



भारत सरकार

Government of India

केन्द्रीय लोक निर्माण विभाग

Central Public Works Department

Notice Inviting Tender

FOR

Name of Work: Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).



Executive Engineer,

Ghaziabad Division - II,

CGO - I, CPWD, Ghaziabad

Phone: 0120-2985775, Email: gzb-eeepd@cpwd.gov.in

INDEX

Name of Work: - Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).

S. No.	DESCRIPTION	PAGE
1.	Cover page	1
2.	Index	2
3.	Notice Inviting Tender	3
4.	Information & Instructions for Bidders for e-Tendering	4-5
5.	Proforma of Receipt of deposition of EMD	6
Part-A: GENERAL		7
6.	CPWD-6 for e-Tendering	8-11
7.	Tender Form CPWD-7	12-13
8.	Schedules - A to F	14-19
Part-B: Civil Work		20
9.	General Conditions for Work	21-22
10.	Additional Conditions of Works	23-41
11.	Particular Specification and Special Conditions for Civil Work	42-48
12.	Form Of Bank Guarantee for Earnest Money Deposit	49-50
13.	Form Of Bank Guarantee for Performance Guarantee/Security Deposit/Mobilization Advance/ Refund of Milestone Withheld Amount	51-52
14.	List Of Preferred Makes for Civil Work	53-60
15.	Schedule of Quantity	61-63

This NIT contains pages **1 to 63**

**Executive Engineer,
Ghaziabad Division - II,
CGO - I, CPWD, Ghaziabad**

Phone: 0120-2985775, Email: gzb-eeepd@cpwd.gov.in

NOTICE INVITING TENDER

N.I.T. No.	20/EE/GD-II/2026-27
Name of work	Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).
Estimated Cost	Rs. 21,54,781/-
Earnest Money	Rs. 43,096/- (in favour of Executive Engineer, Ghaziabad Central Division, CPWD, AF Station, Hindon, Ghaziabad)
Performance Guarantee	(a) 5% of tendered value or Estimated Cost Put to Tender (ECPT) (whichever is higher). (b) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount.
Security Deposit	2.5% of tendered value
Time Allowed	03 (Three) Months

This NIT for the above work amounting to Rs. 21,54,781/- (Rs. Twenty One Lakh Fifty Four Thousand Seven Hundred Eighty One Only) is hereby approved.

**Assistant Engineer(P)
Ghaziabad Division II,
CPWD, Ghaziabad**

**Executive Engineer
Ghaziabad Division II,
CPWD, Ghaziabad**

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING

The **Executive Engineer(C), Ghaziabad Division - II, CPWD, CGO - I, Ghaziabad** on behalf of President of India invites online percentage rate bids from approved and eligible CPWD enlisted contractors of appropriate class in Building & Roads category for the following work:

NIT No.	20/EE/GD-II/2026-27
Name of Work & Location	Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).
Estimated Cost put to Tender	Rs. 21,54,781/-
Earnest Money	Rs. 43,096/- in favour of Executive Engineer, Ghaziabad Central Division, CPWD, AF Station, Hindon, Ghaziabad.
Stipulated Period of Completion	03 (Three) Months
Last Date & Time of Online Submission of Bids copy of Receipt of deposition of original EMD & Other Documents as specified in the Bid Document	Up to 15:00 Hrs. on 07.08.2026
Date & Time of Opening of Bid	At 15:30 Hrs. on 07.08.2026

1. The intending bidder must read the terms and conditions of CPWD-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
2. Information and instructions for bidders posted on website shall form part of bid document.
3. The bid document consisting of plans, specifications, schedule of quantities of various types of items to be executed and the set of terms & conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost
4. But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or Division office of any Executive Engineer, CPWD with in the period of bid submission and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Banker's Cheque or/and Bank Guarantee (for the balance amount as prescribed) from any of Commercial Banks towards EMD in favour of Executive Engineer as mentioned in NIT, Receipt for deposition of original EMD to Division office of any Executive Engineer (including NIT inviting EE), CPWD and other documents as specified.
5. Those Bidders who are not registered or have not updated their profile on the website mentioned above, are required to get registered / update their profile beforehand. The necessary training materials including the videos with step-to-step process are available on download section of <https://etender.cpwd.gov.in>
6. The intending bidder must have valid Class-III digital signature certificate with encryption key (combo type) to perform any operations/transactions on the e-tendering portal / website and the bidder should download and install the eMsigner on their system as per instruction available on download section of <https://etender.cpwd.gov.in>.
7. On opening date, the Bidder can login and see the bid opening process. After opening of bids, he will receive the competitor bid sheets.

8. Tenderer can upload documents in the form of **JPG** format and **PDF** format.
9. **CPWD does not have funds of its own and it carries out the works of client departments from their funds (deposit, budgetary, authorization). The CPWD is making payments to the contractors after getting budget / authorization / deposit from various Ministries / Client Departments. The payment to the contractor can be done only on availability of funds for that work from client department and in case of delay in getting funds from Ministry / Client Department, CPWD will not be responsible for delay in payment and no any extra compensation on this account shall be granted apart from specified elsewhere in this document. The contractor has to quote his tender accordingly considering this aspect**
10. Tenderer must ensure to quote rate of each item. The column meant for quoting rate in figures appears in yellow colour and the moment rate is entered; it turns sky blue.
In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as “0”. Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as “0” (**Zero**).
However, if a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the lowest amount of the tender or any section/sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

List of Documents to be scanned and uploaded within the period of Bid submission:

- i. Insurance Surety Bond, Demand Draft/ Account Payee Banker's Cheque / FDR/ Bank Guarantee of any commercial Bank against EMD
- ii. Enlistment Order of Contractors
- iii. Receipt for deposition of original EMD to division office of any EE, CPWD in prescribed Proforma along with scanned copy of original EMD.
- iv. Certificate of ERP training issued through LMS, CPWD.
- v. Copy of PAN card
- vi. GST registration Certificate **as applicable**, if already obtained by the bidder.
If the bidder has not obtained GST registration **as applicable**, then he shall scan and upload following undertaking along with other bid documents:

*“If work is awarded to me, I/we shall obtain GST registration Certificate, **as applicable**, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard.”*
- vii. Personal Details such as Contract Number, Address, and Email.

RECEIPT OF DEPOSITION OF ORIGINAL EMD

1.	Receipt No	:.....**...../ date.....**.....
2.	Name of work	Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).
3.	NIT No.	20/EE/GD-II/2026-27
4.	Estimated Cost	Rs. 21,54,781/-
5.	Amount of Earnest Money Deposit	Rs. 43,096/- in favour of Executive Engineer, Ghaziabad Central Division, CPWD, AF Station, Hindon, Ghaziabad.
6.	Last date of submission of Bid	: Up to 15:00 Hrs. on 07.08.2026
7.	Name of Contractor	:**.....
8.	Form of EMD	:**.....
9.	Amount of Earnest Money Deposited	:**.....
10.	Date of submission of EMD	:**.....
11.	Signature, Name and Designation of EMD receiving officer (EE/AAO) with officer stamp	:

..**..To be filled by Executive Engineer

to be filled by EMD receiving EE/AAO as the case may be.

PART-A

GENERAL

CPWD-6 FOR e-TENDERING

1. **Percentage Rate Bids** are invited on behalf of President of India from approved and eligible CPWD Enlisted Contractors of appropriate class in Building & Roads category for the work of **“Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P). ”**

The enlistment of the CPWD Contractors should be valid on the last date of submission of bids. In case the last date of submission of bids is extended, the enlistment of contractor *should be valid on the original date of submission of bids.*

- 1.1 The work is estimated to cost **Rs. 21,54,781/-**. This estimate, however, is given merely as a rough guide.
2. Agreement shall be drawn with the successful bidder on prescribed Form No. **CPWD-7** (or other Standard Form as mentioned) which is available as a Govt. of India Publication and also available on website www.cpwd.gov.in. Bidder shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. The time allowed for carrying out the work will be **03 (Three) Months** from the date of start as defined in schedule ‘F’ or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.
4. (i) **The contractor has to get all sample of material / item approved from the Engineer-in-Charge before execution of item.**
 (ii) The Architectural and Structural drawings shall be made available in phased manner, as per requirement of the same as per approved programme of completion submitted by the contractor after award of work and progress of work thereof and no claim of damages for issue of drawings in phased manner shall be admissible.
5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen from website <https://etender.cpwd.gov.in> or www.cpwd.gov.in free of cost.
6. After submission of the bid the contractor can re-submit revised bid any number of times or withdraw it before last date and time of submission of bid as notified. No post-tender modification is allowed by the tenderers except through negotiations, if required. In case, any tenderer does so, the tender will be rejected and the tenderer will be debarred for future tendering in CPWD for two years by the concerned enlisting authority (in case of CPWD enlisted contractor) and by the concerned CE/SE (in case of non-enlisted contractor).
7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.
8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted, then the bid submitted earlier shall become invalid.
9. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker’s Cheque or Bank Guarantee (for the balance amount as prescribed) from any of Commercial Banks (drawn in favour of **Executive Engineer, Ghaziabad Central division, CPWD, Air**

Force Station, Hindon. Ghaziabad) shall be scanned and uploaded to the e-tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE) shall issue a receipt of deposition of Earnest Money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs.20 lacs, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any Commercial Bank having validity for **6 (six) months** or more from last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The Earnest Money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of bid of the successful bidder, whichever is earlier. However, in case of two/three bid system, earnest money deposit of bidders unsuccessful during technical/eligibility bid evaluation etc. shall be returned within 30 days of declaration of result of technical/eligibility bid evaluation.

Copy of Enlistment Order and other documents as specified in the bid document shall be scanned and uploaded to the e-tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in the bid document shall have to be submitted by **the lowest bidder** only along with physical EMD of the scanned copy of EMD uploaded within a week physically in the office of tender inviting authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at **15:30 Hrs. on 07.08.2026**

10. The bid submitted shall become invalid and e-tender processing fee shall not be refunded if:
 - (i) The bidder is found ineligible.
 - (ii) The bidder does not upload scanned copy of all the documents stipulated in the bid document.
 - (iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.
 - (iv) If a tenderer quotes nil rates against each item-on-item rate tender or does not quote any percentage above/below on the total amount of the tender or any section/sub-head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.
11. The contractor whose bid is accepted will be required to furnish performance guarantee at specified percentage of the tendered amount as mentioned in Schedule E and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from any of Commercial Banks in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F' including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

The contractor whose bid is accepted will also be required to furnish either copy of applicable

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

AE(P)

AE(E)P

EE(P)

licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident fund code no. if applicable and also ensure the compliance of aforesaid provisions by the sub-contractors, if any engaged by the contractor for the said work within the period specified in Schedule F.

12. The description of the work is as follows:

The work of “*Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).*”

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves 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 or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidder shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for 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 stores, 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 the work.

13. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. 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 bidders shall be summarily rejected.
14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable to rejection.
15. The competent authority on behalf of President of India 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.
16. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and Junior Engineer (both inclusive). 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 gazette officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
17. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the previous permission of the Government of India in writing. This 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 India as aforesaid before submission of the bid or engagement in the contractor's service.

18. The bids for the work shall remain open for acceptance for a period of **30 (Thirty) days** from the date of opening of bids. Further,
- (i) If any tenderer withdraws his tender **within 7 days** after last date and time (24 hours basis) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (ii) If any tenderer withdraws his tender **after expiry of 7 days** after last date and time (24 hours basis) of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - (iii) Withdrawal of the tender, by the tenderer, shall only be made through e-tender portal. Any other method i.e. through letter / e-mail etc. shall not be considered.
 - (iv) In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
19. This notice inviting Bid shall form a part of the contract document. The successful bidder/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:
- (i) The Notice Inviting Bid, all the documents including Additional Conditions, Specifications and Drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the Rates quoted online at the time of submission of Bid and Acceptance thereof together with any correspondence leading thereto.
 - (ii) Standard **CPWD Form-7** or other Standard CPWD Form as applicable.
20. The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile to uploading tender can be resolved through the concerned Executive Engineer or ERP help line no. 18001803286 or e-mail ID cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT**

PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

Tender for the work of “**Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).**”

- (i) To be submitted / uploaded up to **15:00 Hrs. on 07.08.2026** on website: **<https://etender.cpwd.gov.in>**
- (ii) To be opened in the presence of bidders who may be present at **15:30 Hrs. on 07.08.2026** in the office of the **Executive Engineer(C), Ghaziabad Division - II, CPWD, CGO - I, Ghaziabad**

TENDER

I/We have read and examined the notice inviting tender, schedule - A, B, C, D, E & F, Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, Clauses of contract, Special conditions, Schedule of Rate & other documents and rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the President of India within the time specified in Schedule ‘F’ viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 in General Rules and Directions and in Clause-11 of the Conditions of Contract and with such materials as provided for, by, and in respect of accordance with, such conditions so far as applicable..

I/We agree to keep the tender open for **30 (Thirty) days** from the date of opening of technical bid and not to make any modification in its terms and conditions.

I/We have deposited EMD for the prescribed amount in the office of concerned Executive Engineer as per the bid document.

A copy of Earnest Money deposit of prescribed amount deposited in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker’s Cheque or Bank Guarantee (as prescribed) issued by a commercial Bank, is scanned and uploaded. If I/We, fail to furnish the prescribed performance guarantee within prescribed period, I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said performance guarantee absolutely, the said performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in clause 12 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/we undertake and confirm that eligible similar work(s) has/have not been got executed through another agency on back-to-back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding in CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-charge shall be free to forfeit the entire amount of Earnest Money Deposited/Performance Guarantee.

I/We hereby declare that I/We shall treat the tender documents, drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated:

Signature of Contractor

Postal Address:

Witness:

Address:

Occupation:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the President of India for a sum of Rs..... (Rupee.).

The letters referred to below shall form part of this contract agreement:

- (a)
- (b)
- (c)

(For & on behalf of President of India)

Dated:

Signature.....

Designation.....

SCHEDULES A TO F**SCHEDULE 'A'**

Schedule of quantities for the Work (as per CPWD-3 : Enclosed

SCHEDULE 'B'

Schedule of material to be issued to the Contractor : Nil

SCHEDULE 'C'

Tools and Plants to be hired to the Contractor : Nil

SCHEDULE 'D'

Extra schedule for specific requirements/documents for the work, if any: Nil

SCHEDULE 'E'

Reference to General Conditions of Contract: General Conditions of Contract - 2023 (Maintenance Works) as amended with amendments issued up to previous day of the last date of submission of the Tenders.

Name of Work: Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).

Estimated cost of work: Rs. 21,54,781/-

(i)	Earnest Money	Rs. 43,096/- (to be returned after receiving Performance Guarantee)
(ii)	Performance Guarantee	(a) 5% of tendered value or Estimated Cost Put to Tender (ECPT) (whichever is higher). (b) Where the tendered amount is less than eighty percent (80%) of the Estimated Cost Put to Tender (ECPT), the Performance Guarantee, in addition to the requirement under (a) above, shall be increased by an amount equal to the difference between eighty percent (80%) of the ECPT and the tendered amount.
(iii)	Security Deposit	2.5% of the accepted tendered value of the work

SCHEDULE 'F'**General Rules & Directions:**

Officer inviting Tender: **Executive Engineer(C), Ghaziabad Division - II, CPWD, CGO - I, Ghaziabad**

Definitions:

2 (vi)	Engineer-in-Charge	Executive Engineer (C), Ghaziabad Division- II, CGO-I, CPWD, or successor thereof
(viii)	Accepting Authority	Executive Engineer (C), Ghaziabad Division- II, CGO-I, CPWD, or successor thereof
(x)	Percentage on cost of materials and Labour to cover all overheads and profits	15%
(x)(a)	Standard Schedule of Rates	Civil Works: Delhi Schedule of Rates 2023 (Vol. 1 & 2) with amendments issued up to Previous day of the last date of submission of the Tenders.
(xi)	Department	Central Public Works Department (CPWD)

9(ii)	Standard CPWD Contract Form:	General Conditions of Contract-2023 (Maintenance Works) and CPWD Form-7 (Percentage Rate Tender & Contract for Works) as amended with amendments issued up to Previous day of the last date of submission of the Tenders.
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Clause-1:

(i)	Time allowed for submission of Performance Guarantee, programme chart (Time and Progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board or proof of applying thereof from the date of issue of letter of acceptance.	07 (Seven) days
(ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above	03 (Three) days

Clause-2:

(i)	Authority for fixing compensation under clause 2	Chief Engineer, Ghaziabad Zone, CPWD or successor thereof
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Clause-5:

(i)	Number of days from the date of issue of letter of acceptance for reckoning date of start	10 (Ten) days
(ii)	Time allowed for completion of work	03 (Three) Months

TABLE OF MILE STONES

Sl. No.	Description of mile stone	Period for completion from date of start in months	Withheld amount for non- achievement of mile stone.
1.	Financial Progress of 1/8 th of Tendered Amount	25% of completion of period	1.25% of Tendered Value for failure of each Milestone
2.	Financial Progress of 3/8 th of Tendered Amount	50% of completion of period	
3.	Financial Progress of 3/4 th of Tendered Amount	75% of completion of period	
4.	Financial Progress of Full Tendered Amount	Completion of Period	

(i)	Authority to convey the decision of shifting of milestones	Executive Engineer, Ghaziabad Division-II, CPWD, CGO-I Complex, Ghaziabad or successor thereof
(ii)	Authority to decide rescheduling of milestones and grant of Extension of time	Chief Engineer, Ghaziabad Zone, CPWD or successor thereof
(iii)	Shifting of date of start in case of delay in handing over of site	Chief Engineer, Ghaziabad Zone, CPWD or successor thereof

Schedule of issue of designs: Applicable

Part	Portion of Design	Description	Time period for handing over reckoned from date of receipt of tenders
Part A	Portion already included in NIT	NA	<i>Site is available</i>
Part B1	Portions of Architectural Designs to be issued	NA	
Part B2	Portion of Civil designs to be issued	NA	
Part B2	Portion of E&M Designs to be issued	NA	

Clause-5.2

Nature of Hindrance Register:	Web bases OM no DG/MAN/394 dated 28/01/2020 shall be followed for documentation of Hindrance
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Clause-5.4

Schedule of rate of recovery for delay in submission of the modified programme in terms of delay days:	Rs. 1,000/- per day
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Clause-6

Computerized Measure Book (CMB)/ Electronic Measurement Book (EMB)	EMB
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Clause-7:

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment	Rs. 5.00 Lakh / As per mutually agreed
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Clause-7A:

Whether Clause 7A shall be Applicable	Yes (a) No running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whether applicable are submitted by the contractor to the Engineer-in-Charge. (b) The following documents shall also be part of the bill submitted by the contractor (these documents shall be owned by the contractor) before making payment: - 1. Details of person employed with date of their employment up to previous month. 2. Documents of payment made to the employees directly into their bank accounts up to previous month. 3. Documents of attendance through biometric attendance or other mode up to previous month. 4. Documents of deposition of EPF and ESI deductions in the employee's accounts up to previous month. 5. Any penalty imposed on the agency for delay in disbursing payment and deposition of EPF and ESI deductions in the employee's accounts up to previous month. 6. Any other document(s) required as per statutory requirements and/or as directed by Engineer-in-Charge. In case, any of the documents submitted by the contractor is found false/forged at a later date, action for debarment of contractor will be taken by the CE, Ghaziabad CPWD.
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Clause-8:

Competent authority to inspect and issue Completion Certificate	Executive Engineer, Ghaziabad Division-II, CPWD, Ghaziabad
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Clause-8A:

Authority to decide compensation on account if contractor fails to submit completion plans.	Chief Engineer, Ghaziabad Zone, CPWD or successor thereof
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Clause-10A: List of Testing equipment's to be provided by the agency at Site Lab:

Equipment for conducting necessary Site Tests as per requirements of Specifications and quality assurance plan shall be provided and installed at site in the well-furnished Site Laboratory by the contractor at his own cost.

Clause-10 B (ii)

Whether Clause 10B(ii) shall be Applicable	Not Applicable
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Clause-10 C: **Not applicable**

Component of Labour Expressed as percent of value of work	N.A.
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Clause-10CC: (Applicable or not) : **Not Applicable**

Clause-11:

Specifications to be followed for execution of work:	
Civil work	CPWD Specification 2019 Volume -I & II with correction slips up to the previous date of the last date of submission of bids. CPWD Green Rating Manual 2021 with correction slips up to the previous date of the last date of submission of bids. CPWD hand book on safety, Health and Environment with correction slips up to the previous date of the last date of submission of bids. CPWD Manual on Accessible Built Environment 2019 with correction slips up to the previous date of the last date of submission of bids.

Clause-12:

12.2 (C)	Deviation Limit beyond which clauses 12.2(C) shall apply for the work	100%
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The completion cost should not exceed 1.50 times of tendered amount (**as per DG/CON/Maintenance 2023/03 dated 18/12/2023**).

Clause-16:

Competent Authority for deciding reduced rates:
Chief Engineer, Ghaziabad Zone, CPWD or successor thereof

Clause-18:

The Contractor shall deploy T&P, Plant and Equipment required for execution of work within contract period. Schedule of deployment of the equipment shall be as per requirement of work for completion of work as per work program within stipulated time and contractor himself shall be responsible for their efficient use avoiding any idling. **No damages/compensation shall be payable on account of idle Manpower, Labour, T&P, Plant and Equipment and Loss of Profit etc. for whatsoever reason, not even for delay in work due to justified hinderances.**

Clause-19:

Clause 19C : Authority to decide penalty for each default	Engineer-in-charge of respective component of Work
Clause 19D : Authority to decide penalty for each default	
Clause 19G : Authority to decide penalty for each default	
Clause 19K : Authority to decide penalty for each default	

Clause-25:

(i)	Conciliator	Additional Director General (Region Lucknow), CPWD or Successor thereof
(ii)	Arbitrator Appointing Authority	Chief Engineer, Ghaziabad Zone, CPWD or successor thereof
(iii)	Place of Arbitration	Ghaziabad

Clause-32: Requirement of Technical Representative(s) and Recovery Rates:

Tendered Cost of work (Rs. in Crore)	Requirement of Technical Staff		Minimum experience (Years)	Designation of Technical Staff	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 32(i)
	Qualification	Number (of Major + Minor Component)			
More than 15 lac to 1.5 Crore	Graduate Engineer or Diploma Engineer	1 of major component	2 or 5 respectively	Project Manager cum planning/ quality/Site/billing Engineer	Rs. 15,000/- per month per person

Note: Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers. Diploma holder with minimum 10-years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to that such diploma holders should not exceed 50% of requirement of degree Engineers.

Clause-38:

i) (a)	Schedule/statement for determining theoretical quantity of cement & bitumen based on Delhi Schedule of Rates	Delhi Schedule of Rates 2023 with Amendments up to the date of submission of bid.
ii)	Variations permissible on theoretical quantities:	
(a)	Cement: - For works with estimated cost put to tender not more than Rs.25 Lakh. - For works with estimated cost put to tender more than Rs.25 Lakh.	3% Plus/Minus 2% Plus/Minus
(b)	Bitumen for all works.	2.5% Plus only and nil on minus side.
(c)	Steel reinforcement and structural steel sections for each diameter, section and category.	2% Plus/minus
(d)	All other materials	Nil

PART–B

(CIVIL WORK)

GENERAL CONDITIONS FOR WORK

SCOPE OF WORK

1. The work shall be executed in accordance with the layout plan, architectural, structural & landscape drawings and services drawings with the intent to complete and handover the project in satisfactory condition and ready for occupation.
2. The Contractor's attention is drawn toward present site condition. All the area will be got cleared and handed over, however, there may be some parts of buried foundations, hard surfaces, tree roots, cutting of bushes, old pipe lines etc. which shall be removed by contractor at the time of work. The land is free from encroachment and there is no hindrance to execute the work. The agency shall fix a permanent bench mark at the site of work. Plinth level shall be fixed above the General finished ground level as per GFC drawings and as directed by Engineer-in-charge. The data provided in this document are for general guidelines.
3. To carry out survey of the site for execution of the project and shall verify the site dimensions as per the site plan provided with bid document/ or made available by Engineer-in-Charge.
4. The work is to be executed as per bill of quantities, drawings and specifications including particular specifications and other terms & conditions of agreement.
5. CPWD Specifications 2019 Vol-I and Vol-II as amended upto last date of submission of bid shall be applicable for all the items/ sub-items to be executed as per Good for construction drawings.
6. Those items which are to be executed under the scope of this NIT and for which CPWD specifications are not available, such items shall be executed in compliance with the specifications mentioned separately in this document and/or as per relevant IS codes, International Standards etc. as applicable.
7. Planning, designing wherever required and execution of **internal services** like internal sanitary, water supply, drainage system etc. complete for the buildings planned including all its fittings, fixtures, testing etc. complete is in scope.
8. Execution of all **external services** like water supply, sewerage, drainage system, roads, pathways, HT & LT electrical cable trenches, parking and all connected sub-structures and superstructures within the premises, as per bye-laws and norms of the local bodies including making connections with the peripheral services after getting the services approved from Engineer-in-charge are part of the scope.
9. The scope also includes construction/installation of underground reservoirs, firefighting tanks including installing of pumps, standby pumps, required connections to new & old existing system as per approved drawings/specifications and as directed by Engineer-in- charge.
10. Landscaping and other development work including other details etc. as conditions of NIT and other details for the horticulture works and execution of same therein.
11. Complete levelling /dressing including filling of earth, its supply, disposal of surplus earth required as per the GFC drawings is to be completed as directed by the Engineer-in-charge.
12. Taking all precautionary measures to safeguard safety measures against any accidents for the agency's employees, labour, public, and staff of CPWD by providing all necessary safety equipment, helmets etc. at work site.
13. The scope as described above is only indicative and not exhaustive. In additions to the above the agency shall be responsible for executing all the items required for completing the building in all respect to make the building habitable and ready for occupation with electrical, horticultural works complete as per direction of Engineer-in-charge.

14. The above scope of work includes cost of all materials, manpower, equipment's, T&P fixtures, accessories, royalties, taxes i/c GST watch & ward till handing over the complete premises to the department and all other essential elements for completion Any change, modification, revision etc. required to be done by CPWD, CFO, local bodies, proof consultants etc. in accordance with applicable standards and bye- laws will have to be done at agency's cost and nothing extra shall be payable.
15. All the drawings shall be made available to contractor from start of work and if there is any clarification required by contractor, the same will be issued as per requirement of work.
16. Detailed planning and execution to complete for Internal Electrification, Fire Alarm System, Fire-fighting system, CCTV, Airconditioning & ventilation, Point wiring, Lifts, UPS, DG set etc. with all equipment's and external lighting, and any other services all complete as per Bill of quantities, drawings and as per the direction of the Engineer-in-charge and also required for satisfactory completion of project etc. are within the scope of work.
17. Approvals/NOC/permissions etc. shall be obtained by the contractor at his own level for disposal of malba/debris or any other approval related to this work.
18. The above scope of work includes cost of all materials, manpower, workmanship, equipment's, T&P fixtures, accessories, royalties, taxes i/c GST watch & ward, incidentals till handing over the complete premises to the department.

Additional Conditions of Works

1. Order of Preference

Should there be any difference or discrepancy between the description of items as given in the schedule of quantities, particular specifications for individual items of work (including special conditions) and I.S. Codes etc., the order of preference as per para 8.1 of General Conditions of Contract 2023 Maintenance Works shall be followed.

If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.

In case of any difference in the Hindi version and English version in any of the condition of contract, English version shall prevail

2. Unless otherwise provided in the Schedule of Quantities/Specifications, the rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads and depths of the work and nothing extra shall be payable to him on account of the same.
3. The proposed building is a prestigious project and quality of work is paramount importance. Contractor shall have to engage well experienced skilled labour and deploy modern T&P and other equipment to execute the work. Many items like stone cladding works, stone flooring, aluminium, glazing & stainless-steel plumbing work and other specialized works will specially require engagement of skilled workers having experience particularly in execution of such items.
 - a) The contractor (s) shall inspect the site of work before tendering and acquaint himself with the site conditions and no claim on this account shall be entertained by the department.
 - b) The contractor (s) shall get himself acquainted with nature and extent of the work and satisfy himself about the availability of materials from kiln or approved quarries for collection and conveyance of materials required for construction.
4. The contractor (s) shall study the soil investigation report for the site, available in the office of the Engineer-in-Charge and satisfy himself about complete characteristics of soil and other parameters of site. However, no claim on the alleged inadequacy or incorrectness of the soil data shall be entertained.
5. The tenderer shall see the approaches to the site. In case any approach from main road is required by the contractor, the same shall be made good, improved and maintained by the contractor at his own cost. No payment shall be made on this account.
6. The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards day and night speed limit boards red flags, red lights and providing barriers. He shall be responsible for all dangers and incidents caused to existing / new work due to negligence on his part. No hindrances shall be caused to traffic during the execution of the work.
7. Contractor shall provide permanent bench marks and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural and plumbing drawings.
8. The contractor shall make his own arrangement for obtaining electric connection(s) if required and make necessary payments directly to the department concerned.
9. Other agencies doing works related with this project may also simultaneously execute their works and the contractor shall afford necessary facilities for the same. The contractor shall leave such necessary holes, openings etc. for laying/burying in the work, pipes cables, conduits, clamps, boxes and hooks for fan clamps etc. as may be required for the other agencies. Nothing extra over the Agreement rates shall be paid for doing these.

10. Some restrictions may be imposed by the security staff etc. on the working and for movement of labour, materials etc. The contractor shall be bound to follow all such restrictions/instructions and nothing extra shall be payable on account of the same.
11. The contractor shall fully comply with all legal orders and directions of the Public or local authorities or municipality and adhere by their rules and regulations and pay all fees and charges for which he may be liable in this regard. Nothing extra shall be paid/reimbursed for the same.
12. The building work shall be carried out in the manner complying in all respects with the requirements of the relevant bylaws and regulations of the local body under the jurisdiction of which the work is to be executed or as directed by the Engineer-in-charge and nothing extra shall be paid on this account.
13. The contractor shall give a performance test of the entire installation(s) as per standing specifications before the work is finally accepted by making his own arrangements for water supply, electricity etc. and nothing extra whatsoever shall be payable for the same.
14. If as per local Municipal regulations, huts for labour are not to be erected at the site of work, the contractor shall be required to provide such accommodation at a place as is acceptable to the local body and nothing extra shall be paid on this account.
15. In case of items for which abbreviated nomenclature is not available in the aforesaid publication and also in case of extra and substituted items for which abbreviated nomenclature are not provided for in the agreement, full nomenclature of item shall be reproduced in the measurement books and bill forms for running account bills.
16. For the purpose of recording measurements and preparing running account bills, the abbreviated nomenclature indicated in the publications Abbreviated Nomenclature of Items of DSR 2023 shall be accepted. The abbreviated nomenclature shall be taken to cover all the materials and operations as per the complete nomenclature of the relevant items in the agreement and relevant specifications.
17. For the final bill, however, full nomenclature of all the items shall be adopted in preparing abstract in the measurement books and in the bill forms.
18. It shall be ensured by the contractor that no electric live wire is left exposed or unattended to avoid any accidents in this regard.
19. The structural and architectural drawings shall at all times be properly co-related before executing any work. However, in case of any discrepancy in the item given in the schedule of quantities appended with the tender and Architectural drawings relating to the relevant item, the former shall prevail unless otherwise given in writing by the Engineer-in-charge.
20. The contractor shall maintain in perfect condition, all portions executed till completion of the entire work allotted to him. Where however phased delivery of work is contemplated these provisions shall apply separately to each phase.
21. The entire royalty at the prevalent rates shall have to be paid by the contractor on all the boulders, metals, shingle sand, earth etc. collected by him for execution of the work, directly to the Revenue authority or authorized agents of the State Government concerned or the Central Government, as the case may be.

22. PROGRAMME CHART

- (i) The contractor shall submit a Detailed construction programme (Time and Progress Chart) for execution of work in stipulated period of completion considering each mile stone within 15 days of date of issue of letter of acceptance. The Engineer-in-charge may within 30 days thereafter, if required modify, and communicate the programme approved to the contractor failing which the programme submitted by the contractor shall be deemed to be approved by the Engineer-in-charge. The work programme shall include all details of balance drawings and decisions required to complete the contract with specific dates by which these details are required by contractor without causing any delay in execution of the work. The chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the works. It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-charge and the Contractor within the limitations of time imposed in the Contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate programme has been agreed upon) complete the work as per mile stones given in Schedule —Fl.
 - (ii) The submission for approval by the Engineer-In-Charge of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer- In-Charge to take-action against the contractor as per terms and conditions of the agreement.
 - (iii) The approval by the Engineer-in-charge of such programme shall not relieve the contractor of any of the obligations under the contract.
 - (iv) The program chart should include the following: -
 - a) Descriptive note explaining sequence of various activities.
 - b) Construction Program prepared on PRIMAVERA/ MS Project Software, which will indicate resources in financial terms, manpower and specialized equipment for every important stage.
 - c) Program for procurement of materials by the contractor.
 - d) Program for arranging and deployment of manpower both skilled and unskilled so as to achieve targeted progress.
 - e) Program of deployment of machinery / equipment having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.
 - f) Programme for achieving milestones.
 - g) If at any time, it appears to the Engineer-In-Charge that the actual progress of work does not conform to the approved program referred above, the contractor shall produce a revised program showing the modifications to the approved program by additional inputs to ensure completion of the work within the stipulated time.
 - (v) The contractor shall submit the Time and Progress Chart and progress report using the mutually agreed software or in other format decided by Engineer-in-charge for the work done during previous month to the Engineer-in-charge on or before 5th day of each month.
 - (vi) The submission for approval by the Engineer-in-charge of such programme or such particulars shall not relieve the contractor of any of the duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-charge to take action against the contractor as per terms and conditions of the agreement.
23. The submission for approval by the Engineer-in-Charge of such programme or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract. This is without prejudice to the right of Engineer-in-Charge to take action against the contractor as per terms and conditions of the agreement.

24. If the work is carried out in more than one shift or during night no claim on these accounts shall be entertained.
25. Existing drains, pipes, cables, over-head wires, sewer lines, water lines and similar services encountered in the course of the execution of work shall be protected against the damage by the contractor at his own expense. The contractor shall not store materials or otherwise occupy any part of the site in a manner likely to hinder the operation of such services.
26. The contractor shall be responsible for the watch and ward/guard of the buildings, safety of all fittings and fixtures including sanitary and water supply fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.
27. The contractor shall bear all incidental charges for cartage, storage and safe custody of materials issued by department.
28. Any cement slurry added over base surface for continuation of concreting for better bond is deemed to have been built in the items and nothing extra shall be payable for extra cement considered in consumption on this account.
29. The contractor shall take instructions from the Engineer-in-charge for stacking of materials. No excavated earth or building materials etc. shall be stacked/collected in areas where other buildings, roads, services, compound walls etc. are to be constructed.
30. Any trenching and digging for laying sewer lines/water lines/cables etc. shall be commenced by the contractor only when all men, machinery 's and materials have been arranged and closing of the trench(s) thereafter shall be ensured within the least possible time.
31. The contractor shall submit for the approval of Engineer-in-Charge names of specialized agencies of repute along with their technical capacity proposed to be engaged by him, who must have executed satisfactorily works of value as specified in mandatory conditions.
 - i) The works shall be carried out in accordance with the Architectural drawings and structural drawings, to be issued from time to time by the Engineer-in-Charge. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawings issued for the work and satisfy himself that the information available there of is complete and unambiguous.

The discrepancy, if any shall be brought to the notice of the Engineer-in-Charge before execution of the work. The contractor alone shall be responsible for any loss or damage executing by the commencement of work on the basis of any erroneous and or incomplete information.
 - ii) The contractor shall take all precautions to avoid accidents by, exhibiting caution boards day and night, speed limit boards, red flags, red light and providing necessary barriers and other measures required from time to time. The contractor shall be responsible for all damages and accidents due to negligence on his part.
 - iii) Other agencies will also simultaneously execute and install the works of electrification, air conditioning, lifts, fire-fighting etc. for this work and the contractor shall provide necessary facilities for the same. The contractor shall leave such recesses, holes openings etc. as may be required for the electric, air-conditioning and other related works (for which inserts, sleeves, brackets, conduits base pinion, clamps etc. shall be supplied free of cost by the department unless otherwise specifically mentioned) and the contractor shall fix the same at time of casting of concrete, stone work & brick work, if required and nothing extra shall be payable on this account.
 - iv) The contractor shall conduct work so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer-in- Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed so as not

to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.

32. The works to be governed by this contract shall cover delivery and transportation up to destination, safe custody at site, insurance, erection, testing and commissioning of the entire works.
33. The works to be undertaken by the contractor shall inter-alia include the following:
- (i) Preparation of detailed SHOP drawings and AS BUILT drawings wherever applicable.
 - (ii) Obtaining of Statutory permissions where-ever applicable and required.
 - (iii) Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
 - (iv) Warranty obligation for the equipments and / or fittings/fixtures supplied by the contractor. Contractor shall provide all the shop drawings or layout drawings for all the co-ordinated services before starting any work or placing any order of any of the services etc. These shop drawings/layout drawings shall be got approved from Engineer-in-charge before implementation and this shall be binding on the contractor. The contractor shall submit material submittals along with material sample for approval of Engineer-in-Charge prior to delivery of material at site.
34. Samples of all materials and fittings to be used in the work in respect of brand manufacturer and quality shall be got approved from the Engineer-in-Charge, well in advance of actual execution and shall be preserved till the completion of the work. Articles bearing BIS certifications mark shall only be used unless no manufacturer has got BIS mark for the particular material. Any material/fitting whose sample has not been approved in advance and any other unapproved material brought by the contractor shall be immediately removed as soon as directed.

35. PREVENTION OF NUISANCE AND POLUTION CONTROL

- a) The contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties from pollutants like smoke, dust, noise. The contractor shall use such methodology and equipment so as to cause minimum environmental pollution of any kind and minimum hindrance to road users and to occupants of the adjacent properties or other services running adjacent/near vicinity. The contractor shall make good at his cost and to the satisfaction of the Engineer-in-Charge, any damage to roads, paths, cross drainage works or public or private property whatsoever caused due to the execution of the work or by traffic brought thereon by the contractor. All waste or superfluous materials shall be carried away by the contractor, without any reservation, entirely to the satisfaction of the Engineer-in-Charge.
- b) The contractor shall ensure that all the trucks or vehicle of any kind which are used for construction purposes/ or are carrying construction material like cement, sand and other allied materials are fully covered.
- c) The contractor shall ensure that the construction materials including transportation of earth are covered by tarpaulin.

36. Security and Traffic Arrangements

- a) In the event of any restrictions being imposed by the Security agency, CPWD, Traffic or any other authority having jurisdiction in the area on the working or movement of labour /material, the contractor shall strictly follow such restrictions and nothing extra shall be payable to the contractor on such accounts. The loss of time on these accounts, if any, shall have to be made up by augmenting additional resources whatever required.
- b) No payment shall be made for any damages caused by rain, snowfall, flood, earthquake or any other natural calamity, whatsoever during the execution of the work. The contractor shall be fully responsible for any damage to the govt. property and the work for which payment has been advanced

to him under the contract and he shall make good the same at his risk and cost. The contractor shall be fully responsible for safety and security of his material, T&P/Machinery brought to the site by him.

- c) The contractor shall construct suitable godowns, yard at the site of work for storing all materials so as to be safe against damage by sun, rain, damages, fire, theft etc. at his own cost and also employ necessary watch and ward establishment for the purpose at his cost.
- d) The Contractor shall keep himself fully informed of all acts and laws of the Central & State Governments, all orders, decrees of statutory bodies, tribunals having any jurisdiction or authority, which in any manner may affect those engaged or employed and anything related to carrying out the work. All the rules & regulations and bye-laws laid down by local body and any other statutory bodies shall be adhered to, by the contractor, during the execution of work. The Contractor shall also adhere to all traffic restrictions notified by the local authorities. The Contractor shall arrange to give all notices as required by any statutory / regulatory authority and shall pay to such authority all the fees that is required to be paid for the execution of work. He shall protect and indemnify the Department and its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts.
- e) For works below ground level the contractor shall keep that area free from water. If dewatering or bailing out of water is required the contractor shall do the same at his own cost and nothing extra shall be paid.
- f) The Contractor shall make all necessary arrangements for protecting from rains, fog or likewise extreme weather conditions, the work already executed and for carrying out further work, during monsoon including providing and fixing temporary shelters, protections etc. Nothing extra shall be payable on this account and also no claims for hindrance shall be entertained on this account.
- g) In case of flooding of site on account of rain or any other cause and any consequent damage, whatsoever, no claim financially or otherwise shall be entertained notwithstanding any other provisions elsewhere in the contract agreement. Also, the Contractor shall make good, at his own cost, the damages caused, if any. Further, no claims for hindrance shall be entertained on this account.
- h) The contractor will take reasonable precautions to prevent his workman and employees from removing and damaging any flora (tree/plant/vegetation) from the project area.

37. Setting out

- a) The Contractor shall carry out survey of the work area, at his own cost, setting out the layout of buildings/ roads/ services in consultation with the Engineer -in-Charge & proceed further. Any discrepancy between architectural drawings and actual layout at site shall be brought to the notice of the Engineer -in-charge. It shall be responsibility of the Contractor to ensure correct setting out of alignment. Total station survey instruments only shall be used for layout, fixing boundaries, and centre lines, etc., Nothing extra shall be payable on this account.
- b) The Contractor shall establish, maintain and assume responsibility for grades, lines, levels and benchmarks. He shall report any errors or inconsistencies regarding grades, lines, levels, dimensions etc. to the Engineer -in-Charge before commencing work. Commencement of work shall be regarded as the Contractor's acceptance of such grades, lines, levels, and dimensions and no claim shall be entertained at a later date for any errors found.
- c) If at any time, any error appears due to grades, lines, levels and benchmarks during the progress of the work, the Contractor shall, at his own expense rectify such error, if so required, to the satisfaction of the Engineer -in-Charge. Nothing extra shall be payable on this account.
- d) The approval by the Engineer-in-Charge, of the setting out by the Contractor, shall not relieve the Contractor of any of his responsibilities and obligation to rectify the errors/ defects, if any, which may be found at any stage during the progress of the work or after the completion of the work.

- e) The Contractor shall be entirely and exclusively responsible for the horizontal, vertical and other alignments, the level and correctness of every part of the work and shall rectify effectively any errors or imperfections therein. Such rectifications shall be carried out by the Contractor at his own cost to the entire satisfaction of the Engineer - in-Charge.
 - f) The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work (including marking of reference points, center lines of buildings), construction and maintenance of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, signage, labour safety, labour welfare and labour training measures, preparatory works, working during monsoon, working at all depths, height and location etc. and any other incidental works required to complete this work. Nothing extra shall be payable on this account.
38. The contractor should have own constructions equipment required for the proper and timely execution of the work. Nothing extra shall be paid on this account. No tools and plants including any special T&P etc. shall be supplied by the Department and the Contractor shall have to make his own arrangements at his own cost. No claim of hindrance (or any other claim) shall be entertained on this account
39. Wherever required for the execution of work, all the scaffolding shall be provided and suitably fixed, by the Contractor. It shall be provided strictly with steel double scaffolding system, suitably braced for stability, with all the accessories, gangways, etc. with adjustable suitable working platforms to access the areas with ease for working and inspection. It shall be designed to take all incidental loads. It should cater to the safety features for workmen. Nothing extra shall be payable on this account. It shall be ensured that no damage is caused to any structure due to the scaffolding.
40. The Contractor shall do proper sequencing of the various activities by suitably staggering the activities within various pockets in the plot so as to achieve early completion. The agency to deploy adequate equipment, machinery and labour as required for the completion of the entire work within the stipulated period specified. Also ancillary facilities shall be provided by contractor commensurate with requirement to complete the entire work within the stipulated period. Nothing extra shall be payable on this account. Adequate number/sets of equipment in working condition, along with adequate stand-by arrangements, shall be deployed during entire construction period. It shall be ensured by the Contractor that all the equipment, Tools & Plants, machineries etc. provided by him are maintained in proper working conditions at all times during the progress of the work and till the completion of the work. Further, all the constructional tools, plants, equipment and machineries provided by the Contractor, on site of work or his workshop for this work, shall be exclusively used in the construction of this work and they shall not be shifted/ removed from site without the permission of the Engineer-in- Charge.
41. The Contractor shall maintain all the work in good condition till the completion of entire work. The Contractor shall be responsible for and shall make good, all damages and repairs, rendered necessary due to fire, rain, traffic, floods or any other causes. The Engineer-in- Charge shall not be responsible for any claims for injuries to person/workmen or for structural damage to property happening from any neglect, default, want of proper care or misconduct on the part of the Contractor or of any other of his representatives, in his employment during the execution of the work. The compensation, if any, shall be paid directly to the Department / authority / persons concerned, by the Contractor at his own cost.
42. The Contractor shall take all precautions to abide by the environmental related restrictions imposed by any statutory body having jurisdiction in the area as well as prevent any pollution of streams, ravines, river bed and waterways. All waste or superfluous materials shall be transported by the Contractor, entirely to the satisfaction of the Engineer- in-Charge and disposed at designated places only. No claim what so ever on account of site constraints mentioned above or any other site constraints, lack of public transport, inadequate availability of skilled, semi-skilled or unskilled workers in the near vicinity, non-availability of construction machinery spare parts and any other constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Tenderers are advised to visit site and get first-hand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.
43. The Contractor shall cooperate with and provide the facilities to the associate Contractors and other

agencies working at site for smooth execution of the work. The contractor shall indemnify the Department (CPWD) against any claim(s) arising out of such disputes. The Contractor shall:

- a) Allow use of scaffolding, toilets, sheds etc.
 - b) Properly co-ordinate their work with the work of other Contractors.
 - c) Provide control lines and benchmarks to his associate Contractors and the other Contractors.
 - d) Provide electricity and water at mutually agreed rates.
 - e) Provide hoist and crane facilities for lifting material at mutually agreed rates.
 - f) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
 - g) Adjust work schedule and site activities in consultation with the Engineer-in- Charge and other Contractors to suit the overall schedule completion.
 - h) Resolve the disputes with other Contractors/ associate contractors amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator.
44. The work should be planned in a systematic manner so as to ensure proper co-ordination of various disciplines viz. sanitary & water supply, drainage, rain water harvesting, electrical, firefighting & fire alarm system, information technology, communication & electronics and any other services.
45. All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on project location during excavation/construction shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation. The contractor will take reasonable precaution to prevent his work men or any other persons from removing and damaging any such article or thing. He will, immediately upon discovery thereof and before removal acquaint the Engineer- in-charge of such discovery and carry out the official instructions of Engineer-in-charge for dealing with the same, till then all work shall be carried out in a way so as not to disturb/damage such article or thing.
46. He shall protect and indemnify the Department (Client Department/CPWD) and its officials & employees against any claim and /or liability arising out of violations of any such laws, ordinances, orders, decrees, by himself or by his employees or his authorized representatives. Nothing extra shall be payable on these accounts.
47. The Contractor shall assume all liability, financial or otherwise in connection with this contract and shall protect and indemnify the Department from any and all damages and claims that may arise on any account. The Contractor shall indemnify the Department against all claims in respect of patent rights, royalties, design, trademarks- of name or other protected rights, damages to adjacent buildings, roads or members of public, in course of execution of work or any other reasons whatsoever, and shall himself defend all actions arising from such claims and shall indemnify the Department in all respect from such actions, costs and expenses. Nothing extra shall be payable on this account.
- 48. Supervision of work**
- The Contractor shall depute Site Engineer & skilled workers as required for the work. He shall submit organization chart along with details of Engineers and supervisory staff. It shall be ensured that all decision-making powers shall be available to the representatives of the Contractor at Ghaziabad itself to avoid any likely delays on this account. The Contractor shall also furnish list of persons for specialized works to be executed for various items of work. The Contractor shall identify and deploy key persons having qualifications and experience in the similar and other major works, as per the field of their expertise. If during the course of execution of work, the Engineer-in-Charge is of the opinion that the deployed staff is not sufficient or not well experienced, the Contractor shall deploy more staff or better experienced staff at site to complete the work with quality and in stipulated time limit. Principle Technical representative of the Contractor having minimum experience in similar nature of work as mentioned in the clause 36 of the General Conditions of the Contract, shall always be available at the site during the actual execution of the work.

49. Cleanliness of site

- a. The Contractor shall not stack building material/malba/muck on the land or road of the institute or on the land owned by the others, as the case may be. So the muck, rubbish etc. shall be removed

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periodically as directed by the Engineer-in-Charge, from the site of work to the approved dumping grounds as per the local bye laws and regulations of the concerned authorities and all necessary permissions in this regard from the local bodies shall be obtained by the Contractor. Nothing extra shall be payable on this account. In case, the Contractor is found stacking the building material/malba as stated above, the Contractor shall be liable to pay the stacking charges/penalty as may be levied by the local body or any other authority and also to face penal action as per the rules, regulations and bye-laws of such body or authority. The Engineer –in-Charge shall be at liberty to recover, such sums due but not paid to the concerned authorities on the above accounts, from any sums due to the Contractor including amount of the Security Deposit and performance guarantee in respect of this contract agreement.

- b. The contractor shall take instructions from the Engineer-In-Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed.
- c. The Contractor shall take all care to prevent any water- logging at site. The waste water, slush etc. shall not be allowed to be collected at site. For discharge into public drainage system, necessary permission shall be obtained from relevant authorities after paying the necessary charges, if any, directly to the authorities. The work shall be carried out in such a way that the area is kept clean and tidy. All the fees/charges in this regard shall be borne by the Contractor. Nothing extra shall be payable on this account.

50. Inspection of work

Officers of CPWD, Ministry of Health and Family Welfare, Client department, Local authorities and other Govt. **authorities** shall be inspecting the on-going work at site at any time with or without prior intimation. The contractor shall, therefore, keep updated the following requirements and detailing.

- a) Display Board showing detail of work, weekly progress achieved with respect to targets, reason of shortfall, status of manpower, wages being paid for different categories of workers.
- b) Entrance and area surrounding to be kept cleaned.
- c) Display layout plan key plan, Building drawings including plans, elevations and sections.
- d) Up to date displays of Bar chart, CPM and PERT etc.
- e) Keep details of quantities executed, balance quantities, deviations, possible Extra item, substituted Item etc.
- f) Keep plastic / cloth mounted one sets of building drawings.
- g) Set of Helmets and safety shoes for exclusive use for officers/dignitaries visiting at site.

51. Condition regarding secured advance

Secured advance shall be admissible only on those bonafide materials which are likely to be used in the work in a period not exceeding six months from the date of secured advance payment. If agency fails to use the material (in respect of which secured advance have been paid) in the work in this specified period of six month, the said component of secured advance shall be recovered from next running account bill paid to the agency.

52. Personal Safety Measures for Labour

Contractor shall provide the following items for safety of workers employed by contractor and associate agencies:

- (i) Protective footwear / helmet and gloves to all workers employed for the work on mixing, cement, lime mortars, concrete etc. and openings in water pipeline/sewer line.
- (ii) Welder 's protective eye-shields to workers who are engaged in welding works.
- (iii) Safety helmet and Safety harness/ belt Provide adequate sanitation/safety facilities for construction workers to ensure the health and safety of the workers during construction, with effective provisions for the basic facilities such as sanitation, drinking water and safety equipment or machinery.
- (iv) All the workers should be wearing helmet and shoes all the time onsite.
- (v) Masks and gloves should be worn whenever and wherever required.

- (vi) Adequate drinking water facility should be provided at site, adequate number of decentralized latrines and urinals to be provided for construction workers.
- (vii) Full time workers (if any with the approval of Engineer-in-Charge) residing on site should be provided with clean and adequate temporary hutment.
- (viii) First aid facility should also be provided.
- (ix) Overhead lifting of heavy materials should be avoided. Barrow wheel and hand-lift boxes should be used to transport materials onsite.
- (x) Tobacco and cigarette smoking should be prohibited onsite.
- (xi) All dangerous parts of machinery are well guarded and all precautions for working on machinery are taken.
- (xii) Maintain hoists and lifts, lifting machines, chains, ropes and other lifting tackles in good condition. Provide safety net of adequate strength to arrest falling material down below.
- (xiii) Use of durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
- (xiv) Ensure that walking surfaces or boards at height are of sound construction and are provided with safety rails and belts. Provide protective equipment such as helmets.
- (xv) Provide measure to prevent fire. Fire extinguisher and buckets of sand to be provided in fire prone area and elsewhere.
- (xvi) Provide sufficient and suitable light for working during night.
- (xvii) Ensure that measures to protect workers from materials of construction, transportation, Storage and other dangers and health hazards are taken.
- (xviii) Ensure that the construction firm/division/company have sound safety policies.
- (xix) Comply with the safety procedure, norms and guidelines (as applicable) as outlined in NBC 2005 (BIS2005c).
- (xx) Adopt additional best practices and prescribed norms as in NBC 2005(BIS2005).

53. Water Pollution

- (i) The Contractor shall take all precautionary measures to prevent the wastewater during construction to accumulate anywhere.
- (ii) The wastewater arising from the project is to be disposed off in the manner that is acceptable to the Engineer-in-charge.

54. Air and Noise Pollution

Contractor shall use dust screens and sprinkle water around the construction site to arrest spreading of dust in the air and surrounding areas.

1. Contractor shall ensure that all vehicles, equipment and machinery used for construction are regularly maintained and confirm that emission levels comply with environmental emission standards/norms.
2. For controlling the noise from Vehicles, Plants and Equipments, the Contractor shall confirm the following:
 - (i) All vehicles and equipment used in construction will be fitted with exhaust silencers.
 - (ii) Servicing of all construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced.
3. Noise emission from compactors (rollers) front loaders, concrete mixers, cranes (movable), vibrators and saws should be less than 75dB(A).
4. As per the standards/guidelines for control of Noise Pollution from Stationary Diesel Generator (DG) sets, noise emission in dB(A) from DG Set (15-500 KVA) should be less than $94 + 10 \log_{10} (KVA)$. The standards also suggest construction of acoustic enclosure around the DG Set and provision of proper exhaust muffler with insertion loss of minimum 25 dB(A) as mandatory.

55. Construction Vehicles, Equipment and Machinery

- a. All vehicles, equipment and machinery to be procured for construction shall conform to the relevant Bureau of India Standard (BIS) norms.
- b. Emission from the vehicles must conform to environmental norms.
- c. Dust produced from the vehicular movement and other site activities is to be mitigated by sprinkling

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of water.

- d. Noise limits for construction equipments shall not exceed 75 dB(A), measured at one meter from the edge of the equipment in free area, as specified in the Environment Protection Act, 1986, schedule VI part E, as amended on 9th May, 1993. The maximum noise levels near the construction site should be limited to 65 dB (A) Leq (5 min) in project area.

56. Construction Wastes Disposal

- a. The pre-identified dump locations will be a part of solid waste management plan to be prepared by the Contractor in consultation with Engineer-in-charge.
- b. Contractor shall get approved the location of disposal site prior to commencement of the excavation on any section of the project location.
- c. Contractor shall ensure that any spoils of material / construction waste will not be disposed off in any municipality solid waste collection bins.

57. Procurement of Construction Materials

1. All vehicles delivering construction materials to the site shall be covered to avoid spillage of materials and maintain cleanliness of the roads.
2. Wheel Tyres of all vehicles used by the contractor, or any of his sub contractor or materials suppliers shall be cleaned and washed clear of all dust/mud before leaving the project premises. This shall be done by routing the vehicles through tyre washing tracks.
3. Contractor shall arrange for regular water sprinkling at least twice a day (i.e. morning and evening) for dust suppression of the construction sites and unpaved roads used by his construction vehicles.
4. Identify roads on-site that would be used for vehicular traffic. Upgrade vehicular roads (if these are unpaved) by increasing the surface strength by improving particle size, shape and mineral type that make up the surface base. Add surface gravel to reduce source of dust emission. Limit amount of fine particles (smaller than 0.075mm) to 10 -20%. Limit vehicular speed on site 10km/h. Nothing extra will be payable for this.
5. All material storages should be adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust/particulate emissions.
6. Ensure that water spraying is carried out by wetting the surface by spraying water on:
 - Any dust material.
 - Areas where demolition work is carried out.
 - Any unpaved main-haul road and.
 - Areas where excavation or earth moving activities are to be carried out.
7. The contractor shall ensure the following:
 - (i) Cover and enclose the site by providing dust screen, sheeting of height not less than 6 meter or netting to scaffold along the perimeter of a building or group of the buildings.
 - (ii) Covering stockpiles of dusty material with impervious sheeting.
 - (iii) Covering dusty load on vehicles by impervious sheeting before they leave the site.
 - (iv) Transferring, handling/storing dry loose materials like bulk cement and dry pulverized fly ash inside a totally enclosed system.
 - (v) Spills of dirt or dusty materials shall be cleaned up promptly so that the spilled material does not become a source of fugitive dust and also to prevent seepage of pollutant laden water into the ground aquifers. When cleaning up the spill, ensure that the clean-up process does not generate additional dust. Similarly, spilled concrete slurries or liquid wastes should be contained / cleaned up immediately before they can infiltrate into the soil/ground or runoff in nearby areas.
 - (vi) Clear vegetation only from areas where work will start right a way.

8. Adopt measures to prevent air pollution in the vicinity of the site due to construction

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activities. There is no standard reference for this. The best practices should be followed (as adopted from international best practice documents and codes).

9. The contractor shall provide experienced personnel with suitable training to ensure that these methods are implemented. Prior to the commencement of any work, the method of working, plant equipment and air pollution control system to be used on –site should be made available for the inspection and approval of the Engineer –in-Charge to ensure that these are suitable for the project.
10. Employ measures to segregate the waste on-site into inert, chemical or hazardous wastes. Recycle the unused chemical/hazardous wastes such as oil, paint, batteries and asbestos. The inert waste is to be disposed off to Municipal Corporation/local bodies dump yard and land fill sites.
11. To preserve the existing landscape and protect it from degradation during the process of construction. Select proper timing for construction activity to minimize the disturbance such as soil pollution due to spilling of the construction material and its mixing with rainwater. The construction management plan including soil erosion control management plan shall be prepared accordingly for each month. The application of erosion control measures includes construction of gravel pits and tyre washing bays of approved size and specification for all vehicular site entry/exits, protection of slopes greater than 10%. Sedimentation Collection System and run-off diversion systems shall be in place before the commencement of construction activity. Preserve and protect the existing vegetation by not-disturbing or damaging to specified site areas during construction.
12. The Contractor should follow the construction plan as proposed by the Engineer-in-charge to minimize the site disturbance such as soil pollution due to spilling. Use staging and spill prevention and control plan to restrict the spilling of the contaminating material on site.
13. Spill prevention and control plans should clearly state measures to stop the source of the spill. Measures to contain the spill and measures to dispose the contaminated material and hazardous wastes. It should also state the designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners and petroleum products.
14. A soil Erosion and Sedimentation Control Plan (ESCP) should be prepared prior to construction and should be applied effectively.
15. The contractor shall prepare and submit soil prevention and control plans ‘before the start of construction, clearly stating measures to stop the source of the spill, to contain the spill, to dispose the contaminated material and hazardous wastes, and stating designation of personnel trained to prevent and control spills. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.
16. The contractor shall ensure that no construction leaches (Ex: cement slurry) is allowed to percolate into the ground. Adequate precautions are to be taken to safeguard against this including reduction of wasteful curing processes, collection, basic filtering and reuse. The contractor shall follow requisite measures for collecting drainage water run-off from construction areas and material storage sites and diverting water flow away from such polluted areas. Temporary drainage channels, perimeter dike/swale, etc. shall be constructed to carry the pollutant –laden water directly to the treatment device or facility (municipal sewer line).
17. All lighting installed by the contractor around the site and at the labour quarters during construction shall be CFL bulbs of the appropriate illumination levels. This condition is a must, unless specifically prescribed otherwise.

No extra payment will be made for operation/activity mentioned at Sl. No. 1 to 17 above unless

specifically mentioned otherwise.

58. National Green Tribunal Guidelines

- (i) The contractor shall not store/dump construction material or debris on metalled road.
- (ii) The contractor shall get prior approval from Engineer-in-charge for the area where the construction material or debris can be stored beyond the material road. This area shall not cause any obstruction to the free flow of traffic/ inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible storage.
- (iii) The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purpose/or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precaution that the vehicles are properly cleaned and dust free to ensure that enroute their destination, the dust, sand or any other particles are not released in air/contaminate air.
- (iv) The contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.
- (v) The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relating to dust emission.
- (vi) The contractor shall ensure that C&D waste is transported to the C&D Waste site only and due record shall be maintained by the contractor.
- (vii) The contractor shall compulsorily use of wet jet in grinding and stone cutting.
- (viii) The contractor shall comply all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.
- (ix) The contractor shall carry out on-Road-Inspection for black smoke generating machinery.
- (x) The contractor shall use cleaner fuel.
- (xi) The contractor shall ensure that all DG sets comply emission norms notified by MoEF.
- (xii) The contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 kmph. Speedbumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive, the contractor shall divert traffic to nearby paved areas.
- (xiii) The contractor shall ensure that the construction material is covered by tarpaulin. The contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.
- (xiv) The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects.
- (xv) The natural drainage system should be maintained by the contractor at his own cost. Local By-law/ provisions on Rain Water Harvesting should be followed.

No extra payment shall be made for operation/activity mentioned at Sl. No 63 (i) to 63 (xv) above.

59. Project Monitoring

- (i) The Agency shall prepare the phase wise (monthly) resource chart (materials, manpower and machinery) based on the project execution schedule as per clause 5.1 of GCC.
- (ii) The Agency shall submit the photographs & videos of progress of work on fortnightly basis to make it possible to create a short film of the entire execution of the work to be kept in archive.
- (iii) Agency shall submit a detailed Monthly progress & program report to the Engineer-in-charge by 5th of every month. The format of monthly progress & program report shall be as approved by Engineer-in-Charge.
- (iv) The Agency will make it possible to be represented by a senior level executive who have sufficient financial powers to take decisions required for completing the project intime.

- (v) The agency shall stick to the construction schedule, if there is any hindrance or delay due to any reason the same shall be mitigated through engaging extra manpower, material and machinery.
60. **Documentation of work:** Agency shall make documentation in regard to the various stages of progress of work. Nothing shall be paid on this account to the contractor. The scope includes:
- (i) Colour photography of the work at month interval or lesser interval as per direction of Engineer-in-charge and at the completion of work covering the entire work upto that stage and supplying the same in soft copy with storage instrument of required capacity as per direction of Engineer-in-charge.
 - (ii) Videography of the execution of work every three months or lesser interval and at completion of work i/c preparation of documentary with voice over showing the progress of work as directed by Engineer-in-charge.
 - (iii) Each photograph/video shall be suitably captioned and dated.
 - (iv) The photographs/video and materials including soft copy shall form a part of the records of CPWD and the prints cannot be supplied to anybody else or published without the written permission of Engineer-in-charge.

All documents i/c photograph/video and other documents in hard copy shall be submitted by the agency to the Engineer-in-charge on monthly basis for record purpose.

61. MATERIAL AND QUALITY ASSURANCE

1. The contractor shall ensure quality control measures on different aspects of construction including materials, **workmanship** and correct construction methodologies to be adopted. He shall have to submit quality assurance programme within two weeks of the award of work. The quality assurance programme should include method statement for various items of work to be executed along with check lists to enforce quality control.
2. The contractor shall get the source of all other materials, not specified elsewhere in the document, approved from the Engineer-in-Charge. The contractor shall stick to the approved source unless it is absolutely unavoidable. Any change shall be done with the prior approval of the Engineer-in-Charge for which tests etc. shall be done by the contractor at his own cost. Similarly, the contractor shall submit brand/ make of various materials not specified in the agreement to be used for the approval of the Engineer-in-Charge along with samples and once approved, he shall stick to it.
3. The contractor shall submit shop drawings of staging and shuttering arrangement, aluminum & glazing work, fire doors and fittings, plumbing work and other works as desired by Engineer In Charge for his approval before execution. The contractor shall also submit bar bending schedule for approval of Engineer-in- charge before execution.
4. Frequency and type of tests of various Materials/items/ article shall be conducted as per specifications and relevant BIS-Codes. The test results confirm to the specification/codes.

5. Test Laboratories:

A) Laboratory at site:

The contractor shall establish a testing lab at site and provide testing equipment and materials for the field tests **mentioned** in the list of mandatory tests given in CPWD specifications 2019 Vol. 1 & 2. Nothing extra shall be payable to him on this account.

The representatives of the department shall be at liberty to inspect the testing facilities at site and conduct testing at random in consultation with Engineer in charge. The contractor shall provide all necessary facilities for the purpose.

- i. Balances:

- i) 7 kg to 10 kg capacity, semi-self indicating type – accuracy 1 gm.
- ii) 500 gm capacity, semi-self indicating type – accuracy 1 gm.
- iii) Pan Balance – 5 kg. capacity – accuracy 10 gm.
- ii. Ovens- Electrically operated, thermostatically controlled upto 110°C – sensitivity 1°C.
- iii. Sieves: as per IS: 460-1962
 - i) IS Sieves – 450 mm internal dia of sizes 100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm, complete with lid and pan.
 - ii) IS Sieves – 200 mm internal dia (brass frame) consisting of 2.36 mm, 1.18 mm, 500 microns, 425 microns, 300 microns, 212 microns, 150 microns, 90 microns, 75 microns with lid and pan.
- iv. Sieve shaker capable of 200 mm and 300 mm dia sieves, manually operated with timing switch assembly.
- v. Graduated measuring cylinders 200 ml capacity 03 Nos.
- vi. Enamel trays (for efflorescence test for bricks).
 - i) 300 mm × 250 mm × 40 mm - 02 Nos.
 - ii) Circular plates of 250 mm dia - 04 Nos.
- vii. Digital PH meter least count 0.1 mm 01 No.
- viii. Digital instrument for checking alignment 01 No.
- ix. Steel tapes (03 – 05 mtr.) 02 Nos each
- x. Vernier calipers 02 Nos
- xi. Micrometer screw 25mm gauge. 02 Nos
- xii. Coating Thickness meter for measuring thickness of coatings of paints, anodic coatings etc. on both ferrous and non-ferrous metals. 01 Nos
- xiii. Any other equipment's needed for conducting field test to check the quality of materials at site.

Not less than 90% tests for material be performed at site lab with above stated equipment's, however at least 10% testing of materials shall be got done from external laboratories. However, for the tests to be carried out by the external laboratories, the contractor shall supply free of charge all the materials required for testing, including transportation. If the tests which were to be conducted in the site laboratory, are conducted in other laboratories for any the reasons the cost of such tests shall be borne by the contractor.

B) Other Laboratories:

- 1 The contractor shall arrange carrying out all tests required under the agreement through the laboratory as approved by the Engineer-in-Charge and shall bear all charges in connection therewith including charges for testing for all materials.
- 2 All expenditure to be incurred for testing of samples e.g., packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.

C) Sampling of Materials:

1. All samples of materials including Cement Concrete Cubes shall be taken by the QA engineers deployed by the Contractor and shall be witnessed by the Engineer-in Charge or his authorized representatives as specified in NIT. All the necessary assistance, facilities and safety shall be provided by the contractor. Cost of sample of materials and testing charges shall be borne by the contractor and he/she is responsible for safe custody of samples to be tested at site.

2. Sample of building materials fittings and other articles required for execution of work shall be got approved from the Engineer-in-Charge. Articles manufactured by companies of repute and approved by the Engineer-in-Charge shall only be used. Articles bearing BIS certification mark shall be used in case the above are not available, the quality of samples brought by the contractor shall be judged by standards laid down in the relevant BIS specifications. All materials and articles brought by the contractor to the site for use shall conform to the samples approved by the Engineer-in-Charge which shall be preserved till the completion of the work.
3. The contractor shall ensure quality construction in a planned and time bound manner. Any sub-standard material/work beyond set out tolerance limit shall be summarily rejected by the Engineer-in-Charge.
4. BIS marked materials except otherwise specified shall be subjected to quality test at the discretion of the Engineer-in-Charge besides testing of other materials as per the specifications described for the item/materials. Wherever BIS marked materials are brought to the site of work, the contractor shall if required, by the Engineer-in-Charge furnish manufacturers test certificate to establish that the material produced by the contractor for incorporation in the work satisfies the provisions of BIS codes relevant to the material and/or the work done.
5. The contractor shall procure all the materials in advance so that there is sufficient time to testing and approving of the materials and clearance of the same before use in work.
6. All materials brought by the contractor for use in the work shall be got checked from the Engineer-in-Charge or his authorized representative of the work on receipt of the same at site before use.
7. The contractor shall be fully responsible for the safe custody of the materials issued to him even if the materials are in double lock and key system.
8. The Stone aggregate/stone, sand shall be brought from any quarries subjected to the said materials confirm CPWD specifications.
9. The day-to-day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the Jr. Engineer/Assistant Engineer -in-Charge of work and which shall be duly signed by the contractor or his authorized representative.
10. The contractor shall render all help and assistance in documenting the total sequence of this project by way of photography, slides, audio-video recording etc. Nothing extra shall be payable to the contractor on this account. However, cost of photographs, slides, audio/videography etc. shall be borne by the department.
11. The contractor shall be fully responsible for the safe custody of materials brought by him or issued to him even though the materials are under double lock key system.
12. Separate cement registers showing the receipt of the OPC and PPC shall be maintained at site. The contractor shall construct separate godowns for storage of OPC & PPC at site and nothing extra on this account shall be payable.
13. Cement issued shall be for consumption at site only. No cement for factory made items and those not manufactured at site shall be issued.
14. In case there is any discrepancy in frequency of testing as given in the list of mandatory tests and that in the individual sub-head of work as per CPWD specification 2019 Vol. 1 & 2 the higher of the two frequencies of testing shall be adopted.
15. Regarding testing of electrical materials, the testing of material shall be conducted in Govt. Laboratory/ Govt. colleges/ IITs / NIT or from the laboratory approved by the competent

authority. The charges of testing of materials in approved laboratory shall be borne by the agency.

16. Agency shall submit minimum —Quality assurance Plan within **03 days** after award of work which shall be consisting of:

Lot size, number of required tests and frequency of testing, while deciding these criteria CPWD specifications and provisions of BIS code and Standard Practices may be referred. Volume of work, practical, difficulties and site conditions etc. may also be kept in view. The lot size, number of tests and frequencies of testing can be altered or modified by the Engineer-in-charge from the prescribed limits.

D) Maintenance of Registers:

- i. All the register of tests to be carried out at construction site or in outside laboratories shall be maintained by the contractor which shall be issued to the contractor by Engineer-in-Charge in the same manner as being issued to CPWD field staff.
- ii. The test registers to be issued to the contractor are:
 - a) Materials at site account register.
 - b) Cement register.
 - c) Master test registers.
 - d) Cube test register.
 - e) Paint register.
 - f) Inspection register.
 - g) Drawing register.
 - h) Site order register.
 - i) Chemical register.
 - j) Steel register.
- iii. All the entries in the register will be made by the designated engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE.
- iv. Contractor shall be responsible for safe custody of all the test registers.
- v. Submission of copy of all test registers, material at site register along with each alternate running account bill and final bill shall be mandatory. These registers should be duly checked by AE(P) in division office.
- vi. All Material received at site shall be entered in MAS Register and copy of supply order, MTC and bill-invoice shall be maintained in order. The MAS registers shall be maintained by a qualified staff of agency which may be inspected by Engineer- in- charge or his/her designee at any time. The daily report of receipt of material shall be sent to Engineer-in- charge or his/her designee.
- vii. All the registers of tests carried out at Construction site or in outside laboratories shall be maintained by the agency. Which may be inspected by Engineer-in- charge of his/her designee at any point of time.

E) THIRD PARTY QUALITY ASSURANCE (TPQA): -

- i. In order to achieve a high standard of quality, it shall be required to go for Third Party Quality Assurance. For this purpose, a separate agency shall be appointed by the department/Client who will carry out independent testing of materials and checking and ensuring overall quality procedures. The contractor shall be required to fully cooperate with agency and facilitate them in taking samples, transportation and examination of various activities including documentation at no extra time and cost to the owner. In case of any adverse findings by the agency, the contractor shall do the needful rectifications at no extra time and cost to the department.

- ii. The Engineer-in-charge shall be at liberty for getting quality assurance work done through agencies like IIT/NIT or any other agency approved agency by the competent authority of the department. The successful tenderer shall include the provisions of Quality Assurance while framing the proposed methodology for tests. All arrangements for transporting and getting them tested shall be made by the agency.

62. Additional Conditions for Cement

1. The contractor shall procure Ordinary Portland Cement- 43 grade conforming to IS: 8112 / Portland Pozzolana Cement conforming to IS: 1489 (Part-I) as required in the work, from reputed manufacturers of cement as per preferred make list of material. The tenderers may also submit a list of names of cement manufacturers which they propose to use in the work. The tender accepting authority reserves right to accept or reject name(s) of cement manufacturer(s) which the tenderer proposes to use in the work. No change in the tendered rates will be accepted if the tender accepting authority does not accept the list of cement manufacturers, given by the tenderer, fully or partially.
2. Supply of cement shall be made in 50 kg. bags bearing manufacturer 's name and ISI marking. Samples of cement arranged by the contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of the relevant BIS codes. In case the test results indicate that the cement arranged by the contractor does not conform to the relevant BIS code the same shall stand rejected and shall be removed from the site by the contractor at his own cost within a week's time of written order from the Engineer-in-Charge to do so.
3. The cement shall be brought at site in bulk supply of approximately 50 tonnes or as decided by the Engineer-in-Charge. The cement godown of the capacity to store a minimum of 2000 bags of cements hall be constructed by the contractor at site of work for which no extra payment shall be made.
4. Double lock provision shall be made to the door of the cement godown. The keys of one lock shall remain with the Engineer-in-charge or his authorized representative and the key of the other lock shall remain with the contractor. The contractor shall be responsible for the watch and ward and safety of the cement godown. The contractor shall facilitate the inspection of the cement godown by the Engineer-in-Charge at any time.
5. The cement shall be got tested by the Engineer-in-Charge and shall be used on the work only after satisfactory test results have been received. The contractor shall supply free of charge the cement required for testing including its transportation cost to test laboratories.
6. The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in clause 10 of the contract. The theoretical consumption of cement shall be worked out as per procedure prescribed in clause 38 of the contract and shall be governed by conditions laid therein. In case the cement consumption is less than theoretical consumption including permissible variation, recovery at the rate show prescribed shall be made. In case of excess consumption, no adjustment needs to made.
7. The cement brought to site and the cement remaining unused after completion of the work shall not be removed from site without the written permission of the Engineer-in-Charge.
8. The damaged cement shall be removed from the site immediately by the contractor on receipt of a notice in writing from the Engineer-in-Charge. If he does not do so within three days of receipt of such notice, the Engineer-in-Charge shall get it removed at the cost of the contractor.
9. Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot & arid regions, the minimum curing period shall be 14 days or its equivalent.
10. Till the time, BIS makes it mandatory to print the %age of fly ash on each bag of cement, the certificate from the PPC manufacturer indicating the same shall be obtained and permission obtained from Engineer-in-Charge before use of such cements in works.

11. The contractor may use OPC in place of PPC only after written permission of Engineer-in- Charge. In such case, no extra payment shall be made in any form to the contractor by the Department.

63. Conditions for Steel Reinforcement

- The contractor shall procure ISI marked TMT Bars of appropriate grade from the steel manufacturer such as List of Preferred Makes for Civil Works. Or their authorized dealer having valid BIS License for IS 1786-2008 (latest AMENDMENT). If TMT bars of any dia of above-mentioned make is not available in market at any time then the contractor on producing non availability certificate from the manufacturers may procure TMT bars of that dia from Steel manufacture as decided by the Engineer-in-Charge.
- As per CSQ CPWD OM issued by file no. CSQ/SE(TAS)/Steel/2024/262(H) dt. 14.08.2024 Steel bars classified as “Bar Set-I” shall be used in the work. As per Annexure-I(C) of the said OM.

Testing requirement for individual reinforcement bar diameter of Particular Grade of steel:

Tests required for Fe 415D, Fe500D, Fe550D grade of steel and Low alloy steel reinforcement bars:

A. FOR BAR SET – I

- Tests as per IS 1786 (latest version) and specified therein.

1.1 Chemical Properties

Ladle analysis of steel for above grades for maximum percentage of constituents.

- (i) Carbon (C) (ii) Sulphur (S) (iii) Phosphorous (P) and (iv) Nitrogen and Carbon Equivalent.

1.2 Physical Properties

- 0.2 percent proof stress/yield stress, minimum, N/mm².
- Ratio of Tensile Strength (Ts) to Actual Yield Strength (or 0.2% of yield stress (Ys)) of the test piece N/mm².
- Elongation, percent, Minimum, on gauge length $5.65\sqrt{A}$, where A is the cross-sectional area of the test piece.
- Total elongation at maximum force, percentage, minimum on gauge length $5.65\sqrt{A}$, where A is the cross-sectional area of the test piece.
- Bend test and re-bend test.
- The mean area of ribs (in mm²) per unit length (in mm) above the core of the bar, projected on a plane normal to the axis of the bar.
- Pull-out testing in accordance with IS 2770 (Part 1).

2. Additional requirement

- 2.1 Permissible limit for Manganese and Copper as follows:

Constituent	Permissible Limit (% of cast metal quantity)		
	Fe 415 D	Fe 500 D	Fe 550 D
Manganese (Mn)			
Maximum	1.60	1.60	1.60
Copper (Cu)			
Maximum	0.80	0.80	0.80
Minimum	0.20	0.20	0.20
Notes : The above composition shall be obtained as per latest version of IS 228. 1. Manganese using Periodate Spectrophotometric Method (Part12), and 2. Copper using Thiosulphate Iodide Method (Part 15) or Spectrophotometric (Diethyl Dithiocarbonate) Method (Part 21)			

- 2.2 Tempered Martensite Ring Test as per Annexure-1 (d) of OM no. CSQ/SE(TAS)/Steel/2024/262(H) dt. 14.08.2024.

- 2.3 The process of manufacturing steel complies with the provisions of ISO9001:2015 and ISO14001:2004. _____

PARTICULAR SPECIFICATION AND SPECIAL CONDITIONS FOR CIVIL WORK

1.0 Scope of work

1.1 Scope of work shall cover, execution of work as per Bill of quantities, preparation & approval of shop drawings, supply of materials, installation, testing, deployment of engineers & labour, satisfactory workmanship etc. required to be provided in this said scheme/project.

Work shall be executed as per scope and specification & BOQ. If any service and item and component and provision required for making building/scheme functional/habitat able, if not specifically mentioned in the scope of this tender, the same shall be deemed to be included within the scope of this tender. However, if items for the same are not included in the BOQ, these shall be paid extra.

The rates quoted in schedule of financial quote shall be inclusive of all material, labour workmanship, all taxes i/c GST etc. and other incidental charges.

The Contractor shall be fully responsible for the execution and supervision of all works in the scope. He shall engage professional & experienced engineers to undertake work in accordance with statutory requirements and condition of this contract.

1.2 Technical specification for construction

The Contractor shall ensure that the quality and workmanship shall be as per CWPD specifications and other specification mentioned in the tender documents.

1.3 Safety and working Conditions

The Contractor has to fully comply with all the safety requirements of the latest Factories /Labour Act and all other relevant local Bye-laws, Acts, Regulations, Safety, Health and Environment Handbook 2019, General Conditions of Contract 2023 Construction Works & Special Conditions etc. of the tender. The Contractor shall also comply with the requirements of various authorities regarding the removal and discharge of any spoil, surplus materials, debris or other materials.

1.4 Materials

The quality of the works throughout and workmanship shall be to the satisfaction of Engineer-in-charge. All materials shall comply with the relevant latest standards. All materials which do not comply with this Contract and BIS code, the Standards, as applicable, shall be removed from the Site at the Contractor's own expense.

1.5 Particular Specifications

2.0 EARTH WORK

2.0.1 General

All types of excavation work shall be done in accordance with CPWD specifications 2019 Volume - I & II with correction slips up to the last date of submission of bid.

Any trenching and digging for laying sewer lines / water lines / cables etc. shall be commenced by the contractor only when all men, machinery and material have been arranged and closing of such trench(s) thereafter shall be ensured within the least possible time.

The final development level is to be achieved as per drawings. If there is any requirement of additional earth, the same shall be brought by contractor from outside site. Similarly, if there is any disposal of extra earth, rubbish, malba etc., the same shall be done by contractor as per direction of Engineer-in-charge.

2.0.2 Setting Out

The Contractor shall be responsible for accurately setting out the Works to the specified positions, dimensions, levels, and building lines and also surveying the site for dimensional and level accuracy and reporting any discrepancies before the commencement of work. Any errors in position, level, dimension or alignment of any part of the Work at any time shall be rectified by the Contractor at his own expense. The Contractor shall provide the Engineer-in-charge or his authorized representative with all facilities, equipment and labour to enable him to check the setting out and levels of the Works at all times. The checking of any setting out point, line or level by the Engineer-in-charge or his

authorized representative shall not in any way relieve the Contractor of his responsibility. All setting out points, benchmarks, site rails, pegs and other survey points shall be clearly marked and protected from damage or disturbance during the execution of the works as per CPWD Specifications.

2.0.3 Applicable Standards

The contractor shall ensure to follow the applicable Standards/ Specifications related to the excavation including local building regulations and statutory regulations.

2.0.4 Labour and Equipment:

The Contractor shall provide all labours, equipment, materials and any incidentals necessary to complete all aspects of work included in the drawings and specifications.

2.0.5 Related Works

- a) Clearing, grubbing, and removing all vegetation from the site.
- b) Excavation including getting out and necessary dressing to make surface ready to receive the building.
- c) Filling, back filling and compaction of fills
- d) Removal and disposal of surplus material.
- e) Dewatering.
- f) Road and Compound Wall Works
- g) Bringing shortage of earth from outside the site to raise the NGL as per GFC drawings.

2.0.6 Disposal of Surplus earth & supply of shortage earth

All Excavated material including excavated earth declared as surplus and not useful, shall be removed from the site by the contractor as per approved plan. The removal of surplus material shall only be undertaken by the contractor when instructions in this regard are obtained from Engineer-in-charge. Royalty, if any, to be paid to bring shortage of earth by the contractor, nothing extra shall be paid.

No excess excavated earth, malba/rubbish, etc. shall be dumped by the agency at any place inside the campus. Contractor shall also obtain necessary permissions /approvals/ authorization from the competent authority of local body /traffic / police as the case may be for removal of excavated earth/material. No payment/fees on this account shall be entertained by the department. The same system vice versa will be followed by contractor for bringing shortage earth at site from outside. No payment/fees on this account shall be entertained by the department.

- 2.0.7 The contractor may encounter rock/stones/boulders during excavation of foundation; trenches or any other earthwork the contractor shall remove the rocks from the site.

2.1 Dewatering

Dewatering is in the scope of the contract as per this tender document. Dewatering shall be performed as per CPWD Specifications Volume - I & II with correction slips up to the last date of submission of bid. The contractor shall arrange to have the entire dewatering system throughout the course of the work.

- 2.1.1 The Contractor shall install, maintain and operate a system of wells, trenches and pumps as required for performing the excavations for the areas and subsequent construction of the structure and placement of backfill, in dry condition.
- 2.1.2 Dewatering of the excavation shall be accomplished in a manner that will prevent seepage, boils, loss of fines, corrosion, softening of the strata, and that will maintain the stability of the bottom and slopes of excavation.
- 2.1.3 During excavation/ filling of earth, if any, water supply line, sewer line, electrical cable or any such services are encountered/getting damaged these shall be restored/ shifted by the contractor at his own cost as directed by Engineer-in-charge and nothing extra shall be paid on this account.
- 2.1.4 The Contractor shall make necessary arrangement for power supply which shall be of sufficient capacity to maintain all pumps and equipment for both the Basic and Standby systems, operating on a continuous basis.

- 2.1.5 In case any damage is caused to the work, in the opinion of Engineer in charge, due to inadequacy or failure of the dewatering system, in part or in whole, then the supply of all labour, materials and plant required to make good for such damage shall be undertaken and re-done by the contractor at his own cost.
- 2.1.6 The Dewatering system shall be designed to operate on a continuous basis in such a manner that during excavation, the water level shall be kept below the working level for laying of PCC, concrete or any other work, etc.
- 2.1.7 Contractor shall obtain necessary permissions from the competent authority of local body regulatory body/ traffic/ irrigation department etc. at his own level to drain pumped out water. The arrangement shall include cost of material in respect of laying pipes, making drains from site to the final disposal of dewatering pump out water shall be made by the contractor at his own level and cost. No claim shall be entertained on this account by the department.

2.2 REINFORCED CEMENT CONCRETE WORK

The work shall be done as per CPWD specifications 2019 Volume - I & II with correction slips up to the last date of submission of tender documents. The RCC work shall be with design mixed/ reinforced cement concrete of specified grade at locations as per BOQ, GFC drawings and as directed by the Engineer-in-charge.

- 2.2.1 If the quantity of cement actually used in the work is found to be more than the theoretical quantity of cement including authorized variation, nothing extra shall be payable to the contractor on this account. Normally, as per Mix Design of various grades cement content goes high and extra cement is consumed. The consumption of extra cement shall be included in the scope of work and extra payment shall be considered on this account.
- 2.2.2 For non-scheduled items, the decision of the Engineer-in-charge regarding theoretical quantity of the cement which should have been actually used shall be final and binding on the contractor.
- 2.2.3 Cement brought to site and cement remaining unused after completion of work shall not be removed from site without written permission of the Engineer-in-Charge.
- 2.2.4 In case the contractor brings surplus quantity of cement the same after completion of the work will be removed from the site by the contractor at his own cost after approval of the Engineer- in-Charge.
- 2.2.5 Cement register for the cement shall be maintained at site. Cement bags shall be stored in separate godowns to be constructed by the contractor at his own cost as per sketch (which is only indicative and actual size will depend on the site requirements) given in CPWD specifications with weather proof roofs and walls. Each godown shall be provided with a single shutter door with two locks. The key of one lock shall remain with Engineer-in- charge or his authorized representative and that of the other lock with the authorized agent of the contractor at the site of work so that the cement is issued from the godown according to the daily requirements with the knowledge of both parties and proper account for the same is maintained in the standard Performa.

- 2.2.6 **Grade of Concrete:** The compressive strength of various grades of concrete shall to be given as below:

	Grade designation	Compressive strength on 15 cm cubes min. 7 days (N/mm ²)	Specified characteristic compressive strength at 28 days (N/mm ²)	Minimum cement quantity (Kg. per cum. Mtr.)	Maximum water cement ratio
i	M 25	As per design	25	330	0.50
ii	M 30	As per design	30	340	0.45
iii	M 35	As per design	35	350	0.45
iv	M 40	As per design	40	360	0.40

Note-

- (i) In the designation of a concrete mix letter M refers to the mix and number to the specified

characteristic compressive strength of 15 cm x 15 cm x 15 cm – cube 28 days expressed in N/mm².

- (ii) Design slump has to be constantly monitored and maintained during placing of concrete through slump tests carried out as per CPWD specification 2019 Vol-I.

The concrete mix design / laboratory tests with and without admixture shall be got done by contractor at his own cost and will be carried out by the contractor through one of the following laboratories: -

1. IIT(BHU), Varanasi, IIT Roorkee, IIT Delhi,
2. Approved Lab/Govt. Engineering Institutions / NIT as directed by the Engineer-in-charge

The various ingredients for mix design / laboratory tests shall be sent to the test houses through the Engineer-in-Charge and the samples of such aggregate & cement shall be preserved at site by the department.

- 2.2.7** The contractor shall submit the mix design report from any of above approved laboratory for approval of Engineer-in-Charge within 30 days from the date of issue of letter of acceptance of the tender. No concreting shall be done until the mix design is approved by the Engineer-in-charge.

2.2.8 APPROVAL OF DESIGN MIX

The mix design for a specified grade of concrete shall be done for a target mean compressive strength $T_{ck} = F_{ck} + 1.65 s$.

Where F_{ck} = Characteristic compressive strength of 28 days

s = Standard deviation which depends on degree of quality control

The degree of quality control for this work is —goodl for which the standard deviation (s) obtained for different grades of concrete shall be as bellows:

Grade of Concrete	For “Good” quality of control
M 25	4.00
M 30	5.00
M 35	5.00
M 40	5.00

Of the six specimens of each set three shall be tested at seven days and remaining three at 28 days. The preliminary tests at seven days are intended only to indicate the strength to be attained at 28 days.

- 2.4.8.1 All cost of mix designing and testing connected therewith including charges payable to the laboratory shall be borne by the contractor.

- 2.4.8.2 The ready mix concrete shall be procured from the RMC Plant as per list of preferred makes for civil work.

- 2.4.8.3 All other operations in concreting work like transporting of RMC at site, Slump, Laying Placing of concrete, compaction curing etc. as per CPWD specification 2019 Vol-I & Vol-II.

2.4.9 WORK STRENGTH TEST SPECIMEN

Work strength test shall be conducted in accordance with IS: 456 on random sampling. Each test shall be conducted on six specimens, three of which shall be tested at 7 days and remaining three at 28 days. Additional samples shall be prepared, if required, as per direction of Engineer in charge for testing samples cured by accelerated method as described in IS: 9103.

2.4.10 TEST RESULTS OF SAMPLE

The test result of the sample shall be the average of the strength of three specimen. The individual variation shall not be more than 15 percent of the average. If variation is more than the limit, the test results of the sample are invalid. 90% of the total test shall be done at the laboratory established at site by contractor and remaining 10% in the laboratory of CPWD or in any other laboratory as directed by the Engineer-in-Charge. The cost of the same shall be borne by contractor.

Lot size

The minimum frequency of sampling of concrete of each grade shall be according to the following: -

Quantity of concrete in the work cubic metre per day	Number of samples.
1-5	1
6-15	2
16-30	3
31-50	4
51 & above	4 + one additional sample for additional 50 cubic meters or part thereof.

Note: At least one sample shall be taken from each shift.

2.4.11 STANDARDS OF ACCEPTANCE

- (i) In case the test result of all the samples is above the characteristic compressive strength, the concrete shall be accepted.
- (ii) In case the test result of one or more samples fails to meet the requirement (i) above, it shall be accepted if both the following conditions are met:
 - a) Any individual test result is not less than $(F_{ck} - 4) \text{ N/mm}^2$
 - b) The mean of test result from any group of four consecutive samples is more than $(F_{ck} + 4) \text{ N/mm}^2$.
- (iii) Concrete of each grade shall be assessed separately
- (iv) Concrete is liable to be rejected if it is porous or honeycombed, its placing has been interrupted without providing a proper construction joint, the reinforcement has been displaced beyond the tolerances specified, or construction tolerances have not been met. However, the hardened concrete may be accepted after carrying out suitable remedial measures to the satisfaction of the Engineer-in-Charge for which nothing extra is payable to the contractor
- (v) MS centering/shuttering and scaffolding material unless & otherwise specified shall be used for all RCC work to give an even finish to concrete surface. However marine ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor on approval by the Engineer-in-Charge.
- (vi) In case of actual average compressive strength being less than specified strength which shall be governed by para —Standard of Acceptance as above the rate payable shall be worked out accordingly on prorata basis.
- (vii) In case of rejection of concrete on account of unacceptable compressive strength governed by para —Standard of Acceptance as above, the work for which samples have failed shall be redone at the cost of contractors. However, the Engineer-in-Charge may order for additional test (like cutting cores, ultrasonic pulse velocity test, load tests on structure or part of structure etc.) to be carried out at the cost of contractor to ascertain if the portion of structure wherein concrete represented by the sample has been used, can be retained on the basis of results of individual or combination of these tests. The contractor shall take remedial measures necessary to retain the structure as approved by the Engineer-in-Charge without any extra cost.
- (viii) Necessary arrangements shall be made for field tests and all required equipment shall be arranged by establishing field lab by the Agency for mandatory tests of the materials as specified in CPWD specifications or as per direction of Engineer-in-Charge. No extra payment shall be made on this account.

- 2.4.12 Cover blocks to be used for RCC works shall be made of Conbextra GP2 grout of FOSROC or equivalent approved makes. The precast cover blocks shall also be allowed to be used, if the quality of the same is found satisfactory by Engineer-in-charge.

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

AE(P)

AE(E)P

EE(P)

- 2.4.13 All the testing charges, for the all materials to be used in the work, shall be borne by contractor.
- 2.4.14 Copies of all the material's bills shall be produced by contractor as per direction of Engineer-in-charge.
- 2.4.15 All the RMC plant slips shall be systematically maintained in folder and no slip should be missing.
- 2.4.16 The calibrations of RMC/ Batch Mix Plant and cube testing machine should be done in every 03 months or as required by Engineer-in-Charge.
- 2.4.17 All concrete from the plant shall be laid with the help of concrete pump of adequate capacity at all heights for which nothing extra shall be paid over and above the quoted rates. However, small quantity can be allowed without the pump with prior written approval of Engineer-in-charge as per site requirement.
- 2.4.18 The contractor shall make the cubes of trial mixes as per approved mix design at site laboratory for all grades using sample of approved materials proposed to be used in the work prior to commencement of concreting and get them tested for 7 days and 28 days. Test cubes shall be taken from trial mixes as follows.
- 2.4.19 For each mix, a set of six cubes shall be made from each of the three consecutive batches. Three cubes from each set of six shall be tested at age of 7 days and remaining three cubes at age of 28 days. The cubes shall be made, cured, transported and tested strictly in accordance with specifications. The average strength of nine cubes at age of 28 days shall exceed the specified target mean strength for which design mix has been approved, the evaluation of test results will be done as per IS:456.

2.5 FORM WORK

2.5.1 Common specifications for Form work of RCC Scope:

The form work is to be executed as per scope of work as defined in the tender documents and per BOQ as per direction of Engineer in charge.

- a) All the specifications for shuttering shall be as per CPWD Specifications. Centering and shuttering for all concrete and reinforced concrete wherever required shall be in steel and or marine plywood treated with preservatives / Film Faced mainly used for concrete purpose to produce a smooth straight level and sharp profiles shall be used for the works for uniform finish on all exposed surfaces.
- b) Panels to be in largest practicable sizes to reduce the number of joints, Form material shall have strength adequate to withstand pressure of newly placed concrete. However, all props, bracings, scaffolding etc., shall be in steel. The entire responsibility of planning, design, erection and safety of formwork shall lie with the Contractor.
- c) Double steel scaffolding having two sets of vertical supports shall be provided for external wall finish, cladding etc. The supports shall be sound and strong, tied together with horizontal pieces over which scaffolding platform shall be fixed. Scaffolding shall have steel staircase for inspection of works at upper levels.
- d) As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept depressed, as per drawing or as per direction of Engineer-in-charge, than general floors as required. Shuttering should be adjusted accordingly. Nothing extra is payable on this account.
- e) Steel shuttering as approved by the Engineer-in-Charge shall be used by the contractor. Minimum size of shuttering plates shall be 600mm x 900mm except for the case when closing pieces are required for completing the shuttering panels. Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work.
- f) Side/ edges of slab, beam, chajjas, lintels shall be paid under the relevant construction item of Nothing extra will be paid on account side/edge shuttering.
- g) The shuttering plates shall be cleaned properly with electrically driven sanders to remove any cement slurry or cement mortar or rust. Proper shuttering oil or de-bonding compound shall be applied on the surface of the shuttering plates in the requisite quantity before assembly of steel reinforcement.
- h) For the execution of centering and shuttering, the contractor shall use proprietary Reebole Chemical Mould release agent of FOSROC or equivalent as shuttering oil as approved by Engineer-in-Charge and nothing extra shall be paid on this account.

- i) Concreting of upper floor shall not be done until concrete of lower floor has set at least for 10 days but form work and reinforcement can be taken up after the concrete has set at least for three days.
- j) All existing formwork that fails to meet the specifications mentioned above or do not qualify to meet the minimum standards in the view of Engineer-in-Charge shall have to removed and stacked.
- k) Formwork design shall consider the following:
 - 1. Dimensional tolerance
 - 2. The form work should be demountable without causing shock, disturbance or damage to concrete
 - 3. All construction joints in beams and slabs shall be provided as shown in drawings.
 - 4. Ties shall be provided wherever required.
 - 5. Cambers shall be provided where shown.
 - 6. Props / supports for extra ceiling height shall be specially designed.
- l) Formwork: - Form work shall be placed and removed as per time line provided in CPWD specifications.

Form of Bank Guarantee for Earnest Money Deposit

On non-judicial stamp paper of minimum Rs. 100

1. Whereas the Executive Engineer (name of division) ,
CPWD on behalf of the President of India (hereinafter called —The Government) has
invited bids under(NIT number)..... dated for
..... (name of
work)..... The Government has further
agreed to accept irrevocable Bank Guarantee for Rs. (Rupees
..... only) valid upto (date)*... as Earnest Money
Deposit
from (name and address of contractor) (hereinafter
called —the contractor) for compliance of his obligations in accordance with the terms
and conditions of the said NIT.

2. We, (indicate the name of the bank) (herein after referred to as
—the Bank), hereby undertake to pay to the Government an amount not exceeding
Rs.
..... (Rupees..... only) on demand by the Government
within 10 days of the demand.

3. We,(indicate the name of the Bank), do here by
undertake to pay the amount due and payable under this guarantee without any demur,
merely on a demand from the Government stating that the amount claimed is required to
meet the recoveries due or likely to be due from the said Contractor. Any such demand
made on the Bank shall be conclusive as regards the amount due and payable by the Bank
under this Guarantee. However, our liability under this guarantee shall be restricted to an
amount not exceeding Rs.(Rupees only)

4. We, (indicate the name of the Bank), further undertake
to pay the Government any money so demanded notwithstanding any dispute or disputes
raised by the contractor in any suit or proceeding pending On non-judicial stamp paper of
minimum Rs. 100 before any Court or Tribunal, our liability under this Bank Guarantee
being absolute and unequivocal. The payment so made by us under this Bank Guarantee
shall be a valid discharge of our liability for payment there under and the Contractor shall
have no claim against us for making such payment.

5. We, (indicate the name of the Bank) , further agree that
the Government shall have the fullest liberty without our consent and without affecting in
any manner our obligation here under to vary any of the terms and conditions of the said
agreement or to extend time of performance by the said Contractor from time to time or
to postpone for any time or from time to time any of the powers exercisable by the
Government against the said contractor and to forbear or enforce any of the terms and
conditions relating to the said agreement and we shall not be relieved from our liability
by reason of any such variation or extension being granted to the said Contractor or for
any forbearance, act of omission on the part of the Government or any indulgence by the
Government to the said Contractor or by any such matter or thing whatsoever which
under the law relating to sureties would, but for this provision, have effect of so relieving
us.

6. We, (indicate the name of the Bank), further
agree that the Government at its option shall be entitled to enforce this Guarantee against
the Bank as a principal debtor at the first instance without proceeding against the

Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We, (indicate the name of the Bank) , undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date

Witnesses:

1. Signature.....
2. Authorized signatory
3. Name and address
4. Name designation
5. Signature Bank seal Name and address

***Date to be worked out on the basis of validity period of 180 days for two/three bid system from the date of submission of tender.**

On non-judicial stamp paper of minimum Rs. 100
**Form of Bank Guarantee for Performance Guarantee/Security
Deposit/Mobilization Advance/ Refund of milestone withheld amount**

1. Whereas the Executive Engineer (name of division) ,
CPWD on behalf of the President of India (hereinafter called —The Government) has
entered into an agreement bearing number..... with (name and
address of
the contractor) (hereinafter called —the Contractor) for execution of
work.....(name of work)The Government has further
agreed to accept an irrevocable Bank Guarantee for Rs. (Rupees
..... only) valid upto (date).....as Performance
Guarantee/Security Deposit/Mobilization Advance/Refund of mile stone withheld
amount from the said Contractor for compliance of his obligations in accordance with
the terms and conditions of the agreement.
2. We, (indicate the name of the bank)(herein after referred to as—the Bank),
hereby undertake to pay to the Government an amount not exceeding
Rs..... (Rupees..... only) on demand by the Government within
10 days of the demand.
3. We,(indicate the name of the Bank), do here by
undertake to pay the amount due and payable under this guarantee without any demur,
merely on a demand from the Government stating that the amount claimed is required to
meet the recoveries due or likely to be due from the said Contractor. Any such demand
made on the Bank shall be conclusive as regards the amount due and payable by the
Bank under this Guarantee. However, our liability under this guarantee shall be
restricted to an amount not exceeding Rs.(Rupees only)
4. We, (indicate the name of the Bank), further undertake
to pay the Government any money so demanded notwithstanding any dispute or
disputes raised by the contractor in any suit or proceeding pending On non-judicial
stamp paper of minimum Rs. 100 before any Court or Tribunal, our liability under this
Bank Guarantee being absolute and unequivocal. The payment so made by us under this
Bank Guarantee shall be a valid discharge of our liability for payment there under and
the Contractor shall have no claim against us for making such payment.
5. We, (indicate the name of the Bank) , further agree that
the Government shall have the fullest liberty without our consent and without affecting
in any manner our obligation here under to vary any of the terms and conditions of the
said agreement or to extend time of performance by the said Contractor from time to
time or to postpone for any time or from time to time any of the powers exercisable by
the Government against the said contractor and to forbear or enforce any of the terms
and conditions relating to the said agreement and we shall not be relieved from our
liability by reason of any such variation or extension being granted to the said
Contractor or for any forbearance, act of omission on the part of the Government or any
indulgence by the Government to the said Contractor or by any such matter or thing
whatsoever which under the law relating to sureties would, but for this provision, have
effect of so relieving us.
6. We, (indicate the name of the Bank), further
agree that the Government at its option shall be entitled to enforce this Guarantee

against the Bank as a principal debtor at the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Government may have in relation to the Contractor's liabilities.

7. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.
8. We, (indicate the name of the Bank) , undertake not to revoke this guarantee except with the consent of the Government in writing.
9. This Bank Guarantee shall be valid up to unless extended on demand by the Government. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs..... (Rupees only) and unless a claim in writing is lodged with us within the date of expiry or extended date of expiry of this guarantee, all our liabilities under this guarantee shall stand discharged.

Date

Witnesses:

1. Signature.....
2. Authorized signatory Name and address Name
3. Name designation
4. Signature Bank seal Name and address

LIST OF PREFERRED MAKES FOR CIVIL WORK

Approved makes of materials to be used in the work are as given in the table below. In case of non-availability of these makes, the Engineer-in-charge may allow use of alternative makes after seeking approval of TS authority. Only BIS marked materials shall be generally used in the work. Non-BIS marked materials may be permitted by the Engineer-in-charge only when BIS marked materials are not manufactured.

S. No.	Material	Preferred Make
1.0	Anti-Termite Pesticides - (Imidacloprid)	Bayer, FMC India, Hindustan Insecticides
2.0	Concrete Work	
(i)	Ordinary Portland Cement – 43 grade / Portland Pozzolana Cement.	ACC, Ultratech, Ambuja, Birla, JK
(ii)	White Cement	Birla White, J K White, Ultratech
(iii)	Construction Chemicals / Admixtures / Plasticizers / Super Plasticizers	BASF, FOSROC, Pidilite, Ardex Endura, Mapei, MC Bauchemie, Weber (Saint Gobain), Sika, MYK
(iv)	Concrete Curing Compounds.	FOSROC, Sika, BASF, Pidilite, CICO, Weber (Saint Gobain), MC Bauchemie, Mapei
3.0	Reinforced Cement Concrete	
(i)	Corrosion Resistant Steel TMT Reinforcement Bars	SAIL (TMT HCR), Tata Tiscon (CRS), RINL (CRM/HSCRM), JSPL (Jindal Panther CRS) and JSW (Neo Steel CRS)
(ii)	Mechanical Couplers for Reinforcement	Dextra India, Halfen, Sanfield, G-Tech
(iii)	Anchor fastener, Rebar chemical/Mechanical Fastener, Core Cutting, Expandable Fastener	Hilti, Fisher, Bosch, Wurth, Canon, Trixel, 3M India
(iv)	Ready Mix Concrete Plants	ACC, Ultratech, JK, Prism RMC Plant
(v)	Aluminium customized Shuttering	S-Form, MFE, Eins Technik Pvt. Ltd. ALFOAC, MFS
(vi)	Alccofine	Ambuja, Lafarge, Holci
(vii)	Architecture Expansion/ Seismic Joint System	Migua, Sanfield, Kantaflex, Construction Specialties, Vexcolt, Hercules, DECG (Deevin)
(viii)	Core cutting	Hilti, Fischer, Wuerth
4.0	Water Proofing	
(i)	Crystalline Water Proofing Compound	Penetron Admix, Kryton KIM, Xypex C2000 Admix
(ii)	Water Proofing swellable bar/ Liquid membrane/ single component applied (spray applied for deck water proofing/ Elastomeric acrylic UV resistant liquid applied coating	CICO, Ardex Endura, MYK Laticrete, Pidilite, BASF, Fosroc, Sika, MC Bauchemie, Kryton, Mapei
(iii)	Waterproofing PU / Polyurea/ Acrylic / Elastomeric Cementitious / SRI Coating/	Grace, BASF, Fosroc, Pidilite, Sika
(iv)	Polysulphide Sealant for Joints joint width 25mm	Fosroc, Pidilite, Sika, Dow Corning, Wacker
(v)	Water proofing membrane HDPE based	Fosroc, Pidilite, W.R. Grace, BASF, Sika, Weber (Saint

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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	waterproofing white composite sheet	Gobain), Mapei
(vi)	Water proofing compound	BASF, Fosroc, Pidilite, Penetron, Sika, Mapei, MC Bauchemie, MYK
(vii)	Food Grade Coating for Water Tanks	Grace, BASF, Fosroc, Pidilite, Penetron, Sika, Mapei, MYK, Weber (Saint Gobain), Asianpaints
(ix)	Structural Silicon sealant, Pre pigmented Weather Silicone	Dow Corning, Momentive (GE), Tremco, Wacker
5.0	Masonry Work	
(i)	AAC Blocks	ACC, Tata Tiscobuild, JK Lakshmi, Jindal Air, Birla Aerocon, Modcrete, Firecrete, Instablock
(ii)	AAC Block adhesive	Ultratech, Ardex Endura, Ferrous Crete, Weber (Saint Gobain), Asianpaints
(iii)	Ready mix polymer cement mortar	UltraTech, MYK Arment, Saintgobin -weber, Sika, Fosroc
(iv)	Concrete Block made from C& D Watse	Ultratech, Ardex Endura
6.0	Steel Work	
(i)	Structural Steel Sections / Tubular Sections	SAIL, Tata Steel, RINL, JSPL and JSW
(ii)	Dash / Anchor Fasteners, Rawl Plug	HILTI, Fischer, Bosch, Wurth, Canon
(iii)	EPDM Gasket	Schuco, Hanu, Raven, Anand
(iv)	Metal deck profile sheet	Ezydeck of TATA / Lloyd Superdeck, JSW
(v)	Roofing Steel Sheet (Precoated)	Tata Bluescope Steel Ltd., Jindal Steel, JSW Steel
(vi)	Polycarbonate Sheet	GE-LEXAN, Polygal, TufliteDalphalon, Coxwell
7.0	Aluminium Work	
(i)	Aluminium Extrusions	Hindalco, Jindal, NALCO
(ii)	Anodised Aluminium Hardware (HeavyDuty)	HARDIMA, EVERITE, Alu Alpha, Hindalco, Pulse of LGF Sysmac
(iii)	Unitized Aluminium Door & Window Systems	Schuco, Technal, Eternia-Hindalco, Lindner AG, AIS Window system, Fenesta Facade, Prominance Uniframe, Tostem
(iv)	Unitized Aluminium Glass Facade & Structural Glazing Systems	Schuco, Technal, Eternia-Hindalco, Lindner AG, AIS Window system, Fenesta Facade, Prominance Uniframe, Tostem
(v)	Aluminium Composite Panels / Honeycomb Composite Panels / Aluminium-HPL Panels	Allucobond, Aludecor, Reynoarch, Alutech
(vi)	Metal (Aluminium) Facade Panels	Hunter Douglas, Novelise, Dwall Metallic, Lindner AG, BEMO, Anakon
(vii)	Silicone Sealant / Weather Sealant / Fire Sealant / Polysulphide Sealant	Alstone, Sika, Dow, Choksey, Hilti, Wuerth (Promat), GE Plastics, Pidilite, FOSROC, BASF
(viii)	Compact Laminate Sheet	Greenlam, Merino, Fundermax
(ix)	Fire stops in curtain wall system	Hilti, 3M, STI, Siderise, Fischer, Astroflame, Lorient

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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(x)	Pop out vent for façade and system window hardware	Giesse , Securistyle , Cotswold, Schuco , Technal, Schlegel, Alualpha, Aluk, Reynaers
8.0	Flooring	
(i)	Glazed, Ceramic & Vitrified wall / floor Tiles (Antiskid/Matt/Glossy)	Kajaria, Johnson, Somany, Orient bell, Restile
(ii)	Epoxy Grouts / Tile adhesive / Polymer modified cementitious grouts/	Ardex Endura, Ferrouscrete, MYK Schomburg, Pidilite, FOSROC, Sika, Weber (Saint Gobain), MC Bauchemie, Mapei
(iii)	Epoxy flooring	MYK Schomburg, BASF, Flowcrete, Ardex Endura, FOSROC, Sika, Weber (Saint Gobain), MC Bauchemie
(iv)	Wooden Pre-Laminated Engineered Flooring	Vista, Action Tesa, Pergo, Apex, Lamiwood, Kronotex, Greenply, Floormax, KaHrs. Enginner Wood product
(v)	PVC Flooring	Armstrong, Unitex, LG, Responsive Industries, Tarkett, Tremco
(vi)	Vinyl Flooring	LG, 3M, Forbo Responsive Industries, Wonderfloor, Tarkett, Armstrong, Tremco
(vii)	Floor hardener	Ironite, Ferrok, Hardonate, Weber (Saint Gobain), MC Bauchemie
(viii)	Carpet Flooring	Interface, Shaw, Welspun, CCIL, Milicon, Flotex
(ix)	Polyurethane Concrete Flooring, Epoxy flooring, Self-Leveling Flooring	BASF, Fosroc, Ardex Endura, Sika, Mapei, MYK Arment, MC-bauchemie, Saint Gobain - Weber
(x)	Bamboo wood flooring and skirting	EPITOME, ESES Bio Wealth Pvt Ltd.
(xi)	Tile trim	Genesis, Surfaces, Construction Specialties
(xii)	Threshold	Genesis, Surfaces, Construction Specialties
9.0	Roofing / False Ceiling / Partition EPF	
(i)	Calcium Silicate / Mineral Fiber False Ceiling Tiles and frame work	Saint Gobain, Armstrong, Aerolite, Ramco Hilux, USG Borals, Anakon, Dexune
(ii)	Gypsum Board False Ceiling/Partition and frame work	Saint Gobain Gyproc., USG Boral, Armstrong, Knauf AMF, Anakon, Dexune, Western
(iii)	Metal / U-Baffle / Open Cell / Wooden Laminated false ceiling i/c framework	Armstrong, Hunter Douglas, Lindner AG, Anakon, Dexune, Western
(vi)	Rock Wool / Glass Wool/ Polyester wadding	UP Twiga, Roxul (Rockwool), Rockloyd (Lloyd Insulations), Dhanbad Rockwool, Dexune, Rockfon
(vii)	Fibre cement board	HIL (Birla Aerocon), Bison (NCL), RAMCO Hicem, Everest, Visaka Industries, Dexune
(viii)	Extruded Polystyrene Insulation Board	Du Pont, Dow Corning, Supreme, Texas, Analco, Unitech-ikk, Sika
(ix)	Heat Resistant Tiles	Kajaria, Somany, Johnson, AGL
(x)	Dry wall Gypsum partition/ paneling system	Saint Gobain, USG Boral, Knauf Danoline

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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	for toilet, Gypsum wall paneling	
(xi)	Acoustic panel	Envirotech Systems/Bajaj Acoutex/Silence Panel, Anutone, Techno Ceiling, Rockworth, Knauf Armstrong
(xii)	Access panel in False ceiling system	Saint Gobain, USG Boral, Knauf Danoline
(xiii)	Wood Wool Acoustical Panel	Envirotech Systems/Armstrong/ Rockworth,
10.0	Doors / Windows / Wood work/Partition/Fitting/SS Hardware	
(i)	Flush Door Shutter	Century, Greenply, Duro, Merino
(ii)	Ply Wood / Block Board	Century, Greenply, Merino, Archidply, Duro
(iii)	Laminated Particle Board / veneered Particle Board	Greenlam, Century, Archidply, Merino
(iv)	Laminate	Greenlam, Century, Merino
(v)	Veneers	Greenply, Century, Merino
(vi)	Acrylic sheet/Acrylic laminate	Rehau, Opulux, Treelam, Praveedh Décor, EGR
(vii)	Wood Plastic Composite (WPC) Board	Archidply, Century, Greenlam, Floresta, Rajshree, Alstone
(viii)	Factory made wooden Door Frames & Shutter	Jain wood Industries, Kutty, D S Doors, Duro, Ambika Wood, Shreeji Woodcraft, SM Corporation, Jain Doors Pvt Ltd
(ix)	Factory made kitchen cabinets, wardrobes etc.	Evoke, Godrej, Brown Crust, Sleek
(x)	UPVC Doors & Windows	Fenesta, VEKA, KOMERLING, RHEAU, Green Fenestration technology,
(xi)	G.I. Steel Door Frame	Kutty Doors, Shakti Metdoor, NAVAIR, Synergy Thrislington.
(xii)	Fire Rated Metal/Wooden/Acoustic Doors (Glazed/Unglazed/sliding)	Tata Pravesh, Pacific, Navair, Sukriti, Bhawani, ASSES, Vetrotech, 4C Fire, Supreme Metwood, Shakti Hormann
(xiii)	Fire Rated Glass	Pilkington, SCHOTT, FIRELITE, Saint Gobain, ASAH, Pyroguard, Supreme Metwood
(xiv)	Hardware for Fire Check Doors	Dorma, Hafele, Geze, Wuerth, Becker FS
(xvi)	S.S. Hardware, Door & Window Fittings, Hinges	Dorma, Godrej, Hafle, Kich, Dorset
(xvii)	Friction Stay Hinges	Hettich, Earl-Bihari, Kich
(xix)	FloorSpring / Door Closer	Godrej, Dorma, Hafele, GEZE, Kich
(xx)	Modular Office & Home Furniture – Table, Chair, Sofa, Bed, Dining Table/Chairs etc.	Godrej, Steelcase, Featherlite, Rockworth, Durian
(xxiii)	Storage - Compactors, Metal Almirah etc.	Godrej, Compress, HNI, Integrity
(xxiv)	All type of Door lock including Mortice locks	Dormakaba, Yale, Geze, Hafele, Kich, Godrej, Dorset
(xxv)	Aluminium extrusions (other than system)	Hindalco, Jindal, Indalco

	window)	
(xxvi)	Fire Seal, Fire smoke Seal	3M, Hilti, Dormakaba , Lorient, Kilargo, Raven, Athmer, Promat, Pyran
(xxvii)	Acoustic Seal / Door seal	Athmer, Lorient, Raven, Dormakaba, 3M , Kilargo, Reddiplex, Hafele
(xxviii)	PVB/ SGP Laminate Film, Sentry film	Dupont, Saflex, Eastman, Kuraray, XDS, LG, 3M, Saint Gobain
(xxix)	Wood Adhesive	Speedex Fevicol, Araldite, kerakol, Astral, 3 M
(xxx)	Mattress	Durian, Kurlon, Sleepwell, Duroflex
11.0	Finishing Works	
(i)	Ready Mix Plaster	Ardex Endura, Ferrouscrete, MYK Schmburg, Pidilite, FOSROC, Sika, Asianpaints
(ii)	Gypsum Plaster / Ready Mix Plaster/ Polymer modified self-curing Mortar	Saint Gobain (Elite 90), Ferrous Crete, Ardex Endura, Pidilite, FOSROC, Asianpaints
(iii)	Cement Primer	Nerolac, Berger, BP White (Berger), Decoprime WT(Asian), White primer (ICI), Acro paints
(iv)	Cement Based & Acrylic Wall putty	Birla, JK White, Asianpaints, Ferrous Crete, Acro paints
(v)	Acrylic Distemper (washable/ Real mix/ Low VOC)	Asianpaints (Tractor Aqua Lock Paint), Berger (Commando) Acro Paints (Aqualin AWD) or equivalent paints of Nerolac or ICI-Dulax, JK MAXX (Jumbo)
(vi)	Acrylic Emulsion Paints	Asianpaints (Professional Premium Interior Emulsion Paint), Nerolac (Beauty Gold), Berger (Rangoli total care), ICI-Dulux (Super Cover), Acro Paints (Acropearl)
(vii)	Texture Finish	Asianpaints, Bakelite & Hylam, Spectrum, Heritage, Ultratech Texture Paints, JK MAXX (Patternz)
(viii)	Exposed Concrete Texture Finish	Ultratech Texture Paints, Armourcoat, Oikos, Heritage, Spectrum
(ix)	Steel Primer (Red Oxide Zine Chromate Primer)	Asianpaints, Nerolac, Berger, ICI-Dulax, Acropaints.
(ix)	Synthetic Enamel Paint	Asian (Apolite Premium gloss enamel), Nerolac (Synthetic Hi gloss), Berger (Luxol Hi gloss), ICI- Dulux (Gloss Synthetic Enamel), Acro paints (Acrogold)
(x)	Paint- Texture Concept Paints (Interior)	Asianpaints, Ultratech Texture Paints, Berger, acro paints
(xi)	Paint- Anti carbonation paint	Fosroc, Pidilite, BASF, Asianpant, Sika
(xii)	Wood Primer	Asianpaints, Berger, ICI-Dulax, Nerolac.
(xiii)	Melamine Polish for wood work	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI-Dulux, MRF
(ix)	PU polish for wood work	ICA, MRF, Asian, Berger
(x)	Epoxy Paint	Asian, Nerolac, Berger, ICI, Kansai Akzo Nobel
(xi)	Fire Resistant Paint	Asianpaints, Akzo Nobel Coatings India Ltd., Viper.

(xii)	Polyester Powder coating/ PVDF Coating	Jotun, Akzo nobel, Asian PPG, Nippon
(xiii)	Water & Stain repellant coating for stone cladding and stone Flooring	Killick Guard Speciality Products Limited, Dow corning, Wacker, Akemi, MYK Laticrete, Ardex Endura, Weber
12.0	Water Supply & Sanitary Works	
(i)	Stainless Steel pipe and fitting of grade AISI 304 as per JIS standard 3448 for water supply line & Fittings	SAIL (Salem Steel), Jindal, J-Press
(ii)	G.I. Pipe	Tata Steel, Jindal Pipes, Prakash Surya, APL Apollo Tubes
(iii)	GI Pipe Fittings	Unik, Zoloto, Surya, Jinda Pipesl, Tata Steel
(iv)	U-PVC pipe and Fittings	Supreme, Finolex, Astral, Prince, AKG, Birla HIL, Prayag
(v)	C-PVC pipe and Fittings	Supreme, Finolex, Astral, Prince, AKG, Ashirwad, Oriplast, Birla HIL, Prayag
(vi)	M.S. Black Pipes	Tata, Jindal, SAIL, APL Apollo, Surya
(vii)	CP Fittings (Premium range)	Kohler, Jaquar, Grohe, Roca
(viii)	Sanitary ware / Fixtures / Fittings (Premium range)	Kohler, Grohe, Jaquar, Roca
(ix)	Urinal/Shower Frosted Glass partition	Kohler, Grohe, Jaquar, Roca
(x)	Sensor Operated Urinal	Jaquar, Hindware, Roca, Kohlar
(xi)	Specially abled Fitting	Pressalit, Hindustan, Cardin
(xii)	Gun Metal Valves/Sluice Valves/ Air Release Valves	Zoloto, Audco (L&T), Castle, Leader Valves, SKS
(xiii)	Sluice Valve / Pressure Reducing valve / Non-Return valve / check valve / Butter fly valve / ball valve	Zoloto, Kirloskar, Leader Valves, Zoloto, SKS, Castle, Audco (L&T)
(xiv)	Toilet Cubicles, Action tesa	Century, Merino (Titan Series), Greenlam (Sturdo Classic)
(xv)	Insulation for external / exposed hot water pipes	KAIFLEX, ARMAFLEX, CAREFLEX
(xvi)	Pipe protection for external water supply pipes	PYPKOTE, ARMAFLEX, AKPOLYKOTE
(xvii)	Water Meter	Prima, Kranti, Leader, Zoloto, Dashmesh
(xviii)	Brass stop & Bib Cock	Zoloto, Sant, L&K, Leader,
(xix)	Brass Ferrules	Dhawan Sanitary Udyog (PRIMA), Annapurna, Kalsi
13.0	Drainage	
(i)	Soil Waste / Vent Pipes and Fittings:	
	a) Hubless Centrifugally Cast Spun Iron Pipe and fittings	NECO, SKF, Hepco, RPMF.
	b) Centrifugally (Spun) CI Pipes Class 'LA' / Ductile Iron Pipe	Kesoram, Electro Steel Castings Ltd., NECO, RPMF.
(ii)	C.I. Manhole covers, frames & GI Gratings	NECO, BIC, RIF, SKF, Hepco, Kapilansh, RPMF.

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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(iii)	Unplasticized Non-Pressure Polyvinyl Chloride (PVC-U) Pipes underground conforming to IS: 15328-2003 & Fittings	Supreme, Astral, Finolex, Ashirvad
(iv)	Low noise system rain water pipes and fittings made of mineral reinforced Poly Propylene	Supreme, Astral, Finolex, Ashirvad
(v)	Drainage AC/HDPE Pipes	Jain Pipes, Oriplast, Reliance, MAZZA AC Pipes, Supreme
(vi)	DI Pipes & Fittings	Supreme, Electrosteel, Jindal, TATADUCTURA, Kesoram
(vii)	SFRC Manholecovers & gratings	KK, JAIN, PARGATI
14.0	Stainless Steel & Glass Works	
(i)	Modular SS-304/316 Grade / Glass Railing with SS-304/316 grade Hardware	Dorma Kaba, GEZE, Hafele, Kich, Godrej, TATA, Art N Glass, S.S. Railing
(ii)	Stainless Steel Sink (Out of Salemsteel)	Neelkanth, Niralli, Jayna, Prayag
(iii)	Float Glass	Saint Gobain Glass India Ltd., Emirates Glass LLC, AIS Glass Solutions Ltd., Pilkington, Modi Guard, Glaverbel
(iv)	High Performance Glass	Saint Gobain Glass, Pilkington, Guardian, Emirates Glass LLC, Glaverbel, AIS Glass.
(v)	Lacquered Glass	Saint Gobain Glass, AIS Glass, Art N Glass, Guardian
(vi)	Glass Processor for making DGU/Toughening	Art N Glass, Shankar Tuff, Sheeshmahal, Shivshakti, GSC, Kaimapnat Glass, SK Tuff, AIS Glass
(vii)	Mirrors/ interior mirror (superior quality crystal clear)	Saint Gobain, Modi Guard (Gujarat Guardian), AIS, Sisecam, Pilkington, ATUL
15.0	Miscellaneous	
(i)	Terracotta Ventilated Façade System (Panel) Cladding Tiles	Nuvocotto, Hunter Douglas, Moeding, Terreal, Claytone
(ii)	SS Dry Cladding Anchor with SS Clamp	Hilti, Fisher, Wuerth, Trixel
(iii)	Solid Acrylic Surface Boards	Dupont, LG Himacs, Neonnex, Hanex, GMGR India
(iv)	Modular Expansion / Seismic Joint System	Herculus, Sanfield, Vexcolt, MigUA, Katanaflex, Inprocorp
(v)	Solid Surface (Corian)	Dupont, Neonnax, LG, Samsung
(vi)	Window Blinds	Vista, Deck, Hunter Douglas, MAC
(vii)	Fire Sealant	Hilti, 3M India, Wuerth, Fischer
(viii)	Modular Rainwater Harvesting system	Retas Enviro Solutions Pvt Ltd, Bantair Pvt Ltd, Adwyn Impex Pvt Ltd, Life green system Ltd
(ix)	Precast GRC / Sand Stone Jali (Screen)	Unistone, Birla GRC
(x)	Wall Paper	D'décor, Lifencolours, India Circus, Ego, Vescom, Nilaya by Asian Paints, Muraspec, Marshalls
(xi)	XPS Board/ Dimple board	Supreme, Insuboard, Soprema, Own corning, Shalimar,

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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		Technonicol, Pidilite
(xii)	Expansion filler board	Supreme, Insuboard, Soprema, Shalimar, Own coming, Technonicol
(xiii)	Concrete / HDPE/Grass grid pavers	Ovilite Industries, Eco Vision Industries, Dalal, Unistone
(xiv)	Drain board	Ovidrain, Tikidan, Technonicol, Virendra textile, Soprema
(xv)	Expansion Joint filler / Joint covers	Vexcolt International Ltd, Construction Specialities, Sainfield, Hercules, MIGUA, Mapei, Balco India, Z-tech, Inprocorp
(xvi)	Poly-sulphide Sealant for Joints joint width up to 25 mm	Pidilite, Sika, Dow Corning, Wacker
16.0	EXTERNAL DEVELOPMENT WORK	
(i)	Safety and road marking paint & equipment	3M India Ltd, Protector, Ananta Inc, Asian (paint)

Note:

Makes other than specified above (if necessary) shall be approved by **the Executive Engineer, Ghaziabad Division - II, CPWD, CGO-I, Ghaziabad.**

The firm has to ensure that equipment manufacturer comes under definition of local manufacturers as per Govt. of India, Policy of Public Procurement (Preference to make in India) order, 2017 (PPM-MII order 2017) issued by Department of Industrial Policy and Promotion. Only products conforming to above policy shall be allowed to be used in the work.

Executive Engineer,
Ghaziabad Division-II, CPWD,
CGO-I, Ghaziabad

Schedule of Quantity					
Name of work : Replacement of old rusted concertina coil and Reconstruction of balance boundary wall, at KV Murad Nagar, Ghaziabad (U.P).					
S.No.	Description of item	Qty	Unit	Rate	Amount
1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, for all lift, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
1.1	All kinds of soil.	82.00	cum	260.30	21,345.00
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 and for all lift.	64.00	cum	196.00	12,544.00
3	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	599.00	sqm	17.60	10,542.00
4	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
4.1	1:5:10 (1 cement : 5 coarse sand (zone-III) derived from natural sources : 10 graded stone aggregate 40 mm nominal size derived from natural sources)	7.00	cum	6518.60	45,630.00
5	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				
5.1	1:1.5:3 (1 cement : 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	24.00	cum	9045.75	2,17,098.00
6	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement :				
6.1	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources)	3.00	cum	10852.95	32,559.00
7	Centering and shuttering including strutting, propping etc. and removal of form for				

Addition: NIL Correction: NIL

Overwriting: NIL Deletion: NIL

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7.1	Foundations, footings, bases of columns, etc. for mass concrete	34.00	sqm	392.15	13,333.00
7.2	Lintels, beams, plinth beams, girders, bressumers and cantilevers	50.00	sqm	736.40	36,820.00
7.3	Columns, Pillars, Piers, Abutments, Posts and Struts	113.00	sqm	961.30	1,08,627.00
8	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
8.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	2862.00	kg	107.85	3,08,667.00
9	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level.				
9.1	Thermo-Mechanically Treated bars of grade Fe-500D or more.	360.00	kg	107.85	38,826.00
10	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:				
10.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	17.00	cum	7132.25	1,21,248.00
11	Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :				
11.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	10.00	cum	9105.95	91,060.00
12	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.				
12.1	In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works	704.00	kg	172.60	1,21,510.00
13	12 mm cement plaster of mix :				
13.1	1:6 (1 cement: 6 coarse sand)	203.00	sqm	343.65	69,761.00
14	15 mm cement plaster on rough side of single or half brick wall of mix:				
14.1	1:6 (1 cement: 6 coarse sand)	203.00	sqm	395.35	80,256.00
15	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.	497.00	sqm	156.05	77,557.00
16	6 mm cement plaster of mix :				
16.1	1:3 (1 cement : 3 fine sand)	92.00	sqm	300.45	27,641.00
17	Finishing walls with Acrylic Smooth exterior paint of required shade :				
17.1	New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 0.90 litre/10 sqm)	497.00	sqm	160.60	79,818.00

18	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade :				
18.1	Two or more coats on new work	80.00	sqm	155.90	12,472.00
19	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.				
19.1	In cement mortar	42.00	cum	2060.20	86,528.00
20	Providing and fixing concertina coil fencing with punched tape concertina coil 600 mm dia 10 metre openable length (total length 90 m), having 50 nos rounds per 6 metre length, upto 3 m height of wall with existing angle iron 'Y' shaped placed 2.4m or 3.00 m apart and with 9 horizontal R.B.T. reinforced barbed wire, stud tied with G.I. staples and G.I. clips to retain horizontal, including necessary bolts or G.I. barbed wire tied to angle iron, all complete as per direction of Engineer-in-charge, with reinforced barbed tape(R.B.T.) / Spring core (2.5mm thick) wire of high tensile strength of 165 kg/ sq.mm with tape (0.52 mm thick) and weight 43.478 gm/ metre (cost of M.S. angle, C.C. blocks shall be paid separately)	1100.00	metre	375.80	4,13,380.00
21	Brick work with common burnt clay F.P.S. (non modular)bricks of class designation 7.5 (using old bricks received from dismantled brick work, including cleaning of bricks), in superstructure above plinth level up to floor V level in all shapes and sizes in :				
21.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	15.00	cum	5786.00	86,790.00
	Total				21,14,012.00
	Modified with estimated cost after using with correction factor on DSR-2023 items on account of GST @0.973				20,56,934.00
	Add cost Index @ 5% on DSR-2023				1,02,847.00
	Total				21,59,781.00
22	Credit for taking away old/rusted dismantled materials such as: M.S. pipes and section and section etc.	200.00	kg	-25.00	-5000.00
	Total				21,54,781.00