co Operation with other Contractors

The contractor shall provide all facilities and give complete co-operation for the execution of various other works, if required to be carried out simultaneously by other agencies. While his own work is in progress, the co-ordination will be affected in consultation with the Engineer-in-Charge of the work. Other contractors are also likely to work in the same area during the construction stage.

1.4 Traffic Interference & Inconvenience to The Public

The contractor shall conduct his operations so as to interfere as little as possible with the traffic. When interference to traffic is inevitable, notice of such interference shall be given to the Engineer-in-Charge well in advance (at least 2 days). The contractor shall take all precautionary and other measures, such as providing warning signals, temporary diversions, etc., all as directed by the Engineer-in-Charge. The contractor shall exercise full care to ensure that no damage is caused by him or his workmen, during the operations, to the existing water supply and power lines. The cost of any such damage and risks arising out of this shall be entirely borne by the contractor.

1.5 Preamble to Bill of Quantities

(a) The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Technical Specifications, and Drawings.

(b) The quantities given in the Bill of Quantities are estimated and provisional, which may be varied, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

(c) General directions and descriptions of work and materials are not necessarily repeated or summarized in the bill of Quantities. The contractor shall refer to the relevant sections of the contract documentation before entering rates or prices against each item in the Bill of Quantities.

(d) The method of measurement of completed work for payment shall be in accordance with the Particular Specifications, guidelines issued by Bureau of Indian Standards as per order of precedence and also as per the method mentioned in the contract and standard specification.

(e) The amount provisioned in BOQ for design and drawing will be released at end of the project after submission of all drawings including as built drawing.

(f) The amount provisioned for O&M shall be paid quarterly after successful completion of O&M for the preceding quarter.

(g) Unless stated otherwise, all rates and prices entered in the Bills of Quantities shall be deemed to include the following:

- Labour and all costs in the connection with the execution and maintenance of the work.
- The supply of materials, goods, storage and all costs in connection therewith including wastages, shrinkage and delivery to site.
- Sampling and testing materials and goods, checking workmanship, providing, storing, packing and transporting samples to and from the place of testing.
- Fixing, erecting, installing or placing of material and goods and excavated materials, including stacking, storing, loading, transporting and unloading.
- All Temporary works.
- Construction, maintenance of temporary access roads within the sites and any roads required for the access to any part of the site for the purpose of carrying out the Works , taking into account that the access roads under the Contractor's maintenance control will also be used by the Employer and his staff vehicles.
- Construction , maintenance and removal , if required , of temporary Sites drainage on the Site and for ensuring that all drains are kept clear of debris and blockages at all times.
- Safety
- Survey, Investigation, design and drawings.
- All general obligations, liabilities and risks involved in the execution and maintenance of the works set forth or reasonably implied in the documents on which the Bid is based.
- Establishment charges, overheads and profits.
- Co-operating with other Contactors.

The price for transportation included in any of the items in the Bills of Quantities are to include for all labour and equipment required for unpacking , loading , conveying , unloading , storing and multiple handling of all and every item to be transported.

SCOPE OF SUPPLY

2.1 Contractor's Scope of Supply

All materials (consumables & non-consumables), tools tackles etc. as required for satisfactory completion of the job shall be supplied by the contractor. Prior approval from Owner/ Engineer In-charge shall be obtained prior to use of all material at site.

3.0 SPECIFICATIONS

The works shall be performed conforming to the Indian Standard codes, P.H.D & P.W.D. specifications of the State Government. Wherever such specifications are not available, CPWD specifications, relevant references, manuals etc. shall be followed as directed by Owner. For Horticulture and landscaping works CPWD-Delhi Schedule of Rates, Analysis of Rate and Specifications (Horticulture & Landscaping) 2014 and RMC-Rourkela Schedule of Rates 2014 shall be followed.

The successful bidder shall have to prepare and submit 'As Built Drawings' depicting the exact construction carried out on site, in soft and hard copy format

TECHNICAL SPECIFICATIONS

(Civil Works)

General

The works shall be performed conforming to the Indian Standard codes, P.H.D & P.W.D. specifications of the State Government. Wherever such specifications are not available, CPWD specifications, relevant references, manuals etc. shall be followed as directed by Owner.

1. EARTHWORK

1.1 SCOPE OF WORK

The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances and materials and in performing all operations in connection with earthworks of all underground supplies and services and for all structural units, stock piling, of specifications and applicable drawings, and subject to terms and conditions of the contract. The scope of this section of specifications is also covered with detailed specifications as laid down herein.

1.2 GENERAL

The Contractor shall acquaint himself with the nature of the ground, existing structures, foundations and subsoil which might be encountered during excavation of earthworks. The Employer does not guarantee or warrant in any way that the material to be found in the excavation will be similar in nature to that of any samples which may have been exhibited or indicated in the report, drawings or in any other contract documents or to material obtained from boring or trail holes. The contractor shall be deemed to have made local and independent inquiries and shall take the whole risk of the nature of the ground subsoil or material to be excavated or penetrated and the Contractor shall not be entitled to receive any extra or additional payment nor to be relieved from any of his obligations by reasons of the nature of such ground subsoil or material.

All excavations, cutting, and fills shall be constructed to the lines, levels and gradients specified with any necessary allowance for consolidation, settlement and drainage so that at the end of the period of maintenance the ground shall be at the required lines, levels and gradients.

During the course of the Contract and during the period of maintenance any damage or defects in cuttings and fills, structures and other works, caused by slips, falls or basins or any other ground movement due to the Contractor's negligence shall be made good by the Contractor at this own cost.

1.3 SITE PREPARATION

The Contractor shall construct and maintain accurate bench marks so that the lines and levels can be easily checked by the Project Engineer. The Contractor shall Construct and maintain such ditches, in addition to those shown on the plans, as will adequately drain areas under construction.

The Contractor shall perform a joint survey with the Project Engineer's representative of the area where earthwork is required, plot the ground levels on the drawings and obtain approval from him before starting the earthwork.

The Contractor shall Construct and maintain such ditches, in addition to those shown on the plans, as will adequately drain areas under construction.

1.4 EXCAVATIONS

Excavation shall include the removal of all material of every name and nature. Excavations shall be carried out in accordance with excavation plans and sections shown on the Drawings and as directed by the Project Engineer.

The major portion of excavations shall be carried out by mechanical excavators and excavated materials disposed off to stock on spoil as per drawings or as directed by the Project Engineer. The excavation which cannot be done by mechanical means including leveling, trimming and finishing to the required levels and dimensions shall be done manually. The material suitable for fill and back fill shall be stock piled within the free haulage limit of the 200m of the works.

The Contractor shall give reasonable notice that he intends to commence any excavation and he shall submit to the Project Engineer full details of his proposals. The Project Engineer may require modifications to be made if he considers the Contractor's proposals to be unsatisfactory and the Contractor shall give effect to such modifications but shall not be relieved of his responsibility with respect to such work.

For major excavations, the Contractor shall submit for the prior approval of the Project Engineer full details and drawings showing the proposed method of supporting and strutting etc. The design, provisions construction, maintenance, and removal of such works shall be the responsibility of the Contractor and all cost in these respects shall be included in the unit rates for the permanent work.

The Contractor's attention is drawn particularly to his obligations under the general conditions in respect of those works which are in close proximity to existing buildings.

The Contractor shall preserve the complete excavation from damage from slips and earth movements, ingress of water from any source what so ever and deterioration by exposure to the sun and the effects of the weather.

All excavation of every description, in whatever material encountered shall be performed to the elevations and dimensions shown on the drawings in such a manner as to avoid interruption to work in other parts of the site. The Contractor shall be responsible for injury to the permanent works caused by excavation on other parts of the works.

Excavation shall extend to sufficient distance from walls and footing to allow for placing and removal of forms, installations of services and for inspection, except where the concrete for walls and footings is authorized to be deposited directly against excavated surfaces.

All excavations in foundations shall be taken to 150mm and shall be trimmed carefully to a smooth and level surface, immediately after trimming to the final elevation a layer of building concrete shall be placed to the thickness shown on the drawings. All excavations for foundations which have been

trimmed and disturbed shall be compacted and covered by concrete by the end of the day. It is specifically brought to the notice of the Contractor that any excavation taken down to the trimmed elevation which is left overnight or for any length of time thereafter, uncovered by the blinding concrete, shall be required to be trimmed to such lower elevation as directed by the Project Engineer and any extra work or any consequent increase in the quantities caused thereby shall not be paid to the Contractor.

No excavation shall be refilled nor any permanent work commenced until the foundation has been inspected by the Project Engineer and his permission to proceed given. If excavation for sub-structures is carried below the required level, as shown in the drawings or as directed by the Project Engineer, the surplus depth shall be filled in with concrete of same grade as of blinding concrete at the sole cost of the Contractor.

All excavation shall be performed in the dry. The placing of blinding concrete, placing of reinforcement and casting of the permanent works in the excavation shall be carried out in the dry and the Contractor shall have sufficient equipment for this purpose. Adequate precautions shall be taken to prevent any corrosion due to undercutting from underneath the previously constructed adjoining foundations.

Existing utility lines to be retained, as well as utility lines constructed during excavation and backfilling, and if damaged, shall be required to be repaired by the Contractor at his expense. Any existing utility lines which are not known to the Contractor in sufficient time to avoid damage, if inadvertently damaged during excavation, shall be repaired by the Contractor and adjustment in payment will be made as approved by the Project Engineer. When utility lines which are to be removed, are encountered within the area of operations the Contractor shall notify the Project Engineer in ample time for necessary measures to be taken to prevent interruption of the service.

Excavated material suitable for use as filling material shall be stock piled within the free haulage limit 200m of works as directed by the Project Engineer. This stock piled material shall be transported back to places requiring fill or backfill. Surplus or material unsuitable for use as filling shall be disposed of by the Contractor at locations approved by the Project Engineer within specified free haulage limit.

The Contractor shall make independent enquiries and perform and make independent observations to ascertain the water table in the areas of excavations during the period when the construction works are in progress. The Contractor shall take whole risk of any nature for fluctuation of the water table from his own findings. The Employer is not bound in any way and shall not be responsible for any information given by him or any information, observations or values obtained from his reports, drawings and documents.

Excavation for Recharge pits, Recharge trenches shall be taken out to the levels and dimensions as the Project Engineer may direct.

Before starting the excavations, the Contractor shall ensure the correct alignment of the recharge trenches and location of recharge pits on the ground, the depth and width of excavation of the trench and pits, all in accordance with the drawings and instructions of the Project Engineer.

The Contractor at his cost shall provide to the satisfaction of the Project Engineer all timbering, approved supports and shores and bracings to the sides of the excavated trench and foundations in such a manner to secure the sides of the trench and excavations from falling or adverse movement. All responsibility

connected with such shoring shall rest with the Contractor. Adequate clearance / working space on both sides of the structure/pipe line shall be provided for which no payment shall be made.

Without the written permission of the Project Engineer no more than 50.0m the trench shall be opened in advance of the completed pipe line. The bottom of all excavations shall be carefully leveled. Any pockets of soft or loose material in the bottom of the pits and trenches shall be removed and the cavities so formed filled with lean concrete at the Contractor's expense.

The Project Engineer may require the Contractor to excavate below the elevations shown on the drawings or he may order him to step above the elevations shown depending upon the suitable foundation material encountered.

If for any reasons, the levels grades or profiles of the excavations are changed adversely, the Contractor shall at his own cost be liable to bring the excavations to the required levels and profiles as shown on the drawings or as directed by the Project Engineer.

1.5 EXCAVATION TOLERANCES

Excavation shall be performed within the tolerances for excavation limits indicated on the drawings. Where no tolerance limits are indicated excavation shall be performed to tolerances established by the Project Engineer as accepted for the design and type of work involved.

2. BACK FILLING

After completion of foundation footing, foundation, walls, and other construction below the elevation of the final grades and prior to backfilling, forms shall be removed and the excavation shall be cleaned of trash and debris.

The backfilling shall include filling around the foundations, trenches.

Filling shall be approved selected material from excavation or other predominantly granular material and free from slurry, mud, organic or other unsuitable matter and capable for compaction by ordinary means.

The excavated material if found suitable shall be stock piled within the free haulage limit of the site of the works. This material shall be used for backfilling if approved by the project engineer and shall be transported by the contractor any where required for the purpose of backfilling work in this contract.

The contractor shall provide the approved quality fill and backfilling material as required to complete the fill/backfilling work. Filling in trenches and foundation shall be placed in 200 mm layers and compacted at optimum moisture content by mechanical means or other means as approved by the project engineer.

Fill in around trenches and pits shall be carefully placed with fine material to cover the completely before the normal infilling is done.

Material for back filling shall be as approved by the project engineer and shall be placed in layers of 150 mm measured as compacted material and saturated with sufficient water and compacted to produce in-situ density not less than 95% of the maximum density at optimum moisture content, achieved in test no.15 of IS 1377:1975 or similar clause of relevant is code.

All filled areas shall be left neat, smooth and well compacted with the top surface consisting of the normal site surface soil unless otherwise directed.

Depending on the depth of fill the project engineer may instruct increased thickness of successive layer to be placed.

Fill shall not be placed against foundation walls prior to approval by the project engineer. Fill shall be brought up evenly on each side of the walls as far as practicable. Heavy equipment for spreading and compacting the fill shall not be operated closer to the wall than a distance equal to the height of the fill above the top of footing.

Depending on the depth of fill the project engineer may instruct increased thickness of successive layer to be placed.

Fill shall not be placed against foundation walls prior to approval by the project engineer. Fill shall be brought up evenly on each side of the walls as far as practicable. Heavy equipment for spreading and compacting the fill shall not be operated closer to the wall than a distance equal to the height of the fill above the top of footing.

In case the contractor is instructed to arrange for the fill material the quality of the fill material will be subject to the approval of the project engineer. The project engineer shall require the contractor to carry out various tests of the fill material. All such tests shall be made at an approved laboratory at the cost of the contractor. Once a material from a specific source has been approved, the material for the same quality and from that source only shall be used. Any fill material from borrow pits which has not been approved or the quality of which differs from the approved material shall be rejected out rightly. The project engineer reserves the right to order removal of any such materials brought to the site of works at his discretion at contractor's expense. In order to ensure satisfactory compaction, it will be necessary to carry out, depending upon the type of material, particle size distribution tests, determination of organic content tests, maximum and minimum density tests and determination of optimum moisture content for the filling material.

The method of compaction, namely type of compactor, type of roller, weight of roller and number of passes proposed by the contractor for any particular fill material shall be subject to the approval of the project engineer after completion of satisfactory field tests, subsequent to the laboratory analyses, using the materials and equipment proposed to be used for the earth work in conditions similar to those likely to be encountered during construction.

The final selection of the soil moisture content, the thickness of layers, the type of compaction equipment and the number of passes shall be decided after these tests, which shall be conducted at contractor's expense.

Having established the method of compaction to be used, no departure from this approved method shall be permitted without the prior approval of the project engineer. Adequate control of the fill and compacting operations shall be ensured by in-situ density tests and in order to obtain significant results, not less than two measurements shall be carried out per one hundred square meters of area compacted. The frequency of tests shall be determined on site and may be varied at the discretion of the project engineer. Compaction shall not be less than 95% in-situ density with respect to the maximum density, at optimum moisture content.

The exact thickness of layers and the method of placing and compacting the fill shall be determined by

the field tests, as stated above, but not withstanding the results of these trails, fill shall not be placed in layers exceeding 200mm in thickness. In order to maintain control of the thickness of layers, timber profiles shall be used wherever feasible. The travelers of such profiles for each layer of fill shall be checked by the supervisory staff of the project engineer. The contractor shall provide adequate supply of water and sufficient capacity of mechanical water carriers to ensure uniform and uninterrupted operation of compaction. The project engineer may forbid the contractor to proceed with placing and/or compaction of fill and/or order removal and re-compaction of such fill when he finds that the contractor has insufficient or defective equipment or that the fill has been improperly laid and/or compacted.

If it is found necessary to alter the moisture content of the fill material in any way, then very strict control shall be exercised over the wetting and/or the drying process and frequent moisture content tests.

The fill material should be well graded non-cohesive and nearly silt-free (silt content between 5 to 10 percent) salt free and free of organic materials (less than 2%). It should also be free of stones larger than 100 mm. Maximum dimension. It should be of such nature and characteristics that it can be compacted to the specified densities in reasonable length of time. It shall be free of plastic clays, of all materials subject to decay, decomposition or dissolution and or cinder or other material which corrode piping and other metals.

TOLERANCES

The stabilization of compacted backfill/fill surfaces shall be smooth and even and shall not vary more than 100mm in 3 meters from true profile and shall not be more than 12.5mm from true elevation.

DISPOSAL OF SURPLUS MATERIAL

The rejected unsuitable material and surplus excavated material shall be disposed of within 200 m free haulage limit measured from boundary of the works to places or as directed by the Project Engineer.

The disposal of surplus excavated material shall include loading, unloading, transporting, stacking, spreading as directed by the Project Engineer.

3. PLAIN AND REINFORCED CEMENT CONCRETE

The work covered by this section of the Specifications consists of furnishing all plant, labor, equipment, appliances and materials, and in performing all operations in connection with the supply and installation of plain and reinforced concrete work, complete in strict accordance with this section of the Specifications and relevant documents, subject to the Conditions of the Contract.

GENERAL

Full co-operation shall be given to other trades to install embedded items and/or any associated services.

Embedded items shall have been inspected, and tests for concrete and other material or for mechanical operations shall have been completed and approved, before concrete is placed.

Formwork shop drawings shall be designed and prepared by the Contractor at his own cost. Approval of shop drawings as well as those of mock-ups /actual samples of finished concrete shall be obtained before Work is commenced.

Contractor shall prepare bar bending schedules, and get the same approved by the Project Engineer, prior

to commencement of work.

RELATED SPECIFICATIONS

The codes and standards generally applicable to the work of this section are listed herein after.

IS 269	:	Ordinary and low heat Portland Cement
IS 8041	:	Rapid Hardening Portland Cement
IS 455	:	Portland slag cement
IS 1489	:	Portland Pozzolana Cement
IS 8112	:	High Strength Ordinary Portland Cement
IS 383	:	Coarse and fine aggregates from natural sources for concrete
IS 456	:	Code of practice for plain and reinforced concrete
IS 516	:	Method of sampling and analysis of concrete
IS 1199	:	Method of sampling and analysis of concrete
IS 1139	:	Hot rolled deformed bars
IS 23896	:	Methods of testing of aggregates for concrete (Part I to III)
IS 2751	:	Recommended Practice for welding for reinforcement bars
IS 9103	:	Admixtures for concrete
IS 10262	:	Recommended guide lines for concrete mixed design

MATERIALS

CEMENT

a. Cement shall conform to standards listed in section 2 of IS:456, latest edition as per the work requirement and direction of engineer.

b. Only one brand of each type of cement shall be used for concrete in any individual member of the structure. Cement shall be used in the sequence of receipt of shipment, unless otherwise directed.

c. There shall be sufficient cement at site to ensure that each section of Work is completed without interruption.

d. Cement reclaimed from cleaning of bags or from leaky containers shall not be used.

e. Contractor shall provide and erect, at his own cost, in a suitable place, dry, well ventilated, and water proof shed of sufficient capacity to store the cement.

f. The cement shall be used as soon as possible after delivery, and cement which the Project Engineer considers has become stale or unsuitable through absorption of moisture from the atmosphere or otherwise shall be rejected and removed immediately from the site at Contractor's

expense.

g. The mixing together of different types of cement shall not be permitted.

AGGREGATES

a. The sources of supply of all fine and coarse aggregates shall be subject to the approval of Project Engineer.

b. All fine and coarse aggregates shall be clean and free from clay, loam, silt, and other deleterious matter. If required, Project Engineer reserves the right to have them washed by the Contractor at no additional expenses. Coarse and fine aggregates shall be delivered and stored separately at Site. Aggregates shall not be stored on muddy ground or where they are likely to become dirty or contaminated.

c. Fine aggregate shall be hard coarse sand, crushed stone or gravel screenings and shall conform to requirements of IS: 383 latest edition.

d. Coarse aggregate shall be gravel or broken stone or hard, durable material free from laminated structure and conforming to IS: 383 latest edition. The aggregates shall be graded as follows for use in mass concrete as in foundations:

TOTAL PASSING	PERCENT BY WEIGHT
2" B.S. Sieve (50.00 mm)	100
1-1/2" Sieve (38.10 mm)	95-100
3/4" Sieve (19.00 mm)	35- 70
3/8" Sieve (9.50 mm)	10- 30
No. 4 Sieve (4.75 mm)	0- 5

Coarse aggregate for all cast-in-place concrete other than mass concrete as for foundations shall be graded with the following limits:-

TOTAL PASSING	PERCENT BY WEIGHT
1" Sieve (25.00 mm)	100
3/4" Sieve (19.00 mm)	90-100
3/8" Sieve (9.50 mm)	20- 55
No. 4 Sieve (4.75 mm)	0- 10

Water:

Only clean potable water from the city supply, tube well installed at the Site or from other sources approved by Project Engineer shall be used. Contractor shall supply sufficient water for all purposes,

including mixing the concrete, curing and cleaning plant and tools. Where doubts exist as to the suitability of the water, it shall be tested in accordance with IS: 3025. Where water can be shown to contain any sugar or an excess of acid, alkali or salt, Project Engineer may refuse to permit use. As a guide, the following concentrations represent the maximum permissible values:

a. To neutralize 200 ml sample it should not require more than 2 ml of 0.1 normal NaOH.

b. To neutralize 200 ml sample it should not require more than 10 ml of 0.1 normal HCL.

c. Percentage of solids should not exceed the following:

	PERCENT
Organic	0.02
Inorganic	0.30
Sulphates	0.05
Alkali Chlorides	0.10

In case of doubt, Project Engineer may require that concrete mixed with water proposed to be used should not have a compressive strength lower than 90 percent of the strength of concrete mixed with distilled water.

Reinforcement

a. Reinforcement for concrete shall conform to the respective IS or other standards as specified in the drawings and Contract Documents or as may be specified by Project Engineer.

b. Unless otherwise specified, all plain reinforcing bars shall comply with the requirements of IS: 432, and shall have a minimum yield stress of 248 N/sq mm.

c. Unless otherwise specified, all deformed reinforcing bars shall comply with the requirements of IS: 1786 for deformed cold worked steel bars and shall have minimum characteristic stress of 415 N/sq mm.

d. Reinforcement shall be obtained only from manufacturer's approved by Project Engineer. If and when required Contractor shall provide all necessary facilities to Project Engineer for the selection of test pieces and shall cause these to be prepared and submitted where directed for tests at Contractor's cost.

e. If the reinforcement is to be supplied by Employer, Contractor shall inform Project Engineer of his requirements much before its use in construction.

f. Reinforcement of all types is to be stored at Site in an approved manner so as to avoid damage.

g. Contractor shall report immediately on receipt of any consignment, having any deviation in the standard weights of the reinforcing bars beyond those allowed in respective standards mentioned in clause (3.3.3.4.b) and (3.3.4.4.c) herein before.

4. CONCRETE MIX PROPORTIONS

General:

The proportions of ingredients shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement by the methods of placing and consolidation employed on the Work, but without permitting the materials to segregate or excessive free water to collect on the surface. Specific approval of the Project Engineer is required to waive limitations on mixture proportions.

The proportions of ingredients shall be selected in accordance with Section 5.7 to produce the proper placebility, durability, strength and other required properties.

Strength

The Specified compressive strength of the concrete cube, shall be 15 N/sq mm. or 20 N/sq mm.. Samples from fresh concrete shall be taken as per IS: 1199 and cubes shall be made, cured and tested at 28 days in accordance with IS: 516.

Durability

Requirements of Clause 7 of IS: 456-1978 shall be followed.

Slump

Unless otherwise permitted or specified, the concrete shall be proportioned and produced to have a slump of 100 mm or less. A tolerance of up to 25 mm above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit.

Concrete of lower than usual slump may be used provided it is properly placed and consolidated.

Note: If S.R. Cement is used, permissible water-cement ratio may be increased by 0.05.

Slump shall be determined by the "Test for slump for Portland Cement Concrete" as per relevant IS code.

Maximum Size of Coarse Aggregate:

The nominal maximum size of the aggregate shall be 20.mm for all portions of the structure except footings which may be 38 mm. These limitations may be waived if, in the judgment of the Project Engineer, workability and methods of consolidation are such that the concrete can be placed without honeycomb or voids.

Admixtures:

If required or permitted, admixtures used shall be in accordance with the manufacturer's instructions except as otherwise specified herein.

Methods of Obtaining Mix Design:

For concrete of normal weight, mix proportions to provide the desired characteristics shall be developed

using the methods/procedure covered by the Recommended Practice for Selecting Proportions for Normal Weight Concrete ACI-211.1-77/ IS:456- 1978.

Trial mixtures having proportions and consistencies suitable for the Work shall be made based on above codes, using at least three different water-cement ratios which will produce a range of strengths encompassing those required for the Work. Trial mixes shall be designed to produce the specified slump. The temperature of concrete used in trial batches shall be reported.

For each water-cement ratio, compression test of cube shall be made, cured, and tested in accordance with IS:1199 and IS:516. From the results of these tests a curve shall be plotted showing the relationship between the water-cement ratio and compressive strength. From this curve, the water-cement ratio to be used in the concrete shall be selected to produce the required design strength. The cement content and mixture proportions to be used shall be such that this water- cement ratio is not exceeded when slump is the maximum permitted. Control in the field shall be based upon maintenance of proper cement content and slump.

5. STEEL REINFORCEMENT

SCOPE OF WORK

The work to be done under this section consists of furnishing, cutting, fabricating, bending, placing and tying steel reinforcement in concrete structures or elsewhere as shown on the drawings or directed by the Project Engineer. The scope of this section of this section of specifications as laid down herein.

MATERIAL AND SIZE OF BARS

Reinforcement for concrete shall conform to the respective Indian or other standards as specified in the drawings and in the contract documents or as may be specified by the Project Engineer.

Unless otherwise specified, all plain mild steel reinforcing bars shall comply with the requirements of IS: 432 (Part- I) and shall have a minimum yield stress of 250 N/mm.sq.

Unless otherwise specified, all deformed reinforcing bars shall comply with the reinforcements of IS: 1786 for deformed cold twisted steel bars and shall have a minimum characteristic strength of 415 N/mm.

Reinforcement shall be obtained only from manufacturers approved by the Consultant/Project Engineer. Each consignment of reinforcement steel shall be accompanied by a manufacturer's certificate or shall refer to a previous certificate, if the consignment is from the same batch, showing that the reinforcement steel complies with the following requirement

If such certificate is not made available or if the Consultant / Project Engineer considers that the manufacturer's tests are inadequate, samples shall be taken for acceptance test from different consignments as the Project Engineer may direct and shall be tested at the Contractor's cost should the result of such that any sample does not meet with the specifications, the whole consignment shall be rejected and removed from the site at the Contractor's cost.

Reinforcement of all types is to be stored on site in approved manner so as to avoid damage.

Reinforcement shall be free from all loose or flaky rust and mill scale or coating, including ice, and other substance that would reduce or destroy the bond. Reduced section steel reinforcement shall not be used.

If such certificate is not made available or if the Consultant / Project Engineer considers that the manufacturer's tests are inadequate, samples shall be taken for acceptance test from different consignments as the Project Engineer may direct and shall be tested at the Contractor's cost should the result of such that any sample does not meet with the specifications, the whole consignment shall be rejected and removed from the site at the Contractor's cost.

If such certificate is not made available or if the Consultant / Project Engineer considers that the manufacturer's tests are inadequate, samples shall be taken for acceptance test from different consignments as the Project Engineer may direct and shall be tested at the Contractor's cost should the result of such that any sample does not meet with the specifications, the whole consignment shall be rejected and removed from the site at the Contractor's cost.

Reinforcement of all types is to be stored on site in approved manner so as to avoid damage.

Reinforcement shall be free from all loose or flaky rust and mill scale or coating, including ice, and other substance that would reduce or destroy the bond. Reduced section steel reinforcement shall not be used.

Steel wire mesh reinforcement shall conform to requirement of relevant Indian codes or those of ASTM: A 185-64 or BS. 4483, 1969: Standard Specifications for welded steel wire fabric for concrete reinforcement. It shall be used where shown on the drawings.

Applicable standards

Latest editions of Indian Standards as per 4.3 or other International Standards

DELIVERY & STORAGE

Delivery

Steel reinforcement bars shall be delivered in bundles firmly secured and tagged. Each bars or bundle of bars shall be identified by marks stamped on hot or cold or painted on or by any other means. The identifying marks shall contain the following information:

a. Name of the producer or his trade.
b. Standard to which the bars have been manufactured.
c. The clause, type and strength respectively.
d. The diameter.
e. The number of the test certificate (if available).

Storage

The method of storage shall be approved by the Project Engineer. Reinforcing bars shall be stored in racks or platforms above the surface of ground and shall be protected free from scaling, rusting, oiling, coatings, damage, contamination and structural defects prior to placement in works. Bars of different

diameters and grades of steel reinforcement shall be kept separate.

BAR BENDING SCHEDULES

The Contractor shall prepare bar bending schedule of all the reinforcing steel bars and these bar bending schedules will be supplied to the Consultants/Project Engineer in duplicate on the basis of which the work shall be carried out. However, the Contractor shall be responsible to satisfy himself as to the correctness and accuracy of the bar bending schedule. Any discrepancy shall immediately be notified to the Consultant / Project Engineer before commencing work.

MEASUREMENT & PAYMENT

Except otherwise specified herein or elsewhere in the Contract documents, no measurement and payment will be made for the under mentioned specified works related to the relevant items of the Bill of Quantities. The cost thereof shall be deemed to have been included in the quoted unit rate of the respective items of the Bill of Quantities. Providing and installing chairs, supports, hooks, spacers, binding wires, and laps not shown on drawings including wastage and rolling margin.

6. BRICK MASONRY

GENERAL

Brick Masonry shall consist of all work required in connection with constructing brick masonry at locations shown on drawings including, but not limited to, furnishing brick, portland cement and sand for mortar and all other materials, and mixing, placing brick masonry as per bill of quantities.

MATERIALS

All portland cement for mortar shall be furnished by the Contractor and shall conform to the applicable requirements specified in the section "Plain and Reinforced Concrete". All sand for mortar shall be furnished by the Contractor and shall conform to the applicable requirements for sand specified in the section "Plain and Reinforced Concrete".

All water used in the manufacture of bricks and in the preparation of mortar shall be free

from objectionable quantities of silt, organic matter, alkali, salts and other impurities,

and will be tested and approved by the Project Engineer as per the guidelines of IS: 456.

MORTAR

a. MIX: Mortar for all brick masonry, expect where otherwise directed by the Project Engineer, shall consist of one part cement to six parts of damp loose mortar sand by volume for brickwork 230mm and above. For brick piers, half brick walls, honeycombed brickwork and hollow (cavity) walls, the mortar mix shall consist of one part cement and four parts of sand. Quantity of water shall be just sufficient enough to produce proper consistency for the intended use. Where directed and approved by the Project Engineer, hydrated lime putty, shall be added to the mortar for increased workability. The putty shall, however, not exceed 25% by volume of the dry cement.

b. Methods and equipment used for mixing mortar be such as will accurately determine and control the amount of each separate ingredient entering into the mortar and shall be subject to the

approval of the Project Engineer. Mortar shall be mixed only in sufficient quantities for immediate use and all mortar not used within 30 minutes after addition of the water to the mix shall be wasted. Re-tempering of mortar will not be allowed. The mixers shall be thoroughly cleaned and washed at the end of each day's work.

BRICK

a. All bricks shall be of first class quality made from good brick earth, free from saline deposits and shall be sand moulded. They shall be thoroughly burnt without being vitrified, shall be regular, uniform in shape and size with sharp and square edges parallel faces and of deep red or copper colour. First class bricks shall be homogeneous in texture and emit a clear ringing sound when struck, and shall be free from flaws, cracks, chips, stones and nodules of lime. First class brick in an oven dried condition shall not absorb more than 1/5 of its weight of water when immersed for one hour in water at 21 to 27 degrees centigrade and shall show no signs of efflorescence on subsequent drying. The average compressive strength of five representative first class bricks shall be 15N/mm. sq. and shall no result shall fall below 10 N/mm sq. The bricks in general shall conform to the requirements of IS: 1077.

b. All bricks shall be manufactured by the Trench Kiln method or other standard methods approved by the Project Engineer. The earth used in manufacturing bricks shall be carefully selected and shall be free from objectionable quantities of lime, gravel coarse sand, roots, or other organic matter salts shall not exceed 0.3% and calcium carbonate shall not exceed 2.0%.

c. The moulds used in the manufacture of bricks shall be thoroughly sanded before each use and shall be sufficiently larger than the size of the bricks being manufactured to allow for shrinkage in drying and burning. The size ready for use shall be 9" by 4 3/8" by 2 3/4" (229X 112X 70mm) and shall weigh between 3.2 to 4.2 Kilograms. All bricks shall have a "Frog" 1/4" deep on one face.

PLACING

a. The methods and equipment used for transporting the bricks and mortar shall be such as will not damage the brick nor delay the use of mixed mortar. Brick shall not be placed during rains sufficiently heavy or prolonged to wash the mortar from the brick. Mortar which becomes diluted by rain shall be removed and replaced before continuing with the work. All bricks to be used in brick masonry shall be moistened with water for three to four hours before they are used. The chosen method of wetting shall ensure that all bricks are thoroughly and uniformly wetted. All bricks shall be free from water adhering to their surface when they are placed in the brick masonry.

b. Bricks shall be laid "Frog" upward with mortar joints and in English bond as directed by the Project Engineer. Both bed and vertical joints shall be 6mm in thickness completely filled with cement mortar as specified herein, and each brick shall be bedded by firmly tapping with the handle of the trowel. All horizontal joints shall be parallel and all vertical joints in alternate courses shall be directly over one another. Excess mortar at the outer edges shall be removed and joints drawn straight with the edge of a trowel and a straight edge. All anchors and similar work required to be embedded in the brick masonry shall be installed as the work progresses. At the completion of the work all holes or defective mortar joints shall be cut out and repointed.

c. The exterior faces of the walls shall be finished by striking the joints as the work proceeds. The joints shall be struck by raking the green mortar after the brick work has been laid and finishing the joint with a pointing tool. Horizontal joints shall be struck to form weathered joints and vertical joints shall be struck with a V notch. Care shall be taken that the striking tools do not develop a cutting edge as the object of striking the joint is to compress the mortar into the joints.

CURING AND REPAIR

a. All brick masonry shall be water cured and shall be kept wet for least seven days by an approved method which will keep all surfaces continuously wet. Water used for curing shall meet the requirements of these specifications for water used in the manufacture of bricks.

b. If, after the completion of any brick masonry work, the brick are not in alignment or level or does not conform to the lines and grades shown on the drawings, or shows a defective surface, it shall be removed and replaced by the Contractor at his expense unless the Project Engineer grants permission, in writing to patch or replace the defective area.

TOLERANCES

The brickwork shall be erected plumb and true to line at level with the maximum variation in any storey height of any length of wall being one meter. The maximum tolerance in the length, height or width of any single masonry unit shall be +/- 3mm.

MEASUREMENT AND PAYMENT

GENERAL

Except otherwise specified herein or elsewhere in the contract documents, the measurement and payment will be made for the under mentioned specified works related to the relevant items of the bill of quantities.

MEASUREMENT

Measurement of acceptable completed works of brick masonry will be made on the basis of cubic meters provided and installed in position as shown on the drawing or as directed by the Project Engineer.

PAYMENT

Payment will be made for acceptable measured quantity of brick masonry on the basis of unit rate per cum quoted in the bill of quantities and shall constitute full compensation for all the works related to the items.

7. FINISHING

General

All plaster work shall be of the best workmanship and in strict accordance with the dimensions of the drawings. All plastering shall be finished to true levels including plumbs, without imperfections, and square with adjoining work. It shall form proper foundations for finishing materials such as paint etc. Masonry and concrete surface to which plaster is to be applied shall be clean, free from efflorescence, sufficiently rough and keyed to ensure proper bond.

All chasing, installation of conduits, boxes, etc. shall be completed before any plastering is commenced on a surface. Chasing or cutting of plaster will not be permitted. Broken corners shall be cut back less than 150 mm on both sides and patched with plaster of Paris as directed. All corners shall be rounded to a radius. Contractor shall get samples of each type of plaster work approved by the Architect/Project Manager.

All chasing, installation of conduits, boxes, etc. shall be completed before any plastering is commenced on a surface. Chasing or cutting of plaster will not be permitted. Broken corners shall be cut back less than 150 mm on both sides and patched with plaster of Paris as directed. All corners shall be rounded to a radius. Contractor shall get samples of each type of plaster work approved by the Architect/Project Manager.

The materials used for plastering shall be proportioned by volume by means of gauge boxes. Alternatively it may be required to proportion the materials by weight.

PLASTER WORK

The joints in the brick work, concrete blocks, shall be raked to a depth of 15 mm while the masonry is green. Concrete surfaces to receive plaster shall be suitably roughened. All walls shall be washed with water and kept damp for 10 hours before plastering.

The plaster unless specified otherwise shall be average of 12 mm thick on walls. The finished texture shall be as approved by the Architect/Project Manager. The mix for plaster unless otherwise specified, shall be one part cement and four parts sand, to walls and one part cement, 3 parts sand to ceiling.

The interior plaster shall be applied in one coat only. The surface shall be trowelled smooth to an approved surface. All plaster work shall be kept continuously wet for seven days

The external plaster shall be of two coats on an overall thickness of minimum 20 mm. Preparations of walls to receive plaster work shall be the same as in internal plaster. Backing coat shall be 12 to 15 mm thick with cement mortar 1:5 and finishing coat shall be with cement mortar 1:3.

Backing coats shall be combed on wet surface to form keys for finishing coat. All external plaster shall be waterproofed with approved water proofing powder added to cement in proportion of 1.5 Kg. to 50 Kg. of cement as per the manufacturers' instruction, for both the coats. Cost of waterproofing powder per Kg. shall be paid for separately.

For sand faced cement plaster, the finishing coat shall be in cement mortar 1:3, sand used shall be of selected color, properly graded and washed so as to give a grained texture. Finishing plaster coat shall be 8 mm thick, uniformly applied and surface finished with special rubbing by sponge pads and other tools and recommended by the Architect/Project Manager.

8. Paver Blocks / Interlocking Concrete Block Pavement:

Shall confirm to IRC 63

Providing and fixing pre-cast Rubber Dye inter locking concrete block 80mm thick with grade of concrete M-40 compressed by mechanically pressed and as per approved design including 50 mm Sand layer for levelling and filling the joint with sand in proper line and level etc complete.

The scope of work includes supplying and lying of precast paver blocks at site, as mentioned in the Item. All relevant provisions of IS 15658:2006 shall apply. Laying of paver blocks at site as per requirement in technical specification, within shortest possible time. The work shall be executed in perfect line and level as per instructions of Engineer in charge. Colored concrete paver blocks shall be manufactured as per specifications using approved color pigment. The color shade shall be as selected by employer before commencement of the work. The contractor shall guarantee that all material and components designed, fabricated, supplied and laid by him shall be free from any type of defect due to faulty material and/Workmanship/erection For a period of One year from the date of completion of work.

9. Bedding Sand Course

The bedding sand shall consist of a clean well graded sand passing through 4.75mm sieve and suitable for concrete. The bedding . should be from either a single source or blended to achieve the following grading.

Bedding Sand Requirement

In Sieve Size	% Passed
9.52mm	100
4.75mm	95-100
2.36mm	80-100
1.18mm	60-100
600 Microns	25-60
300 Microns	10-30
150 Microns	5-15
75 Microns	0-10

- Contractor shall be responsible to ensure that single-sized, gap-graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp not rounded as sharp sand possess higher strength and resist the migration of sand from under the block to less frequently areas even though sharp sands are relatively more difficult to compact than rounded sands, the use of sharp sands is preferred for the more heavily trafficked driveways. The sand use for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.
- The sand shall be of uniform moisture content and within 4% - 8% when spread and shall be protected against rain when stock piled prior to spreading. Saturated sand shall not be used. The bedding sand

shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be of 45mm and within +/- 5mm thickness variation shall not be used to correct irregularities in the base course surface.

- The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following screening. Any pre-compacted sand or screened sand left overnight shall be loosened before further laying of paving blocks take place.

Sand shall be slightly screened in a loose condition to the predetermined depth only slightly ahead of the laying of paving unit.

10. Painting

SCOPE

These specifications cover the use of paints for the plastered and concrete surfaces. It also includes the painting of wood and metal surfaces.

GENERAL

The provisions of the latest revisions of the following IS : Codes shall form a part of this specification.

IS: 63	Whiting for Painting Ready mixed paint, brushing, grey filler, for Enamels, for use over primers.
IS: 426	Specification for paste filler for colour coats.
IS : 428	Specification for Distemper, Oil Emulsion, colour as required.
IS : 710	Marine Plywood
IS : 1200 (Part XIII)	Method of Measurement of Building & Civil Engg. Works - White Washing colour washing, distempering & other finishes.
IS : 1477 (Part I)	Code of practice for painting for ferrous metals in buildings Pretreatment.
IS : 1477 (Part II)	Code of practice for finishing of ferrous metals in building. Painting
IS : 2338 (Part I)	Code of practice for finishing of wood and wood based materials Operations and workmanship for finishing.
IS : 2338 (Part II)	Code of practice for finishing of wood and wood based materials, Schedule.
IS : 2395 (Part I)	Code of practice for painting concrete masonry and plaster surfaces. Operation & workmanship

IS : 2395 (Part II)	Code of practice for painting concrete, masonry and plaster surfaces. Schedule.
IS : 159	Specification for ready mixed paint, brushing, acid resistant.
IS : 2524 (Part I)	Code of practice for painting of non-ferrous metal in building Pre-treatment.
IS : 2524 (Part III)	Code of practice for painting of non-ferrous metal in building Painting.
IS : 3140	Code of practice for painting asbestos cement buildings.
IS : 5410	Specification for cement paints, colour as required.IS:15489-04 Specification for External Paint

Other IS Codes not specifically mentioned here, but pertaining to painting form part of these specifications.

MATERIALS

Materials shall strictly conform to the relevant IS: Specifications.

PLASTERED OR CONCRETE SURFACES

General

Wherever scaffolding is necessary, it shall be erected in such a way that as far as possible no part of scaffolding shall rest against the surface to be painted..

For painting on external surfaces secured double scaffolding to be used.

Where ladders are used, pieces of old gunny bags shall be tied at top and cotton to prevent scratches to the walls and floors. For painting of ceilings, proper stage scaffolding shall be erected, where necessary.

Preparation of surfaces

The surface shall be thoroughly cleaned off all dirt, dust, mortar dropping and other foreign matter, before paint is to be applied. New plaster surfaces shall be allowed to dry for at least 2 months, before applying paint. All unnecessary nails shall be removed. Pitting in plaster shall be made good with putty. The surface shall then be rubbed down again with a fine grade sand paper and made smooth.

The surface shall be allowed to dry thoroughly before the regular cost of paint is allowed.

The surface affected by mounds moss, fungi, algae lichens, efflorescence shall be treated in accordance with IS 2395 (Part I) before applying paint. The Adjoining surfaces/finishes shall be protected with either masking tape / plastic to avoid damages to other finishes.

The masking tape / plastic shall be removed without damaging the finishes.

WATER PROOF CEMENT PAINT

PREPARATION OF SURFACES

The surfaces shall be thoroughly wetted with clean water before the waterproof cement paint is applied.

PREPARATION OF PAINT

Portland cement paints are made readily by adding paint power to water and stirring to obtain a thick paste, which shall then be diluted to a brushable consistency. Generally equal volumes of paint powder and water make a satisfactory paint. In all cases the manufacturer's instructions shall be followed. The paint shall be mixed in such quantities as can be used up within an hour of mixing as otherwise the mixture will set and thicken, affecting flow and finish.

The lids of cement paint drums shall be kept tightly closed when not in use, as by exposure to atmosphere the cement paint rapidly air set due to its hydroscopic qualities.

APPLICATION OF PAINT

No painting shall be done when the paint is likely to be exposed to a temperature of below 7 degree within 48 hours after application.

When weather conditions are such as to cause the paint to dry rapidly, work shall be carried out in the shed as far as possible. This helps the proper hardening of the paint film by keeping the surface moist for a longer period.

To maintain a uniform mixture and to prevent segregation the paint shall be stirred frequently in the bucket.

For undercoated surfaces, the surface shall be treated with minimum two coats of water-proof cement paint. Not less than 24 hours shall be allowed between two coats and the second or subsequent coat shall not be started until the preceding coat has become sufficiently hard to resist marking by the brush being used. In hot dry weather the preceding coat shall be slightly moistened before applying the subsequent coat.

The finished surface shall be even and uniform in shade without patches, brush marks, paint drops, etc.

Cement paints shall be applied with a brush with relatively short stiff hog or fibre bristles. The paint shall be brushed in uniform thickness and shall be free of excessively heavy brush marks. The laps shall be well brushed out.

CURING

Painted surfaces shall be sprinkled with water two or three times a day. This shall do between coats and for at least two days following the final coat. The curing shall be started as soon as the paint has hardened so as not to be damaged by the sprinkling of water, say about 12 hours after its application.

PAINTING WOOD AND METAL SURFACES

GENERAL REQUIREMENT

The material required for the execution of painting work shall be obtained directly from approved manufacturers and brought to the site in maker's drums, with seals unbroken. All paints of low VOC shall conform to relevant Indian Standards as mentioned under sub-head "Material".

All materials not in actual use shall be kept properly protected. Lids of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation of skin. Materials, which have become stale or fat due to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into small containers. While applying also, the paint shall be continuously stirred in the smaller container. No left

over paint shall be put back into stock tins. When not in use, the containers shall be kept properly closed.

If for any reason thinning is necessary, in case of ready mixed paint, the brand of thinner recommended by manufacturer shall be used.

Painting except the priming coat shall generally be taken in hand after all other builder's work is practically finished. The rooms shall be thoroughly swept out and the entire building cleaned up at least one day in advance of the paintwork being started. The surface to be painted shall be thoroughly cleaned and dusted. All rust, dirt scales, smoke and grease shall be thoroughly removed before painting is started.

No painting on exterior or other exposed parts of the work shall be carried out in wet, humid or otherwise unfavorable weather and all the surfaces must be thoroughly dry before painting work is started.

BRUSHING OF PAINT

The brushing operations are to be adjusted to the spreading capacity advised by the manufacturers of the particular paint. The painting shall be applied evenly and smoothly by means of crossing and laying off, the later in the direction of the grain of wood. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternatively in the opposite directions two to three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute out coat.

During painting, every time after the paint has been worked out of the brush bristles or after the brush has been unloaded, the bristles of the brush. (Which are drawn together due to the high surface tension) shall be opened up by striking the brush against a portion of the unpainted surface with the end of the bristles held at right angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again into the paint container.

SPRAYING

Where so stipulated, the painting shall be done with spray. Spray machine used may be (a) high pressure (small air aperture) type or (b) a low-pressure (large air gap) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner.

Spraying should be done only when dry conditions prevail. During spraying the spray gun shall be held perpendicular to the surface to be coated and shall be passed over the surface in a uniform sweeping motion. Different air pressures and fan adjustment shall be tried so as to obtain the best application with the minimum wastage of paint. The air pressure shall not be kept too high as otherwise the paint will clog up and will be wasted.

Spots that are inaccessible to the spray pattern shall be touched up by brush after spraying.

At the end of the job, the spray gun shall be cleaned thoroughly so as to be free from dirt. Incorrect adjustments shall be set right, as otherwise they will result in variable spray patterns, runs, sags and uneven coats.

Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in shade and shall be got approved 'from the Engineer-in-charge before next coat is started.

Each coat except the last coat shall be lightly rubbed down with sand paper or fine pumice stone and cleaned off dust before the next coat is applied.

No hair marks from the brush or clogging of paint puddles in the corner panels, angles of mouldings, etc. shall be left on the works. In painting doors and windows, the putty round the glass panes shall also be painted but case shall be taken to see that no paint stains etc. are left on the glass. Tops of shutters and surfaces in similar hidden locations shall not be left out in painting.

In painting steel work, special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.

The additional specifications for primer and other coats of paints shall be according to the detailed specifications under the respective headings.

BRUSHES AND CONTAINERS

After work, the brushes shall be completely cleaned off paint and linseed oil by rinsing with turpentine. After cleaning, brushes are wrapped in heavy paper or waterproof paper for storage. It is to be used the next day; it shall be hung in a thinner or linseed oil in a container. On no account shall brushes to be made to stand on bristles. A brush in which paint has dried up in ruined and shall on no account be used for painting work.

The containers, when not in use, shall be kept closed and free from air so that paint does not thicken and also shall be kept guarded from dust. When the paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, before they can be used again.

WHITE WASHING

GENERAL

The item refers to whitewashing over old and new concrete, stone masonry brick plastered surfaces and asbestos cement sheets.

White wash shall be prepared from fresh burnt white stone lime or shell lime. This lime shall be of class type as per IS: 712. Surkhi lime or lime of equivalent quality may be used. The lime shall be dissolved in a tub with sufficient quality of water (about 4.5 liters/Kg. Of line) and the whole shall be thoroughly mixed and stirred until it attains the consistency of thin cream. The white wash shall be taken out in small quantities and strained through a clear course cloth. Alternatively with IS : 63 may also be used. Clean gum dissolved in hot water shall then be added in suitable proportion of 2 gm of gum Arabic to a little of lime or whiting to prevent the white-wash coming off easily when rubbed. Rice may be used instead of gum.

SCAFFOLDING

This may be double or single according to requirements. If ladders are used, pieces of old gunny bags or cloth rags shall be tied on their tops to avoid damage or scratches to the wall. Proper stage scaffolding shall be created when whitewashing ceiling. The contract shall be responsible for accidents if any taken place.

PREPARATION OF SURFACE

The surface shall be prepared by removing all mortar dropping and foreign matter and thoroughly cleaned with wire or fiber brush or other means as may be ordered by the Engineer to produce an approved clean and even surface. All loose pieces and the scales shall be scraped off and holes stopped with mortar. In case where the surface has been previously colour washed, the old colour wash must be entirely removed before the white-wash is applied. In the case of surface, which has once been white-washed, the old loose white-wash shall be broomed down. In case, the loose whitewash cannot be removed by brooming, the Engineer may order scraping of the surface.
After cleaning the surface as specified above, the unwanted nails shall be removed and all nail holes, cracks and crevices stopped with mortar similar in composition to the surface to be stopped. The mortar should be cured.

APPLICATION OF WHITE-WASH

On the surface so prepared, the whitewash shall be laid. Each coat shall be laid on with a brush. The first stroke of the brush shall be form the top downward, another from bottom upwards over the first stroke, and similarly, one stroke from the right and another from the left over the first brush before it dries. This will from one coat. Each coat must be allowed to dry and shall be subject to inspection before the next coat is applied. When dry, the surface shall show no signs of cracking. It shall present a smooth and uniform finish free from brush marks and it should not come off easily when rubbed with a finger.
No portion in the surface shall be left out initially, to be patched up later on.For new work, the white washed surface shall present a smooth and uniform finish.
For old work, patches and repairs shall be white washed first. Thereafter, the whole surface shall be white washed with the required number of coats.
Doors, windows, floors and other articles of furniture, etc. shall be protected from being splashed upon. Splashing and droppings, if any, shall be removed and the surfaces cleaned.
PREPARING THE SURFACE FOR WHITE WASH INCLUDING THE SCAFFOLDING

Appling the white wash in required number of coats as specified above and prior white washing of repaired patched.

ACRYLIC PAINTING TO EXTERNAL SURFACES

GENERAL
Acrylic weather shield paint of low VOC from the approved brand shall be applied over plastered surfaces as directed by the EIC.
Other specifications including preparation of surfaces, application of paint etc. shall conform to section 7.0 above and as directed by EIC. The primping coat, anti-fugal treatment, preparation of paint etc. shall be carried out as per manufacturer's specification /as directed by EIC. General
Acrylic weather shield paint shall be applied on surfaces which are liable to external condensation and are to be used generally on masonry or plastered surfaces. Suitable primer as per manufacturer shall be provided.

PAINT

Acrylic weather shield paint of approved brand and manufacture as per the required shade shall be used.

PREPARATION OF SURFACE

The surface shall be thoroughly cleaned of dust, old white or colour wash by washing and scrubbing. The surface shall then be allowed to dry for at least 48 hours. It shall then be sand papered to give a smooth and even surface. Any unevenness shall be made good by applying external putty mixed with water on the entire surface including filling up the undulation and then sand papering the same after it is dry.

APPLICATION

The number of coats shall be as stipulated in the item.
The paint will be applied in the usual manner with brush or roller.
The paint dries by evaporation of the water content and as soon as soon as the water has evaporated the film gets hard and the next coat can be applied. The time of drying varies from one hour on absorbent surfaces to 2 to 3 hours on non-absorbent surfaces.
The thinning of paint is to be done with water and not with turpentine.
Thinning with water will be particularly required for the undercoat, which is applied on the absorbent surface. The quantity of thinner to be added shall be as per manufacturer's instructions.
The surface on finishing shall present a flat velvety smooth finish. If necessary more coats will be applied till the surface presents a uniform appearance.

PRECAUTIONS

Old brushes if they are to be used with paints should be completely dried of turpentine or oil paints by washing in warm soap water.
Brushes should be quickly washed in water immediately after use and kept immersed in water during break periods to prevent the paint from hardening on the brush.
In the preparation of walls for painting, no oil base putties shall be used in filling cracks, holes etc it should be only the external putties.
Splashes on floors etc. shall be cleaned out without delay, as they will be difficult to remove after hardening.
Washing of surfaces treated with emulsion paints shall not be done within 3 to 4 weeks of application.

LIST OF APPROVED MAKES/BRANDS OF MATERIALS

Sr.No.	Details of Materials / Equipment	Manufacturer's Name
1.	Plant material	Reputed Nursery or nurseries (Shall be approved by Landscape architect & PMC)
2.	Tiles	Kajaria, somany, Jhonson or equivalent as approved by the Engineer in charge
3	Ordinary Portland Cement	Dalmia, ACC, Ultratech
4	White Cement	Birla, J.K
5	Coarse Sand	As Per IS 383(Latest Edition) From Approved Quality
6	Fine Sand	As Per IS 383(Latest Edition) From Approved Quality
7	Stone Aggregate	As Per IS 383(Latest Edition) From Approved Quality
8	Reinforcement Steel-T.M.T.	Bhusan , Sail, Jindal
9	Stainless Steel Sections	Jindal Steel Or Approved Equivalent
10	Anchor Fasteners/ Couplers	Hilti, Canon
11	Block Board, Ply Wood	Century (3626045), Duro,V.I.Ply, Jyoti Ply
12	Epoxy	Fosroc Or Approved Equivalent
13	Epoxy Grout	BAL(6407272) Or Approved Equivalent
14	Penetrating Sealer(Aquamix)	Pristine(6405480) Or Approved Equivalent
15	Polish Protector(Aquamix)	Pristine(6405480) Or Approved Equivalent
16	Putty	Shalimar Or Approved Equivalent
17	Fire Sealent	Navair (6491167) Or Approved Equivalent
18	Paints/Polish	ICI, Berger, Asian
19	Pigment	Sudershan Chemicals, TATA Pigments
20	Integral Water	Pidilite Or Approved Equivalent

	Proofing	
21	Bio Toilet	Suvidha, Tata Nestin
22	EPDM flooring	Nasecs, Catline
23	Science Equippments	Websports, Ankedyne
24	Fountain	Supreme Pools, Premier pools and Landscape
25	uPVC pipe	Atral, Supreme, Phinolex, Oriplast

Note: The contractor shall produce all samples including natural stones, before procurement of the materials, for approval of the employer.

The above list is indicative. Contractor may go for other equivalent make/brand having same or better specification on approval of employer.

In respect of materials for which approved makes are not specified above, those shall be decided by employer as per samples approved.

SCOPE OF WORK & TECHNICAL SPECIFICATION OF ELECTRICAL WORKS

1.1 SCOPE OF WORK

The scope consists of design, engineering and manufacturing; testing at Manufacturer's works, packing, forwarding and delivery to site; unloading and handling at site (shifting from unloading point to the storage area, storage and shifting from the place of storage to the place of installation), assembly, erection, cleaning & touch up painting; testing & commissioning at site for Electrical system of Surface Parking Near Nexa under the Rourkela Smart City Limited:

List of Major Equipment and system;

- 3 Phase, 415 Volts, 50 Hz Main LT panel including Capacitor Bank
- Mini Mast DB, Toilet & Guard Room DB for power supply distribution.
- LT cables and associated cables laying and interconnection system
- Earthing System
- DWC HDPE pipes for underground LV cable laying.
- LED based Indoor Illumination System for buildings. Lighting and Receptacle system controlled by lighting panels and raw & emergency power panels installed in respective areas.
- Point wiring system for Lighting, Raw & emergency power.
- Necessary fencing and gate arrangement for Panel Yard.
- All Outdoor Lighting Luminaires with 12.5Mtr. Mini Mast (3 Nos. with 6 Way) and its associated wiring / cabling; and receptacle system with accessories.
- Other necessary works requisite for completion of work such as embedment, chipping, punching, making holes, openings in walls, pipe sleeves, fire/ waterproof sealing, concealed conduiting etc.
- Miscellaneous statutory equipment as per requirement.
- Civil works cost for the electrical items has been considered under civil BOQ.

Measurement of soil resistivity at site by Wenner's four electrode method as per IS: 3043 and its latest amendments, at minimum two (2) locations per plot. The measurements shall be carried in the presence of the PURCHASER and the results/ report shall be certified by Govt Authorized Laboratories or agencies.

All mounting, foundation supports and hardware accessories for the electrical equipment/ system installations.

All civil works associated with equipment/system electrical installations like embedment, chipping, punching, making holes, openings in walls, pipe sleeves, fire/ water proof sealing, concealed conduiting etc.

Equipment furnished shall be complete in every respect with all mountings, fittings, fixtures, and standard accessories normally provided with such equipment and / or needed for erection, completion and safe operation of the equipment as required by applicable codes though they may not have been specifically detailed in the DPR unless included in the list of exclusions.

Take necessary statutory approvals for the electrical systems installed. The bidder shall take necessary steps for getting new connection from DISCOM.

CONTRACTOR shall ensure that design of equipment shall be as per specification requirements.

CONTRACTOR shall submit Quality Assurance Plan within 15 days after finalization of order. The QAP shall be discussed between RSCL and the CONTRACTOR before the QAP is finalized.

The CONTRACTOR shall carry out detailed engineering including schematic lighting solution and prepare construction purpose drawings to make its own estimate of ratings & quantities in accordance with the design criteria provided in the technical specification and data sheets, for entire system including illumination system, electrical equipment, cabling system, earthing, and civil works required for completion of works.

The above drawings with plans, elevations, sections or any details (as required) shall be submitted to RSCL or its representative for approval.

3D rendered views of the proposed illumination plans shall be provided for approval for the entire project before supply and execution of the same.

Light fixtures selected by the CONTRACTOR shall be submitted to RSCL for approval.

The CONTRACTOR shall submit detailed electrical load calculation, sizing calculation of electrical equipment and explanation on how the fixtures identified are energy efficient before supply and execution of work.

CONTRACTOR shall take due care of the site Seismic conditions while designing all equipment/ components used in lighting and electrical systems covered in this specification. CONTRACTOR shall furnish list of design parameters considered in design to fulfill the above requirement.

Design and detailed engineering of the materials procured by CONTRACTOR is included in scope. CONTRACTOR shall submit each document/ calculations of system which is included in scope to RSCL or its representative for final review/ approval. All design documents/ calculations prepared by CONTRACTOR shall be duly signed by CONTRACTOR and stamped. Documents submitted without fulfillment of this requirement will not be considered as a submission and will be rejected.

Design documents/ calculations prepared by Sub-CONTRACTOR shall be approved by CONTRACTOR and stamped copy of approval along with no-deviation sheet from Sub-CONTRACTOR shall be submitted by the CONTRACTOR to RSCL or its representative for final review/ approval. Documents submitted without fulfillment of this requirement will not be considered as a submission and will be rejected.

Expert or manufacturer supervision for Sub-CONTRACTOR supplied material shall be provided by BIDDER and included in offer.

CONTRACTOR shall be solely responsible for any shortages or damages in transit for his supply scope, handling and/ or in storage of any materials and erection of the equipment, supply of erection tools at site. CONTRACTOR shall ensure that it will not affect any activity or project schedule. Any demurrage, wharf age and other such charges claimed by the transporters, railways etc. shall be to the account of the CONTRACTOR.

Obtaining approval including load sanction/ load release from TPWOCL shall be in the scope of CONTRACTOR. All the statutory fees for the above approvals shall be borne by RSCL. Such payments shall be reimbursed to the CONTRACTOR upon submission of stamped receipts to the RSCL. The approvals will include consent for commencement of work and obtaining permission to charge/commission.

All the cost towards liaison with statutory Bodies for seeking all necessary statutory approvals and other activities involving Govt. Agencies viz., drawing approval, testing and commissioning et. shall be borne by the CONTRACTOR.

The CONTRACTOR shall also liaison with Govt. Bodies if required like TPWOCL, PWD, CEIG, RMC etc. for obtaining required permission to work.

CONTRACTOR's scope shall also include all civil works and structural works required for installation of all electrical equipment/ systems such as equipment foundations, Pole foundations and all excavation and backfilling works including those for lighting, earthing, cabling systems etc.

BIDDER should visit site and get ascertained regarding the complete scope of work before submission of Bid.

This specification is the minimum requirement and should be read in conjunction with relevant latest specifications, requirements, rules and regulations of the Local Authority. Any additional requirements as per Local Authority or latest Standards shall be considered by BIDDER

All SAFETY considerations in design and manufacturing for safe operation & maintenance and safe practices during installation at site shall be in the scope of the CONTRACTOR. Cost towards accomplishing the same shall be included in the BID price and no extra claim shall be entertained later.

Equipment furnished/ supplied under this scope of works shall be complete in every respect with all mountings, fittings, fixtures, and standard accessories normally provided with such equipment and / or needed for erection, completion and safe operation of the equipment as required by applicable codes though they may not have been specifically detailed in the Technical Specification. Materials and component not specifically stated in the specification but which are necessary for commissioning and satisfactory operation shall be deemed to be included in the scope of specification and shall be supplied without any extra cost. All similar standard components/ parts of similar standard equipment provided shall be inter-changeable with one another.

The CONTRACTOR shall be responsible for the selection and design of appropriate equipment to provide the best co-ordinated performance of the entire system. The design of various components, sub-assemblies and assemblies shall be so done that it facilitates easy field assembly and maintenance.

The material supplied by the CONTRACTOR shall be subject to approval of the designated Authorities of RSCL. Samples of the Supply material under the scope of works shall be inspected by RSCL or their

representatives either at site or at Manufacturer's works and approve them for supply and execution. Notwithstanding any approval/ instruction given otherwise, if the RSCL, during random check up, finds any nonconformance with the quality of material supplied by the CONTRACTOR with respect to the technical specifications, RSCL shall have the Authority to reject the entire lot/ batch of that particular material and ask to replace without any cost and time impact to RSCL.

During the construction at site, it shall be the CONTRACTOR's responsibility to take care of the safety and security of its person and material at site. The CONTRACTOR shall be self-reliant with all the requirements including tools and tackles for digging, filling, erecting, lifting, etc. and consumables required for construction like electricity and water at his own cost.

The CONTRACTOR shall carryout the installations in a safe and responsible manner without any inconvenience or danger to public. The CONTRACTOR shall take care not to damage any public/ private property by mistake or by intention during the course of work with its actions and shall be well insured to compensate the owner in case any such incidence happens.

CONTRACTOR shall plan and carry out all supply, installation, testing and commissioning of the entire electrical system conforming to the approved drawing, technical specification and good engineering practices.

Even if all components of a system included in this specification are not explicitly identified and/ or listed herein, these shall be supplied under this contract to ensure completeness of the system and facilitate proper operation and easy maintenance. Any and all other works not indicated above but necessary/ required to complete the job in all aspects, are included in the CONTRACTOR's scope.

RSCL reserves the right to issue addendum to the technical specification to indicate modification/ changes in the requirements, if so required at a later date.

1.2 General

The proposed Electrical Power Distribution and Lighting System for Surface Parking Near Nexa shall be designed to provide:

- Electrical supply to equipment and machinery within the design operating limits.
- Safety to Personnel and equipment during both operation and maintenance.
- Reliability & Continuity of Service.
- Minimal fire risk with fail safe feature.
- Ease & flexibility of maintenance and operation.
- Adequate provision for future expansion and modification.
- Maximum inter-changeability of equipment.
- Suitability for applicable environmental factors.
- Service Condition

All the components of the electrical system shall be sized to suit the maximum load under the most severe operating conditions. Accordingly, the maximum simultaneous consumption of power, required by continuously

operating loads shall be considered and an additional margin shall be taken into account for intermittent service loads, if any. The amount of electrical power consumed by each area shall be calculated for its operation at the design capacity.

The equipment shall be designed and manufactured in accordance with the best engineering practices and shall be suitable for the intended purpose.

1.3 Applicable Codes and Standards

The design, material, construction, manufacture, inspection, installation, testing and performance of electrical equipment & systems should conform to the latest applicable Central Electrical Authority (CEA) guidelines, all currently applicable IS, IEC and IEEE standards, Central PWD (CPWD) Specifications, National Building Code, National and International codes of practice, statutes, regulations and safety codes in the locality where the equipment or system will be installed.

1.4 System Design Parameter

The electrical system shall be designed as per relevant standards and local regulations with the stringent of the two regulations being the governing parameter.

Following System Parameter shall be adopted for designing the electrical system:

Nominal (Rated) System Voltage	0.415kV
Highest System Voltage	1.1kV
Lightning Impulse Withstand Voltage (1.2/ 50 microsecond)	-
Power Frequency Withstand Voltage for 1 minute	3 kV rms
System Neutral Earthing	Solidly Earthed
Fault Level of System	Bidder to calculate
Frequency	50 Hz
Dynamic Short Circuit Current Rating	As calculated

1.5 Service Condition:

- Design Ambient Temperature – 45 ºC.
- Relative Humidity – 10 - 90%

1.6 System Design Criteria

The system shall be designed taking in to consideration the following system variation:

- Voltage: +10% to -10%
- Frequency: +3% to -3%
- Combined absolute voltage and frequency variation: +10% to -10%

The load distribution should be such that the load unbalances does not exceed 5% at the point of commencement of supply.

The system power factor shall be at least greater than 0.99.

In normal operating condition, cumulative voltage drop from Main LT Panel to the last equipment in the topmost floor shall not exceed 5% (measured at load end).

Voltage dip at the Motor terminals during motor starting of the highest rating motor with regular base load shall not exceed 15%.

Fault level for HT shall be considered as 21kA for 3 sec or actual calculated during detailed design stage by the Contractor, the stringent being applicable.

The fault level for LT system at transformer terminal shall be calculated based on the transformer rating and its impedance as per relevant IS 2026. The transformer losses shall be limited as per ECBC. However, minimum short circuit rating of switchgear and cable withstanding capacity shall be considered as 36kA for 1 sec for MCCB, 50kA for 1 sec for ACB switchgear and as per SLD for Busbar or actual calculation.

For Lighting, Air conditioning and other Miscellaneous Power outlets following shall be the parameters to be considered:

Nominal Voltage	240V
Phases	1
Frequency	50Hz
Connection	3 wires (Phase, Neutral & Earth)

1.7 Estimation of Load / Maximum Demand

The following factors shall be considered while arriving at the load demand:

- Load Factor
  Motors (Fire Hydrant system) : 0.1

Auxiliary load (Elevator, Crane/ Hoist, etc.)	:	0.5
Lighting load	:	1.0
Miscellaneous Power loads	:	0.7
Watering Pump	:	0.9
Ventilation System	:	0.9
Power factor of Motors	: As per the Manufacture's Data sheets	
Efficiency of IE2 motors	: As per the Manufacturer's Data sheets	

- Overall Diversity for final Demand calculation shall be considered as 1.1.
- A design margin of 10% shall be considered.
- The improved factor shall be considered as 0.99.

Considering the above assumptions, the load requirement for Surface Parking Near Nexa has been estimated as 18 kVA.

1.8 Electrical Power Supply

The Orissa Electricity Regulatory Commission Distribution (Conditions of Supply) Code, 2004 provides for the following supply voltage connection based on contract demand:

Sr. No.	Contract Demand (kVA)	Supply Voltage
1	Not exceeding 5.55kVA	1ph, 2wire, 230V
2	Above 5.55kVA upto and including 70kVA	2ph, 3wire or 3ph, 3 or 4 wire, 400V (L-L)
3	Above 70kVA but below 555kVA	3ph, 3wire, 11000V (L-L)
4	555kVA and above but below 1110kVA	3ph, 3wire, 11000V (L-L) or 33000V (L-L)

Since the load requirement of Surface Parking Near Nexa is 18 kVA, as per OERC regulation, the supply shall be provided at Medium Voltage (3ph, 3 wire, 415V) level.

Power requirement to meet the demand of project shall be tapped & arrange by contractor from the nearby 0.415kV line or substation in consultation with TPWODL.

The power from Secondary end of existing transformer within the project area shall be supplied to Main LT Panel by LT Cable.

Further the power from Main LT Panel shall be distributed to High Mast DB, Toilet & Guard Room court DB etc. To ensure the maintenance of power factor greater than 0.97 automatic power factor correction using APP type capacitors & 14% detuned reactor shall be provided in the Main LT Panel level.

For all the mechanical loads like plumbing, ventilation and firefighting system only a power feeder has been provisioned. All the details will be provided in their respective chapter.

The tariff meters shall be installed as per OERC or CERC guidelines amended as on date. The Bidder shall take necessary approval from DISCOM after installation of the meters.

1.9 Fault Level

Fault level at existing transformer secondary and at 415V LT panels shall be calculated based on the transformer rating and impedances of transformer and cables.

1.10 Power Factor Improvement

The required capacitor rating shall be calculated based on the system power factor requirement of achieving 0.99 power factor, i.e., 0.80 or actual (whichever is lesser) to be corrected for 0.97.

APFC Panel shall be selected considering following design criteria:

- Optimum no of steps to ensure proper regulation with minimum two (2) nos. of spare steps subject to a maximum of 12 steps
- Minimum steps of 5 kVAR and 10 kVAR bank in adequate nos. for fine regulation of power factor at low loads shall be considered. Balance capacity can be considered with 25 kVAR, capacitor bank.
- Capacitor banks shall be All Poly Propylene (APP), double layer type.
- 5% of the capacity shall be provided separately at the Main LT Panel for no load compensation of transformer.

Considering the above condition, the Capacitor bank shall be part of Main LT Panel has been estimated to be **10kVAr**.

1.11 LT Panels

All Panels shall be indoor / outdoor type having incoming sectionalisation and outgoing switchgears as specified. The design shall be cubical type. The degree of enclosure protection shall be IP 52 for indoor and IP55 for outdoor as per IS: 13947 (Part-I). All LT Panels except for Main LT Panel shall conform to FORM 3B whereas Main LT Panel shall conform to FORM 4B as per IS 61439. The LT Panels shall be as per the standards IEC 61439.

Main LT Panel shall be of internal arc type tested with Internal Arc withstands level at rated fault level or 36kA, higher value, for 0.3s.

1.11.1 Busbar

All panels shall be provided with Aluminum busbar. Distribution boards with incomers below and including 63A shall be provided with tinned copper bus bars.

The bus-bars shall be sized considering the following criteria:

- Sleeves made of insulating material on all bus bars.

- Design ambient temperature 45ºC.
- Final temperature of the bus-bars complying with requirements of relevant standards.
- Bus bars being inside the panel; De- ration for enclosure and ventilation.
- Bus bar suitability for carrying rated current continuously. The current density (A/mm²) of the bus bar shall not exceed 0.8 for Aluminium bus and 1.2 for Copper bus.
- Configuration of bus bars and Proximity effect.
- The main bus shall be designed based on the load rating as well as the actual fault level for specified duration at the location of the panel with 10% positive tolerance.
- Earth bus of the panel shall be sized suitable for the above fault level for the same duration.

1.11.2 Switchgear Sizing/ Selection:

Switchgear shall be sized/ selected considering the following:

- Rating suitable for carrying full load current of the equipment / feeder.
- Suitability for Short Circuit Rating for specified duration.
- Switchgear for motors shall be suitable for motor duty application with Type 2 co-ordination.
- In panel de-ration of minimum 20% or as provided in Manufacturer's catalogue, whichever is higher shall be considered.
- Switchgear rating for individual capacitor bank shall be sized at 1.5 times the rated current rating.
- ACBs shall be considered for switchgear ratings above 630A and MCCB shall be considered up to 630A. All ACBs and MCCBs shall be rated for Bus fault level with Ics=Icu=Icw=100% for ACB and and Ics=Icu=100% for MCCBs.
- Miniature Circuit Breaker (MCB) shall be considered where fault level is below 10kA.
- All panels shall be provided with Microprocessor based overload (O/L), Short circuit (SC) and Earth fault (E/F) release at the panel incomer and outgoing.
- Surge Protection Device (SPD) shall be provided at incoming power panels and sub- distribution boards. SPDs shall be selected to meet the requirements of relevant LPZs. Lifts, escalators and fire panels shall be protected with SPD in control panels. All electrical and control panels related to safety and security of building shall be protected with appropriate SPDs. All SPDs should have status indication to show their healthy state for discharging the lightning current.
- Multi-function meter for measuring current, voltage, power, frequency, active and reactive power, and harmonics shall be provided for all the incomers (Transformer as well as DG), Multi-function meter for measuring current, voltage, power, frequency, active and reactive power for outgoing power / tie feeders. Ammeter shall be provided for other load feeder such as motor feeder, lighting feeder, etc.
- Motor starter selection shall be done as follows:

  i. Direct On Line (DOL) Starter – For motors rated up to 5.5 kW

  ii. Star- Delta Starter - For motors rated above 5.5 kW to 45 kW or as per local Electricity board requirements

iii. DOL starter shall be provided for the main Fire Pump.

iv. DOL starter shall be provided for Jockey pumps.

- Motor feeders shall have the following protection and components:

i. Motor Protection Circuit Breakers (MPCBs) with inbuilt thermal overload, air break contactors and single phase preventer for motors up to and including 50 kW rating suitable for type 2 co-ordination.

ii. MCCB with separate thermal overload, air break contactors and single phase preventer for motors above 50kW up to and including 100 kW rating suitable for type 2 co-ordination.

iii. ACB/MCCB and Composite motor protection relay (a minimum of protections such as over current, short circuit, earth fault, locked rotor, Negative phase sequence, thermal alarm and single phase preventer etc.) for motors above 100kW rating.

iv. For fire pump, overload relay shall be provided with a plug setting of 110%.

v. Motor feeders less than or equal to 5.5kW shall have direct connected ammeter in y phase and motor >5.5kW will be provided with one CT and ammeter.

vi. In case the fault level at transformer LT side increases to more than 10kA, cascading of breakers so as to accommodate MCBs in the PMCC shall be adopted. This shall ensure cost saving.

- 20% spare capacity shall be considered on each panel for future.

1.12 Cabling System

LT Cables shall be 1100V earthed grade, single/multi-core, stranded and compacted aluminium conductor, extruded XLPE insulated, extruded PVC inner sheath (Type ST-2), armoured and extruded overall sheath with Fire Retardant Low Smoke (FRLS) PVC compound (Type ST-2). The cables shall conform to IS-7098 Part -I.

Cables up to & including 6 mm² shall be Copper multi-stranded conductor with PVC insulation galvanized steel round wire armoured & cables beyond 6 mm² shall be Aluminium multi-stranded conductor with XLPE insulation & galvanized steel flat strip armoured.

All LT cable shall be conforming to IS 7098 Part I for XLPE cables and IS 1544 – Part I for PVC cables.

All control cables shall be 650 V grade copper conductors FRLS PVC insulted cables conforming to IS 1544-Part I. For cables above 7 cores, minimum two spare cores shall be considered.

The following main aspects shall also be considered while deciding the size of the cables/ wires:

- Supply voltage and frequency.

- Corresponding full load current under site conditions, i.e, necessary de-rating considerations.
- Route length and method of laying of cables.
- Maximum allowable temperature rise under normal full load condition based on the material of cable insulation (XLPE/ PVC).
- Maximum short circuit current duration (fault clearing time) and final temperature of cable during short circuit current flowing through the cable.
- Following shall be the fault clearing time consideration:

  (i) From HT breaker to Transformer Primary shall be 0.16s.

  (ii) From transformer secondary to Power Control Centre (Main LT Panel) incomer shall be 1s.

  (iii) From ACB outgoing of the Main LT Panel shall be considered as 0.16s (for Tie feeders if any it shall be 0.5s).

- Appropriate de-rating factors as per cable manufacturer's catalogue and enlisted below shall be considered for sizing the cable:

  (i) Ambient Air Temperature (minimum 45ºC).

  (ii) Ambient ground temperature (minimum 40ºC to be considered).

  (iii) Method of cable laying.

  (iv) Depth of cable burial (minimum 750 mm for LT and 900 mm for 11kV HT).

  (v) Thermal Resistivity of Soil (minimum 150ºC Cm/ W to be considered).

  (vi) No. of cables in a group

  (vii) No. of cable trays in tier

  (viii) Any other de-ration factors as applicable & as per Manufacturer's catalogue.

Bending radius of 12D and 15D shall be provided for LT & Control Cables and HT cables respectively where D is the outer diameter of the cable.

RCC pipes shall be provided where cables need to cross the roads, drive ways. For HT cables, one cable shall be laid in one pipe section of minimum 150mm internal diameter. LT, control and ICT cables shall be laid in separate pipes.

1.13 Earthing system

The earthing system shall comprise of one or more earth electrodes, earthing network, mesh or a combination of these in order to obtain grid resistance of less than 1Ω.

Latest version of following standards and codes shall be referred to for designing the Earthing and Lightning protection system:

a)	IS 3043	Code of practice for Safety Earthing
b)	IS/ IEC 62305	Code of Practice for the protection of buildings and allied structures against lightning.
c)	CEA guidelines 2010	Measures related to safety & electric supply.
d)	IEEE 80-2000-2013	IEEE Guide for Safety in AC Substation
e)	CPWD Specifications - 2013	General Specifications for Electrical Works Part I - Internal

Soil Resistivity: The earthing system shall be designed by considering measured soil resistivity during detailed engineering and the earthing calculation shall be done.

Size of Earthing Conductors: The earthing conductor sizes shall be calculated as per IS 3043.

Following factors will be considered for sizing the earthing conductor:

Design Ambient Temperature	50°C
Allowable temperature rise	500°C
For steel welded joints Fault clearing time	1.0 s
Overall earthing resistance of the grid	Less than 1Ω

The maximum values of earth fault current for the design of the earthing system will be considered based on system requirement as follows:

- 415 V system : 36kA for 1s (will be decided as per actual fault level calculation)

1.13.1 Equipment Earthing

GI pipe electrode as specified in IS 3043 or as per local electricity board, CEIG, CPWD requirements, whichever is stringent, shall be provided for the earthing of non-current carrying parts and enclosures of all electrical equipment such as LT panels, motors, Lighting Distribution Boards, Outdoor Feeder Panels, socket outlets, steel structural supports and Mini mast etc.

A grid earthing network shall be provided, laid buried 600mm deep in the ground at a distance of 1500mm from the building connecting all the dedicated Earth electrodes for all equipment and systems.

Materials used for earth electrodes shall be designed to suit the ground conditions and shall be galvanized.

Earthing network shall also be connected / formed through the cable trays. Double run GI strips shall be laid on the cable tray depending upon whether it will be connected to the earth network ahead. The strips shall be welded to the cable tray at every 10m interval. For multi tier trays, the strip can be laid in one tray and connected to all at 10 M interval. The minimum size of Galvanized Steel Strip shall be 25x6 mm.

Earthing requirements for Conduit wiring for Sub main, circuit and point wiring shall be carried out as per CPWD guidelines.

Earth pits & Earthing conductor shall be laid around the building with a minimum clear distance of 300mm with respect to the other utilities and at least 1500mm from the building plinth.

1.14 Point Wiring

The internal lighting installation shall be installed using single core of 1.5mm², PVC insulated FRLS copper wires enclosed in non-metallic PVC flexible conduit. The non-metallic PVC flexible conduit shall be of minimum 20mm size. The contractor shall size the required size of conduit considering 70% occupancy by wires. Lighting in external areas shall be installed using multi-core armoured cable of suitable sizes. The wiring shall be using multicore cable such that alternate fixtures are on different phases.

The 6A and 16A outlets installation shall be installed using 2.5mm² and 4mm², PVC insulated FRLS copper wires respectively enclosed in MS conduit. Necessary plug sockets as per requirement and applicable standards shall be provided.

1.15 Illumination System

Latest version of related IS standards, NBC and National Lighting Code (NLC) shall be referred for designing Illumination for different areas.

All lighting design shall be carried out on Dialux latest version or OEM specific software.

All lighting fixtures shall be of LED type.

The basis of design shall be based on the following lighting engineering criteria, as per relevant standards or specified herewith:

- Lighting lux level
- Luminance distribution
- Glare restriction
- Direction of incidence of light and shadow effect
- Color appearance and color rendering of the light source
- Uniformity

1.16 Illumination Level:

The following LED luminaries shall be provided for various areas in order to achieve the average illuminance as per various relevant lighting standards or those indicated below, which ever be stringent:

Sr. No.	AREA	Average Illuminance (Lux)
a)	Guard Room etc.	300
b)	Common areas – Corridor and Toilets	100
c)	Driveway & Parking	50

Following factors shall be considered while arriving at the utilization factor to determine the number of fixtures for each area/buildings:

Maintenance Factor

- Indoor Area Lighting with LED Luminaire :0.8
- Outdoor Area Lighting with LED Luminaire :0.7

Reflection factor for Indoor Lighting to be considered are as follows:

- Ceiling : 0.5
- Walls : 0.3
- Floors : 0.1

However, Reflection factor can be selected based on the Color of the wall and Ceiling as given below:

- White and very light colors :0.7
- Light colors :0.5

- Middle tints : 0.3
- Dark colors : 0.1

Room index at applicable surface reflection factors need to be considered.

The working plane shall be considered at 0.75 m from the floor level.

Uniformity factor shall be considered as per National Lighting code/NBC/IS code.

The power supply for lighting shall be distributed from Lighting Distribution Boards and feeder panels.

2.0 TECHNICAL SPECIFICATION

2.1 LIGHTING LUMINARIES

2.1.1 Applicable Standard

Standard for LED Luminaries

Sr. No.	Brief Title	IS/IEC Code
	Testing procedure of photometric testing for LED luminaires	LM 79
	Testing procedure on the lifespan of LEDs	LM 80
	National Lighting Code	SP72-2007
	Method of Measurement of Lumen Maintenance of Solid State Light (LED) Sources	IS:16105-2012
	Method of Electrical and Photometric Measurements of Solid-State Lighting (LED) Products	IS:16106-2012
	Limits of Harmonic Current Emissions	IS 14700-3-2-2008
	DC or AC supplied electronic control gear for LED modules performance requirements	IEC 62384-2006
	Lamp control gear: particular requirements for DC or AC supplied electronic control gear for LED modules	IEC 61347-2-13-2014
	Environmental Testing: Test Z- AD: composite temperature/ humidity cyclic test	IEC 60068-2-38-2009

	Electro Magnetic compatibility (EMC)- Limits for Harmonic current emission-– (equipment input current ≤ 16 A per phase)	IEC 61000-3-2-2018
	EMC Immunity requirement	IEC 61547-2009
	LED modules for general Lighting-Safety requirements	IEC 62031-2018
	Classification of degree of protections provided by enclosures (IP Codes)	IEC 60529-1989,Amd 2013
	Fixed general purpose luminaries	IEC 60598-2-1-1979
	General Lighting - LEDs and LED modules – Terms and Definitions	IS:16101-2012 / IEC TS 62504-2011
	LED Modules for General Lighting Part 1 Safety Requirements	IS:16103(Part1)-2012
	LED Modules for General Lighting Part 2 Performance Requirements	IS:16103(Part2)-2012
	Safety of Lamp Control Gear, Part 2 Particular Requirements Section 13 D.C. or A.C. Supplied Electronic Control gear for Led Modules	IS:15885(Part2/Sec13)-2012

2.1.2 Environmental Conditions

The average atmospheric condition during the year is mentioned below. The equipment shall be designed to work in such environmental conditions:

(a) Maximum ambient air temperature: 45° C

(b) Minimum ambient air temperature: 5° C

(c) Max. Relative humidity: 90%

(d) Atmosphere: Dusty and Humid

(e) The equipment shall be suitable to sustain and work in the humid and dusty atmosphere of Rourkela.

2.1.3 Luminary/Fixture Description

(a) All Luminaires shall be UL/CE/BIS certified, robust & sturdy, manufactured out of Quality raw material/ inputs with proper Quality checks at each step designated to last long in the kind of application they are selected to work.

(b) All selected Luminaires shall be minimum IP66 protected except indoor luminaires and certified for IK 08.

(c) All RGB luminaires shall be manufactured from well binned LEDs to provide and maintain same Colour consistency over long duration of operations.

(d) The Luminaires shall offer Flicker free output for long duration.

(e) All Luminaires shall be Suitable to operate at auto-switching input voltage for 100 – 240 VAC, 50 Hz power supply with the tolerances as mentioned in the data sheet.

(f) The luminaire light output (lumen) shall be constant and shall be able to withstand allowable supply source voltage variations/ fluctuations, spikes.

(g) The entire fixture shall consume rated wattage as per data sheet maximum at full output.

(h) The LED luminaries shall be single, self-contained device with integral electronic control gear, without requiring on-site assembly for installation.

(i) Fixture shall have lens options.

(j) All the Luminaire shall be complete with necessary accessories & mounting arrangements.

(k) The Luminaries shall have housing as mentioned in datasheet.

(l) The LED system should be digitally driven using noise-shaping pulse width modulation (PWM) techniques and use integral and differential nonlinear control.

(m) LED fixture shall merge line voltage with control data and deliver them to the fixture over a single standard cable from the power and data interface to ensure minimum cabling work to aesthetic and safety purpose.

(n) A microprocessor-controlled SSL driver shall be provided that efficiently and accurately will condition and manage power output to LED systems directly from line voltage.

(o) The Luminaries Housing shall be suitable for termination of 4C X 2.5 sqmm copper conductor PVC insulated flexible Cable with Double Compression Cable Glands

(p) All the connecting wires inside the Luminaire shall be low smoke halogen free, fire retardant cable.

(q) Luminaires should conform to the IS standards for Safety & Performance and test certificates as per IS 16107-2012 should be provided by the manufacturer. In case of luminaires are imported, the CONTRACTOR shall conform to test parameters as per equivalent standards.

(r) The electrical component of the LED and LED driver must be suitably enclosed in sealed unit to function in environment conditions mentioned earlier.

(s) Design of the thermal management shall be done in such a way that it shall not affect the properties of the diffuser.

(t) All LED fixtures shall undergo a minimum 24-hour burn-in test during manufacturing.

(u) The LED fixture shall be operated at constant and carefully regulated current levels. LEDs shall not be designed to be driven beyond their specified nominal voltage and current.

(v) High-power LED fixtures shall be thermally protected using metal core board, gap pad, and/or internal monitoring firmware thermal management techniques.

(w) LED fixture housing shall be designed to transfer heat from the LED board to the outside environment.

(x) The equipment should be compliant to IEC 60598-1, IEC 62031 and IEC/ PAS 62612 depending on the type of luminary.

(y) All the material used in the luminaries shall not contain any toxic material and fire retardant confirming to relevant standards.

(z) The control gear shall comply to the provisions of IEC 61347-2-13-2014, IEC 62031-2018 and IEC 62384-2006 as appropriate.

(aa) LED luminaries, should conform to the various National / International standards for safety & performance. Manufacturer should provide test reports as per LM 79 & LM80. The test report from NABL accredited laboratory shall be submitted along with the technical proposal/ Bid for LED as well as Luminaires.

(bb) Outdoor LED fixtures shall meet lumen maintenance standards as per LM-80, pass water ingress testing, and pass general endurance testing.

(cc) All hardwired connections to LED fixture shall be reverse-polarity protected and shall provide high-voltage protection in the event that connections are reversed or shorted during

installation.

(dd) In Rourkela the switching surges are expected in the power supply system. Appropriate surge protection shall be provided by the CONTRACTOR for all the Luminaires offered by it. Such protections can either be provided centrally at the Feeder Pillar or at each individual luminaire level or a combination of both, as may be decided by the CONTRACTOR. No claim for failure of Luminaires, on account of voltage surges other than Lightning surges, will be considered.

(ee) The Luminaires shall be suitable for operation within the input supply voltage range specified. The driver of the light should be able to sense and cut-off power to the light in case of phase-to-phase/ 440 V fault. No claim in this regard shall be considered.

(ff) The lighting fixtures offered shall comply with the data sheet.

(gg) The luminaire shall have a warranty period of 5 years.

(hh) The CONTRACTOR shall develop and submit as built drawings of entire electrical system and operational manuals for all the fixtures installed to RSCL or its representative after the completion of work.

(ii) All Luminaries under CONTRACTOR's supply scope shall be guaranteed against quality (including any component failure and deterioration/appearance of corrosion symptoms. This shall also cover any fading (reduction)/ deterioration of reflector coating). In such case the defective luminaire shall be replaced without any cost. In case identical defects are observed on more than 5% of particular type of luminaire (installed quantity), then the complete lot of supplied/ installed luminaires of similar type shall be replaced free of charge).

(jj) Offer shall include comprehensive technical details of the luminaires being offered. The details must be sufficient to take in to consideration maximizing of energy efficiency and minimizing overall power consumption.

2.2 **MINI MAST SYSTEM**

2.2.1 Structure

(a) The Mini Mast shall be of continuously tapered, polygonal cross section, 20 sided, presenting a good and pleasing appearance and shall be based on proven In-Tension design conforming to the standards referred to above to give an assured performance and reliable service. The height of the mast shall be 12.5 Mtr..

2.2.2 Construction

(a) The mast shaft shall be manufactured from high tensile steel plates confirming to BS EN 10025 having minimum yield strength of 355N/Sq. mm. Each mast shaft section shall have only one longitudinal weld and without any circumferential weld joint. Sections with more

than one longitudinal weld shall not be accepted. The mast base flange shall be free from any lamination or incursion and provided with supplementary gussets between the bolt-holes to ensure elimination of helical stress concentration.

(b) The minimum A/F dimension of top shall be 150 mm and bottom as per the design and data sheet enclosed. The minimum section length except for the top section shall be 10.98 m and top shall depend on the length required to make the specified height. The masts sections shall be joined at site by slip-stress-fit method and minimum overlap distance shall be 1.5 times the diameter at penetration.

(c) A door reinforced with welded steel section, vandal resistant, weather proof with Allen bolts and pad locking facility of dimension 1200 mm x 250 mm shall be provided at a height 2 times the width of door from the base of mast to provide clear access to base compartment equipments winch, motor, cable, connector etc.

(d) For the environmental protection of the mast, the entire fabricated mast shall be hot dip galvanized internally and externally in single dip having a uniform average thickness of 85 microns for plates more than 5 mm and 70 microns for 5 mm or less thickness.

2.2.3 Dynamic Loading for the Mast

(a) The mast structure shall be suitable to sustain an assumed maximum reaction arising from a wind speed as per IS 875 (three second gust), and shall be measured at a height of 10 meters above ground level. The design life of the mast shall be 25 years. The force co-efficient taken for design of the polygonal structure is to be established from the wind tunnel test data.

2.2.4 Luminaries Carriage

(a) Hot dip galvanized Luminaries carriage designed to install luminaries as per illumination design, its control gear boxes and junction box. The same is to be fabricated from ERW tubes in two halves and flanges joined at site with stainless steel bolts and nyloc nuts. Holes are to be provided in the bottom side of tubes to act as conduit for wiring cable. PVC lining is to be provided in the inner side of carriage to avoid metal contact with mast surface.

(b) Cast Aluminium weatherproof junction box shall be provided on the Carriage Assembly for terminating the trailing cable and power cable to luminaries.

2.2.5 Raising and lowering mechanism

(a) Winch-

(i) The double drum winch shall be completely self sustaining without the need for brake shoe, springs or clutches and self-lubricating type by means of an oil bath. The worm gear ratio shall be 53:1 and safe working load 750 Kg. The drums are to be grooved to provide perfect seat for stable and tidy rope lay and arrangement for distortion free rope end termination.

(ii) The winch shall have provision to operate manually by a handle or electrically through power tool. The capacity, operating speed, safe working load, recommended lubrication and serial number of the winch shall be marked on each winch.

(b) Head Frame-

(i) The hot dip galvanized head frame is to be designed as a capping unit of the mast is of welded steel construction and provided with guides and separators between the ropes and cable. The LM6 Aluminum pulley's with bush bearing mounted through stainless steel shaft shall be suitable to accommodate wire ropes and multi core trailing cable. The head frame shall be provided with guides and stops with PVC buffer for the docking of luminaries carriage. The pulley assembly shall be covered by a hot dip galvanized canopy.

(c) Stainless Steel Wire Ropes

(i) The stainless steel wire ropes shall be in AISI 316 grade, 7/19 construction with central core in the same material of 8mm diameter. The breaking load of each rope shall not be less than 3450 Kg giving a factor of safety of over 5 for the system at full load as per the TR-7. The end construction of rope for the winch drum shall be fitted with talurit and for two continuous ropes the end termination in luminary's carriage shall be with stainless steel thimble and copper splicing and for others with stainless steel thimble and bull dog grips.

(d) Electrical System, Cable and Cable Connections

(i) The multi core trailing cable from base compartment to junction box at luminaries carriage shall be 1.1 KV grade EPR insulated, PCP sheathed copper conductor with male female connectors of size minimum 5 core x 2.5 sq. mm. There shall be two nos. cables per mast. Wiring from junction box to luminaries is to be done using 2 core 1.5 sq. mm PVC insulated, PVC sheathed, copper conductor flexible cable.

(ii) Suitable arrangement is to be provided in the base compartment to receive and terminate incoming power cable and MCB in a box for isolation of incoming power supply.

(e) Power Tool for the Winch

(i) Three phase, single speed, 6 pole high-powered motor of rating suitable to lift the load mounted on adjustable plate to adjust the length of winch motor coupling chain is to be provided in base compartment.

(ii) Mechanical torque limiter is to be mounted on motor shaft to stop transmission of

motion from motor to winch in case of excess load and thus prevent the damage to winch and breakage of rope.

2.2.6 Lightning Finial

(a) One number heavy duty 1.2 m long hot dip galvanized lighting finial shall be provided for each mast on the head frame to get a direct conducting path to the earth through the mast.

2.2.7 Aviation Obstruction Lights

(a) Two number Low intensity LED Aviation Obstruction Lights shall be provided on luminaries carriage.

2.2.8 Earthing Terminals

(a) Earth terminal using 12 mm diameter hot dip galvanized bolts shall be provided on the door stiffener of the mast for lightning and electrical earthing of the mast.

2.3 LT PANELS

2.3.1 SCOPE

- The Scope of 415 V LT Panels include Design, engineering and manufacturing; testing at manufacturer's works, packing, forwarding and delivery to site; unloading and handling (shifting from unloading point to the storage area, storage and shifting from the place of storage to the place of installation) at site, assembly, erection, cleaning & touch up painting, testing, commissioning and performance demonstration at site of various ratings as per requirement.

2.3.2 GENERAL

- LT panel shall be (tested assembly - TTA) CPRI/Independent international test house tested for all the tests as per IS/IEC61439-1 & 2 and internal arc tests as per IEC 61641 V3, 50kA for 0.3 sec minimum at Horizontal bus bar, veridical bus bar and cable chamber.
- LT Panel shall also be tested of design as per Seismic Zone Vol IEC 60068-3-3.
- Panel shall be rated for Impulse withstand capability equal to or greater than the switchgears inside the panel.
- The metal enclosed switchgear shall be designed to operate continuously with reference of ambient temperature of 45ºC without any de-ration.
- The equipment shall be designed and manufactured in accordance with the best engineering practice and shall be such that has been proved to be suitable for the intended purpose.
- Provision for interlocking of LV Incomer breaker with HV side breaker shall be provided such that if the HV breaker trips then the LV breaker will trip and it shall not be possible to close the LV breaker unless the HV side breaker is closed.
- The Panel shall be indoor type having incoming, sectionalisation, outgoing switchgears etc. as per requirement. The design shall be cubical type. The degree of enclosure protection shall be IP 52 for

indoor up to 2000A rating and IP42 above 2000A rating and IP55 for outdoor as per IS: 13947 (Part-I).

- All panels shall be from same manufacturer.
- LV panel's manufacturer must have experience of manufacturing, supply and installation of LV panels of TTA or IS/IEC 61439 design for past 05 years as a qualifying requirement.

2.3.3 CONSTRUCTIONAL REQUIREMENTS

- All panel boards shall be free standing, metal enclosed, single front, fabricated with 2mm CRCA sheet steel for all doors, partitions and covers and 2 mm CRCA sheet steel for load bearing sections including all ACB feeders. A base channel of 75 mm x 40 mm x 5 mm thick shall be provided at the bottom for floor mounted panels.
- The gasket shall be suitable to withstand all weathers for long tenure of service. All hardware shall be HD Galvanized or stainless steel.
- Main LT Panel shall conform to FORM 4B as per IS/IEC 61439 and lighting panels shall conform to FORM 3B as per IS/IEC 61439.
- For operator safety IP2X (touch proof) protection to be available even after opening the feeder compartment door. The compartmentalization to be achieved by using metal separators.
- Each door & cover shall have adequate reinforcement of suitable ribs & stiffeners. All feeders and cable alleys shall have hinged type door with panel locks. All bus-bar covers and other panel covers shall be screw fixed. Cable alleys and bus-bar chamber shall have minimum width of 300mm.
- All doors shall be with concealed type hinges and captive screws. Rear doors of panels requiring rear access shall be provided with removable hinged doors. Side covers of panels shall be with removable panels.
- All doors shall be provided with durable and easy fitting locks with special keys to ensure opening by authorized personnel. Rubber grommets shall be provided at the cable entry.
- All mounting accessories like base channels, cross angles if required, nuts, bolts etc. shall be supplied by the Vendor.
- All the panels shall have uniform height. The operating height of all the panels shall not be less than 300mm and not more than 1800mm. Panel height should not be more than 2450mm.
- All the panel boards shall have cable entry from top/bottom as per requirement. Split gland plate of 2mm thick shall be supplied for termination of power, control and instrumentation cables sized as per the required no. of cable and 20% spare space for future addition.

2.3.4 BUS-BARS

- Bus-bar of the panels shall be rated for Continuous current at site conditions.
- All bus-bars shall be electrolytic grade copper or aluminium. Bidder shall specify the purity and conductivity of the bus bar along with the Bid.

- All the bus bars shall be sleeved with heat shrinkable black colour PVC sleeve or better insulation with coloured polyester tapes for phase identification at regular intervals/ locations.
- Bidder shall submit all calculations & documental proof of the adequacy of the bus bar sizes to meet the continuous and short time current ratings.
- Vertical bus-bars shall have S.C. rating same as main bus bar and shall be suitable for all connected load of vertical section.
- Bidder shall ensure that incoming feeder shall be suitably designed for terminating the required no. of runs of 1.1kV grade XLPE insulated armoured cables with 20% spare capacity. Bidder shall consider the necessary arrangement (dummy panel, adapter panel, rear extension etc.) if required, for terminating the cables within the limits specified above.
- The bus-bars shall be designed considering the following criteria:
- Current density of 0.8A/sq. mm maximum for aluminium and 1.2A/sq. mm for copper.
- Sleeves made of insulating material on all bus bars.
- Bus bars carrying rated current continuously at Design Ambient Temperature shall be considered as 45ºC and temperature rise shall be considered as per latest relevant standard.
- Configuration of bus bars, Skin and Proximity effect
- Bus bars shall withstand the short time rating of the panel.
- The span between the two insulators shall be as per the approved TYPE TEST REPORT for short time rating. Joint positions and insulators shall be properly adjusted so that they don't interfere. Bus bar bending shall be carried out on appropriate machines designated for the same rather than doing manually.
- Neutral bus-bars of the panel boards shall be rated equal to the size of phase bus and shall be in same chamber with phase bus bar.
- All bus-bar shall be treated with anti-oxide paste wherever bi-metallic contact is required.
- The material and spacing of the busbar support should be same as per the type tested assembly.

2.3.5 EARTHING

- Earth bus bars of Aluminium/Copper material shall be run all along the panel, extended out at both ends of value equal to the rated symmetrical short circuit rating of the associated switchboard/ panel. The same shall be properly supported to withstand stresses induced by the rated symmetrical short circuit current.
- Earthing bus-bar shall be terminated at both ends of the switchgear to suit the connections to earthing conductor. The locations where the bus is protruding out of the panel boards, Contractor shall ensure that proper ingress protections are provided at all such locations.
- All doors and detachable components inside the feeder are required to be earthed individually with green (with yellow band) colour PVC insulated multi-stranded copper conductor wire of size 4 sq.mm duly crimped with ring type lugs and are to be looped & connected to horizontal earth bus.
- Earthing bus shall run continuously in panel drawn out suitably considering respective cable entry inside the panel.
- Al/Cu earth bus shall be provided at each cable alley for all the panels.

2.3.6 POWER WIRING (INSIDE THE FEEDER)

- All power wiring for rating upto and including 63A shall be carried out with 1.1kV grade coloured FRLS PVC insulated, coloured for phase identification, multi stranded copper wires duly crimped with ring type lugs.

2.3.7 CONTROL WIRING (FOR PANEL AND FEEDERS)

- All panel Control wiring shall be done by 1.1kV grade FRLS PVC insulated multi-stranded copper wire. CT circuit wiring shall be done with minimum 2.5 Sq.mm size wire of above specification. Control and Potential circuits shall be wired with minimum 1.5 sq. mm size wires of above specifications. Wires shall be gray coloured with suitable crimp able copper lugs. CT's & PT's wiring shall be colour coded for multi-phase identifications (R-Y-B-N).

2.3.8 GENERAL REQUIREMENTS

- DP MCB shall be provided for all control circuits where the fault level is less than 10kA. Else the control supply shall be tapped through a control transformer of adequate capacity supplied with MCCB/ MPCB of adequate short time rating. Independent DP MCBs shall be provided for each circuit such that tripping due to fault in one circuit should not affect other functions adversely.
- Self-explanatory Wiring diagrams with terminal and wire numbers, component numbers shall be provided on the inner face of the door of each feeder. Drawing set in the panel shall be laminated.
- All labels for identification of feeders as well as internal and external components as per legends provided by Owner shall be on white acrylic sheet with black engraving. These labels shall be fixed by screws/rivets and shall not be pasted.
- Aluminum etched 415V Caution boards written in three languages (English, Hindi, Local) shall be riveted on the panel at locations where live bus bars are present and need isolation before any access to it. In case secondary covers have been provided inside the panel, then caution boards shall be also marked on these boards in addition to the external covers. Stickers are not acceptable.
- Selector/control switches shall have an 'Off' position. The 'Off' position shall not be wired in any circuit and shall be utilized to disconnect (or bypass) power supply to control circuit for any maintenance work.
- All electrical panels (internal components & arrangement) shall have finger touch protection, for human safety viz. working on one component shall not cause shock to the personnel due to any other live component in the panel. Also, the terminal live parts shall not be accessible by fingers (finger cannot come in contact with live parts of the terminals).
- No openings/ holes meant for fixing hardware shall be left open. All the hardware (esp. screws, nuts, bolts, and washers) shall be in all appropriate positions & properly tightened.
- Phase separators, shrouds, falling tool barriers shall be suitably provided. Any additional requirements as observed at any stage upto handing-over shall be provided (for safety and ease of maintenance) without any cost implication to the Owner.
- All PVC/engineering plastic-based items (including but not limited to conduits, casing-capping, trough, trunk, enclosures, covers, plugs, etc.) shall be with FR properties.

- Lifting hooks/eyes shall be provided in each shipping section of the equipment and shall be removable type. The equipment shall be given tropical and fungicidal treatment.
- Insulation mat of suitable standard width shall be provided in front of the HV and LV panels.
- At least one 230V, 1Ph, Space heater shall be provided for each vertical section of the switchboard. Each Space heater shall be provided with an isolating switch, a thermostat and dedicated MCB protection of appropriate rating. Heater shall be mounted at bottom of the panel with cover to avoid accidental contact of heater with skin.
- 230V 1Ph, Panel illumination (11W LED fixture with lamp, limit switch and isolation switch) along with 1 no. 5/15A, 5 pin socket with switch shall be provided for each vertical section. Bare holder with open lamp is not acceptable.
- Adequate space shall be provided for terminating the outgoing cables.
- Control transformer of adequate KVA rating with Changeover facilities shall be provide in the panel.

2.3.9 EQUIPMENT REQUIREMENT

a. MCCB

- All the panels shall have MCCBs upto 630Amp. All MCCBs shall be rated for 415V, 3 Ph, 50Hz, 25KA (Minimum).
- MCCBs in AC circuits shall be of triple/four pole construction arranged for simultaneous three/four pole manual closing and opening. Operating mechanism shall be quick-make, quick-break and trip-free type. The ON, OFF and TRIP positions of the MCCB shall be clearly indicated and visible to the operator. All MCCBs shall be provided with rotary operating handle with door interlock feature.
- The instantaneous short circuit release shall be so chosen by the Vendor as to operate at a current in excess of the peak motor inrush current and a range of settings shall be provided for the Owner's selection.
- MCCB terminals shall be shrouded and designed to receive cable lugs for cable sizes relevant to circuit ratings.
- All MCCB feeders shall be provided with ON/OFF/TRIP indicating lamps through auxiliary contacts.
- All MCCB's shall be with Icu=Ics=100%.
- All MCCBs shall be provided with 2 NO + 2 NC aux. contacts exclusively for Owner's use.
- All the MCCBs shall be of current limiting type and shall provide a cut off in, < 10 ms for prospective currents during faults.
- The MCCB's shall be provided with microprocessor-based overload, short circuit and earth fault releases. For four pole MCCB, the microprocessor-based earth fault release shall be inbuilt.
- For TPN MCCB the microprocessor-based earth fault release shall be inbuilt with a separate neutral CT input or the earth fault protection shall be provided by CBCT, ELR and shunt trip coil.

b. SPD

- The Internal Surge Protection Device shall be selected as per zone of protection described in IS/IEC 62305, 61643-11/12/21, 60364-4/5. Depending on Zone concept of provided in IS/IEC 62305 – 1 & 4.
- LPZ -OB & LPZ 1: At Mains entry point (Main LT Panel): Type 1 + 2, i.e. SPD Combined Arrester with Integrated Backup Fuse.
- LPZ1 & LPZ 2:Sub distribution panel will be used with Type 2 SPD i.e. SPD with integrated fuse - for each Sub Distribution Panel
- CCTV control room Panel + Server room Panel + IT building panel will be used with Type 2 SPD for each Panel.
- All data network will be protected using suitable Surge Protection Device.

2.4 **CABLING SYSTEM**

2.4.1 All the LV Power cables shall be 1100V grade, multi-stranded, Al / Copper conductor, XLPE insulated, extruded inner & outer PVC sheath compound type ST2 and galvanized steel strip armoured cables with FRLS Properties.

2.4.2 All cables shall conform to IS 7098 –Part I-1988 (Reaffirmed 2003) and all armouring shall confirm to latest version of IS: 3975-1999.

2.4.3 For all LT power and control cables, double compression glands with aluminium lugs for Aluminium cables and tinned Copper lugs for Copper cables shall be used in indoor and outdoor application.

2.4.4 The termination shall be inclusive of miscellaneous items such as clamps, cleats, cable tags, cable markers etc.

2.4.5 In general cable installation works shall be carried out in accordance with IS 1255 – 1983 (Reaffirmed 1996).

2.4.6 For Underground cables, all cables shall be laid in HDPE and DWC pipes laid by excavation. The top of the pipe shall be at least 1000mm below the finished ground level. There should not be any joints between two lighting fixtures.

2.4.7 Separate cables shall be provided for Pathway lighting, tree lighting and area lighting. The cables shall be laid in HDPE pipe of size not less than 40 mm by excavation 750mm below finished ground level.

2.4.8 The Cables for Pathway/ Walkway lighting shall be laid in the Conduit.

2.4.9 LTDB incoming cables shall be provided in Double walled corrugated pipes (DWC) of size not less than 110 mm by excavation 750mm below finished ground level.

2.4.10 Cables within the Landscape area shall be laid buried in DWC pipe not less than 40mm dia. The cables shall be looped between the fixtures with the help of Junction box.

2.4.11 Cable Glands

- Double compression type cable glands with rubber hoods shall be used for the termination of all the power and control cables. Cable glands shall be brass casting, machine finished and Nickel-

plated to avoid corrosion and oxidation. Rubber components used in cable gland shall be of neoprene.

- For single core cables, gland shall be with brass ring.
- Cable glands shall be with metric threads.
- Cable glands shall be conical (& not flange type).
- All glands shall be provided with rubber hoots.

2.4.12 Cable Lugs

- Cable lugs shall be of tinned Copper, solder less crimping type for Cu cables & Al lugs for the Al cables.
- The current rating of the lugs shall be same as that of the respective cable conductors.
- Ring type cable terminations shall be used.
- Insulated lugs are not acceptable for any cable terminations.
- Bi-metal strip/ Bi-metallic lug shall be used whenever two different metals are to be connected together.
- Fork terminals shall be used for luminaries& decorative switch/ socket. Pin terminals may be acceptable during execution only in case other terminals/ lugs cannot be accommodated.
- Reducer / wire pin terminals shall be avoided for MCB terminations. MCB terminations shall be with 'long palm terminals.
- All terminations in Feeder Pillars / enclosure for earthing & neutral busbars / terminals shall be with ring type terminals.
- All earthing terminations shall be with ring type lugs only.
- All control & interlock cable terminations shall be with ring type lugs.
- Anticorrosion/ anti-oxidation compounds shall be used for crimping lugs. This shall especially be ensured for Al cable terminations & any bimetallic terminations (Cu cable termination using tinned Copper lugs).

2.4.13 If termination is done with crimping tool employing crimping die then forming dies shall be used to make the sector shaped conductor into a round conductor before crimping the lugs on the conductor. The lug must not be crimped directly on the sector conductor. Before crimping the lug, the conductor shall be thoroughly cleaned and special jelly applied over it to prevent further oxidation.

2.4.14 Point Wiring

- Point wiring work shall include the, PVC conduit, joints, connectors, conduit accessories, FRLS PVC insulated stranded copper conductor wires and earthing wires, pull boxes, ceiling rose, clamps, cleats, hardware, accessories, anchor fasteners, modular switch boards with cover plates, switches, sockets, box, blank plates, receptacles and all other necessary accessories as per specifications etc.
- Wiring shall be done in wire colour codes. Colour code of wire for Phases, Neutral and Earth shall be separate. The necessary connector if found required for looping of wires from one switchboard to another switchboard shall be included in the scope.

- Lighting fixtures and toilet exhaust fans shall be grouped on the single circuit wherever required. However, separate circuits shall be used for receptacles wiring.
- Wires of the different phases shall not be laid in the same conduit.
- Switchboard shall be recessed mounted.
- The switch boxes, receptacle boxes etc. shall be made up of 16 SWG sheet steel.
- The wire and cable indicated below for distribution of the power are the minimum requirement. The CONTRACTOR shall arrive at the actual size based of the design criteria mentioned above.
- Point wiring in the Shops, Electrical room, Admin office, Ticket & information centre and Public Toilet block shall be done as per the following points,
- Point Wiring for the luminaries from the DB to the switchboard and from the switchboard to the luminaries shall be done with 750V grade min 2.5 Sq.mm (2Nos.-Ph.+N) & 1.5 Sq.mm (for earthing of socket) PVC insulated, multistrand Cu conductor flexible wires running through 25mm inner dia.1.6mm thick, black stove enamelled painted PVC conduit running concealed/exposed in false ceiling and concealed on brick wall
- Point Wiring for the 6A Raw power socket from the DB shall be done with 750V grade 2.5 Sq.mm (2Nos.-Ph.+N) & 1.5 Sq.mm (for earthing of luminaire) FRLS PVC insulated, multistrand Cu conductor flexible wires running through 25mm inner dia.1.6mm thick black stove enamelled painted PVC conduit running concealed/exposed in false ceiling and concealed on brick wall.

2.5 EARTHING SYSTEM

2.5.1 Applicable Standard:

The general design shall be on the basis of following codes and standards (their latest amendments) in line with design criteria & specification requirements.

- IS 3043-2018 –Code of practice for Safety Earthing
- Central Electricity Authority (CEA) Regulations – 2010
- National Building Code 2016

The maximum values of earth fault current for the design of the earthing system shall be calculated as per the design criteria.

2.5.2 The design basis for designing earthing conductor is indicated under design criteria for electrical system.

2.5.3 GI Pipe electrodes shall be provided for all the equipment and system earthing.

2.5.4 The earth plate shall be buried in specifically prepared earth pit 4.5 mtr. below ground with alternate layers of charcoal and salt, 40 NB GI pipe with funnel with a wire mesh for watering and bricks masonry block CI Cover complete as per IS 3043-2018 with necessary length of double Copper earth flat bolted with lug to the plate complete connected to the transformer neutral with end socket as per direction and duly tested by earth tester conforming to IS as per drawing and specifications complete with 600 x 600 x 3.15 mm Copper earth plate or as specified by CEIG.

2.5.5 Earth electrodes shall be of heavy duty galvanized mild steel pipe of not be less than 40 mm NB or

as specified by CEIG. The earth electrode shall be complete with alternate layers of charcoal/ coke, salt and Black cotton soil; GI pipe with meshed funnel for watering; brick masonry block and CI Cover, with necessary test link conforming to IS 3043-2018 or as specified by CEIG.

2.5.6 The minimum spacing between two adjacent earthing pits shall not be less than 3000mm and shall be kept 1500 mm away from footings of the structure.

2.5.7 Earthing chamber shall be of RCC/ brick chamber of 600 mm x 600 mm, with hinged cast Iron chequered cover plates. The covers shall have holes for handling. Earthing pits (chambers) shall be painted Green and the earth-pit number shall be marked on it.

2.5.8 Two separate earth pit shall be provided to outdoor feeder pillars with earth flat. Size of the flat shall be determined with respect to fault level.

2.5.9 GI Pipe electrodes shall be provided 1 No. for every consecutive 5 light poles and stone column lights as per IS 3043 - 2018 or better. Electrode shall be connected to the equipment by two runs of GI strip laid in HDPE/ DWC pipes. Size of the flat shall be determined with respect to fault level. Minimum 8 SWG wire looping shall be done for the group of 5 light poles/stone column lights.

2.5.10 Minimum 8 SWG GI wire shall be carried along with the cable in the HDPE pipe laid for distributing power to the landscape area.

2.5.11 Wherever earthing conductor passes through HDPE pipe, sleeves shall be provided. Both ends of the sleeve shall be sealed to prevent the passage of water through the sleeves.

3.0 MAKE LIST

Sr. No	Description	Approved Make
1	Mini Mast Pole	Kesslec/ Orient/ Havells or Equivalent
2	LED Chip	Cree, Osram, Nichia, Philips Lumileds or Equivalent
3	Lighting Fixtures	Philips/ Orient/ Havells/Lighting Technology/ Kesslec or Equivalent
4	Cable	KEI/ POLYCAB or Equivalent
5	Gland/Lugs	As per OPWD Approved list or Dowells, Commet, Connectwell or Equivalent
6	Earthing Material	As per OPWD Approved list
7	MCCB , MCB, RCCB, RCBO and other Switchgears	Schneider, Siemens, ABB. L&T, Havells or Equivalent
8	Time Switch	L&T GIC, Siemens, Schneider, Legrand, Hager, ABB, Havells, C&S or Equivalent

9	Energy meter, MFM	L&T (Quasar) or Equivalent
10	Contactor and other switchgears	L&T, Siemens, Schneider, ABB or Equivalent
12	HDPE/ DWC Pipe	Astral, Duraline, Alcorr, Noble Polytec or Equivalent
13	Junction Box	Hensel or Equivalent
14	LT Panels	Advance / Adlec or equivalent

Note:-

(i) RSCL shall decide the above makes of the materials. The CONTRACTOR has to comply with the approved makes given in the tender document.

(ii) The CONTRACTOR shall offer the equipment of makes mentioned above. Other makes are subjected to Client approval before procurement.

(iii) Samples from all the approved makes shall be offered for selection.

4.0 LIST OF DRAWING AND DOCUMENTS

Following list of the documents and drawings shall be submitted to RSCL or its representative

PROCEDURE UNDER E-TENDERING

INSTRUCTIONS TO APPLICANTS

DEFINITIONS:

a) Tender portal: The e-Procurement Portal of Government of Odisha introduced for the process of e-Tendering which can be accessed on https://www.tendersodisha.gov.in.
b) Use of valid Digital Signature Certificate of appropriate class (Class II or class III) issued from registered certifying authorities (CA) as stipulated by Controller of Certifying Authorities (CCA), Government of India such as n- Code, Sify, TCS, MTNL, e-Mudhra is mandatory for all users.
c) For all purpose, the server time displayed in the e-Procurement portal shall be the time to be followed by all the users.
Words in capital and not defined in this document shall have the same meaning as in the Request for Proposal ("BID").

1. PARTICIPATION IN BID:

1.1 PORTAL REGISTRATION:

The Contractor/Bidder intending to participate in the bid is required to register in the portal using his/her active personal/official e-mail ID as his/her Login ID and attach his/her valid Digital signature certificate (DSC) to his/her unique Login ID. He / She has to submit the relevant information as asked for about the firm/contractor. The portal registration of the bidder/firm is to be authenticated by the State Procurement Cell after verification of original valid certificates/documents such as (i) PAN and (ii) Registration Certificate (RC) / VAT Clearance Certificate (for procurement of goods) /GST Certificate of the concerned bidder. The time period of validity in the portal is at par with validity of RC/ VAT Clearance/GST Certificate. Any change of information by the bidder is to be re authenticated by the State Procurement Cell. After successful authentication bidder can participate in the online bidding process.

1.2 Bidders participating through Joint Venture shall declare the authorized signatory through Memorandum of Understanding duly registered and enroll in the portal in the name and style of the Joint venture Company. It is mandatory that the DSC issued in the name of the authorised signatory is used in the portal. For participating in the tender, the authorized signatory holding Power of Attorney shall be the Digital Signatory. In case the authorized signatory holding Power of Attorney and Digital Signatory are not the same, the bid shall be considered non-responsive.

1.3 Any third party/company/person under a service contract for operation of e- Procurement system in the State or his/their subsidiaries or their parent companies shall be ineligible to participate in the procurement process that are undertaken through the e-Procurement system irrespective of who operates the system.

2. LOGGING TO THE PORTAL:

The Contractor/Bidder is required to type his/her Login ID and password. The system will again ask to select the DSC and confirm it with the password of DSC as a second stage authentication. For each login, a user's DSC will be validated against its date of validity and also against the Certificate Revocation List (CRL) of respective CAs stored in system database. The system checks the unique Login ID, password and DSC combination and authenticates the login process for use of portal.

3. DOWNLOADING OF BID:
The bidder can download the tender of his choice and save it in his system and undertake the necessary preparatory work off-line and upload the completed tender at his convenience before the closing date and time of submission.

4. CLARIFICATION ON BID:
The bidder may ask question related to tender online in the e-procurement portal within the period of seeking clarification. The Officer inviting the bid /Procurement Officer-Publisher will clarify queries related to the tender.

5. PREPARATION & SUBMISSION OF BID

5.1 Detailed BID may be downloaded from Tender Portal for detail study and preparation of his bid and the Application may be submitted online following the instructions appearing on the screen.

5.2 The following shall be the form of various documents in the Application:

A. Only Electronic Form (to be uploaded on the Tender Portal)

(a) Power of Attorney for signing the Application
(b) If applicable, the Power of Attorney for Lead Member of JV;
(c) Copy of Memorandum of Understanding between JV partners, if applicable.
(d) Copy of Memorandum of Understanding with Associate, if applicable.
(e) Technical proposal as per format prescribed as per clause no 102 of BID
(f) Bid Security of Rs. 60,000 (Rupees Sixty Thousands only) in shape of Demand Draft in Schedule Bank , Fixed Deposit Receipt of Nationalized /Scheduled Bank /Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account/Bank Guarantee of Nationalised bank/Scheduled Bank of India counter guaranteed by local branch at Rourkela for validity of 180 day Rourkela Payable at Rourkela in favor of beneficiary mentioned in the Instruction to Bidder or as per DTCN
(g) Price Bid as per BOQ.
(h) Other documents as per requirement of BID.
5.3 The Applicant shall upload scanned copies of the documents as specified in
5.2(A) above on the Tender Portal in designated locations of Technical Proposal and Price Bid(BOQ) before 17:00 hours Indian Standard Time on the Application due date i.e. on 30.12.2025 (date to be specified).
5.4 It may be noted that the scanned copies can be prepared in file format i.e. PDF and/or JEPG only. The Applicants can upload a single file of size of 5 MB only but can upload multiple files.
5.5 The bidder shall log on to the portal with his /her DSC and more to the desired tender for up loading the documents in appropriate place one by one simultaneously checking the documents.
5.6 Bids cannot be submitted after due date and time. The bids once submitted cannot be viewed, retrieved or corrected. The Bidder should ensure correctness of the bid prior to uploading and take print out of the system generated summary of submission to confirm successful uploading of bid.
The bids cannot be opened even by the OIT or the Procurement Officer Publisher/ opener before the due date and time of opening.
5.7 Each process in the e-procurement is time stamped and the system can detect the time of log in of each user including the Bidder.
5.8 The Bidder should ensure clarity/legibility of the document uploaded by him to the portal.

5.9 The system shall require all the mandatory forms and fields filled up by the contractor during the process of submission of the bid/tender
5.10 The bidder should check the system generated confirmation statement on the status of the submission.
5.11 The Bidder should upload sufficiently ahead of the bid closure time to avoid traffic rush and failure in the network.
5.12 The tender inviting officer is not responsible for any failure, malfunction or breakdown of the electronic system used during the e-procurement process.
5.13 The Bidder is required to upload documents related to his eligibility criteria and qualification information and Price Bid(BOQ) duly filled in.
5.14 The Bidder will not be able to submit his bid after expire of the date and time of submission of bid (server time). The date and time of bid submission shall remain unaltered even if the specified date for the submission of bids declared as a holiday for the Officer Inviting the Bid.

6. SIGNING OF BID:

The 'online bidder' shall digitally sign on all statements, documents, certificates uploaded by him, owning responsibility for their correctness /authenticity as per IT ACT 2000. If any of the information furnished by the bidder is found to be false / fabricated / bogus, his EMD/ Bid Security shall stand forfeited & his name shall be recommended for blocking of portal registration and the bidder is liable to be blacklisted.

7. SECURITY OF BID SUBMISSION:

7.1 All bid uploaded by the Bidder to the portal will be encrypted.
7.2 The encrypted Bid can only be decrypted / opened by the authorized openers on or after the due date and time.

8. RESUBMISSION AND WITHDRAWAL OF BIDS:

8.1 Resubmission of bid by the bidders for any number of times before the final date and time of submission is allowed.
8.2 Resubmission of bid shall require uploading of all documents including price bid a fresh.
8.3 If the bidder fails to submit his modified bids within the pre-defined time of receipt, the system shall consider only the last bid submitted.
8.4 The bidder should avoid submission of bid at the last moment to avoid system failure or malfunction of internet or traffic jam or power failure etc.
8.5 The Bidder can withdraw his bid before the closure date and time of receipt of the bid by uploading scanned copy of a letter addressing to the Procurement Officer Publisher (Officer Inviting Tender) citing reasons for withdrawal. The system shall not allow any withdrawal after expiry of the closure time of the bid.

9 OPENING OF THE BID:

9.1 Bid opening date and time is specified during tender creation or can be extended through corrigendum. Bids cannot be opened before the specified date & time.
9.2 All bid openers have to log-on to the portal to decrypt the bid submitted by the bidders.
9.3 The bidders & guest users can view the summary of opening of bids from any system. Contractors are not required to be present during the bid opening at the opening location if they so desire.
9.4 In the event of the specified date of bid opening being declared a holiday for the Officer inviting the Bid, the bids will be opened at the appointed time on the next working day.
9.5 Combined bid security for more than one work is not acceptable.

10. EVALUATION OF BIDS:

10.1 All the opened bids shall be downloaded and printed for taking up evaluation.
The officer authorized to open the tender shall sign and number on each page of the documents downloaded and furnish a certificate that "the documents as available in the portal containing--- nos of pages".
10.2 The bidder may be asked in writing/ online to clarify on the uploaded documents provided in the Technical Bid, if necessary, with respect to any doubts or illegible documents. The officer inviting tender may ask for any other document of historical nature during Technical evaluation of the tender. Provided in all such cases,

furnishing of any document in no way alters the Bidder's price bid. Non submission of legible documents may render the bid non-responsive.
10.3 The bidders will respond in not more than 7 days of issue of the clarification letter, failing which the bid of the bidder will be evaluated on its own merit.
10.4 The Technical evaluation of all the bids shall be carried out as per information furnished by Bidders.
10.5 The Procurement Officer-Evaluators; will evaluate bid and finalize list of responsive bidders.
10.6 The financial bids of the technically responsive bidders shall be opened on the due date of opening. The Procurement Officer-Openers shall log on to the system in sequence and open the financial bids.
10.7 The Financial Bid will be opened on the notified date & time in the presence of bidders or their authorised representative who wish to be present.
10.8 At the time of opening of "Price Bid(BOQ)", bidders whose technical bids were found responsive and qualified will be opened.
10.9 The responsive bidders' name, bid prices will be announced.
10.10 Procurement Officer-Openers shall sign on each page of the downloaded Price Bid(BOQ).
10.11 Bidder can witness the principal activities and view the documents/summary reports for that particular work by logging on to the portal with his DSC from anywhere.
10.12 System provides an option to Procurement Officer Publisher for reconsidering the rejected bid with the approval of concern Chief Engineer / Head of Department.
10.13 The L-1 bidder shall have to produce the original documents in support of the scanned copies and statements uploaded in the portal within 5 days of opening of price bid.

DISCLAIMER

The Applicant must read all the instructions in the BID and submit the same accordingly