राजस्थान केन्द्रीय विश्वविद्यालय
Central University of Rajasthan
NH-8, Bandarsindri, Kishangarh-305817, Ajmer(Raj.)

NIT No. CURAJ/R/F.172/2026/3532 Date:19.01.2026

NAME OF WORK	:	**Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works**
ESTIMATED COST	:	**Rs. 7,83,55,648/-**
		(Civil: Rs. 6,41,14,545/- + Elect.: Rs.54,87,839/- + Horticulture Rs.87,53,264/-).
EARNEST MONEY	:	**Rs. 15,70,000/-**
TIME ALLOWED	:	**06 (Six) Months**
LAST DATE OF SUBMISSION OF BID	:	**02.02.2026 at 5:00PM**
DATE OF OPENING OF TECHNICAL BID	:	**03.02.2026 at 5:30PM**
DATE OF OPENING OF FINANCIAL BID	:	**To be intimated separately**

INDEX

Name of Work: - **Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)**

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Certified that this NIT No. CURAJ/R/F170/2025/2748 Date:12.11.2025 amounting to Rs. 7,83,55,648/- contains 1 – 159 pages and GCC 2023.

Registrar
Central University of Rajasthan

TENDER NOTICE

CENTRAL UNIVERSITY OF RAJASTHAN
NOTICE INVITING E-TENDER

Central University of Rajasthan, NH-8, Bandarsindri, Kishangarh, Ajmer (Raj.) (Tel.No. ……& E-mail ID: registrar@curaj.ac.in) invites **online Percentage Rate Bids from approved and eligible contractors of CPWD, MES, State PWD and Public sector undertaking setup by state/Central Government Contractors in Buildings & Roads category** in appropriate class in two bid system for the following work:

N.I.T. No.: CURAJ/R/F.172/2026/3532 Date: 19.01.2026

Name of Work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Estimated Cost : **Rs. 7,83,55,648/- (Civil: Rs. 6,41,14,544.86+ Elect.: Rs.54,87,839/- + Horticulture Rs.87,53,263.88).**

Earnest Money: Rs.15,70,000/-

Construction Time Allowed: 06 Months

Last date & time of submission of tender: 02.02.2026 at 05:00 PM

Time of opening of technical bid of tender: 03.02.2026 at 05:30 PM

Pre-bid conference shall be held with the intending bidders in the office of in the Office of Registrar, Central University of Rajasthan on 27.01.2026 at 11:00 AM.

The tender from and other details can be obtained from the website https://eprocure.gov.in and www.curaj.ac.in.

Registrar
Central University of Rajasthan

BID DOCUMENT

PART-A

Name of work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

CPWD–6 FOR e-TENDERING

1. Central University of Rajasthan, NH-8, Bandarsindri, Kishangarh, Ajmer (Raj.) (Tel.No. ……& E-mail ID: registrar@curaj.ac.in) invites **online Percentage Rate Bids from approved and eligible contractors of CPWD, MES, State PWD and Public sector undertaking setup by state/Central Government Contractors in Buildings & Roads category** in appropriate class in two bid system for the following work:

   Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

   The enlistment of the contractors should be valid on the last date of submission of bids.

   In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

The work is estimated to cost **Rs. 7,83,55,648/- (Civil: Rs. 6,41,14,544.86+ Elect.: Rs.54,87,839/- + Horticulture Rs.87,53,263.88).**

This estimate, however, is given merely as a rough guide.

1.1.1. The authority competent to approve NIT for the combined cost and belonging to the major discipline will consolidate NITs for calling the bids. He will also nominate Section which will deal with all matters relating to the bids. For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

2. Agreement shall be drawn with the successful bidder on prescribed Form No. CPWD-7 amended up to date which is available as a Govt. of India Publication and sample 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 **06 (Six) 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. The site for the work is available.

5. 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. 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 on website www.cpwd.gov.in.

6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.

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. Earnest Money of **Rs.15,70,000/-** in the form of Insurance Surety Bonds, Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks(drawn in favour **of Central University of Rajasthan)** shall be scanned and uploaded on the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Registrar inviting bids or Executive Engineer office, CURAJ within the period of bid submission.

   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 the successful bidder, whichever is earlier. However, in case of two/ three bid system, earnest money deposit of bidders unsuccessful during technical bid evaluation etc. should be returned within 30 days of declaration of result of technical bid evaluation.

   Copy of Enlistment Order and certificate of work experience and other documents as specified in the notice inviting e- tender shall be scanned and uploaded on the e-Tendering website within the period of bid submission.

   The technical bid submitted shall be opened at 03.02.2026 at 05:30PM**.**

9. 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 copies 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 in 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.

10. 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 the 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 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 subcontractors, if any engaged by the contractor for the said work within the period specified in Schedule F.

11. **The description of the work is as follows:**

    Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

    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 bidders 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 bidders 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.

12. The competent authority on behalf of the Central University of Rajasthan 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.

13. 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 for rejection.

14. The competent authority on behalf of Central University of Rajasthan reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

15. No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative, Central Library 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 prior 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.

16. The **bids** for the **work** shall remain open for acceptance for a period of **90 (ninety) d**ays from the date of opening of bids.
    (i) If any tenderer withdraws his tender or makes any modifications in the terms & conditions of the tender which is not acceptable to the department within 7 days **after last date 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 or makes any modifications in the terms & conditions of the tender which is not acceptable to the department **after** expiry of 7 days **after last date 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) **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.

17. 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: -
    (a) The Notice Inviting bid, all the documents including additional conditions, specifications and drawings, if any, forming 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.
    (b) Standard CPWD Form-7 or other Standard CPWD Form as applicable.

18. **For Composite Bids**

18.1 The cost of bid document and Earnest Money will be fixed with respect to the combined estimated cost put to tender for the composite bid.

18.2 The bid document will include following three components:

Part A.CPWD-6, CPWD-7 including schedule A to F for the major component (Civil) of the work, Standard **General Conditions of Contract 2023 Construction Works** for CPWD as amended/ modified up to last date of submission of bids.
Part B. General/ specific conditions, specifications etc. applicable to major component (Civil) of the work.
Part C. Schedule A to F for the minor component (Electrical), General/ specific conditions, specifications etc. applicable to minor component (Electrical) of the work
Part D. Schedule of quantities applicable to major and minor component of the work.

18.3 The contractor shall have to associate other agency(s) for execution of each of the work(s), which fulfils the eligibility criteria as defined after taking prior approval. The contractor and the associated specialized agencies shall give required affidavit to confirm their association. Tender accepting authority may approve change of sub agency in case it is required during the currency of contract. However the contractor shall also be eligible to carry out himself any or all of these works without associating any specialized agency provided:-

a) He fulfills the prescribed eligibility criteria respectively for these work(s).

OR

b) He directly procures the equipment of approved make from manufacturer and gets it installed from authorized agency / service provider of the manufacturer or specialized agency as per criteria mentioned.

Sl. No.	Specialized work(s) / item of work(s)	Criteria of associated agencies
	Major Component	
i)	Water proofing work	Specialized Contractor should have completed Three specialized works of similar nature, each costing not less than amount equal to 40% of tendered amount of corresponding specialized item(s), or Two specialized works of similar nature each costing not less than amount equal to 60% of tendered amount of corresponding specialized item(s) or One similar work costing not less than amount equal to 80% of tendered amount of corresponding specialized item(s) in last 7 years ending last day of the month previous to the one in which the tenders are invited.
	Minor Component	
i)	Internal & External EI Works,	a) Certificate of registration of in appropriate class of Buildings & Roads category. b) Electrical contractor license **OR** undertaking that they will either obtain valid electrical license at the time of execution of electrical work **OR** associate contractor having valid electrical

		license of appropriate class. Specialized Contractor should have completed Three specialized works of similar nature, each costing not less than amount equal to 40% of tendered amount of corresponding specialized item(s), or Two specialized works of similar nature each costing not less than amount equal to 60% of tendered amount of corresponding specialized item(s) or One similar work costing not less than amount equal to 80% of tendered amount of corresponding specialized item(s) in last 7 years ending last day of the month previous to the one in which the tenders are invited.
ii)	Horticulture & Landscaping work	Experience of having successfully completed works during last seven years ending previous day of last date of submission of application. a) One work of financial value not less than Rs. lacs OR b) Two works each of financial value not less than Rs. lacs OR c) Three works each of financial value not less than Rs. lacs Similar works means Horticulture & Landscaping work

In addition to this the associated agency has to submit an Affidavit as under: -

"I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of CURAJ, then I/we shall be debarred for associated agency in CURAJ in future forever."

In case the main contractor himself meets the required eligibility criteria as laid down by the Department for specialized component of work, he shall be allowed to execute the same after due verification etc., otherwise the bidder must associate himself with agency of the appropriate class and category eligible to bid for specialized components.

18.4 The bidders must associate himself, with agencies as per NIT conditions.

18.5 The eligible bidders shall quote percentage rate for all items of major component as well as for all items of minor components of work.

18.6 After acceptance of the bid by competent authority, the Registrar, CURAJ shall issue letter of award on behalf of the Central university of Rajasthan. After the work is awarded, the main contractor will have to enter into one agreement with CURAJ.

18.7 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.

18.8 Security Deposit will be worked out separately for each component corresponding to the estimated cost of the respective component of works.

18.9 The main contractor has to associate agencies for specialized component (s) conforming to eligibility criteria as defined in the bid document and has to submit detail of such agency(s) to Engineer-in-charge of relevant component (s) within prescribed time. Name of the agency(s) to be associated shall be approved by Central University of Rajasthan.

18.10 In case the main contractor intends to change any of the above agency/ agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge of relevant specialized component(s).

18.11 The new agency/ agencies shall also have to satisfy the laid down eligibility criteria. In case, Engineer–in-charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.

18.12 The main contractor has to enter into MoU with agency(s) associated by him. Copy of such MoU shall be signed by Registrar, CURAJ. In case of change of associate contractor, the main agency(s) has to enter into agreement/MoU with the new contractor associated by him.

18.13 The Composite work shall be treated as complete when all the components of the work are complete. The completion certificate of the composite work shall be recorded by Engineer-in-charge.

19. In case of reduction in scope of work no claim on account of reduction in value of work, loss of expected profit, consequential overheads etc. shall be entertained.

20. **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 /UTR No./ Bank Guarantee of any commercial Bank against EMD.
(iii)	Copy of receipt for deposition of original EMD (as per ***Form-"A"*** enclosed)
(iii)	Enlistment order of the CPWD/PWD/BRO/any Govt./PSUs/CPSUs contractors in appropriate class.
(iv)	GST registration Certificate, if already obtained by the bidder. If the bidder has not obtained GST registration as applicable, then he shall scan and upload following undertaking (as per ***Form-"B"*** enclosed) along with 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 the CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on account of the work executed and/or for any action taken by CPWD or GST department in this regard".
(v)	The bidder should fulfill the criteria of satisfactory execution of works as given below: a) Three similar work of value not less than 40% of the estimated cost put to tender, or b) Two similar works of value not less than 60% of the estimated cost put to tender or c) One similar work of value not less than 80% of the estimated value completed in the last 7 years ending on the last day of the month previous to the one in which the tenders are invited.
(vii)	The bidder should have average annual financial turnover (gross) of 30% of the estimated cost of similar works during the immediate last three consecutive financial years balance sheets, ending 31st March 2025, duly audited by Chartered Accountant. Year in which no turnover is shown would also be considered for working out the average. (Scanned copy of Certificate from CA with Unique Document Identification Number (UDIN) to be attached). The value of annual turnover figures shall be brought to the current value by enhancing the actual turnover figures at simple rate of 7% per annum.
(viii)	Should not have incurred any loss (profit after tax should be positive) in more than two years during the last five years ending 31st March 2025.
(ix)	Should have bidding capacity equal to or more than the estimated cost of the work put to tender. The bidding capacity shall be worked out by the following formula:

	Bidding Capacity = {[AxNx1.5]-B} Where, A = Maximum turnover in construction works executed in any one year during the last seven years taking into account the completed as well as works in progress. The value of completed works shall be brought to current costing level by enhancing at a simple rate of 7% per annum. N = Number of years prescribed for completion of work for which bids have been invited. B = Value of existing commitments and ongoing works to be completed during the period of completion of work for which bids have been invited. (Note: Supporting document to be enclosed to determine the bidding capacity).
(x)	**Solvency Certificate**: The Bidder should have a Solvency equal to or more than 40% of the cost of the proposed work certified by his bankers for this work. Banker's certificates should be on letter head of the Bank, self-attested and should have been issued within Six months from the original last date of submission of the Bid.
(v)	Copy of Electrical license of eligible class of the bidder. In case, bidder doesn't have electrical license, he shall submit an undertaking in format as per ***Form-"C"*** enclosed along with bid documents:
(vi)	Letter of Transmittal in format as per ***Form-"D"*** enclosed along with bid documents:
(vii)	Copy of Pan card.
(viii)	Undertaking on structural stability and soundness of already completed works as per ***Form-"E"***
(ix)	AFFIDAVIT (DULY NOTARIZED) ***Form-"F"***
(x)	Any other document as specified in the NIT.

REGISTRAR
CENTRAL UNIVERSITY OF RAJASTHAN

FORM "A"

Receipt of deposition of original EMD

Receipt No. _____ dated _____

1.	Name of work	:	**Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)**
2.	NIT No.	:	**CURAJ/R/F172/2026/3532 Date :19.01.2026**
3.	Estimated Cost	:	**Rs.7,83,55,648.00**
4.	Amount of Earnest Money Deposit	:	**Rs. 15,70,000/-**
5.	Last date of submission of bid	:	02.02.2026 at 5:00PM

Signature, Name and Designation of EMD
receiving Official
along with Office Stamp

FORM "B"

Undertaking regarding obtaining GST registration Certificate

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 the CURAJ, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on account of the work executed and/or for any action taken by CURAJ or GST department in this regard.

Signature of Bidder(s) or an authorized Officer of the firm with stamp

FORM "C"

UNDERTAKING REGARDING ELECTRICAL LICENSE

To,

The Registrar
Central University of Rajasthan,
Bandarsindri, Kishangarh, Ajmer
(Raj.) 305817

Name of Work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

Sir,
Having examined the details given in tender notice and bid document for the above work, I/we hereby submit the following:

"I / We hereby certify that I / we will either obtain valid electrical license at the time of execution of electrical work or associate Contractor having valid electrical license of eligible class".

Seal of bidder

Date of submission

Signature(s) of Bidder(s)

FORM "D"

LETTER OF TRANSMITTAL

To
The Registrar
Central University of Rajasthan,
Bandarsindri, Kishangarh, Ajmer
(Raj.) 305817

Name of Work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

Sir,

Having examined details given in tender notice and bid document for the above work, I/we hereby submit the bid along with all required information and documents.

I/We hereby certify that all the statements made and information supplied by me/us are true and correct.

I / we have furnished all information and details necessary for bid and have no further pertinent information to supply.

I/We also authorize Registrar, Central University of Rajasthan to approach individuals, employers, firms and corporation to verify our details, if required.

Certificate: It is certified that the information given by me/us in the bid are correct. It is also certified that I/We shall be liable to be debarred, disqualified/ cancellation of enlistment in case any information furnished by me/us is found to be incorrect.

Contact Details of our authorized representative are as under:
Name
Mobile Number:
Email id:
Contact Address:

Name of Bidder : Contact Address : Email Id of Bidder : Mobile Number of Bidder(s)

Signature(s) of Bidder(s)
Seal of bidder

FORM "E"

UNDERTAKING ON STRUCTURAL STABILITY AND SOUNDNESS OF ALREADY COMPLETED WORKS.

I/we undertake and confirm that any development works (composite) constructed by our firm / partnership firm / company has not suffered any failure, making it unfit for intended use, either due to structural design and defects or due to use of sub-standard materials or execution of sub-standard work, poor workmanship or any other reason during the last 25 (twenty five) year.

I/we, further, undertake that if such information comes to the notice of CURAJ, then the Registrar, CURAJ shall be free to terminate the bid / agreement and to forfeit the entire amount of earnest money deposit, performance guarantee and security deposits.

I/we, also undertake that in addition to above, the Registrar, CURAJ shall be free to debar us forever from tendering in CURAJ.

The decision of Registrar or any higher authority shall be final and binding.

Signature of
notary with seal

Signature of bidder or an authorized person of the firm with stamp

Note : Affidavit to be furnished on a Non-Judicial stamp paper or Rs. 200/- (Scanned copy of the notarized affidavit to be uploaded at time of submission of bid)

FORM 'F'

AFFIDAVIT (DULY NOTARIZED)

I/We undertake and confirm that I/ We have not abandoned any work of Union Government/ State Governments/ PSU's etc. during the last 5 years. I/ We have not been blacklisted, debarred, declared non performer or expelled by Union Government/ State Governments/ PSU's etc during the last 3 years upto the last date of receipt of bid. Further it is stated that, if any violation comes to the notice of department, then I/We shall be debarred for biding in CURAJ in future forever. Also, if such a violation comes to the notice of department before or after the date of start of work, the Engineer-In-Charge shall be free to forfeit the entire amount of ~~earnest money deposit/~~performance guarantee. **(Scanned copy of this affidavit to be uploaded at the time of submission of bid).**

……..……

Signed by an Authorized Officer of the firm with stamp

INFORMATION AND INSTRUCTIONS FOR BIDDERS FOR e-TENDERING FORMING PART OF BID DOCUMENT AND TO BE POSTED ON WEBSITE

The Registrar, Central University of Rajasthan (Tel.No. 01463-257507 & E-mail ID: registrar@curaj.ac.in)) on behalf of the Central University of Rajasthan invites online Percentage Rate Bids from approved and eligible contractors of CPWD, MES, State PWD and Public sector undertaking setup by state/Central Government Contractors in Buildings & Roads category in appropriate class in two bid system for the following work:

Sr. No.	NIT No.	Name of work & Location	Estimated Cost put to tender	Earnest Money	Period of Completion	Last date and time of online submission of bid, EMD Declaration, and other documents as specified in the notice/bid document	Time & Date of opening of Bid
1	2	3	4	5	6	7	8
1	**CURAJ/R/F172/2026/3532 Date:19.01.2026**	**Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)**	**Rs. 7,83,55,648/- (Civil: Rs. 6,41,14,544.86+ Elect.: Rs.54,87,839/- + Horticulture Rs.87,53,263.88).**	**Rs. 15,70,000/-**	**06(Six) Months**	02.02.2026 at 05:00 PM	03.02.2026 at 05:30 PM

The contractor submitting the tender should read the schedule of quantities, additional conditions, additional specifications, particular specifications, CPWD- 6 and other terms and conditions given in the NIT and drawings. The bidder should also read the **General Conditions of Contract 2023 Construction Works** for CPWD Works with up to date correction slips, which is available as Government of India Publications; however, provisions included in the tender document shall prevail over the provisions contained in the standard form. The set of drawings and NIT shall be available in the office **Estate Section, Executive Engineer/Project Manager (Central University of Rajasthan).** The contractor should also visit the site of work and acquaint himself with the site conditions before tendering. He should only submit his tender if he considers himself eligible and in possession of all required documents. The following conditions, which already form part of the tender conditions, are specially brought to his notice for compliance while submitting the tender online. They are requested to comply following instructions.

(A) Tenders with any condition including that of conditional rebates shall be rejected forthwith.

(B) The successful bidder shall be required to submit a Performance Guarantee of 5% (Five Percent) of the tendered amount within 7 days of issue of letter of intent. This period can be further extended by Registrar, CURAJ up to a maximum period of 7 days on the written request of the contractor and with late fee as defined in Schedule F.

(C) GST, Labour-Cess, Stamp Duty, etc. as applicable shall be borne by the contractor himself. The contractor shall quote his rates considering all such taxes and hence their quoted rates should be inclusive of all the tax components.

(D) It will be obligatory on part of the Contractor/ Bidder to tender for and sign the tender documents for all the component parts. The department reserves right to accept tender in full or in part without assigning any reasons.

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 bidder posted on website shall form part of bid document.

3. The bid documents consisting of plans, specifications, the schedule of quantities of various types of works to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen in the office **Estate Section** between hours of 10:00 **AM and 06:00 PM from 19.01.2026** every day except on Saturday and Sunday and public holidays or can be seen and downloaded from website https://eprocure.gov.in or www.curaj.ac.in free of cost**.**

Earnest Money Deposit:

The bidder shall be required to submit the Earnest Money Deposit (EMD) for an amount of Rs15,70,000/- by way of demand draft/ Bank Guarantee/ CURAJ Account only.

The demand drafts shall be drawn in favour of "Central University of Rajasthan" payable at Bandarsindri/Kishangarh. The demand drafts for earnest money deposit must be attached containing the technical bid. The EMD of the successful bidder may be a part of Performance Guarantee and for unsuccessful bidder(s), it would be returned (without interest) after award of the contract. Tenders received without EMD shall not be accepted.
Details of University account for deposition of EMD: Name: Central University of Rajasthan
Name of Bank: Bank of India Branch Name: Central University of Rajasthan
Account No. 666110210000003 IFSC: BKID0006667

The bids will be submitted on 02.02.2026 at 05:00 PM. The technical bid shall be opened at 03.02.2026 at 05:30 PM.

4. Those contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered / update their profile beforehand on https://eprocure.gov.in.

5. On opening date, the contractor can login and see the tender opening process. After opening of bid of tenders he will receive the competitor's tender sheets.

6. Contractor must ensure to quote rate in the prescribed column(s) meant for quoting rate in figures appears in colour and the moment rate is entere.

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 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.

7. Certain modifications may be required. Addendum / Corrigendum shall be uploaded by the Engineer-in-Charge, if felt necessary by him, which shall form part of tender document.

8. The bidders are advised to visit the site before submitting his bid to have more clarity about the site conditions and availability of space for execution of the work.

9. **Pre Bid conference shall be held at Central University of Rajasthan at 27.01.2026 at 11:00 AM to clear the doubt of intending bidders, if any.**

Registrar
Central University of Rajasthan

BID DOCUMENT

PART-A
Volume II

Name of work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

CPWD FORM NO. 7
GOVERNMENT OF INDIA
CENTRAL University of Rajasthan

STATE: Rajasthan
Department: Central University of Rajasthan

COMPOSITE PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

Tender for the work of : Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

i) To be submitted/uploaded online by through **website www.eprocure.gov.in or www.curaj.ac.in**.

T E N D E R

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 and 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 respects with the Specifications / Special conditions, Designs, Drawings and instructions in writing as referred to in this tender document and with such materials as are provided for, by and in respects in accordance with, such conditions so far as applicable.

I/we agree to keep the tender open for **90 (Ninety) days** from the due date of its opening 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 as per the bid document.

A copy of earnest money deposit receipt 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 President of India or his successor 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 the work as specified. I/we agree that President of India or his 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 12.2 and 12.3 of the tender form.

Further, I/We agree that in case of forfeiture of 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 contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for tendering in CURAJ in future forever. Also, if such a

violation comes to the notice of Department before date of start of work, the Registrar shall be free to forfeit the entire amount of Earnest Money Deposit/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 therefrom to any person other than a person to whom I/weam/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated:
Witness: -
Address: -
Occupation: -

Signature of Contractor .....
Postal Address: - .....

Telephone No.
Fax:-
E-Mail:-

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..... (Rupees.....

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

i) Signature
ii)
iii)

Dated: - .....

Registrar
For & on behalf of the Central University of Rajasthan.

SCHEDULES (A to F)

SCHEDULE 'A'
Schedule of quantities- As per NIT

SCHEDULE 'B'
Schedule of materials to be issued to the contractor

S.No.	Description of item.	Quantity.	Rate in figures & words at which the material will be charged to the contractor	Place of issue
(1)	(2)	(3)	(4)	(5)
		NIL		

SCHEDULE 'C'
Tools and plants to be hired to the contractor

S.NO.	DESCRIPTION.	HIRE CHARGES PER DAY	PLACE OF ISSUE
	NIL		

SCHEDULE 'D'
Extra schedule for specific requirements/ documents for the work, if any.

1. Special conditions - As per NIT
2. Particular Specifications. - As per NIT
3. Annexures - As per NIT
   Form of performance security (Bank Guarantee Bond), Form of earnest money deposit (Bank Guarantee Bond), guarantee bond for Water Proofing, Sanitary Installations/ Water Supply/ Drainage, for removal of defects in Stone/ tile work, Aluminium Doors, Windows Ventilator Work, Furniture work etc.

SCHEDULE 'E'

Reference to General Conditions of **Construction** Contract : **General Conditions of Contract 2023 Works** for CPWD works amended up to last date of submission of bids.

1.1 Name of Work : **Development of Central Court between Administrative, Central Library and Academic Buildings at Central University of Rajasthan (CURAJ) - Landscaping and other associated works).**

1.2 Estimated Cost of work: -

(i) For Civil component : Rs.6,41,14,545/-
(ii) For Electrical component : Rs. 54,87,839/-
(iii) For Horticulture & landscaping : Rs.87,53,264/-
Total : **Rs. 7,83,55,648/-**

1.3 Earnest Money : **Rs. 15,70,000/- (composite) (To be returned after receiving performance guarantee)**

1.4 Performance Guarantee 05.00% of tendered value

1.5 Security Deposit 2.5% of tendered value.
~~OR~~
~~2.50% of tendered value plus 50% of PG for contracts involving maintenance of the building and services/ other~~

~~work after construction of same building and services / other work~~

SCHEDULE 'F':

General Rules & Directions:-

1.Officer Inviting Tender :**Registrar, Central University of Rajasthan** or his successor thereof

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3	See below under Clause-12

Definitions:-

2(i) Engineer-In-Charge : **Executive Engineer, Central University of Rajasthan** or his successor thereof

2(ii)	Accepting Authority	**The Competent Authority, Central University of Rajasthan**
2(iii)	Percentage on cost of materials and labour to cover all overheads and profits	15%
2(iv)	Standard Schedule of Rates	**DSR-2023 (Civil work), DSR 2022 (Elect. Work)** and DSR 2020 (Horticulture Work).
2(v)	Department	Estate Section, Central University of Rajasthan.
2(vi)	Standard CPWD Contract Form	**GCC 2023 Construction Works** and CPWD Form 7 as amended/ modified up to the last date of submission of bids.

Clause-1 :

(i)	Time allowed for submission of performance guarantee, programme chart (Time and Progress) and applicable labour licences, registration with EPFO, ESIC and BOCW Welfare Board, Provident Fund Nos. or proof of applying thereof from the date of issue of letter of acceptance.	**7**days
(ii)	Maximum allowable extension with late fee @0.1% per day of the performance guarantee amounts beyond the period provided in (i) above	7 days

Clause-2 :

	(i)Authority for fixing compensation under Clause 2	**Registrar, Central University of Rajasthan or his successor thereof.**

Clause-5:

	Number of days from the date of issue of letter of acceptance for reckoning date of start	**15 days**
	Mile Stone	Refer Para (A) Table of Milestones as per NIT.

Time allowed for execution of work **06 (Six) Months**

TABLE OF MILE STONE (S)

Name of work: C/o Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

Note : Mile stones shall be applicable both for Major component (Civil work) as well as for Minor component (Electrical work) of the work, the same shall be submitted by the L-1 bidder separately.

Authority to decide :

i. Authority to convey the decision of shifting of milestone and extension of time	Registrar, Central University of Rajasthan or his successor thereof
ii. Re-scheduling of Mile stones Extension of time for completion of work	Registrar, Central University of Rajasthan or his successor thereof
iii Shifting of date of start in case of delay in handing over of site.	Registrar, Central University of Rajasthan or his successor thereof

Schedule of handing over of site:

Part	Portion of site	Description	Time period for handing over reckoned from date of issue of letter of intent
Part A	Portion without any hindrance	Full site for the work	On the day of issue of letter of commencement of work by the Engineer-in-Charge.
~~Part B~~	~~Portions with encumbrances~~	***	***
~~Part C~~	~~Portions dependent on work of other agencies~~	***	***

*** To be filled by Executive Engineer

Schedule of issue of Designs: -

Part	Portion of design	Description	Time period for issue of design reckoned from date of receipt of tenders
Part A	Portion already in NIT	Soil investigation report	NA
Part B	Portions of Architectural Designs to be issued	All Architectural and Structural drawings	Available

Clause 5.2:-

Nature of hindrance register: Physical
(either Physical or Online)

Clause 5.4 :-

Schedule of rate of recovery for delay in submission of the revised programme in terms of delay per days basis

Sl.No.	Contract Value	Recovery Rs. Per day basis
I.	~~Less than or equal to Rs. 1 crore~~	~~500~~

II.	~~More than Rs. 1 Crore but less than or equal to Rs. 5 Crore~~	~~1000~~
III.	~~More than Rs. 5 Crore but less than or equal to Rs. 20 Crores~~	~~2500~~
IV.	More than Rs. 8.00 Crores	5000

Clause-6 :-Computerized Measurement Book Yes, **Applicable**

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 **Applicable**

Clause-7A:-

Regarding applicability of labour laws Related to Labour licensee, registration of contractor with EPFO, ESIC and BOCW welfare board i/c Provident Fund Yes, **Applicable**

No running account bill shall be paid in the work till the applicable labour licenses, registration with EPFO, ESIC, BOCW welfare board including Provident Fund Code No. if applicable whatever applicable are submitted by the contractor to the Engineer-in-charge.

Clause-7B:- Yes, **Applicable*(Authority letter to be given by contractor as per Annexure-II)***

Clause 8 A :
Authority to decide compensation on account if contractor fails to submit completion plans **Registrar Central University of Rajasthan** or his successor thereof

(i) This shall not apply for maintenance or upgradation contracts not involving any services.
(ii) For other works, the recovery shall be made @ **0.1% (Zero-point one percent) of accepted Tendered Value OR recovery rate limit specified below, whichever is more.:**

Sl.No.	Contract Value	Recovery Rs.
I.	~~Less than or equal to Rs. 1 crore~~	~~2000~~
II.	~~More than Rs. 1 Crore but less than or equal to Rs. 5 Crore~~	~~5000~~
III.	~~More than Rs. 5 Crore but less than or equal to Rs. 20 Crores~~	~~25000~~
IV.	More than Rs. 8 Crores	50000

CLAUSE 10A :

List of testing equipment to be provided by the contractor at site lab.

Civil :-

All necessary equipment for conducting all necessary tests shall be provided at the site in the well furnished site laboratory by the contractor at his own cost with proper light and ventilation. The following minimum laboratory equipments shall be set up at site office laboratory:-

Sl. No.	Equipment	Numbers (Minimum)
1.	Slump cone, steel plate, tamping rod, steel scale, scoop	2

2.	Weighing scale platform type 100 Kg capacity	1
3.	Graduated glass measuring cylinder	As per requirement (Min 6 nos)
4.	Sets of sieves of 450mm internal dia for coarse aggregate [100mm, 80mm, 63mm, 50mm, 40mm;25mm, 20mm; 12.5mm, 10mm;6.3mm, 4.75mm complete with lid and pan]	1
5.	Sets of sieves of 200mm internal dia for fine aggregate [4.75mm; 2.36mm; 1.18mm; 500 microns;425 microns; 300 microns, 150 micron 90 micron;75micron , with lid and pan]	2
6.	Motorized sieve shaker	1
7.	Cube moulds size 150mmx150mmx150mm	As per requirement (Min 24Nos)
8	Cube Compression testing machine ((Digital) (Min 100kg capacity)	1
9.	Hot air oven temp. Range 50°C to 300°C- sensitivity 1 degree	1
10.	Electronic balance 600gx0.1g., 10kg and 50 kg	1 each
11.	Physical balance weight up to 5 kg	1
12.	Measuring jars 100ml, 200ml, 500ml	As required (Min 2 each)
13.	Gauging trowels 100mm & 200mm with wooden handle	As required (Min 4 nos)
14.	Spatula 100mm & 200mm with long blade wooden handle	As required (Min 4 nos)
15.	Vernier calipers 12” & 6” size	1 each
16.	Digital paint thickness meter for steel 500 micron range	1
17.	GI /MS tray 600x450x50mm, 450x300x40mm,300x250x40mm	2 No each
18.	Screw gauge 0.1mm-10mm, least count 0.05	1
19.	Wash Bottles capacity 500 ml	As required
20.	Hacksaw	2
21.	Measuring tape 2 mtr	6
22.	Shovels & Spade	6
23.	Plastic or G.I. Buckets 15 ltr, 10 ltr, 5 ltr	1 each
24.	Wheel Barrow	3
25.	Floor Brushes, hair dusters, scrappers, wire brush, paint brushes, shutter steel plat oil, kerosene with stove etc.	3 each
26.	Any other equipment for site tests as outlined in BIS codes and as directed by the Engineer-in-charge.	As required
27	Computer and Laser Printer	1 Set

Electrical :-

As per Part – C of NIT

Clause-10-B (ii).
Whether clause 10-B (ii) shall be applicable **Not Applicable**

Clause-10C:-
Component of labour expressed as percent of value of work = NA

Clause 10 CA - **Deleted *(as per O.M. No. DG/CON-Construction-2020/2022 dated 22/12/2022)***

Clause-10-CC: **Not Applicable**
A. for Construction period

~~S. NO.~~	~~Relevant component of Material / Labour for price escalation~~	~~Percentage of total value of work~~
~~1.~~	~~Cement component~~	~~2.6%~~
~~2.~~	~~Labour component~~	~~25%~~
~~3.~~	~~Civil component of other construction materials~~	~~46.69%~~
~~4.~~	~~E&M (Electrical & Mechanical) component of construction Materials~~	~~13%~~
~~5.~~	~~POL (Diesel) Component~~	~~Nil~~
~~6.~~	~~Reinforcement Steel bar / TMT bar / structural steels (including strands and cables) component~~	~~5.5%~~
~~7.~~	~~Bitumen component~~	~~Nil~~
	~~Total~~	~~100%~~

~~**B. For maintenance period**~~

~~S. NO.~~	~~Relevant component of Material / Labour for price escalation~~	~~Percentage of total value of work~~
~~1.~~	~~Labour component~~	
~~2.~~	~~Civil Component of other Construction Materials~~	
~~3.~~	~~E&M (Electrical & Mechanical) component of construction Materials~~	
~~4.~~	~~Bitumen component (For Road work component)~~	
	~~Total~~	

Clause-11:- Specifications to be followed for execution of work **:** **C.P.W.D. Specifications 2019** Vol. I & II with correction slips issued upto last date of submission of bids.

Clause-12:- Type of Work**:** **:** **Landscape and Development work**

12.2 & 12.3 : Deviation limit beyond which clause 12.2 & 12.3 shall apply for building work in superstructure. **:** 100%

12.5 (i) Deviation limit beyond which clause 12.2 & 12.3 shall apply for foundation works (except items mentioned in earth work Sub-Head in DSR and related items) **:** 100%

(ii) Deviation limit for items mentioned in Earth work Sub- **:** 100%

head of DSR and related items
`

Clause-16:- Competent Authority for deciding reduced rates. **Registrar, Central University of Rajasthan** or his successor thereof.

Clause 18: - List of mandatory machinery, tools & plants to be deployed by the contractor at site **:** As per NIT and as required for timely execution of work

S.No.	Equipment	Numbers (Minimum)
1.	Fully Automatic Concrete Batching plant	As per Requirement of work
2.	Concrete pump	As per Requirement of work
3.	DG set of minimum capacity 62.5 KVA.	As per Requirement of work
4.	Transit Mixer	As per Requirement of work
5.	Needle Vibrators	2
6.	Plate Vibrator	1
7.	Tower Crane/Monkey Crane	As per Requirement of work
8.	Builder Hoist	As per Requirement of work
9.	JCB, Excavator, Dumper , Tipper	As per Requirement of work
10.	Reinforcement cutting & Bending machines	As per Requirement of work
11.	Reinforcement threading machine for couplers	As per Requirement of work
12.	Total station.	As per Requirement of work
13.	Auto level & staff.	1
14.	Water tanker(Minimum capacity of 5000 litres)	1
15.	Welding machine 400 Amp	2
16.	Screener for coarse sand and fine sand	2
17.	Centrifugal mono block water pump minimum	1
18.	Steel Shuttering with necessary steel props	As per requirement (Minimum 1500Sqm)
19.	Steel scaffolding and staging materials	As per requirement
20.	Plain Concrete/Mortar Mixer	2 Nos.
21.	Semi Automatic Pavement Concrete Paver	As per Actual requirement
22.	Screed Vibrator	As per Actual requirement
23.	Laptop, Printer & Photocopier for billing & project management at Contractors site office.	As per Actual requirement

24.	Any other machinery required for completion of the work as per decision of Engineer-in-charge.	As per Actual requirement

Electrical:-

S.No.	Equipments	Quantity
1.	Earthing Tester	1 no.
2	Insulation Tester (LT / HT)	1 no.
3	Tong Tester	1 no.
4	Multimeter	1 no.
5	Lux Meter	1 no.
6	Vernier Caliper	1 no.
7	Wire Gauge	1 no.
8	Hand Blower / Vacuum Cleaner	1 no.
9	Drill Machine	1 no.
10	Chase Cutting Machine	1 no.
11	Crimping Tool Kit	1 no.
12	Self Supporting Ladder - 4 feet	2 nos.
13	Ladder – 20 feet	1 no.

Clause 19 C:-	Authority to decide penalty for each default	**:**	**Registrar, Central University of Rajasthan** or his successor thereof
Clause 19 D:-	Authority to decide penalty for each default	**:**	**Registrar, Central University of Rajasthan** or his successor thereof
Clause 19 G:-	Authority to decide penalty for each default	**:**	**Registrar, Central University of Rajasthan** or his successor thereof
Clause 19 K:-	Authority to decide penalty for each default (The provisions of this clause, shall not be applicable for works with estimated cost put to tender being less than Rs. 5.00 Crores).	**:**	**Registrar, Central University of Rajasthan** or his successor thereof

Clause 25: Constitution of Dispute Redressal Committee (DRC):

Clause-25: Settlement of Disputes by Conciliation and Arbitration		
(a) Conciliator for conciliation of disputes		Hon'ble Vice Chancellor, Central University of Rajasthan, or Successor thereof.
(b) Arbitrator Appointing Authority		Registrar, Central University of Rajasthan
(c) Place of arbitration:		CURAJ, Campus or as decided by competent authority.

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

Clause 32							
Requirement of technical representative(s) and recovery rate							
Sl. No.	Minimum Qualification of Technical Representative& Discipline	Designation of Technical Staff	Minimum experience (Years)	Number (Civil + E&M)	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause36(i)		Period of Deployment
					Figures	Words	
1.	Graduate Engineer (Civil Engineering)	Project Manager	20 (and having experience of one similar nature of work)	1 no.	Rs. 60,000/- per month	Rs. sixty thousand per month.	Full duration from start of work to final bill payment
2.	Graduate Engineer (Civil)	Deputy Project Manager (Civil)	12 (and having experience of one similar nature of work)	1 no.	Rs. 40,000/- per month per person	Rs. forty thousand per month	From start of work to completion of work
3.	Graduate Engineer or Diploma Engineer(Civil / Electrical / Mechanical Engineering)	Project/Site Engineer	5 or 10 respectively	1+1 nos.	Rs. 25,000/- per month per person	Rs. twenty five thousand per month per person	From start of work to completion of civil or electrical component of work
4.	Graduate Engineer (Civil / Electrical Engineering)	Project Planning/ Quality /Billing Engineer	2 or 5 respectively	1+1 nos.	Rs. 15,000/- per month per person	Rs. Fifteen thousand per month per person	Full duration from start of work to final bill payment

"Assistant Engineer retired from Government Services who are holding Diploma will be treated at par with Graduate Engineer".
Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause-38:-

i)	Schedule / Statement for determining theoretical quantity of cement & bitumen	:	As per **Delhi Schedule of Rates 2023** with amendments upto the last date of submission of
ii)	Variations permissible on theoretical quantities.		
a)	Cement	:	2% plus / minus.
b)	Steel Reinforcement and structural steel sections for each diameter, section and category.	:	2% plus / minus.
c)	Bitumen for all work.	:	2.5% Plus side only and NIL on minus side
d)	All other materials.		Nil.

SCOPE OF WORK(Civil, Electrical and Horticulture & Landscaping works)

The broad scope of development of landscape court at the Central University Rajasthan, Bandersindri, Kishangarh, and Ajmer includes the following:-

1. Construction of Trellis/ Pergola around the central pathway.
2. Development of Open air theatre of 200 capacities.
3. Construction of Pavement, pathways.
4. Landscape lighting
5. Irrigation system for landscape area
6. Storm Water drainage
7. Soft Pathway
8. Horticulture and Landscaping work

The contractor is required to keep strong Quality control and get the work which shall be hidden inspected, measured and photographed by the concerned Engineer/ officer before covering it up.

The contractor shall have to execute the work in such place and conditions where other agencies will also be engaged for other works such as electrical work etc. No claim shall be entertained due to work being executed in the above circumstances. No coordination charges will be paid on this account. The contractor shall deploy his own material, manpower, tools and equipment. The deployed agency or its deployed manpower will not be provided with any residential accommodation at the work place or transportation to or from workplace. No freight charges for transport of materials to Central University of Rajasthan premises or cost of labour will be provided by Central University of Rajasthan. Space for Store room, if required, may be provided to the contractor as per the convenience of Central University of Rajasthan on the discretion of competent Authority. Work shall be executed as per CPWD Specifications 2019 Vol-I and Vol-II.

(On non-judicial stamp paper of minimum Rs. 100)
(Guarantee offered by Bank to CPWD in connection with the execution of contracts)
Form of Bank Guarantee for Earnest Money Deposit / Performance Guarantee/ Security Deposit/Mobilization Advance

1. Whereas the Registrar …………………… Central University of Rajasthan (CURAJ) on behalf of the President of India (hereinafter called "The Government") has invited bids under…………. (NIT number) ………………………………… dated ………. for……………………………. (name of work) …………………………………………………… The CURAJ 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.

   OR**

   Whereas the Registrar ………………. …………… , on behalf of the Central University of Rajasthan 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 CURAJ has further agreed to accept an irrevocable Bank Guarantee for Rs. …………. (Rupees…………. only) valid upto…………. (date) …………. as Performance Guarantee/Security Deposit 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) ………………… (hereinafter referred to as "the Bank"), hereby undertake to pay to the CURAJ an amount not exceeding Rs. ………………… (Rupees ………………… only) on demand by the CURAJ 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 CURAJ any money so demanded notwithstanding any dispute or disputes raised by the contractor in any suit or proceeding pending 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 CURAJ 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 CURAJ or any indulgence by the CURAJ 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 CURAJ 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 CURAJ. 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……..
   Name and address

   Authorized signatory
   Name
   Designation
   Staff Code No.
   Bank Seal

2. Signature……..
   Name and address

*Date to be worked out on the basis of validity period of 90 days where only financial bids are invited and 180 days for two/three bid system from the date of submission of tender.

**In paragraph 1, strike out the portion not applicable. Bank Guarantee will be made either for earnest money or for performance guarantee/security deposit/mobilization advance, as the case may be.

राजस्थान केन्द्रीय विश्वविद्यालय
Central University of Rajasthan
NH-8, Bandarsindri, Kishangarh-305817, Ajmer(Raj.)

BID DOCUMENT

PART-B

Name of work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works)

SPECIAL CONDITIONS (CIVIL)

1.0 **General**

1.1 Except for the items, for which Particular Specifications are given or where it is specifically mentioned otherwise in the description of the items in the schedule of quantities, the work shall generally be carried out in accordance with the "**CPWD specifications 2019 Vol. I & II**" with upto date correction slips, additional / Particular Specifications, Architectural / structural drawings and as per instructions of Engineer-in-Charge.

The several documents forming the tender are to be taken as mutually complementary to one another. Detailed drawings shall be followed in preference to small scale drawings and figured dimensions in preference to scaled dimensions.

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 following order of preference shall be observed:

(i) Description of Schedule of Quantities
(ii) Particular Specifications and Special Conditions, if any.
(iii) Drawings
(iv) CPWD Specifications.
(v) Indian Standard Specifications of B.I.S.
(vi) Manufacturers' specifications & as decided by Engineer-in-charge.

"In the event of any variation/ discrepancy in the drawings, specifications and tender documents etc. the decision of the Engineer-in-charge shall be final binding and conclusive on the contractor and in the case the contractor have any doubt and the same should be got clarified immediately from the Engineer-in-charge and no claim of the contractor shall be entertained thereafter. Moreover, the agency is not allowed to take benefit out of any clerical/ grammatical mistake in the standard clauses/Schedule of Quantities/Specifications etc. being used in the agreement".

The works to be governed by this contract shall cover delivery and transportation upto destination, safe custody at site, insurance, erection, testing and commissioning of the entire works.

The works to be undertaken by the contractor shall interalia include the following:

(i) Obtaining of Statutory permissions where-ever applicable and required.
(ii) Pre-commissioning tests as per relevant standard specifications, code of practice, Acts and Rules wherever required.
(iii) Warranty obligation for the equipments and/or fittings/fixtures supplied by the contractor.

1.2 Any reference made to any Indian Standard Specifications, shall imply to the latest version of that standard, including such revisions / amendments as issued by the Bureau of Indian Standards upto last date of receipt of tenders. The Contractor shall keep at his own cost all such publications including relevant Indian Standard Codes applicable to the work at site.

1.3 Contractor shall submit all the drawings of services such as Internal water supply, drainage etc. to Engineer-in-Charge before starting any work or placing any order for 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.

1.4 The work shall be executed and measured as per metric dimensions given in the Schedule of Quantities, drawings etc. (FPS units wherever indicated are for guidelines only).

1.5 All the hidden items such as water supply lines, drainage pipes, conduits, sewers etc. are to be properly tested before covering.

1.6 Samples including brand / quality of materials and fittings to be used in the work 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.

1.7 Equipments like concrete pumps excavators/Transit mixers etc. shall be allowed to be moved away from the site when, in written opinion of Engineer-in-Charge, the same are no longer required at site of work.

1.8 The contractor, his authorized representative, workmen etc. shall strictly observe orders pertaining to fire precautions prevailing in the area.

1.9 The tenderer shall see the approaches to the site. In case any approach from main road is required at site or existing approach is to be improved and maintained for cartage of materials by the contractor, the same shall be provided, improved and maintained by the contractor at his own cost.

1.10 Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.

1.11 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 damages and accidents caused to work due to negligence on his part. No hindrances shall be caused to traffic, during the execution of the work.

1.12 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, compound wall, services etc. are to be constructed.

1.13 The contractor shall provide at his own cost suitable weighing, surveying and leveling and measuring arrangements as may be necessary at site for checking. All such equipments shall be got calibrated in advance from laboratory, approved by the Engineer-in-Charge. Nothing extra shall be payable on this account.

1.14 Contractor shall provide permanent bench marks, flag tops 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.

1.15 Water tanks, taps, sanitary, water supply and drainage pipes, fittings and accessories should conform to approved manufacturers specifications where CPWD Specifications are not applicable. The contractor should get the materials (fixtures/fittings) tested from approved labs wherever required at his own cost.

1.16 The work 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, nomenclature of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supersede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer-in-Charge for immediate decision before execution of the work. The contractor alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and/ or incomplete information and no claim, whatsoever shall be entertained on this account.

1.17 The contractor should submit the shop drawing of staging and shuttering for approval of Engineer-in-Charge before actually commencing the execution of work under the item. Nothing extra shall be payable on this account.

1.18 Other agencies may also simultaneously execute and install the works and the contractor shall afford necessary facilities for the same. The contractor shall leave such recesses, holes,

openings, trenches etc. as may be required for such related works (for which inserts, sleeves, brackets, conduits, base plates, clamps etc. shall be available as specified elsewhere in the contract) and the contractor shall fix the same at the time of casting of concrete, stone work and brick work, if required, and nothing extra shall be payable on this account.

1.19 All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

1.20 The contractor shall procure the required materials in advance so that there is sufficient time for testing of the materials and approval of the same before use in the work.

1.21 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. In case temporary supporting of such services is required to facilitate the work, the same shall be done by the contractor at no extra cost.

In case the existing services are to be shifted permanently, then before dismantling the existing services, alternate/diversion of service lines has to be laid by the contractor so that there is no interruption in use of existing services. The contractor has to plan the alternate suitable route for diversion/shifting of service lines and get the same approved from the Engineer-in-Charge before starting shifting of services. Nothing extra shall be paid except the payment of dismantling and laying of new service lines as per conditions of contract.

1.22 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 client department. No extra payment shall be made on this account.

1.23 The contractor shall be fully responsible for the safe custody of materials brought by him/ issued to him even though the materials may be under double lock key system.

1.24 For construction works which are likely to generate malba / rubbish, contractor shall dispose of malba, rubbish & other unserviceable materials and wastes at his own cost to the notified specified dumping ground and under no circumstances these shall be stacked / dumped even temporarily, outside the construction premises.

1.25 The rates quoted by the Contractor are deemed to be inclusive of site clearance, setting out work, profile, establishment of reference bench mark(s), taking spot levels, construction of all safety and protection devices, barriers, preparatory works, working during monsoon, working at all depths, height, lead, lift and location etc until / unless specified otherwise and any other incidental works required to complete this work. Nothing extra shall be payable on this account.

1.26 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 it and nothing extra shall be paid except otherwise provided in the items of schedule of quantities.

1.27 Results of sub-surface investigations conducted at site are indicated in extracts of the report attached. This information about the soil and sub-soil water conditions is being made available to the Contractor, in good faith, for guidance only and the Contractor is advised to obtain details directly as may be considered necessary by him before quoting rates in the tender. No claim whatsoever on account of any discrepancy between the sub-surface strata conditions that may be actually encountered at the time of execution of the work and those given in these tender documents, in-accuracy or interpretation thereof shall be entertained from the Contractor under any circumstances. The ground water table is a variable condition and the information given in the report is only indicative and it may vary from time to time.

1.28 Any legal or financial implications resulting out of disposal of earth shall be sole responsibility of the contractor. Nothing extra over the schedule shall be paid on this account.

1.29 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 Collector / MC etc. 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. It is clarified that the extra sewerage charges (one time charges for commencement of work) required to be paid to the Municipal Corporation / other statutory bodies shall be paid by the department and need not be considered by the contractor. The water charges (for municipal water connection as well as tanker water) shall be borne by the contractor. Also, if the contractor obtains water connection for the drinking purposes from the municipal authorities or any other statutory body, the consequent sewerage charges shall be borne by the contractor. All statutory taxes, levies, charges (including water and sewerage charges, charges for temporary service connections and / or any other charges) payable to such authorities for carrying out the work, shall be borne by the Contractor. 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. The fee payable to statutory authorities for obtaining the various permanent service connections and Occupancy Certificate for the building shall be borne by the Department.

1.30 **Royalty** at the prevalent rates shall be paid by the Contractor as per the terms of supply between them on all materials such as boulders, metals, sand and bajri etc. collected by him for the execution of the work, directly to the revenue authority of the state government concerned. Nothing extra shall be payable on this account.

1.31 No foreign exchange shall be made available by the Department for importing (purchase) of equipment, plants, machinery, materials of any kind or any other items required to be carried out during execution of the work. No delay and no claim of any kind shall be entertained from the Contractor, on account of variation in the foreign exchange rate.

1.32 The Contractor shall conduct his work so as not to interfere with or hinder the progress of the work being performed by other Contractors or by the Engineer-in-Charge. As far as possible, he shall arrange his work and place, so as not to interfere with the operations of other Contractors or shall arrange his work with that of the others, in an acceptable and coordinated manner and shall perform it in proper sequence.

1.33 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.

1.34 The Contractor shall make all necessary arrangements for protecting from rains, the work already executed and for carrying out the further work, during monsoon including providing and fixing temporary shelters, protections etc. Nothing extra shall be payable on this account. Also, no claims for hindrance shall be entertained on this account.

1.35 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 not withstanding any other provisions elsewhere in the contract agreement. Also, the Contractor shall make good, at his own cost, the damages caused, if any.

1.36 The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupants of the adjacent properties and to the public in general. The Contractor shall take all care, as not to damage any other adjacent property or other services running adjacent to the plot. If any damage is done, the same shall be made good by the Contractor at his own cost and to the entire satisfaction of the Engineer-in-Charge. The Contractor shall use such methodology and equipment's for execution of the work, so as to cause minimum environmental pollution of any kind during construction, to have minimum construction time and minimum inconvenience to road users and to the occupants of the buildings on the adjacent plot and public in general, etc. He shall make good at his own cost and to the entire 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. Further, the Contractor shall take all precautions to prevent any pollution of streams and waterways. All waste or superfluous materials shall be carted away by the Contractor, entirely to the satisfaction of the Engineer-in-Charge. Utmost care shall be taken to keep the noise level to the barest minimum so that no disturbance as far as possible is caused to the occupants / users of adjoining buildings. No claim whatsoever on account of site constraints mentioned above or any other site constraints not specifically stated here, shall be entertained from the Contractor. Therefore, the Contractors are advised to visit site and get firsthand information of site constraints. Accordingly, they should quote their tenders. Nothing extra shall be payable on this account.

1.37 All ancillary and incidental facilities required for execution of work like labour camp, stores, fabrication yard, offices for Contractor, watch and ward, temporary ramp required to be made for working at the basement level, temporary structure for plants and machineries, water storage tanks, installation and consumption charges of temporary electricity, telephone, water etc. required for execution of the work, liaison and pursuing for obtaining various No Objection Certificates, completion certificates from local bodies etc., protection works, barricading, testing facilities / laboratory at site of work, facilities for all field tests and for taking samples etc. during execution or any other activity which is necessary (for execution of work and as directed by Engineer-in-Charge), shall be deemed to be included in rates quoted by the Contractor, for various items in the schedule of quantities. Nothing extra shall be payable on these accounts. Before start of the work, the Contractor shall submit to the Engineer-in-Charge, a site / construction yard layout, specifying areas for construction, site office, positioning of machinery, material yard, cement and other storage, steel fabrication yard, site laboratory, water tank, etc.

1.38 The Contractor shall display all permissions, licenses, registration certificates, bar charts, other statements etc. under various labour laws and other regulations applicable to the works, at his site office.

1.39 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.

The Contractor shall be allowed to use the facilities if available at site & arranged by the associate-Contractors and other agencies working at site of the work. The Contractor shall be

(i) Allow to use of scaffolding already erected, toilets, sheds etc.
(ii) Properly co-ordinate their work with the work of other Contractors.
(iii) Provide control lines and benchmarks to his associate-Contractors and the other Contractors.
(iv) Provide electricity and water at mutually agreed rates.
(v) Provide hoist and crane facilities for lifting material at mutually agreed rates.
(vi) Co-ordinate with other Contractors for leaving inserts, making chases, alignment of services etc. at site.
(vii) Adjust work schedule and site activities in consultation with the Engineer-in-Charge and other Contractors to suit the overall schedule completion.
(viii) Resolve the disputes with other Contractor amicably and the Engineer-in-Charge shall not be made intermediary or arbitrator. The contractor shall indemnify the Department against any claim(s) arising out of such disputes.

1.40 On completion of work, the contractor shall submit at his own cost four prints of "as built" drawings of the completed work to the Engineer-in-Charge. These drawings shall have the following information.

a) Run off of all piping and their diameters including soil, waste pipes and vertical stacks.
b) Ground and invert level of all drainage pipes together with locations of all manholes and connections, upto out fall.
c) Run off of all water supply lines with diameters, location of control valves, access panels etc.

In case the contractor fails to supply "as built drawing" aforesaid within 30 days of the date of completion, then the recovery @ Rs. 10,000/- for each such set of drawings shall be made from the contractor's final bill.

1.41 The contractor shall have to arrange water of desirable quality for the construction purpose for which he may have to install RO/ Water Softening plant at site or might have to bring/ purchase water from outside as per decision of Engineer-in-charge. Nothing extra shall be paid on this account.

2.0 Unless otherwise specified in the schedule of quantities or CPWD specifications, the rates for respective items shall be all inclusive and apply to the following: -

(i) All labour, material, tools and plants and other inputs involved in the execution of the item.
(ii) Any of the conditions and specifications mentioned in the tender documents.
(iii) Any legal or financial implications resulting out of disposal of earth, if any.
(iv) Payment of Royalty at the prevailing rates, if any, on the boulders, metal, shingle, sand and bajri etc. or any other material collected by him for the work direct to revenue authorities.
(v) Performance test of the entire installation(s) before the work is finally accepted.
(vi) Any cement slurry added over base surface (or) for continuation of concreting for better bond is deemed to have been built in the items.
(vii) All incidental charges for cartage, storage and safe custody of materials brought to site.
(viii) Pumping/ bailing out surface water/rain water/ sub soil water, if necessary for any reason.

3.0 QUALITY ASSURANCE/ TESTING OF MATERIALS

3.1 GENERAL:-

3.1.1 All incidental expenditure on security, construction of cement godown, access roads, **arrangement** of water, electricity etc. to be incurred by the agency for arranging, installing and operation of Batch Mix Plant shall be deemed to have been included in his quoted rates and no claim whatsoever will be tenable on this account.

3.1.2 With each Running Bill, the details of test carried out shall be submitted by the contractor as per Performa **as per NITof Part-B.**

3.1.3 Samples of materials required for testing shall be provided free of charge by the contractor. The tests are to be carried out in the approved laboratories for testing as approved by CURAJ. All expenditure to be incurred for testing of samples e.g.taking samples, packaging, sealing, transportation, loading, unloading etc. including testing charges shall be borne by the contractor.

a) All the test in field lab setup at construction site shall be carried out by the Engineering Staff deployed by the contractor which shall be 100% witnessed. At least 10% of the tests are to be witnessed by the EE in-charge.
b) All the entries in the registers will be made by the designated Engineering staff of the contractor and same should be regularly reviewed by JE/AE/EE division office.
c) Contractor shall be responsible for safe custody of all the test registers.
d) 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 JE/AE(P)/EE & receipts of registers should also be acknowledged by Accounts Officer by signing the copies and register to confirm receipt in office.

e) Extensive testing of the materials used for construction is a pre-requisite for attaining high quality of the work. This shall also require specialized tests, physical, chemical, ultrasonic, x-ray and various other types of tests which cannot possibly be carried out in a site laboratory. These tests also require specialized personnel who regularly deal in such testing. Therefore, the need arises for carrying out the tests in outside laboratories. These laboratories may be in the Govt. sector, Semi Govt. or Private sector.

   However, testing of material in any Govt., Lab / IIT or NIT Lab / Govt. Engineering College may be allowed by Executive Engineer or higher officers provided these labs have all necessary facility to carry out the required tests.

3.1.4 However, if any ultrasonic pulse velocity/load testing or special testing is to be done for concrete whose strength is doubtful, the cost of the same shall be borne by the contractor.

3.1.5 In case there is any discrepancy in frequency of testing as given in list of mandatory tests and that in individual sub-heads of work as per CPWD Specifications higher of the two frequencies of testing shall be followed and nothing extra shall be payable on this account.

3.1.6 Special attention shall be paid towards line and level of internal and external plastering, exposed smooth surface of RCC members by providing fresh shuttering plates, sealing shuttering joints, accurate joinery work in wooden doors and windows, thinnest joints in stone/ tiling / cladding work, non-hollowness in floor and dado tiles work, protection of scratches over flooring by impounding layer of plaster of Paris, water tight pipe linings, absence of hollow vertical joints in brick masonry, proper compaction of filled up earth etc. to achieve an Institution of International standards and up keeping of quality assurance shall be of paramount importance, as such.

3.2 **FIELD LABORATORY:-**

The contractor has to establish field laboratory at site including all necessary equipment's and skilled manpower for the **Field Tests as per NIT of Part-B**at this own cost to have proper quality control.

For performing the above tests, the **Field Testing Equipment's and Instruments as per NIT of Part-B** are to be arranged and maintained by the contractor.

3.2.1 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 & contractor shall be bound to replace / remove such sub-standard / defective work immediately.

3.2.2 The list of Laboratory/ Field equipment referred above are to be arranged and maintained by the contractor at the site of work. In case the equipment required for any test is not available at site, the department shall get the test conducted from the third party. However, in that event, besides providing free materials of sample, the cost of taking of sample, packing, transportation, testing charges etc. shall be borne by the contractor irrespective of the results.

3.2.3 The contractor shall establish field laboratory including additional room (of minimum area of 20 sqm. each) for preserving samples of material till the completion of whole work. Nothing extra shall be paid for establishing field laboratory.

3.3 SAMPLE OF MATERIALS:-

3.3.1 All materials and fittings 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. If a particular brand of material is specified in the item of work in Schedule of Quantity, the same shall be used after getting the same approved from Engineer-in-Charge.

Wherever brand / quality of material is not specified in the item of work, the contractor shall submit the samples as per **List of Preferred Makes as per NIT of Part-B** for approval of Engineer-in-Charge. For all other items, ISI Marked materials and fittings shall be used with the approval of Engineer-in-Charge. Wherever ISI Marked material / fittings are not available, the contractor shall submit samples of materials / fittings manufactured by firms of repute conforming to relevant Specifications or IS codes for the approval of Engineer-in-Charge.

3.3.2 To avoid delay, contractor should submit samples as stated above well in advance so as to give timely orders for procurement. If any material, even though approved by Engineer-in-Charge is found defective or not conforming to specifications shall be replaced / removed by the contractor at his own risk & cost.

3.3.3 BIS marked materials except otherwise specified shall also be subjected to quality test besides testing of other materials as per the specifications described for the item/material. Wherever BIS marked materials are brought to the site of work, the contractor shall, furnish manufacturer's test certificate or test certificate from approved testing laboratory to establish that the material procured by the contractor for incorporation in the work satisfies the provisions of specifications relevant to the material and / or the work done.

BIS marked items (except cement & steel for which separate provisions have been made in para 4.0) required on the work shall be got tested, for only important tests, which govern the quality of the product, as decided by the Engineer-in-Charge. The frequency of such tests (except the mandatory test) shall be 5% of the frequency as specified in BIS. For mandatory test, frequency shall be as specified in the CPWD Specifications.

3.3.4 For certain items, if frequency of tests is neither mentioned in the CPWD Specifications & BIS, then tests shall be carried out as per decision of Engineer-in-Charge.

4.0 CEMENT & STEEL REINFORCEMENT (IF NOT STIPULATED TO BE SUPPLIED BY THE CONTRACTOR).

4.1 Contractor has to produce manufacturers test certificate and challan for each lot of Cement & Steel Reinforcement procured at site.

4.2 CEMENT:-

4.2.1 The contractor shall procure 43 grade ordinary Portland Cement conforming to IS: 8112 / Portland Pozzolona Cement conforming to IS: 1489 (Part-1) as required in the work, from reputed manufacturers of cement as per attached list of preferred makeor from any other reputed cement Manufacturer having a production capacity not less than one million tonnes per annum as approved by the competent authority.

4.2.2 Samples of cement arranged by the contractor shall be taken by the Engineer-in-Charge and got tested in accordance with provisions of relevant BIS Codes. The cement for such testing purpose shall be supplied by the contractor free of charge. In case test results indicate that the cement arranged by the contractor does not conform to the relevant BIS Codes, 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. The cost of tests shall be borne by the contractor in the manner indicated below:

i) By the contractor, if the results show that the cement does not conform to relevant BIS Codes.
ii) By the contractor, if the results show that the cement conforms to relevant BIS Codes.

4.2.3 Cement shall be brought at site as per requirement or as decided by the Engineer-in-Charge.

4.2.4 OPC & PPC bags shall be stored in separate godowns. Separate godowns for tested cement and fresh cement (under testing) to be constructed by the contractor at his own cost as per sketches given in C.P.W.D Specifications having weather-proof roofs and walls. The size of the cement godown is indicated in the sketches for guidance. The actual size of godown shall be as per site requirements and nothing extra shall be paid for the same. Each godown shall be

provided with a single door with two locks. The keys of one lock shall remain with Engineer-in-Charge or his authorized representative of the work and that of other lock with the authorized agent of the contractor at the site of work so that the cement is issued from godown according to the daily requirement with the knowledge of both parties. The account of daily receipt and issue of cement shall be maintained in a register in the prescribed proforma and signed daily by the contractor or his authorized agent and Engineer-in-Charge or his authorized representative in token of its correctness. The day to day receipt and issue accounts of different grade/brand of cement shall be maintained separately in the standard proforma by the contractor or his authorized representative which shall be duly signed by the authorized representative of the Engineer-in-Charge before issue to the work on day to day basis.

4.2.5 The actual issue and consumption of cement on work shall be regulated and proper accounts maintained as provided in 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 the conditions laid therein.

4.2.6 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. In the event of it being discovered that after the completion of the work, the quantity of cement used is less than the quantity ascertained as herein before provided (allowing variation on the minus side as stipulated in **Clause-38**), the cost of quantity of cement not so used shall be recovered from the contractor as specified in schedule. Decision of the Engineer-in-Charge in regard to theoretical quantity of cement which should have been actually used as per the schedule and recovered at the rate specified, shall be final and binding on the contractor.

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.

4.2.7 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.

4.2.8 In case the contractor brings surplus quantity of cement the same shall be removed from the site after completion of work by the contractor at his own cost after approval of the Engineer-in-Charge.

4.2.9 Cement, which is not used within 90 days from its date of manufacture, shall be retested at approved laboratory. Until the results of such tests are found satisfactory, it shall not be used on the work.

4.2.10 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.

4.2.11 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 testing laboratories. The cost of tests shall be borne by the contractor

4.2.12 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 so prescribed shall be made after ensuring structural soundness and stability on the basis of testing. In case of excess consumption no adjustment need to made.

4.2.13 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 3 days of receipt of such notice, the Engineer-In-Charge shall get it removed at the cost of the contractor.

4.2.14 Competent authority may change the brand of Cement depending upon availability in local market but conforming to grade mentioned in the NIT and only with ISI mark, if warranted. The name of manufacturers should be finalized after taking into consideration the availability and cost factor. Conditions for cement proposed to be procured in silos may be approved by the NIT approving authority alongwith mode of storage, measurement, testing and grade requirements.

4.3 STEEL REINFORCEMENT: -

4.3.1 Only ISI marked TMT Bars of various grades shall be procured from steel manufacturer.

1. The Engineer-in- Charge Shall approve the steel manufacturers subject to the guidelines for eligibility criteria and other technical parameters given below.

Credentials for eligibility criteria & other technical parameters for steel manufacturers :

The manufacturer should meet the following eligibility criteria :

a) The steel manufacturer should have following documentary evidence:
   i) Certificate of incorporation.
   ii) Memorandum of articles of Association.
   iii) Credit rating of the company from CARE/CRISIL/ICRA (the grading should not be C/D grade for minimum last 3 years).
b) The Steel manufacturer must have following licenses and certificates :
   i) ISI Certificate for billets (IS 2830 : 2012)
   ii) ISI Certificate for TMT Bars (IS 1786 : 2008 (Amendment -1 November 2012))
c) The Steel manufacturer should also preferably have the following licenses :
   i) ISO 9001 : 2015
   ii) ISO 14001 : 2015
   iii) OHSAS 18001 :2007

d) The steel manufacturer should be using iron ore as the basic raw material. The entire gamut of iron and steel production is owned by the same company or its subsidiary company(ies) and the iron making capacity is sufficiently matching the steel making capacity, adopting any of the refining technologies for manufacturing steel & TMT Bars as given under are eligible :
   i) BF-BOF route
   ii) COREX- BOF Route
   iii) DRI-EAF Route (Each Electric Arc Furnace should be 100 MT or more)
e) Billets produced must be ISI marked (IS 2830:2012)
f) The TMT bars produced must be ISI marked (IS 1786:2008)
g) The steel manufacturer should have the following in house testing facilities (NABL Accredited):
   i) Computerized Universal Testing Machine
   ii) Spectrometer
   iii) Bend Re-bend facility as per IS: 1786:2008 (Amendmnt-1 November 2012).
   iv) Raw material laboratory: Arrangement for testing carbon, Sulphur & Phosphorous etc.
   v) Other testing facilities as specified in IS: 1786:2008 & IS: 2830:2012.

4.3.2 For reinforced cement concrete or pre-stressed concrete works, the reinforcement bars shall consist of the following grade confirming to IS 1786: 2008 (Indian Standard Specification for high strength deformed steel bars and wires for concrete reinforcement): Fe 500D/ Fe 550D.

4.3.3 The contractor shall obtain manufacturer's certificate stating the process of manufacture, chemical composition and test sheet giving result of each mechanical test applicable to the material purchased and submit it to the Engineer-in-Charge. Each test certificate shall indicate the number of the cast to which it applies, corresponding to the number or identification mark to be found on the material.

4.3.4 The Engineer-in-Charge shall get each consignment tested for both chemical composition and physical properties (including bend and re-bend test) as specified in IS: 1786 from NABL accredited laboratory of any Government laboratory.

4.3.5 Only corrosion resistant steel rebars shall be used.

4.3.6 Samples shall also be taken and got tested by the Engineer-in-Charge as per the provisions in this regard in relevant BIS codes. In case the test results indicate that the steel arranged by the contractor does not conform to the specifications the same shall stand rejected, and it shall be removed from the site of work by the contractor at his cost within a week time on written orders from the Engineer-in-Charge to do so.

4.3.7 The steel reinforcement bars shall be brought to the site in bulk supply of 10 tonnes or more, or as decided by the Engineer-in-charge.

4.3.8 The steel reinforcement bars shall be stored by the contractor at site of work in such a way as to prevent their distortion and corrosion, and nothing extra shall be paid on this account. Bars of different sizes and lengths shall be stored separately to facilitate easy counting and checking.

4.3.9 For checking nominal mass, tensile strength, bend test, re-bend test one sample for each, specimens of sufficient length shall be cut from each size of the bar at random, and at frequency not less than that specified below:

Size of bar	**For consignment upto or below 100 tonnes**	**For consignment above 100 tonnes**
Under 10 mm dia bars	One sample for each 25 tonnes or part thereof	One sample for each 40 tonnes or part there of
10 mm to 16 mm dia bars	One sample for each 35 tonnes or part there of	One sample for each 45 tonnes or part there of
Over 16 mm dia bars	One sample for each 45 tonnes or part there of	One sample for each 50 tonnes or part there of

4.3.10 The contractor shall supply free of charge the steel required for testing including its transportation to testing laboratories. The cost of tests shall be borne by the contractor.

4.3.11 The theoretical consumption of steel 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 consumption is less than theoretical consumption including permissible variations recovery at the rate so prescribed shall be made. In case of excess consumption no adjustment need to be made.

4.3.12 The steel brought to site and the steel remaining unused shall not be removed from site without the written permission of the Engineer-in-charge.

Annexure-I

Sl.	**Item**	**Check point**	**Remarks**
1.	Steel Producer having manufacturing facilities at Plant.	a) Factory address and Registration no.	
		b) Certificate of manufacturing process.	
		c) Refining process of steel Producer.	
		c.1 BF-BOF route	
		c.2 Corex- BOF route	
		c.3 DRI – EAF route	
		With documentary evidence either for BOF or EAF	
		d. Steel plant having infrastructure for producing sponge iron, billete and TMT Rebars	
		e. Production and Quality Flow Chart	
		f. Plant Evaluation and Process Verification	
		g. List of Plant & Machinery	
2.	Established	Document verification for: a. Govt. / PSU Approvals 2. Established b. Supply orders of TMT Re-bars in Govt. Projects (Minimum-S years) c. Verification of direct supply orders to any	

		State/Central Govt. Department I d. User Certificate issued by any Govt. Department directly	
3.	Indigenous	Documentary evidence like; a. Certificate of Incorporation b. Memorandum of Articles of Association c. Credit rating of the company from CARE/CRISIL/ICRA should not be C/D grade (minimum last 3 year) a. Test Results from Govt./NABL accredited laboratories b. In-house testing facility for physical/Chemical tests (NABL accredited)	
4.	Reliable	d. Calibration Certificates e. List of Lab Equipments: e.1 Spectrometer e.2 Computerized UTM	
5.	Use of Iron-Ore/Processes Iron are as basic raw materials	Verification of Iron-Ore/ Process iron ore invoices	
6.	In-house rolling facility	Plant verification to identify in-house rolling facilities, production of liquid steel & crude steel	
7.	Licenses&Certificates	a. ISO 9001:2008 Certification b. ISO 14001:2004 Certification c. OHSAS18001:2007 Certification d. IS 1786:2008 (TMT Re-bars) e. IS 2830:1992 (Billets)	
8.	Product Range	TMT Re-bars FE 415/415D/500/500D/550/550D CRS(Corrosion Resistant) & EQR (Earthquake Resistant) TMT Re-bars Size 8 to 36 mm dia	

Note:-

DRI - EAF-> Direct Reduce Iron - Electric ARC Furnace
BF- BOF-> Blast Furnace - Basic Oxygen Furnace
COREX-BOF->COREX Furnace - Basic Oxygen Furnace

4.3.13 The contractor shall submit original vouchers from the manufacturer for the total quantity of steel supplied under each consignment to be incorporated in the work. All consignment received at the work site shall be inspected by the Site staff along with the relevant documents before acceptance. The contractor shall obtain Original Vouchers and Test Certificates and furnish the same to the Engineer-in-Charge in respect of all the lots of steel brought by him from approved supplier to the site of work. The original vouchers and test certificates shall be defaced by the Site staff and kept on record in the site office.

4.3.14 Reinforcement including authorized spacer bars and lapages shall be measured in length of different diameters as actually (not more than as specified in the drawings) used in the work nearest to a centimeter. Wastage and unauthorized overlaps shall not be measured.

4.3.15 The standard sectional weights referred to as in Table 5.4 in para 5.3.4 in CPWD Specifications will be considered for conversion of length of various sizes of M.S. Bars, Steel Bars and T.M.T. bars into Standard Weight.

4.3.16 Records of actual Sectional weights shall also be kept dia-wise and lot-wise. The average sectional weight for each diameter shall be arrived at from samples from each lot of steel

received at site. The decision of the Engineer-in-Charge shall be final for the procedure to be followed for determining the average sectional weight of each lot. Quantity of each diameter of steel received at site of work each day will constitute one single lot for the purpose. The weight of steel by conversion of length of various sizes of bars based on the actual weighted average sectional weight shall be termed as Derived Actual Weight. However, for the stipulated issue of steel reinforcement up to and including 10mm diameter bars, the actual weight of steel issued shall be modified to take into account the variation between the actual and the standard coefficients and the contractors' accounts will be debited by the cost of modified quantity.

4.3.17 (a) If the Derived Weight as in sub-para (4.3.13) above is less than the Standard Weight as in Sub-para (4.3.12) above then the Derived Actual Weight shall be taken for payment provided, it is within the following tolerances specified in IS1786-2008, otherwise whole lot will be rejected.

Tolerances on Nominal Mass

Nominal Size in mm	Tolerance on Nominal mass Percent		
	Batch	Individual sample*	Individual sample for coil**
a) Upto and including 10	±7	-8	±8
b) Over 10 upto and Including 16	±5	-6	±6
c) Over 16	±3	-4	±4

***** For individual sample plus tolerance is not specified.

******For coils batch tolerance is not specified.

(b) If the Derived Actual Weight is found more than the Standard Weight, the Standard Weight as per in sub-para (4.3.13) above shall be taken for payment. In such case nothing extra shall be paid for the difference between the Derived Actual Weight and the Standard Weight.

Note :- (1) Corrosion Resistant Steel reinforcement bars shall be used as per guidelines issued from CSQ vide O.M. No. CSQ/SE(TAS)/Steel/2022/257-H dated 23/06/2022.
(2) Fire Protection measures shall be taken in Steel Structural System as per guidelines issued from CSQ vide O.M. No. 17/SE(TAS)/Steel/BMTPC/2022/475-H dated 24/11/2022.

5.0 SECRECY

5.1 The contractor shall take all steps necessary that all persons employed on any work in connection with the contract have notice that the Indian Official Secrets Act 1923 applies to them & will continue so to apply even after the execution of such works under the contract.

5.2 The contract is confidential and must be strictly confined to the contractor's own use (except so far as confidential disclosure to sub-contractors or suppliers as necessary) and to the purpose of the contract.

5.3 All documents, copies thereof & extracts there from furnished to the contractor shall be returned to the Engineer-in-Charge on the completion of the work / works or the earlier determination of the contract.

6.0 LABOUR AND SECURITY

6.1 Contractor should provide his plan for labour huts as per his requirement and get it approved from the Engineer-in-Charge. The contractor will be provided space for labour huts etc. inside the campus but the space requirement and location, as assessed by Engineer-in-Charge shall be final and binding.

6.2 Contractor has to follow the security requirement of the campus and obtain necessary entry passes for the labour and vehicles and follow security checks at entry / exit gates, restriction on

movement of vehicle, restricted timings of working etc. The Department however shall assist the contractor in obtaining such passes for movement of vehicles and labour.No claim whatsoever shall be entertained on account of delay in entry of vehicles and labour including restrictions in working hours, if there is any.

6.3 The contractor shall employ only Indian Nationals after verifying their antecedents and loyalty. The contractor shall, on demand submit list of his agents, employees and work people concerned & shall satisfy as to the bonafides of such people.

6.4 The contractor & his work people shall observe all relevant rules regarding security promulgated in which work is to be carried out by the Controlling Administrative, Central Library Authority of the campus/area (hereinafter referred to as “Administrator”).

6.5 The contractor, his representative, workman shall be allowed to enter through specified gates & timing as laid down by the controlling authority. They shall be issued an identity card or an individual pass in accordance with the standing rules & regulations & they should possess the same while working. The contractor shall be responsible for the conduct & actions of his workmen, agents / representatives.

6.6 Normally contractor shall be allowed to carryout work between 7 AM to 6 PM. However, he may also be allowed to carry out the work beyond 6 PM & upto 7 AM if the site conditions / circumstances so demand with prior written permission from the “Administrator”. However, if the work is carried out in more than one shift or at night, no claim on this account shall be entertained.

6.7 Normally contractor’s material / vehicles etc. shall be allowed to move in / go-out between 7 AM to 7 PM only & no movement of material / vehicles out of site of work shall be allowed during night hours unless specific permission is obtained from the “Administrator”.

6.8 In case if a separate entry has been allowed, the contractor has to make all arrangement for making a separate entry gate and barricading of the working area to segregate/separate the same from other areas. All these have to be done by the contractor at his own cost including safeguarding any untoward incident in the restricted area due to separate entry gate and barricading arranged by the contractor. No extra amount on this account shall be payable by the department.

7.0 TRANSPORTATION AND OFFICE INFRASTRUCTURE:

7.1 In order to complete the work within the scheduled time if the contractor shall be required to do the work in more than one shift.

7.2 The contractor shall make arrangement for Helmets and leather shoes (meant of construction work at sites) for all field staff of the department during the entire period of construction for safety reasons. One helmet and two pairs of shoes per staff member (maximum ten members) of the departments per year shall be arranged by the contractor.

7.3 The contractor shall establish fully furnished site office having two rooms of 15 sqm. area each for field staff with toilet facility. The electricity and water charges shall be paid by the agency.

8.0 DOCUMENTATION

The Contractor shall render all help and assistance in documenting the total sequences of this project by way of photography, slides, audio / video recording & other records etc. Nothing extra shall be payable to Contractor on this account. However, cost of photographs, slides, audio / video graph etc. shall be borne by the Department. The original films shall be the property of the Department. No copy shall be prepared without the prior approval of the Engineer- in – Charge.

9.0 PROGRAM CHART: -

9.1 The Contractor shall submit a Programme Chart (Time and Progress) for each along with performance guarantee and get it approved from the department. The chart shall be prepared in direct relation to the time stated in the contract documents for completion of the items of the work. 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 time allowed for any work exceeds one month (save for special jobs for which a separate program has been agreed upon) complete the work as per milestones given in Schedule 'F'.

9.2 The work has to be completed in stages as indicated in the **Table of Milestones under Schedule 'F' as per NIT of Part-B** and the program should be prepared in such a manner to achieve these Milestones as indicated therein or earlier.

9.3 The program chart should include the following: -

a) Descriptive note explaining sequence of various activities.
b) Network (PERT / CPM / BAR CHART) prepared on MS project which will indicate resources in financial terms, manpower and specialized equipments for every important stage.
c) Program for procurement of materials by the contractor.
d) Program of procurement of machinery / equipments having adequate capacity, commensurate with the quantum of work to be done within the stipulated period, by the contractor.

9.4 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.

9.5 The submission of revised program or 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.

Notwithstanding the fact that the contractor will have to pay to the labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour regulations and the agreement entered upon and/or extra amounts for any other reason

10.0 PROGRESS AND MONITORING OF WORK:

10.1 Apart from the above integrated program chart, the contractor shall be required to submit monthly progress report of the work in a computerized form. The progress report shall contain the following, apart from whatever else may be required as specified:

(i) Construction schedule of the various components of the work through a bar chart for the next three quarters (or as may be specified), showing the milestones, targeted tasks and up to date progress.
(ii) Progress chart of the various components of the work that are planned and achieved, for the month as well as cumulative up to the month, with reason for deviations, if any in a tabular format.
(iii) Plant and machinery statement, indicating those deployed in the work.
(iv) Man-power statement, indicating individually the names of all the staff deployed on the work, along with their designations.
(v) Financial statement, indicating the broad details of all the running account payment received up to date, such as gross value of work done, advances taken, recoveries effected, amount withheld, net payments details of cheque payment received etc.

10.2 For completing the work in time, the Contractor might be required to work in two or more shifts (including night shifts). No claim whatsoever shall be entertained on this account, not with-standing the fact that the Contractor may have to pay extra amounts for any reason, to the

labourers and other staff engaged directly or indirectly on the work according to the provisions of the labour and other statutory bodies regulations and the agreement entered upon by the Contractor with them.

10.3 The work should be planned in a systematic manner so that chase cuttings in the walls, ceilings and floors is minimized. Wherever absolutely essential, the chase shall be cut using chase cutting machines. Chases will not be allowed to be cut using hammer / chisel. The electrical boxes should be fixed in walls simultaneously while raising the brick work. The contractor shall ensure proper co-ordination of various disciplines viz. building works, sanitary & water supply & electrical installations etc.

10.4 The contractor shall conduct his 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 Engineer-in-charge.

10.5 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 may 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 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 work shop for this work, shall be exclusively intended for use in the construction of this work and they shall not be shifted / removed from site without the permission of the Engineer-in-Charge.

10.6 All material shall only be brought at site as per program finalized with the Engineer-in-Charge. Any pre-delivery of the material not required for immediate consumption shall not be accepted and thus not paid for.

11.0 ENGAGING SPECIALISED AGENCIES FOR WORKS: -

11.1 The Contractor shall engage specialized agencies having adequate technical capability and experience of having executed at least one work of similar items of 120% or more magnitude or two works of similar items of value minimum 80% individually for executing the following items of the work and/or any other items of work where specialized firm is required to be engaged as per contract conditions. For determining the required magnitude, the value of the work executed may be suitably enhanced with the prevailing approved cost index.

(i) Water proofing treatment work of all types.

11.2 The Specialized agency for the work shall be got approved from the Engineer-in-Charge well before actual commencement of the item of work. The contractor shall submit the list of specialized agencies except for Internal Electrical Installation, proposed to be engaged by him along with necessary performance certificates, within 30 days from the date of issue of acceptance letter to substantiate technical capability and experience of the agency for prior approval of the Engineer-in-Charge.

11.3 For Internal Electrical Installation work as contained in the Electrical component work, the Electrical Agency to be engaged as an associate electrical contractor for the Internal E.I/External E.I work should be enlisted contractor of any Govt./PSUs in appropriate class as per the value of the work. The firm will be required to submit the credentials of the associate electrical contractor including their registration documents, electrical contractor license, GST documents apart from submission of the MOU. However, contractor shall submit MOU to Executive Engineer in-charge, signed with eligible Electrical Contractor/Agency along with consent letter of Electrical

Agency **within 30 days from the date of start.** It will be obligatory on the part of main contractor to sign the tender documents for all the components.

11.4 If the main contractor fails to associate agency/agencies for execution of minor components of work within prescribed time or furnishes incomplete details or furnishes details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of works shall be withdrawn from the tender and the same shall be got executed by the Engineer-in-Charge at the risk and cost of the main contractor.

11.5 Same milestones shall be applicable for all components of work.

12.0 DEFECT LIABILITY:

12.1 The contractor's liability during the defect liability period from the final date of completion as per **Clause 17** shall be limited to rectification of defects including replacement as follows which in the opinion of Engineer-in-Charge are not manmade.

Sl. No.	Description	Defect Liability
(i)	Concrete/ RCC	(a) Rectification of structural / superficial / non-structural cracks. (b) Rectification of dampness / seepage in roof slab / junctions & sunken portion. (c) Rectification of cracks in beam, shade, column.
(ii)	Masonary/Brick work/ Concrete Block Masonry	(a) Rectification of cracks in panel wall / portion. (b) Cracks / settlement of dwarf walls. (c) Rectification of efflorescence/ leaching.
(iii)	Joinery	(a) Replacement of warped joinery. (b) Cracks in panels, rails / styles etc.
(iv)	Builders Hardware	(a) Repairs / Replacement of loosened / pre-mature failure of fittings. (b) Tightening / Replacement of sag in mosquito proofing.
(v)	Steel & Iron work	(a) Rectification / Replacement of defective part of rolling shutter. (b) Redoing of defective portion in fabrication / welding including painting. (c) Steel windows, grills, gates etc. – defects to be rectified.
(vi)	Roof treatment	(a) Rectification of leakage / seepage of roof slab including covering at junction till guarantee period.
(vii)	Plastering	(a) Rectification of structural / superficial cracks if any. (b) Rectification of protruding / peeling off plaster if any. (c) Rectification of efflorescence
(viii)	Flooring	(a) Rectification of sinking portion of plinth protection including saucer drain. (b) Settlement of foundation & floors, hollow sounding, cracks in tiles/stones.
(ix)	Plumbing / Sanitary fittings	(a) Making good of leakage through soil / waste pipe joints. (b) Replacement of looking mirror if found wavy. (c) Rectification of leakage of overhead tanks. (d) Leakage / seepage of sunken floor, blockage of taps / pipes, non-functioning of cistern.
(x)	Finishing	(a) Making good of defective / dissimilar patches of painting to match with remaining surfaces, peeling of paint.
(xi)	Water supply/irrigation system	(a) Repairs / Replacement of defective taps / fittings. (b) Repair to leakage of water pipe lines including joints. (c) Removal of blockage of pipe lines.
(xii)	Roads	(a) Repair of sinked portion of road & potholes, if any
(xiii)	Sewage/ Drainage	(a) Rectification of slope / system if found defective during

Sl. No.	Description	Defect Liability
	work	use. (b) Rectification of major blockage in Sewer lines. (c) Cracks & settlement of sewage lines.
(xiv)	Drains	(a) Repair to Drains. (b) Settlement of Drains
(xv)	External Water Supply	(a) Repairs to installations & fittings.
(xvi)	Roads	(a) Repair of sinking portion of road & potholes, if any.
(xvii)	General	(b) All manufacturing defects of structures / fixtures / fittings / equipments other than listed above including any defects of shrinkage or other faults that appear in the work within twelve months after a certificate of its completion is given by the Engineer-in-Charge shall be rectified by the contractor.

13.0 SAFETY MEASURES

13.1 Contractor shall take all precautionary measures to avoid any damage to adjoining property. All necessary arrangement shall be made at his own cost.

13.2 Warning / Caution Boards

All temporary warning / caution boards / glow signage display such as “Construction Work in Progress”, “Keep Away”, “No Parking”, Diversions & protective Barricades etc. shall be provided and displayed during day time by the Contractor, wherever required and as directed by the Engineer-in-Charge. These glow signage and red lights shall be suitably illuminated during night also. The Contractor shall be solely responsible for damage and accident caused, if any, due to negligence on his part. Also, he shall ensure that no hindrance, as far as possible, is caused to general traffic during execution of the work. This signage shall be dismantled & taken away by the Contractor after the completion of work, only after approval of the Engineer – in – Charge. Nothing extra shall be payable on this account.

13.3 Sign Boards

The Contractor shall provide and erect a display board of size and shape as required and paint over it, in a legible and workman like manner, the details about the salient features of the project, as required by the Engineer-in-Charge. The Contractor shall fabricate and put up a sign board in an approved location and to an approved design indicating name of the project, client / owner, architects, structural consultants, Department etc. besides providing space for names of other Contractors, Associate contractors and specialized agencies. Nothing extra shall be payable on this account.

13.3.1 Necessary protective and safety equipments shall be provided to the Site Engineer, Supervisory staff, labour and technical staff of the contractor by the Contractor at his own cost and used at site.

13.3.2 No inflammable materials including P.O.L shall be allowed to be stored in huge quantity at site. Only limited quantity of P.O.L may be allowed to be stored at site subject to the compliance of all rules / instructions issued by the relevant authorities and as per the direction of Engineer -in-Charge in this regard. Also all precautions and safety measures shall be taken by the Contractor for safe handling of the P.O.L products stored at site. All consequences on account of unsafe handling of P.O.L shall be borne by the Contractor.

14.0 Special condition for Hardware and Sanitary Wares:

14.1 Engineer-in-Charge will take a decision regarding model numbers of equivalent Door/window hardware, sanitary ware & Water Supply accessories at the time of execution, in case the

material, from the manufacturer whose model number is mentioned, is not available. However, in case, the equivalent model so approved, is cheaper than the model already mentioned in item/approved makes list, the price adjustment will be made based on the difference in market rate. In case, the rate of subsequently approved model is more, no extra payment will be made on this account.

15.0 Ultrasonic Pulse Velocity Method of Test for RCC

15.1 The underlying principle of assessing the quality of concrete is that comparatively higher velocities are obtained when the quality of concrete in terms of density, homogeneity and uniformly is good. The consistency of the concrete as regards its general quality gets established. In case of poorer quality lower velocities are obtained. If there are cracks, voids or flaws inside the concrete which come in the way of transmission of pulse, lower velocities are obtained.

15.2 The quality of concrete in terms of uniformity, incidence or absence of internal flaws, cracks and segregation etc. indicative of the level of workmanship employed, can thus be assessed using the guidance given in table below, which have been evolved for characterizing the quality concrete in structure in term of the ultrasonic pulse velocity.

Velocity criterion for Concrete Quality Grading.

Sl. No.	Pulse velocity by Cross Probing (km/sec)	Concrete Quality Grading
1.	Above 4.5 Excellent	Excellent
2.	4.5 to 3.5 Good	Good
3.	3.5 to 3.0 Medium	Medium
4.	Below 3.0 Doubtful	Doubtful

Note : In Case of "doubtful" quality it may be necessary to carry further tests.

15.3 Pulse velocity method of test of concrete is to be conducted for CPWD works as a routine test. The acceptance criteria as per the above table will be applicable which is as per IS 13311 (part-1): 1992. From the above "Good" and "Excellent" grading are acceptable and below these grading the concrete will not be acceptable.

15.4 5% of the total number of RCC members in each category i.e. beam, column, slab and footing may be tested by UPV test method for establishing quality of concrete. It is suggested that test be conducted on RCC beam near joint with column, on RCC column near joint with beam, on RCC footings and rafts. On RCC rafts a suitable grid can be worked out for determining number of tests. In addition, doubtful areas such as honeycombed locations, locations, where continuous seepage is observed, construction joints and visible loose pockets will also be tested.

15.5 The test results are to be examined in view of the above acceptance criteria "Good" and "Excellent" and wherever concrete is found with less than required quality as per acceptance criteria, repairs to concrete will be made. Honeycombed areas and loose pockets will be repaired by grouting using Portland Cement Mortar/Polymer Modifies Cement Mortar /Epoxy Mortar, etc. after chipping loose concrete in appropriate manner. In areas where concrete is found below acceptance criteria and defects are not apparently visible on surface, injecting approved grout in appropriate proportion using epoxy grout /acrylic Polymer modified cements slurry made with shrinkage compensating cement / plain cement slurry etc will be resorted to for repairs.(refer relevant chapters from CPWD Hand Book on Repairs and Rehabilitation of RCC Buildings).Repair to concrete will be done till satisfactory results are obtained as per the acceptance criteria by retesting of the repaired area. If satisfactory results are not obtained dismantling and relaying of concrete will be done.

PARTICULAR SPECIFICATIONS (CIVIL)

1.0 EARTH WORK: -

1.1 Earth work shall be executed as per **CPWD specifications 2019Volume-I,** with upto date correction slips. In addition to that following specifications shall also be followed:

1.2 EARTH WORK FOR MAJOR WORKS

1.2.1 Excavation shall be undertaken to the width of the Basement/Retaining wall footing including necessary margins for construction operation as per drawing or directed otherwise. Where the nature of soil or the depth of the trench and season of the year, do not permit vertical sides, the contractor at his own expense shall put up the necessary shoring, strutting and planking or cut slopes with or without steps, to a safer angle or both with due regard to the safety of personnel and works and to the satisfaction of the Engineer. Measurement of plan area of excavation for payment shall be permitted only.

1.2.2 All the major excavation shall be carried out by mechanical excavator. No extra paymentshall be made for that.

1.2.3 The contractor shall make at his own cost all necessary arrangements for maintaining water level, in the area where works are under execution low enough so as not to cause any harm to the work shall be considered as inclusive of pumping out or bailing out water, if required, for which no extra payment shall be made. This will include water coming from any source, such as rains, accumulated rain water, floods, leakages from sewer and water mains subsoil water table being high or due to any other cause whatsoever. The contractor shall make necessary provision of pumping, dredging bailing out water coming from all above sources and excavation and other works shall be kept free of water by providing suitable system approved by the Engineer-in-charge. In order to avoid possibility of basement floor of main building being getting uplifted/damaged due to water pressure, the contractor shall lower the ground water table below the proposed foundation level by boring tube wells all around the proposed building using well point sinking method or any suitable method as approved by Engineer-in-charge. Sub soil water table shall be maintained at least 50 cm. below the P.C.C. level during laying of P.C.C. water proofing treatment, laying of basement raft and beams including filling of earth/sand under the basement floor. The water table shall not be allowed to rise above base of raft level until completion of outer retaining walls including water proofing of vertical surface of walls and back filling along the walls upto ground level and until the structure attains such height to counter balance the uplift pressure. However, the contractor should inspect the site and make his own assessment about sub-soil water level likely to be encountered at the time of execution and quote his rates accordingly. Rate of all items are inclusive of pumping out or bailing out water, if required. Nothing extra on this account whatsoever shall be paid to him. The sequence of construction shall be got approved by the Engineer-in-charge.

1.2.4 The contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades including signs, markings, flags, lights and flagman, as necessary at either end of the excavation/embankment and at such intermediate points as directed by the Engineer-in-charge for the proper identification of construction area. He shall be responsible for all damages and accidents caused due to negligence on his part.

1.2.5 The contractor shall provide suitable barricading with suitably painted single row of G.I. Sheets about 3'- 0" wide (90 cms) and 3.0 metre high nailed or bolted with wooden poles spaced 2 to 3 metre apart and each pole 1.6 m to 2 m long 8 cm. to 10 cm. dia. The poles will be embedded in mobile iron pedestal rings suitably framed for giving stable support as per direction of the Engineer-in-charge. All management (including watch and ward) of barricades shall be the full responsibility of the contractor. The barricades shall be removed only after completion of the work or part of the work. The contractor's rate shall include all above items of work and nothing extra shall be paid to the contractor over and above his quoted rates.

2.0 R.C.C. WORK: -

The contractor shall use Ready Mix Concrete (RMC)**OR** Site Batched Design Mix Cement Concrete.

2.1 **General Requirement of READY MIX CONCRETE (RMC) :-**

(a) The contractor shall has to use **Ready Mix Concrete (RMC**) as per IS: 4926. The contractor shall ensure that transit mixtures shall transport the concrete to site. All the precautions shall be taken during the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the Mix Design. Contractor has to get the approval from Engineer-In-Charge regarding source of RMC by giving the details of such plants indicating name of owner / company, its location, technical establishment, past experience and text of Memorandum of Understanding (proposed to be entered between purchaser and supplier). The Engineer-in-Charge, after satisfying himself about quality / capability of the company shall give approval in writing (subject to drawing of MOU). The MOU shall be drawn with RMC plant owner / company and submitted to Engineer-in-Charge within a week of such approval. The contractor will not be allowed to purchase RMC without completion of above formalities for use in the project. Notwithstanding the approval granted by Engineer-in-Charge in aforesaid manner, the contractor shall be fully responsible for quality of concrete including input control, production, transportation and placement etc. The Engineer-in-Charge will reserve the right to deploy his supervisor at plant site to inspect at any such stage and reject the material / concrete etc. if he is not satisfied about quality of material / product.

(b) All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.

(c) Only single sized good quality stone aggregate shall be brought to site of work from the approved source. The grading of the stone aggregate shall be controlled by blending the aggregate of different sizes in the required proportions at site of work
The aggregate of different sizes shall be stock-piled separately, preferably a day before use.
The grading of coarse and fine aggregates shall be checked as frequently as possible and as directed by the Engineer-In-Charge to ensure that the specified grading and quality of aggregate is maintained.

(d) It is important to maintain the Water Cement Ratio constant at its specified or approved value by making adjustment for the moisture contents of both fine and coarse aggregates.
The moisture contents in the aggregate shall be determined as frequently as possible in keeping with the weather conditions and as per the provisions of IS: 2386 (Part-III).

(e) All other operations in concreting work like mixing, slump, laying, placing of concrete, compaction, curing etc. not mentioned in this particular specifications for Ready Mix of Concrete shall be as per CPWD Specifications.

2.2 **DESIGN MIX OF CONCRETE.**

2.2.1 The RCC work shall be done with Design Mix Concrete. Wherever letter M has been indicated, the same shall imply for the Design Mix Concrete. The Design Mix Concrete will be designated based on the principles given in IS: 456, 10262 & SP 23. The Conditions & Specifications stated herein shall have precedence over all conditions & specifications stated in relevant I.S. Codes/C.P.W.D. Specifications. The concrete mix shall be designed for the specified target mean compressive strength in order to ensure that work test result do not fall below the acceptance criteria specified for the concrete mix. The Contractor shall design mixes for each class of concrete indicating that the concrete ingredients and proportions will result in concrete mix meeting the requirements specified.

(a) The contractor has to submit design mix without use of admixtures.

(b) Admixture may be added (by maintaining the minimum cement content as given under para-2.1.3) in case of specific technical requirement so as to meet the workability / slump requirement or for any other reason but nothing extra is to be paid to contractor on account of adding admixtures.

2.2.2 The sources of coarse aggregate, fine aggregate, water, admixture & cement to be used in concrete work shall be identified by the contractor & he will satisfy himself regarding their conforming to the relevant specifications & their availability before getting the same approved from the Engineer-In-Charge.

(a) **Coarse Aggregate:-** As per CPWD Specifications

(b) **Fine Aggregate:-** As per CPWD Specifications

(c) **Water:-** It shall conform to requirements laid down in IS:456-2000 / Para 3.1.1 of CPWD Specifications. If on testing, water from the source is not found fit for construction, the necessary arrangement for treatment of water shall have to be made by the contractor at the site and nothing extra shall be payable for the same.

(d) **Cement:-** Portland Pozzolona Cement (Fly ash based), required in the work from reputed manufacturers of cement as per the approved make in 50 kg bags bearing manufacturer's name and ISI marking, along with manufacturers test certificate for each lot. Portland Pozzolona Cement is to be used for RCC works only subject to fulfillment of conditions of circular No. CDO/SE(RR)/ Fly ash (MAN) 02 dated 09.04.09 shall be used for Design Mix Concrete and shall conform to IS: 1489-Part-I. However, if the contractor uses higher grade of cement nothing extra shall be paid.

(e) **Admixture/ Plasticizer:-** The admixture shall conform to IS: 9103. Whenever required, the admixture of approved quality & approved make only shall be used to attain the required workability. Nothing extra on account of use of Admixture / Plasticizer shall be payable.

2.2.3 Water Cement Ratio and Slump :-

2.2.3.1 In proportioning a particular mix, the manufacturer/producer/contractor shall give due consideration to the moisture content in the aggregates, and the mix shall be so designed as to restrict the maximum free water cement ratio to less the 0.5.

2.2.3.2 Due consideration shall be given to the workability of the concrete thus produced. Slump shall be controlled on the basis of placement in different situations. For normal methods of placing concrete, maximum slump shall be restricted to 100mm when measured in accordance with IS:1199.

2.2.3.3 The minimum cement content, maximum free water-cement ratio and minimum grade of concrete are individually related to exposure as per Table 5 of IS: 456, 2000 and as per **CPWDSpecifications 2019 (Vol-I)** with upto date correction slips.

Grade of Concrete: - The compressive strength of various grades of concrete with various parameters shall be as follows: -

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 CONTENT (Kg. Per Cub. Mtr.)	MAXIMUM WATER CEMENT RATIO	SLUMP (mm)
(i) M-20	As per Design	20	360	0.50	25-75
(ii) M-25	As per Design	25	380	0.50	25-75
(iii) M-30	As per Design	30	400	0.45	25-75
(iv) M-35	As per Design	35	420	0.45	25-75

NOTE:-

(i) In the designation of a Concrete mix letter M refers to the mix and the number of the specified characteristic compressive strength of 15 cm - Cube at 28 days expressed in N/mm^2.

(ii) It is specifically highlighted that in addition to the above requirements, the maximum cement content for any grade shall be limited to 530 kg. / cubicmetre.

2.2.4 Characteristic Compressive Strength compliance Requirement

Specified Grade	Mean of the Group of 4 Non-overlapping consecutive test results in N/mm2 (Min)	Individual Test Results in N/mm2 (Min)
(1)	(2)	(3)
M15 Or Above	≥F_{ck} + 0.825 x established standard deviation (rounded off to nearest 0.5 N/mm^2) Or F_{ck} +3N/mm^2, whichever is greater where f_{ck} is characteristic compressive strength of CC cube at 28 days.	≥F_{ck} – 3 N/mm^2
Note : (i) In the absence of established value of standard deviation, the values given in Table as mentioned below may be assumed, and attempt should be made to obtain results of 30 samples as early as possible to establish the value of standard deviation. (ii) For concrete of quantity up to 30 m3 (where the number of samples to be taken is less than four as per frequency of sampling given in para 2.4, the mean of test results of all such samples shall be f_{ck} + 4 N/mm^2, minimum and requirement of minimum individual test result shall be f_{ck} - 2 N/mm^2, minimum. However, when the number of samples is only on as per para 2.4, the requirement shall be f_{ck}+ 4 N/mm^2, minimum		

2.2.5 The Contractor shall engage one of the following approved laboratories / test house for designing the concrete mix in accordance with relevant IS Code and to conduct laboratory tests to ensure the target strength & workability criteria for a given grade of concrete: -

(i) Site laboratory of approved RMC plant or own fully automatic batch mix plant approved by Engineer-in-charge.
(ii) IITs, NITs or any Govt. Engineering College.
(iii) National Council for Cement & Building Materials, Ballabhgarh.
(iv) CRRI, Delhi.
(v) In the event of all the above laboratories being unable to carry out the requisite design/testing; the Contractor shall have to get the same done from any other reputed laboratory with prior approval of the Engineer-in-Charge.

Note:- Admixture / Plasticizer to be used in concrete should be PCE (Poly Carboxyl Ether) based.

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

In the event if all the **above** laboratories are unable to carry out the requisite design / testing, the contractor may have it done from any other laboratory with prior approval of the **SDG-Chandigarh**.

2.2.6 The contractor shall submit the report on design mix from any of above approved laboratories 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 design mix is approved. In case of White Portland Cement and the likely use of admixtures in concrete with ordinary Portland/White Portland Cement, the contractor shall design and test the concrete mix by using trial mixes with white cement and / or admixtures also, for which nothing extra shall be payable.

2.2.7 In case of change of source or characteristic properties of the ingredients used in the concrete mix during the work, the contractor as per the directions of the Engineer-in-charge shall submit a revised laboratory mix design report conducted at laboratory established at site.

2.2.8 All cost of mix designing and testing, connected therewith, including charges payable to the laboratory shall be borne by the Contractor including redesigning of the concrete mix whenever required & as directed by Engineer-In-Charge.

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

Where F_{ck} = Characteristic compressive strength at 28 days.

s = Standard deviation which depends on degree of quality control.

The assumed values of standard deviation for different grades of concrete shall be as follows: -

GRADE OF CONCRETE	STANDARD DEVIATION
M-20	4.0
M-25	4.0
M-30	5.0
M-35	5.0

Note: The above values correspond to the site control having proper storage of cement; weight batching of all materials; controlled addition of water; regular checking of all materials, aggregate gradings and moisture content; and periodical checking of workability and strength. Where there is deviation from the above the values given in the above table shall be increased by 1 N/mm^2.

2.2.10 TRIAL BATCHES

(a) The designed mix proportions shall be checked for target mean compressive strength by means of trial batches.

(b) Minimum three sets of separate preliminary tests shall be carried out for each trial batch of concrete mix. Each test shall comprise of six specimens and only one test-set of six specimens shall be made on any particular day.

(c) The quantities of materials for each trial mix shall be sufficient for at least six specimens (cubes) and the concrete required for carrying out workability tests.

(d) The workability of trial mix No.1 shall be measured and mix shall be carefully observed for freedom from segregation, bleeding and its finishing characteristics. The water content, if required, shall be adjusted corresponding to the required changes in the workability.

(e) With the modified Water Content, the mix proportions shall be recalculated by keeping with water cement ratio unchanged. The mix proportion, as modified, shall form the Trial Mix No.2 and tested for the specified strength and workability.

(f) In addition, trial mix No.3 and 4 shall be designed by keeping water contents same as that determined for trial mix 2 but varying the water cement ratio by $\pm$ 10 percent of the specified value and tested for their design characteristics.

(g) Out of the six specimen 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, while the design mix shall be approved only on the basis of test strength at 28 days.

2.2.11 **APPROVAL OF DESIGN MIX**

The design mix shall be considered satisfactory and approved if at least three preliminary test-sets individually satisfy the following strength and workability criteria:

(a) The average strength of each test-set is not less than the specified target mean compressive strength (Tck).

(b) The strength of any specimen cube is not less than 0.85 Tck.

(c) The concrete mix is of required degree of workability and acceptable concrete finish.

2.3 **General Requirement of Batch Mix Concrete:-**

(a) The contractor shall have to use BATCH MIX CONCRETE. The contractor shall ensure that transit mixtures shall transport the concrete to site. All the precautions shall be taken during

the transportation and handling of concrete to achieve the desired strength, durability, etc. as envisaged in the Mix Design.

(b) All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy shall be checked at least once a month.

(c) Only single sized good quality stone aggregate shall be brought to site of work from the approved source. The grading of the stone aggregate shall be controlled by blending the aggregate of different sizes in the required proportions at site of work
The aggregate of different sizes shall be stock-piled separately, preferably a day before use.
The grading of coarse and fine aggregates shall be checked as frequently as possible and as directed by the Engineer-In-Charge to ensure that the specified grading and quality of aggregate is maintained.

(d) It is important to maintain the Water Cement Ratio constant at its specified or approved value by making adjustment for the moisture contents of both fine and coarse aggregates.

The moisture contents in the aggregate shall be determined as frequently as possible in keeping with the weather conditions and as per the provisions of IS: 2386 (Part-III).

2.4 **OTHER OPERATIONS: -**

All other operations in concreting work like mixing, slump, laying, placing of concrete, compaction, curing etc. not mentioned in this particular specifications for Ready Mix of Concrete shall be as per CPWD Specifications.

2.5 **SAMPLING:-**

2.5.1 General :

Samples from fresh concrete shall be taken as per IS 1199 and cubes shall be made, cured and tested at 28 days in accordance with IS 516. 15.1.1 In order to get a relatively quicker idea of the quality of concrete, optional tests on beams for modulus of rupture at 72 + 2 h or at 7 days, or compressive strength tests at 7 days may be carried out in addition to 28 days compressive strength test. For this purpose the values should be arrived at based on actual testing. In all cases, the 28 days compressive strength specified in Table 2 of code of practice, IS:456 2000 shall alone be the criterion for acceptance or rejection of the concrete.

(a) **FREQUENCY OF SAMPLING: -**

(i) A random sampling procedure shall be adopted to ensure that the sampling is spread over the entire period of concreting and cover all mixing units. The concrete work shall be notionally divided into lots as under for the purpose of sampling conditions.

-- Footings, rafts etc.
-- Columns and walls at all levels.
-- Beams at all levels.
-- Slabs at all levels.

(ii) At least one test sample shall be taken for each lot of concrete work.

(iii) Each grade of concrete shall form different lot for testing.

(iv) The minimum frequency of sampling of concrete of each grade shall be in accordance with **CPWD specification 2019, Vol I** with upto date correction slips.

(v) The concrete work shall be assessed on day to day basis & samples shall be taken as specified.

(vi) Work strength test shall be conducted in accordance with IS: 516 on random sampling.

However, theminimum frequency of sampling of concrete of each grade shall be in accordance with the following:

Quantity of Concrete in the work m3	***Number of Samples***
I - 5	1
6 - 15	2
6 - 30	3
31- 50	4

51 and above	4 plus one additional sample for each additional 50 cum or part thereof.

NOTE- *At least one sample shall be taken from each Shift. Where concrete is produced at continuous production unit, frequency of' sampling may be decided by Engineer-in-charge in such a manner so as to ensure that each concrete batch shall have a reasonable chance of being tested.*

2.5.2 Test Specimen

Three test specimens shall be made for each sample for testing at 28 days. Additional samples may be required for various purposes such as to determine the strength of concrete at 7 days or at the time of striking the formwork, or to determine the duration of curing, or to check the testing error. Additional samples may also be required for testing samples cured by accelerated methods as described in IS 9103. The specimen shall be tested as described in IS 516.

2.5.3 **TEST RESULTS OF SAMPLES: -**

The test results of the sample shall be the average of the strength of three specimens. The individual variation shall not be more than ± 15% percent of the average. If variation is more, the test results shall be treated as invalid. 90% of the total tests shall be done at the laboratory established at site by the contractor and remaining 10% in any other laboratory as directed by the Engineer-in-Charge.

2.5.4 ACCEPTANCE CRITERIA

2.5.5 Compressive Strength

The concrete shall be deemed to comply with the strength requirements when both the following conditions are met:

a) The mean strength determined from any group of four consecutive test results compiles with the appropriate limits in col 2 of Table given under para 2.1.4 above.
b) Any individual test result complies with the appropriate limits in col 3 of Table given under para 2.1.4 above.

2.5.6 Quantity of Concrete Represented by Strength Test Results

Thequantity of concrete represented by a group of four consecutive test-results shall include the batches from which the first and last samples were taken together with all intervening batches. Where the mean rate of sampling is not specified the maximum quantity of concrete that four consecutive test results represent shall be limited to 60 m3.

2.5.7 Concrete of each grade shall be assessed separately.

2.5.8 Concrete is liable to be rejected if it is porous or honey-combed, 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.

2.6 **MEASUREMENT –**

i) As per **CPWD Specifications 2019(Vol-I)** with upto date correction slips
ii) In respect of all projected slabs at all levels including cantilever, canopy, the payment for the RCC work shall be made under the item RCC slabs. The payment for shuttering at the edges shall be made under item of centering and shuttering for RCC slabs. Nothing extra shall be paid for the side shuttering at the edge of these projected balconies / projected verandah slabs.

2.7 **TOLERANCES -** As per CPWD Specifications.

2.8 **RATES: -**

i. The rate includes the cost of materials, labour and T&P, including mixing, placing, transportation involved in all the operations described above except for the cost of centring, shuttering & reinforcement which will be paid for separately. It includes finishing i.e. making the top surface of smooth/in required level with trowel etc.

ii. 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 contractor. However, the Engineer-in-charge may order for additional tests (like cutting cores, ultrasonic pulse velocity test, load test 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. However, for payment, the basis of rate payable to contractor shall be governed by the 28 days cube test results and reduced rates shall be regulated in accordance with CPWD Specifications.

2.9 **RCC WORK (ORDINARY**)

2.9.1 The work shall be done in accordance with **CPWD Specifications 2019 (Vol-I)** with upto date correction slips.

2.9.2 Water Cement ratio for Ordinary RCC work shall not be more than 0.5. Contractor shall use concrete mixture of proper design having arrangement for measuring water for mixing of concrete.

2.10 **FORM WORK**

2.10.1 The work shall be done in general as per CPWD Specifications.

2.10.2 Only M.S. centering / shuttering and scaffolding material unless & otherwise specified shall be used for all R.C.C. work to give an even finish of concrete surface. However, marine-ply shuttering in exceptional cases as per site requirement may be used on specific request from contractor to be approved by the Engineer-in-Charge. But nothing extra shall be paid on this a/c.

2.10.3 Nothing extra shall be paid for the centering and shuttering, circular in shape whenever the formwork is having a mean radius exceeding 6m in plan.

2.10.4 Nothing extra shall be paid for grid beams and the corresponding slabs having clear span more than 1.20 metres.

2.10.5 In order to keep the floor finish as per architectural drawings and to provide required thickness of the flooring as per specifications, the level of top surface of R.C.C. shall be accordingly adjusted at the time of its centering, shuttering and casting for which nothing extra shall be paid to the contractor except the places where different type of flooring is provided in the same room.

As per general engineering practice, level of floors in toilet / bath, balconies, shall be kept 12 to 20mm or as required, lower than general floors shuttering should be adjusted accordingly. Nothing extra is payable on this account.

2.10.6 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 to complete the shuttering panels.

Dented, broken, cracked, twisted or rusted shuttering plates shall not be allowed to be used on the work. 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.

2.11 **REINFORCEMENT**:-

2.11.1 The reinforcement shall be done as per CPWD Specifications.

2.11.2 The rate of item of reinforcement of RCC work includes all operations including straightening, cutting, bending, welding, binding with annealed steel wire or welding and placing in position at all the floors with all leads and lift complete as per CPWD Specifications.

2.11.3 The contractor shall provide approved type of support for maintaining the bars in position and ensuring required spacing and correct cover of concrete to reinforcement as called for in the drawings, spacer blocks of required shape and size. Chairs and spacer bars shall be used in order to ensure accurate positioning of reinforcement. **Spacer blocks shall be casted well in advance with approved proprietary pre-packed free flowing mortars (Conbextra as manufactured by M/s Fosroc Chemicals India Ltd. or of approved equivalent)** of high early strength and same colour as of surrounding concrete. However, Cover Guard Bars shall also be used to maintain proper cover of RCC Columns in addition to spacer blocks as mentioned above. Pre-cast cement mortar/concrete blocks/blocks of polymer shall not be used as spacer blocks unless specially approved by the Engineer-in-charge, rate of RCC items is inclusive of cost of such cover blocks & Cover Guard Bars.

2.12 **PRE-CAST RCC WORK**

2.12.1 The work shall be done in accordance with CPWD Specifications.

2.12.2 Pre-cast reinforced concrete units shall be of grade or mix as specified. Provision shall be made in the mould to accommodate fixing devices such as hooks etc. and forming of notches and holes. Each unit shall be cast in one operation. A sample of the unit shall be got approved from Engineer-in-charge before taking up the work.

2.12.3 Pre-cast units shall be clearly marked to indicate the top of member and its location.

2.12.4 Pre-cast units shall be stored, transported and placed in position in such a manner that these are not damaged.

2.12.5 The compaction of the concrete shall be done by vibrating, table or external vibrator, as approved by Engineer-in-charge. The rate quoted for the item shall include the element for framework and mechanical vibration.

2.12.6 Rate for item includes cost of all materials. labour, and all operations involved. Cost of M.S. frames, lugs including their welding, lifting hooks is also included.

2.12.7 In the item of providing and fixing precast reinforced cement concrete in shelves the cost of cutting chases and making good the same shall be inclusive in the item and nothing extra shall be paid on this account.

3.0 BRICK WORK:-

3.1 The brickwork shall be carried out with good quality well burnt FPS bricks of class designation 75 as per CPWD Specifications. Exposed brick work for ground level to plinth level shall be executed with selected FPS bricks of class designation 75.

3.2 The rate shall also include for leaving chases / notches for dowels / cramps for all kinds of cladding to come over brick work.

3.3 Brick work provided around shaft or lift walls or around slab cutouts shall be measured in the brick for corresponding floor level. Nothing extra shall be paid on this account.

3.4 M.S. Strip/ Bar provided at every third course of half brick masonry shall be in single piece. If required, welding joint can be used without overlaps. Nothing extra shall be paid for welding and overlaps.

4.0 **AAC BLOCKMASONRY WORK**

a. The masonry shall be done as per CPWD Specifications 2019, Volume-I & II with revisions/ amendments / correction slips upto 10.01.2024.

b. AAC blocks masonry shall be of Grade I and of oven dry density 551-650 kg/cum. It shall be done with polymer modified adhesive mortar above plinth level except wet areas and fly ash brick masonry of class designation 10 shall be done in foundation and wet areas with cement mortar.

c. Grassfire mesh of good quality to be provided in plaster at the junction of Masonry and RCC or CC Member/band.

Autoclaved Aerated Concrete Block masonry work

d. Dimensions & Tolerances: Autoclave Aerated Concrete Block shall be made in sizes and shapes to fit different concrete needs. They include stretcher, corner, double corner or pier, jamb, header, bull nose, partition block and concrete floor units.

e. Autoclave Aerated Concrete Block shall be referred to by its normal dimension the term 'normal' means that the dimension includes the thickness of the mortar joints. The actual dimension shall be 10mm short of the normal dimension (or 6mm short in special areas finer joints as specified). The normal dimension of the concrete block shall be as follows:

i. Length: 400, 500 or 600 mm

ii. Height: 200, 250 or 300 mm

iii. Width: 100, 150, 200, 225, 230 or 250 mm

f. In addition, Autoclave Aerated Concrete Block shall be manufactured in half length of 200, 250 or 300 mm correspond to the full lengths. The nominal dimensions of the units are so designed that taking account of the thickness of mortar joints, they will produce wall lengths and heights which will conform to the principles of modular co-ordination.

g. Block of sizes other than those specified above, may also be used if so required in special cases.

h. The maximum variation in the length of the Autoclave Aerated Concrete Block shall not be more than plus/minus 5mm and maximum variation in the height and width of Autoclave Aerated Concrete Block, not more than plus/minus 3mm.

i. The faces of Autoclave Aerated Concrete Block shall be flat & Rectangular, opposite faces shall be parallel and all arises shall be square. The bedding surfaces shall be at right angle to the face of the Blocks. The Autoclave Aerated Concrete Block with special faces shall be manufactured and supplied if so required.

j. The autoclaved Autoclave Aerated Concrete Block shall be classified in two grades

according to their compressive strength as indicated in table below:

Sl. No.	Density in oven dry condition (kg/m2)	Compressive Strength (Min)		Thermal Condition in Air dry condition (W/m.k)
		Grade-I (N/mm^2)	Grade-II (N/mm^2)	
1	451 to 550	2.00	1.50	0.21
2	551 to 650	4.00	3.00	0.24
3	651 to 750	5.00	4.00	0.30
4	751 to 850	6.00	5.00	0.37
5	851 to 1000	7.00	6.00	0.42

h. All Autoclave Aerated Concrete Block shall be sound, free of cracks or other defects which interfere with the proper placing of block units impair the strength or performance of the construction. Where block units are to be used in exposed wall construction, the face or faces that are to be exposed shall be free of chips, cracks or other imperfections except that if not more than 5% of a consignment contains slight cracks or small chippings not larger than 25mm, this shall not be deemed grounds for rejection.

i. **Block Density –** The Block density shall conform to the requirements specified in above table, when tested accordance with IS 6441 (Part-1) -1972.

j. **Compressive Strength –** The min. compressive strength being the average of twelve block units shall be as prescribed in above table, when tested accordance with accordance with IS 6441 (Part-5) -1972

k. **Thermal Conductivity –** The thermal conductivity shall be not exceed the values specified in above table when tested accordance with IS 3346 -1980

l. **Drying Shrinkage –** The drying shrinkage shall be not more than 0 .05% for grade –1 block and 0.10% for grade-2 block when tested accordance with IS 6441 (Part-2) -1972.

m. **Number of tests :** A sample of 24 blocks shall be selected at random.All the 24 Blocks shall be checked for dimensions and inspected for visual defects. Out of the 24 blocks, 12 blocks shall be subjected to the test for compressive strength, 3 blocks to the test for density, 3 blocks to the test for thermal conductivity and 3 blocks to the test for drying shrinkage. The remaining 3 blocks shall be reserved for re-test for drying shrinkage if a need arises.

n. The samples of AAC blocks (each sample consisting of 6 specimen) shall be chosen randomly from the lot procured and tested for various parameters specified as above. One samples shall be tested for every **200 cum** or part thereof. However, minimum one sample shall be tested from each lot received at site if the quantity procured in the lot is less than 200 cum. If required, Engineer-in-Charge or his authorized representative shall inspect the factory during production of the material for this work and also collect samples (of materials used for making AAC blocks and precast AAC blocks) from the factory itself.

o. The contractor shall consider this contingency also while placing the order with one of the approved firms. Nothing extra shall be payable on this account.

p. **Criteria for conformity :**The number of blocks with dimensions outside the tolerance limit and or with visual defects, among those inspected, shall not be more than two. For density, the mean value shall be within the range as specified in above Table. For compressive strength, the mean value, say X shall be determined. The test results shall be grouped into groups of 4, individual values of ranges shall be determined, the average range a calculated from these values and shall satisfy the following condition: X- 0.6 R> minimum value specified in above Table. For thermal conductivity, the mean value shall be equal to or less than the value specified in above Table. For drying shrinkage, all the test specimens shall satisfy the requirements of the test. If one or more specimens fail to satisfy the requirements, the remaining 3 blocks shall be subjected to these tests. All these blocks shall satisfy the requirements.

q. **Manufacturer's Certificate :** The manufacturer shall satisfy himself that the masonry units conform to the requirements of this specification and, if requested, shall supply a certificate to this effect to the purchaser or his representative.

r. **Marking :** Each lot of concrete masonry units manufactured in accordance with this specification shall preferably be marked with information-

   i. The identification of the manufacture.

   ii. The grade and block density of the unit.

   iii. The month and year of manufacturing.

s. The RCC band shall be provided in AAC block masonry to increase the strength and compatibility. The RCC band shall be provided at sill level, lintel level and intermediate levels over throughout the wall asper specifications. This thickness of the band shall be approved by the Engineer-in-Charge or as specified in drawing.

t. Autoclave Aerated Concrete Block masonry shall be provided with polymer modified adhesive mortar. The polymer modified adhesive mortar shall be provided @ 30 kg per cum.

u. Autoclaved Aerated Concrete Block confirming the IS Code – 2185 (Part-3) 1984 (Reaffirmed 2005)

5.0 STONE / MARBLE WORK

5.1 General: - The execution of stones work shall be in general as per **CPWD Specifications 2019(Vol.-I**), with up-to-date correction slips.

5.2 GRANITE/ MARBLE WORKS

5.2.1 The granite/ marble stonework shall, in general, be carried out as per the CPWD Specifications. The specifications for dressing, laying, curing, finishing, measurements, rate etc. for the granite/ marble stone flooring shall be same as that of works for the Marble flooring, skirting and risers of steps under Flooring Sub Head of the CPWD Specifications. The wall lining / veneer work with granite/ marble stone shall be as per the CPWD Specifications for Marble work Sub Head.

5.2.2 The decision of the Engineer-in-Charge as regards the approval of the samples for the various types of the granite/ marble stones shall be final and binding on the Contractor. No claim of any kind whatsoever shall be entertained from the Contractor on this account. The Contractor shall then procure and get the mock up prepared at site of work for approval of quality of workmanship and the granite/ marble stone as specified. The mock up shall be prepared in lift lobby, toilet etc. on one of the floors. The size of the stones shall be as per the architectural drawings. If the quality of the workmanship and the material is as per the required standards, the mock up shall be allowed as part of the work and measured for payment and shall not be dismantled. Otherwise, it shall be dismantled by the contractor as directed by the Engineer-in-Charge and taken away from the site of the work at his own cost. Nothing extra shall be payable on this account.

5.2.3 That the curvilinear profile of the entrance steps for the building shall be negotiated in segmental manner (using trapezoidal shaped granite stone pieces with straight edges for treads and rectangular stone pieces for the risers) and not in curved profiles as specified earlier. However, the granite/ marble stone slabs shall be cut to required sizes and shapes, as per the architectural drawings, to negotiate the curved steps in segmented manner. The risers shall also be cut to required sizes and shapes and the edges chamfered at the joints, all as per the architectural drawings. However, the Contractor shall prepare the detailed shop drawings for the same and commence work only after the approval by the Engineer-in-Charge. The rate shall also include any consequent wastage, incidental charges involved in this work. Nothing extra shall be payable on this account. For the purpose of payment, the actual area of each type of granite/ marble stone as laid shall be measured.

5.2.4 For the steps (risers and treads) in the linear profile, the granite/ marble stone shall be provided in single pieces up to 2.0m as per the architectural drawings, unless otherwise specifically permitted by the Engineer-in-Charge. Wherever grooves are required to be provided the same is to be done as per architectural drawings and as directed by the Engineer-in-charge. Wherever required, the joints shall be provided as per the architectural drawings. Nothing extra shall be payable on these accounts.

5.2.5 The granite/ marble slabs used for providing and fixing in the sills, soffits and jambs of doors, windows, ventilators and similar locations shall be in single piece unless otherwise directed by the Engineer-in-Charge. Wherever stone slab other than in single piece is allowed to be fixed, the joints shall be provided as per the architectural drawings and as per the directions of the Engineer-in-Charge. In the cabin areas, the joints in sills shall preferably be provided in line with the partition wall. Depending on the number of joints, as far as possible, the stone slabs shall be procured and fixed in slabs of equal lengths as per the architectural drawings and as directed by Engineer-in-Charge.

5.2.6 While fixing the granite/ marble slabs in sills, soffits and jambs of doors, windows, ventilators etc., rebates shall be made by overlapping the stones at the required places for fixing shutters for doors, windows and ventilators etc. as shown in the architectural drawings and as per the directions of the Engineer-in-Charge. Epoxy based adhesives shall be used for fixing the granite/ marble stones to each other, or wherever required. The authorized overlap as per the architectural drawings or as directed by the Engineer-in-Charge shall be measured for payment under the same item. However, any extra mortar thickness required due to the overlap arrangement shall be deemed to have been included in the rate of this item. Nothing extra shall be payable on this account. The granite/ marble stone slab shall be fixed over low-level storage

cabinets using necessary adhesive as per the manufacturer's specification. The stone shall have uniform thickness and shall be provided in sizes as per the architectural drawings. The stone slab shall have uniformly leveled surface after fixing. All the joints shall be finished smoothly in a workmanlike manner.

5.2.7 The granite/ marble work shall be adequately protected by a layer of Plaster of Paris, which shall be maintained throughout and removed just before handing over of the works for which nothing extra shall be payable.

5.2.8 **Acceptance Criteria**: - The stone/tile work shall carry Five years guarantee after completion of work against unsound material, workmanship as per guarantee bond. Five years guarantee in prescribed Performa attached **as per NIT of Part- B** must be given by the specified firm, which shall be counter signed by the contractor, in token of his overall responsibility. 10% (Ten percent) of the cost of these items would be retained as security deposit in addition to normal security deposit of the whole work and the amount so deducted would be released after five years from the date of completion of the entire work under the agreement, if the performance of the items is found satisfactory. If any defect is noticed during the guarantee period, the contractor should rectify it within seven days and if not attended to the same will be got done from another agency at the risk and cost of contractor. However, this security deposit can be released in full if bank guarantee of equivalent amount is produced and deposited with the department

5.3 SAMPLES FOR STONE WORK

Samples of each item of stone work either individually or in combination shall be prepared for approval of Engineer-in-charge before commencement of work.

6.0 WOOD WORK

6.1 The wood work in general shall be carried out as per **CPWD Specifications 2019 (Volume-I)**, with up-to-date correction slips.

6.2 The factory shall be got approved from the Engineer-in-charge before commencement of work for factory made wood work. The sample of timber to be used shall be deposited by the contractor with Engineer-in-charge before commencement of work.

6.3 The shape and size of beading shall be as per drawings. The joints of beading shall be mitred.

6.4 Timber shall be of specified species, good quality and well-seasoned. It shall have uniform colour, reasonably straight grains and shall be free from knots, cracks, shakes and sapwood. It shall be close grained. The contractor shall deposit the samples of species of timber to be used with the Engineer-in-Charge for testing before commencement of the work.

6.5 Wood work shall not be painted, oiled or otherwise treated before it has been approved by the Engineer-in-charge. All portion of timber including architrave abutting against masonry, concrete, stone or embedded in ground shall be painted with approved wood preservative or with boiling coal tar.

6.6 The contractor(s) shall produce cash voucher and certificates from approved Kiln Seasoning Plants about the timber used on the work having been kiln seasoned and chemically treated by them, falling which it would not be so accepted as kiln seasoned and/or chemically treated.

6.7 Transparent sheet glass conforming to IS: 2835 – 1977 shall be used. Thickness being governed as under unless otherwise specified in the item in wood work/steel work:

Area of Glazing	Thickness
(a) For glazing area up to 0.50 sqm	4.0 mm
(b) For glazing area more than 0.50 sqm	6.0 mm

6.8 Factory made wooden flush door shutters shall be carried out as per **CPWD specifications 2019 (Vol.-I)** with upto date correction slips).

6.9 The work shall be executed through specialized agencies to be approved by the Engineer in Charge.

6.10 The contractor shall propose well in advance to Engineer-in-Charge, the names and address of the factory where from the contractor intends to get the shutters manufactured along with the credential of the firm. The contractor shall place the order for manufacturing of shutters only after obtaining approval of the Engineer in Charge whose decision in this case shall be final & binding. In case the firm is not found suitable he shall propose another factory. The factory may also be inspected by a group of officers before granting approval; shutters shall however he accepted only if these meet the specified test.

6.11 Contractor will arrange stage wise inspection of the shutters at factory by the Engineer-in-Charge or his authorized representative. The contractor will have no claim if the shutters brought at site in part or full lot are rejected by the Engineer-in-Charge due to bad workmanship / quality. Such defective shutters will not be measured and paid. The contractor shall remove the same from the site of work within 7 days after the written instruction in this regard are issued by the Engineer-in-Charge.

6.12 The shutters should be brought at site without primer / painting.

7.0 Fire Rated Doors

Fire rate doors shall conform to specifications lay down by NBC and/or relevant BIS codes etc.

8.0 **STEEL WORK**

All steel work shall be carried out as per **CPWD specifications 2019 (Volume-I)** with up-to-date correction slips.

9.1 STAINLESS STEEL WORK:

a. Stainless steel generally shall be Grade 1.4301 (SS 304) or 1.4401 (SS 316), unless otherwise specified in particulars of item. Lower grades shall not be used. Surface finish of all the stainless steel materials will be in 240 grit satin finish / matt finish. All stainless steel material will have to be coated by a solution of Inox to avoid finger in prints and avoidance of settlement of environment / atmospheric dust.

b. Stainless steel railing, both sides in staircase and ramp with double handrail shall be used for barrier free accessibility requirements with adequate SS balusters, runners etc as per approved architectural drawing.

c. Stainless steel railing in balconies, parapets etc. of height not less than 1200 mm shall be used with adequate SS balusters, runners etc. as per approved architectural drawing.

d. Fixing shall be done by stainless steel expansion bolts of approved size and make as per Engineer-in-Charge and welding to be done by using organ welding rods and the surface being duly finished and cleaned by K2 passivation, which is nitric acid plus floric acid solution treatment by which the chances of corrosion will be eliminated and any burn out makes on the metal will also be eliminated.

e. Stainless steel grade 304 wire gauge with wire of dia 0.50 mm and average width of aperture 1.4 mm in both directions shall be used in wire gauge shutters for doors and windows.

10. **FLOORING**

10.1 All work in general shall be carried out as per **CPWD specifications 2019 (Volume-I)** with up-to-date correction slips.

10.2 Whenever flooring is to be done in patterns of tiles and stones, the contractor shall get samples of each pattern laid and approved by the Engineer-in-charge before final laying of such flooring. Nothing extra shall be payable on this account.

10.3 Different stones / tiles used in pattern flooring shall be measured separately as defined in the nomenclature of the item and nothing extra for laying pattern flooring shall be paid over and above the quoted rate. No additional wastage, if any, shall be accounted for any extra payment.

10.4 Samples of flooring stones/ Tile (Kota/ Marble/ Granite/ Ceramic tiles/ Vitrified tiles etc.) shall be deposited well in advance with the Engineer-in-Charge for approval. Approved samples should be kept at site with the Engineer-in-Charge and the same shall not be removed except with the written permission of Engineer-in-Charge. No payment whatsoever shall be made for these samples.

10.5 The Marble/ Kota/ Granite or any other stone shall be fully supported by the details establishing the quarry and its location.

10.6 Full width Marble/ Kota/ Granite stone over kitchen platform shall be provided which shall not be less than 900mm long except to adjust for closing pieces. The marble / stone flooring in treads and risers of staircase shall not be less than 1500mm long except to adjust the closing pieces. Nothing extra shall be paid on these accounts

10.7 Vitrified Tile Flooring

The tiles shall be of approved make and shall generally conform to Table 12 of IS15622.

The full body Vitrified tiles of specified sizes shall be used & sample of tiles shall be got approved from the Engineer-in-Charge. All tiles shall be rectified and double charge minimum. The Mandatory tests for vitrified tiles shall be got done as per CPWD Specifications (volume-1)/relevant BIS Code.

10.8 **Ceramic Tiles Flooring**

The tiles shall be procured from the approved manufactures of the specified shade &colour.

The floor & wall tiles shall be conforming to IS:15622 for floor and wall tiles respectively.

Tiles for dado shall be 300mm x 450mm (minimum size) or more (GROUP-III) as approved.

Tiles for flooring shall be 300mm x 300mm (minimum size) or more (GROUP-V) as approved.

Test shall be conducted to satisfy the quality of material as per CPWD Specifications

10.9 The rate of items of flooring is inclusive of providing sunken flooring in bathrooms, kitchen etc. and nothing extra on this account is admissible. The proper gradient shall be given to flooring for toilets, verandah, kitchen, courtyard, etc. as per the directions of Engineer-in-charge.

10.10 The entire responsibility for the quality of work will however rest with the building contractor only and he shall submit a Guarantee Bond as per Proforma **as per NIT of Part- B.** 10% (ten percent) of the cost of all tile items in addition to normal security deposit of the whole work, would be retained as security deposit and the amount so deducted would be released after Five years from the date of completion of the entire work under the agreement, if the performance of the items is found satisfactory. If any defect is noticed during the guarantee period, the

contractor should rectify it within seven days and if not attended to the same will be got done from another agency at the risk and cost of contractor. However, this security deposit can be released in full if bank guarantee of equivalent amount is produced and deposited with the department.

11. **WATER PROOFING FOR SUNKEN FLOORS**:-

11.1 The work shall be got executed from the specialized agency as approved by the Engineer in Charge.

11.2 Total quantity of the water proofing compound required shall be arranged only after obtaining the prior approval of the make by Engineer-in-charge in writing. Materials shall be kept under double lock and key and proper account of the water proofing compound used in the work shall be maintained. It shall be ensured that the consumption of the compound is as per specified requirements.

11.3 The finished surface after water proofing treatment shall have adequate smooth slope as per the direction of the Engineer-in-charge.

11.4 Before commencement of treatment on any surface, it shall be ensured that the outlet drain pipes / spouts have been fixed and the spout openings have been chased and rounded off properly for easy flow of water.

11.5 GUARANTEE BOND FOR ALL WATER PROOFING ITEMS:-

Ten years Guarantee bond in prescribed proforma **as per NIT of Part- B** shall be submitted by the contractor which shall also be signed by both the specialized agency and the contractor to meet their liability / liabilities under the guarantee bond. However, the sole responsibility about efficiency of water proofing treatment shall rest with the building contractor. 10% (Ten percent) of the cost of water-proofing work shall be retained as Security Deposit in addition to normal security deposit of the whole work and the amount so deducted would be released after ten years from the date of completion of the entire work under the agreement, if the performance of the treatment is found satisfactory. If any defect is noticed during the guarantee period, the contractor shall rectify it within 15 days of receipt of intimation of defects in the work. If the defects pointed out are not attended to within the specified period, the same will be got done from another agency at the risk and cost of contractor.

12. **FINISHING**:-

12.1 The work shall be done in accordance with **CPWD specifications 2019 (Volume-II)** with up-to-date correction slips and/or manufacturers specifications wherever applicable.

12.2 All painting material of approved brand and manufacturer shall be brought to the site of work in the original sealed containers. The material brought to the site of work shall be sufficient for at least 30 days of work. The material shall be kept under the joint custody of contractor and representative of the Engineer-in-charge. The empty containers shall not be removed from the site till the completion of the work without permission of the Engineer-in-charge.

12.3 In the item of finishing walls with water proofing cement paint, only the plain/flat area shall be measured for payment and nothing extra shall be paid on account of pointed wall surface.

13. **SANITARY INSTALLATIONS /WATER SUPPLY / DRAINAGE**:-

13.1 The contractor shall submit schematic drawing of water supply and sanitary installation showing details of layout, including internal water supply and drainage details, showing the detail of water supply lines including fittings diameter wise and fixtures connecting to soil waste through traps and connection of W.C. to main shaft pipe for drainage including its ventilation system for approval of Engineer-in-Charge.

13.2 For the work of water supply and sanitary installations, the contractor shall engage the approved licensed plumbers and submit the name of proposed plumbing agencies with their credentials for approval of the Engineer-in-Charge.

13.3 The work in general shall be carried out as per **CPWD specifications 2019 (Volume-II)** with up-to-date correction slips.

13.4 The tendered rates shall include the cost of cutting holes/cores in walls, floors, RCC slabs etc. wherever required and making good the same for which nothing extra shall be paid.

13.5 The Centrifugally spun cast iron pipe IS: 3989-1984 wherever necessary shall be fixed to RCC columns, beams etc. with rawl plugs of approved quality and nothing extra shall be paid for on this account.

13.6 The pig lead to be used in the jointing should be as per CPWD specifications.

13.7 Nothing extra for providing & fixing CP Brass caps /extension pieces wherever required for CP Brass fittings shall be paid beyond the rates payable for corresponding CP Brass fittings.

13.8 Contractor shall submit all the service drawings of Internal water supply, Sanitary Installation, drainage etc. to Engineer-in-Charge before starting any work or placing any order for any of the services etc. These drawings/layout drawings shall be got approved from Engineer-in-charge before implementation and this shall be binding on the contractor.

13.9 The entire responsibility for the quality of work will however rest with the building contractor only and he shall submit a Guarantee Bond as per Performa **as per NIT of Part- B**. 10% (ten percent) of the cost of these items (excluding fixtures) would be retained as security deposit in addition to normal security deposit of the whole work and the amount so deducted would be released after five years from the date of completion of the entire work under the agreement, if the performance of the items is found satisfactory. If any defect is noticed during the guarantee period, the contractor should rectify it within seven days and if not attended to the same will be got done from another agency at the risk and cost of contractor. However, this security deposit can be released in full if bank guarantee of equivalent amount is produced and deposited with the department.

13.10 Providing, fixing, testing and commissioning of Hubless Centrifugally cast iron pipes and fittings (Epoxy coated inside & outside) as per ISO: 6594/ IS: 15905 standard and jointing with stainless steel shielded couplings with a double stainless steel bolt and screw housing incorporating a EPDM rubber gasket as per IS: 15905/ ASTM 1277 standard inclusive of all necessary specials like bends, tees, offsets, junctions, cowls, end plug, inspection pipes etc. laid under floor/ fixed on walls and in pipe shafts. The rate shall be including angle supports, hanger, nuts bolts, anchor fasteners, fixing clamps/ channels with U-Bolts etc. complete. Hubless cast iron pipes & fitting shall have tested for noise level which shall not be more than 25 dB (A) at 2 L/s.

14. ROAD WORK

a) All roads will be cement concrete roads, as per MORTH specifications (fifth edition), laid over sub grade duly prepared with power roller of required thickness as per design. The edges of roads should be at least 20 cm above the adjoining ground level

b) The work shall be carried out using MORTH Specifications for Road and bridge work (Fifth Revision).

c) The Machine molded kerb stone shall be provided on as per drawings and requirements of this item specified in this bid document.

d) As far as possible cross drainage should be taken under the road and at right angle to it. NP-3 pipes of dia not less than 300 mm and as per design requirement shall provided at a interval of not more than 60 meter with a longitudinal slope as per design slope. At the head of cross drain catch pits of adequate size to collect stones, soil and rubbish and to prevent scour has to be provided. The floor of the catch pit should be deeper than the sill of pipe culvert by at least 0.3 meter.

e) Control of seepage flow below road: whenever seepage flow is expected /likely to exists, or seepage zone is at depth less than 0.9 m from sub grade level, longitudinal perforated pipe drain of adequate dia of PVC in trench filled with filtered material and geo textile shall be constructed to intercept the seepage flow. Necessary arrangement to collect the water from perforated pipe drain and diverting by using pipes of PVC/RCC NP-3 of adequate dia shall be made.

15.0 EXPANSION JOINT SYSTEM

15.1 Floor Joint

15.2 **General requirement of material** :The expansion joint system will be of extruded aluminium base members, self aligning /self centering arrangement and support plates etc. as per ASTM B221-02. The system shall be such that it provides floor to floor/ floor to wall expansion control system for various vertical locations in load application areas that accommodate multi directional seismic movement without stress to its components. The system shall consist of metal profiles with universal aluminium base member designed to accommodate various project conditions and finish floor treatments. The cover plate shall be designed of width and thickness required to satisfy projects movement and loading requirements and secured to base members by utilizing manufacturer's pre-engineered self centering arrangement that freely rotates/ moves in all directions. The self-centering arrangements shall exhibit circular sphere ends that lock and slide inside the corresponding aluminium extrusion cavity to allow freedom of movement and flexure in all directions including vertical displacement. Provision of moisture barrier membrane in the joint system to have water tight joint is mandatory requirement. The scope of work includes all labour, materials, equipments and services and performs all operations required for complete installation of expansion joint system.

15.3 Performance Requirement: Material and works shall conform to the latest edition of reference specifications as specified in the item and to all applicable codes and requirement of local authorities having jurisdiction.

15.4 Approval of expansion joint system :Sample of expansion joint system along with manufacturers latest published literature for material specified herein, material test reports, shop drawings etc. shall be submitted for obtaining approval before material are delivered at the site. The expansion joint cover assembly should be from one source (from single

manufacturer)

15.5 Installation of expansion joint system: In all cases the manufacturer's standard written instruction or specific instructions for installation shall be followed.

15.6 Wall Joint

15.7 General requirement of material: The expansion joint system related with wall joint (internal/ external) shall be of extruded aluminium base members, self aligning / centering arrangement and support plates as per ASTM B221-02. The material shall be such that it provides an Expansion joints systems suitable for vertical wall to wall/ wall to corner application, both new and existing construction in office buildings & complexes with no slipping down tendency amongst the components of the joint system. The Joint System shall utilize light weightaluminium profiles exhibiting minimal exposed aluminium surfaces mechanically snap locking the multi cellular to facilitate movement. (Material shall confirm to ASTM 6063)

15.8 Performance Requirement: Material and works shall conform to the latest edition of reference specifications as specified in the item and to all applicable codes and requirement of local authorities having jurisdiction.

15.9 Approval of expansion joint system :Sample of expansion joint system along with manufacturers latest published literature for material specified herein, material test reports, shop drawings etc. shall be submitted for obtaining approval before material are delivered at the site. The expansion joint cover assembly should be from one source (from single manufacturer)

15.10 Installation of expansion joint system: In all cases the manufacturer's standard written instruction or specific instructions for installation shall be followed.

15.11 **Guidelines for COVID-19 Outbreak :**

"Standard Operating Procedures (SOPs) and Guidelines for Construction Site for COVID-19 shall be followed.

Also any other Govt. directions in this regard from time to time until the effect of COVID-19 has to be followed.

JURISDICTION OF COURT

Courts at Ajmer/Jaipur shall have the jurisdiction to decide any dispute arising out of or in respect of this contract.

Special Conditions regarding Royalty of Materials to be used in Construction work

SPECIAL CONDITIONS
REGARDING ROYALTY OF MATERIALS TO BE USED IN CONSTRCTUION WORK

राजस्थान सरकार, खान (ग्रुप–2) विभाग के पत्र क्रमांक प.13(6) खान/ग्रुप–2/80–पार्ट जयपुर, दिनांक 15.11.2011 के अनुसार राजकीय विभागों, स्वायत्तशासी संस्थाओं, राजकीय उपक्रमों में कार्यरत निर्माण ठेकेदारों से निर्माण कार्य में काम आने वाले खनिजों मेसनरी स्टोन, मिट्टी बोल्डर, बजरी, ककर, मोरम, साधारण मिट्टी (ईंट मिट्टी को छोड़कर) की रायल्टी वसूली के संबंध में।

उपरोक्त विषयांतर्गत पूर्व में जारी किये गये परिपत्र दिनांक 06.10.2008 / 08.10.2008 को माननीय उच्च न्यायालय, जोधपुर द्वारा एस.बी. सिविल रिट सं. 1309/09 में पारित आदेश दिनांक 17.01.2011 से पिटीशनकर्ता द्वारा रायल्टी पेड खनिज प्राप्त कर काम में लिये जाने के बावजूद उक्त परिपत्र अल्पावधि अनुमति पत्र लेने हेतु बाध्य करता है, इस कारण निरस्त किया है तथा परिपत्र को संशोधित कर जारी करने की छूट प्रदान की गई। उक्त निर्णय के प्रकाश में परिपत्र दिनांक 06.10.2008 / 08.10.2008 के अतिक्रमण में राजकीय विभागों, स्वायत्तशासी संस्थाओं, राजकीय उपक्रमों में कार्यरत निर्माण ठेकेदारों से निर्माण कार्य में काम आने वाले खनिजों पर देय रॉयल्टी के भुगतान बाबत निम्न प्रक्रिया तय की जाती है। यह प्रक्रिया तुरत प्रभाव से लागू होगी।

1. संबंधित निर्माण विभाग को कार्यादेश की प्रति मय जी–शिड्यूल, जिसमें निर्माण में काम आने वाले खनिजों की मात्रा का विवरण हो (घनमीटर अथवा टनों में), संबंधित खनि अभियंता / सहायक खनि अभियंता कार्यालय में प्रस्तुत करनी होगी।

2. ठेकेदार को निर्माण कार्य शुरू करने से पूर्व निम्न में से कोई एक विकल्प संबंधित खनि अभियंता / सहायक खनि अभियंता कार्यालय में शपथ पत्र के साथ प्रस्तुत करना होगा।
   विकल्प–ए :– यदि ठेकेदार अपने स्तर पर खनिजों का खनन करने हेतु अल्पावधि अनुमति पत्र प्राप्त करना चाहता है जिसका कार्य समाप्ति पर अधिशुल्क निर्धारण कराना चाहता है एवं रायलटी की राशि रनिंग बिलों से कटवाना चाहता है।
   विकल्प–बी :– यदि ठेकेदार अल्पावधि अनुमति पत्र प्राप्त करना चाहता है, परन्तु रायल्टी की राशि रनिंग बिलों से कटाने के बजाय खान विभाग में अल्पावधि अनुमति पत्र प्राप्त करते समय अग्रिम रूप से जमा कराना चाहता है।
   विकल्प–सी :– यदि ठेकेदार सम्पूर्ण खनिज रायल्टी पेड खरीदना चाहता है तथा रनिंग बिल की स्टेज पर निर्धारण के लिए रायल्टी भुगतान का समुचित रिकॉर्ड प्रस्तुत करेगा।
   विकल्प–डी :– यदि ठेकेदार विकल्प बी व सी को सम्मिलित रूप से काम में लेना चाहता है।

3. ठेकेदार द्वारा उपरोक्त बिन्दु संख्या 2 के अनुसार विकल्प प्रस्तुत कर दिये जाने पर संबंधित खनि अभियंता / सहायक खनि अभियंता द्वारा इसकी सूचना निर्माण विभाग को दी जायेगी एवं निर्माण विभाग विकल्पों के अनुसार, नीचे दी गई व्यवस्था के अनुरूप, रायल्टी वसूली बाबत् कार्यवाही करेगा।

4. विकल्प–ए के ठेकेदारों के प्रथम बिल पारित करने के पूर्व निर्माण–विभाग खनि अभियंता / सहायक खनि अभियंता द्वारा जारी अल्पावधि अनुमति पत्र की प्रति प्राप्त करेगा, अन्यथा बिल का भुगतान नहीं किया जायेगा। ऐसे ठेकेदारों के रनिंग बिलों से रायल्टी की कटौती निम्नानुसार निर्धारित दर से की जाकर चेक अथवा महालेखाकार के यहाँ समायोजन के माध्यम से मय कटौती विवरण के जमा करानी होगी :–

1.	सड़क निर्माण (गाइडनिंग सहित)	3%
2.	भवन निर्माण	2%
3.	सड़क नवीनीकरण	1.5%
4.	अन्य कार्य जिनमें खनिज का उपयोग होता हो	1%

उक्त विकल्प के ठेकेदार यदि अतिरिक्त राशि जमा हो जाने के कारण रिफण्ड चाहते हैं तो उन्हें निर्माण कार्य समाप्ति के 30 दिवस की अवधि में अपना रिकॉर्ड यथा काम में लिये गये खनिज का ब्यौरा (निर्माण विभाग से प्रमाणितशुदा) खनिज प्राप्त किये जाने का स्त्रोत, उसके बिल/रवन्ना/अधिकृत ठेकेदार की रायल्टी पर्ची जिनमें निर्माण विभाग के ठेकेदार का नाम अंकित हो, अधिशुल्क निर्धारण हेतु खनि अभियंता / सहायक खनि अभियंता कार्यालय में प्रस्तुत करने होंगे। उक्त 30 दिवस की अवधि में रिकॉर्ड प्रस्तुत नहीं करने पर निर्माण विभाग द्वारा रनिंग बिलों से काटी गई राशि को अंतिम माना जायेगा।

5. विकल्प–बी के ठेकेदारों को अल्पावधि अनुमति पत्र प्राप्त करते समय खनिज की रायल्टी संबंधित खनि अभियंता / सहायक खनि अभियंता कार्यालय में जमा करानी होगी। निर्माण विभाग द्वारा ऐसे ठेकेदारों के रनिंग बिल कटौती किये बगैर पारित किये जा सकेंगे, परन्तु अंतिम रनिंग बिल खनि अभियंता / सहायक खनि अभियंता से अनापत्ति प्राप्त किये बिना पारित नहीं किया जायेगा।

6. विकल्प–सी के ठेकेदारों द्वारा संबंधित रनिंग बिल तक काम में लिये गये खनिज का ब्यौरा (निर्माण विभाग से प्रमाणितशुदा), खनिज प्राप्त किये जाने का स्त्रोत उनके बिल/रवन्ना/अधिकृत ठेकेदार की रायल्टी पर्ची जिनमें निर्माण विभाग के ठेकेदार का नाम अंकित हो, अधिशुल्क निर्धारण हेतु खनि अभियंता / सहायक खनि अभियंता कार्यालय में प्रस्तुत करने होंगे। खनि अभियंता / सहायक खनि अभियंता द्वारा अधिशुल्क निर्धारण आदेश जारी कर दिये जाने पर निर्माण विभाग द्वारा संबंधित रनिंग बिल पारित किया जा सकेगा, परन्तु अंतिम रनिंग बिल खनि अभियंता / सहायक खनि अभियंता द्वारा अनापत्ति प्राप्त किये बिना पारित नहीं किया जायेगा।

7. विकल्प–डी के ठेकेदारों को अल्पावधि अनुमति पत्र प्राप्त करते समय खनिज की रॉयल्टी संबंधित खनि अभियंता / सहायक खनि अभियंता कार्यालय में जमा करानी होगी। रायल्टी पेड प्राप्त किये गये खनिज का ब्यौरा (निर्माण विभाग से प्रमाणितशुदा), खनिज प्राप्त किये जाने का स्त्रोत उनके बिल / रवन्ना / अधिकृत ठेकेदार की रॉयल्टी पर्ची जिनमें निर्माण विभाग के ठेकेदार का नाम अंकित हो, अधिशुल्क निर्धारण हेतु खनि अभियंता / सहायक खनि अभियंता कार्यालय में प्रस्तुत करने होंगे। खनि अभियंता / सहायक खनि अभियंता कार्यालय में प्रस्तुत करने होंगे। खनि अभियंता / सहायक खनि अभियंता द्वारा अधिशुल्क निर्धारण आदेश जारी कर दिये जाने पर निर्माण विभाग द्वारा संबंधित रनिंग बिल पारित किया जा सकेगा, परन्तु अंतिम रनिंग बिल खनि अभियंता / सहायक खनि अभियंता से अनापत्ति प्राप्त किये बिना पारित नहीं किया जायेगा।

8. BOT/BOOT के तहत होने वाले निर्माण कार्यों अथवा जिन निर्माण कार्यों के बिलों का भुगतान किसी भी विभाग द्वारा नहीं किया जाता है, उसमें विकल्प–ए, सी एवं डी लागू नहीं होगा, इनकी बजाय विकल्प–बी लागू होगा।

9. कार्य समाप्त होने पर निर्माण विभाग द्वारा ठेकेदार द्वारा उपयोग की गई खनिज की वास्तविक मात्रा का विवरण तथा काटी गई रायल्टी राशि का ब्यौरा संबंधित खनि अभियंता / सहायक खनि अभियंता को देना होगा।

10. यदि निर्माण विभाग द्वारा उक्तानुसार प्रक्रिया का पालन नहीं किया गया अथवा ठेकेदार द्वारा अवैध रूप से खनिज का उपयोग किया गया है तो खनिज की दस गुणा रायल्टी वसूली योग्य होगी, जिसको जमा कराने की जिम्मेदारी संबंधित निर्माण विभाग की होगी। संबंधित खनि अभियंता / सहायक खनि अभियंता एमएमसीआर, 1986 के नियम 66 तथा भू–राजस्व अधिनियम के प्रावधानों के अनुसार उक्त राशि वसूल कर सकेगा।

11. ठेकेदार द्वारा प्रतिबंधित क्षेत्रों जैसे चारागाह भूमि, कंजर्वेट एरिया, वन / अभ्यारण्य / राष्ट्रीय उद्यान तथा उनके सेफ्टी जोन क्षेत्र, विभिन्न न्यायालयों द्वारा प्रतिबंधित क्षेत्रों में खनन कार्य नहीं किया जायेगा एवं स्वीकृत खनन पट्टा / लाईसेंस क्षेत्र मे या किसी खातेदारी भूमि में बगैर पट्टाधारी /लाईसेंसधारी या संबंधित खातेदार की लिखित सहमति के बिना खनन कार्य नहीं किया जायेगा। इस बाबत् अल्पावधि अनुज्ञापत्र का आवेदन पत्र पेश करते समय ही शपथ पत्र देना होगा।

यह परिपत्र वित्त (राजस्व डिवीजन) विभाग की आई डी संख्या 101103210 दिनांक 30.10.2011 की सहमति से जारी किया जाता है तथा इस विषय में राजस्थ सरकार द्वारा माननीय सर्वोच्च न्यायालय में दायर की गई एसएलपी पर होने वाले निर्णय के अध्यधीन रहेगा।

राजस्थान सरकार, खान (ग्रुप–2) विभाग के पत्र क्रमांक प.13(6) खान/ग्रुप–2/80–पार्ट जयपुर, दिनांक 18.10.2012 के अनुसार इस विभाग के समसंख्यक परिपत्र दिनांक 15.11.2011 के बिन्दु संख्या 6 में आंशिक संशोधन किया जाता है कि इस बिन्दु में वर्णित रॉयल्टी पेड खनिज प्राप्त करने वाले ठेकेदारों के अधिशुल्क निर्धारण प्रत्येक रनिंग बिल व अंतिम बिल की स्टेज पर किये जाने की बजाय प्रथम रनिंग बिल की स्टेज एवं अंतिम बिल की स्टेज पर ही किये जाए।

इसके अलावा उक्त परिपत्र के बिन्दु संख्या 8 को निम्नप्रकार प्रतिस्थापित किया जाता है :–

"BOT/BOOT के तहत होने वाले निर्माण कार्यों, जिनमें बिलों का भुगतान निर्माण विभाग द्वारा संवेदक को नहीं किया जाता है, उनमें विकल्प–'ए' लागू नही होगा, विकल्प–बी लागू होगा, विकल्प–सी एवं विकल्प–डी इस शर्त के साथ लागू होंगे कि कार्य समाप्ति पर संवेदक द्वारा निर्माण विभाग से खनिज की मात्रा का विवरण प्राप्त किया जाकर अधिशुल्क निर्धारण हेतु बिन्दु संख्या 4 में वर्णित दस्तावेज खनि अभियंता को प्रस्तुत करने होंगे एवं खनि अभियंता द्वारा रायल्टी की अदेयता का प्रमाण–पत्र जारी किया जावेगा। निर्माण विभाग द्वारा संवेदक को टोल वसूली अधिकार पत्र / कार्य पूर्ण का प्रमाण पत्र तब तक जारी नही किया जावेगा, जब तक संवेदक खनि अभियंता से रॉयल्टी की अदेयता का प्रमाण पत्र प्राप्त कर प्रस्तुत नहीं कर देवें।

राजस्थान सरकार, खान (ग्रुप–2) विभाग के पत्र क्रमांक प.13(6) खान/ग्रुप–2/80–पार्ट जयपुर, दिनांक 09.01.2013 के अनुसार इस विभाग के समसंख्यक परिपत्र दिनांक 15.11.2011 में निर्माण विभाग के ठेकेदारों से खनिजों पर रायल्टी वसूली एवं परमिट के संबंध में व्यवस्था की गई है, जिसमें आंशिक संशोधन परिपत्र दिनांक 18.10.2012 से किया गया है। उक्त के क्रम में परिपत्र दिनांक 15.11.2012 में बिन्दु संख्या 12 निम्न प्रकार जोड़ा जाता है :–

"12. जो ठेकेदार रायल्टी पेड खनिज प्राप्त कर निर्माण कार्य सम्पादित करना चाहते है, परन्तु प्रथम या अंतिम रनिंग बिल की स्टेज पर अधिशुल्क निर्धारण नहीं करवाना चाहते है, उन्हें विकल्प 'ई' के रूप में वर्गीकृत किया जाकर उनके अंतिम बिल से रायल्टी की कटौती निम्नानुसार निर्धारण दर से की जाकर चेक अथवा ए0जी0 एडजेस्टमेंट के माध्यम से खान विभाग के आय मद में जमा करवाई जाए :–

1. सड़क निर्माण / वाइडनिंग एवं भवन निर्माण कार्य	3%
2. रिपेयरिंग एवं अन्य कार्य	1.5%

उक्त विकल्प लेने वाले ठेकेदारों को कार्य शुरू करने से पूर्व एक शपथ पत्र निर्माण विभाग में देते हुए प्रति खान विभाग को पृष्ठांकित किया जाना होगा कि वे अवैध खनन से खनिज प्राप्त नहीं करेंगे एवं खान विभाग द्वारा खनन स्त्रोत एवं परिवहन पर अवैध खनन निर्गमन के विरूद्ध की जाने वाली कार्यवाही पर किसी प्रकार की राजदारी उनके द्वारा प्रस्तुत नहीं की जायेगी।

उक्त विकल्प BOT/BOOT ठेकेदारों द्वारा लिये जाने पर उन्हे कार्य की कुल लागत का उपरोक्त दरों से राशि खनि अभियंता कार्यालय में तीन समान किस्तों मे कार्य समाप्ति से पूर्व जमा करानी होगी। निर्माण विभाग द्वारा कार्य की अंतिम संशोधित लागत से खनि अभियंता को अवगत कराया जाएगा तथा तीनों किस्त जमा हो जाने के खनि अभियंता द्वारा सत्यापन किये जाने पर बिन्दु संख्या 9 अनुसार निर्माण विभाग के अभियंता द्वारा टोल वसूली अधिकार पत्र / कार्य पूर्णता प्रमाण पत्र जारी किये जावेंगे।

PROFORMA FOR TESTS CARRIED OUT

NAME OF THE WORK :
AGREEMENT NO. & DATE :

Sl. No.	Item	Quantities as per agreement	Frequency as per specification	No. of tests required	R.A. bill No.	Upto date quantity	No. of tests required	No. of tests actually done	Remarks
1	2	3	4	5	6	7	8	9	10

Signature of Contractor

CEMENT/PAINT REGISTER

NAME OF WORK:
AGREEMENT NO.

Particulars of Receipt

Date of Receipt	Source of receipt with details if any	Batch No.	Date of manufacture	Date of expiry	Qty. received	Progressive Total	Date of Issue	Qty Issued	Items of work for which Issued	Qty. Returned at the end of day's work
1	2	3	4	5	6	7	8	9	10	11

Particulars of Issue

Net Qty. Issued	Progressive Total	Daily Balance in Hand	Contractor's Initial	J.E.'s Initial		Periodical Check	
						By AE	By EE
12	13	14	15	16		17	18

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR

FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER-PROOFING WORKS (All Water - Proofing Items).

The agreement made this..... day of ..... (Two Thousand _____ only) ..... between .....S/o .....(hereinafter called the GUARANTOR of the one part) and the CURAJ (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the CURAJ of the other part whereby the contractor inter alia undertook to render the building and structures in the said contract recited completely water and leak-proof.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain water and leak proof, for ten years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be ten years to be reckoned from the date of the completion of work.

The decision of the Engineer-in-charge with regard to nature and cause of defect shall be final and binding on Guarantor.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer-In-Charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the Guarantor's cost and risk. The decision of the Engineer-in-charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and / or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ..... and ..... by ..... for and on behalf of the PRESIDENT OF INDIA on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. ..... 2. .....

SIGNED FOR AND BEHALF OF THE PRESIDENT OF INDIA BY ..... in the presence of :-

1. ..... 2. .....

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF SANITARY INSTALLATIONS / WATER SUPPLY / DRAINAGE WORK.

The agreement made this..... day of ..... (Two Thousand …… only) ..... between .....S/o .....(hereinafter called the GUARANTOR of the one part) and the PRESIDENT OF INDIA (hereinafter called the Government of the other part)

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited leak proof with sound material and workmanship.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable, leak proof and guaranteed against faulty material and workmanship, and finishing for five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will be free from any leakage, seepage, cracks in pipes and guaranteed against faulty material and workmanship improper slope, defective galvanizingetc. for Five years to be reckoned from the date of completion of the work.

The decision of the Engineer-In-Charge with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of Engineer-in-charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all defects or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ....and ..... by ..... for and on behalf of the CENTRAL UNIVERSITY OF RAJASTHAN on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of :-

1. ..... 2. .....

SIGNED FOR AND ON BEHALF OF THE Central University of Rajasthan BY..... in the presence of :-

1. ..... 2. .....

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF ALUMINIUM DOORS, WINDOWS VENTILATOR WORK,

The agreement made this..... day of ..... (Two Thousand …… only)..... between .....S/o .....(hereinafter called the GUARANTOR of the one part) and the Central University of Rajasthan.

WHEREAS THIS agreement is supplementary to a contract (Hereinafter called the Contract) dated ..... and made between the GUARANTOR OF THE ONE PART AND the Government of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable, workmanship, powder coating, anodizing, colouring and sealing etc.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the affect that the said work will remain structurally stable and guaranteed against faulty material and workmanship, defective anodizing/ powder coating for five years from the date of completion of work.

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable and guaranteed against faulty material and workmanship, defective anodizing/ powder coating for five years to be reckoned from the date of completion of the work.

The decision of the Engineer-In-Charge with regard to nature and cause of defect shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect to satisfaction of Engineer-in-charge at his cost and shall commence the work for such rectification within seven days from the date of issue of the notice from the Engineer-in-charge calling upon him to rectify the defects failing which the work shall be got done by the Department by some other contractor at the guarantor's cost and risk. The decision of the Engineer-in-Charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make good all defects or commits breach there under, then the guarantor will indemnify the principal and his successor against all loss, damage, cost expense or otherwise which may be incurred by him by reason of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and or cost incurred by the Government, the decision of the Engineer-in-charge will be final and binding on both the parties.

IN WITNESS WHEREOF these presents have been executed by the obligator ....and ..... by ..... for and on behalf of the CURAJ on the day, month and year first above written.

SIGNED, sealed and delivered by OBLIGATOR in the presence of:-

1. ..... 2. .....

SIGNED FOR AND ON BEHALF OF THE PRESIDENT OF INDIA BY..... in the presence of:-

1. ..... 2. .....

Annexure –I

LIST OF PREFERRED MAKES FOR CIVIL WORKS

Name of work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works).

S.No	Material	List of Preferred Make
1.	(i) Ordinary Portland Cement / Portland Pozzolona Cement.	ACC, Ultratech, Ambuja Cement, J.K. Cement, Century Cement, Shree Cement, Jaypee Cement, Wonder Cement
	(ii) White Cement	Birla White, J. K. White, Shree Cement
2	Reinforcement Steel (A) TMT Reinforcement Bars	SAIL, Tata Steel, RashtriyaIspat Nigam Ltd (RINL), Shyam Steel, JSW Steel Ltd., Jindal Steel & Power Ltd.
	(B) Corrosion Resistant Steel (CRS) Reinforcement Bars	SAIL CRS , Tiscon CRS of Tata Steel, CRS VIZAG from RashtriyaIspat Nigam Ltd (RINL), JSW Neo CRS from JSW Steel Ltd.,
3.	Water Proofing Compounds, Admixtures, Plasticizer, Super Plasticizer, Curing Compounds	Fosroc, ROFF/Dr. Fixit(Pidilite Industries), CICO, Sika, BASF, Ardex Endura (Bal Endura), NerolacPerma, MYK Arment
4.	Integral Water proofing compound with cement (For Plaster & Mortar)	Fosroc, Conplast 421 Dr. Fixit : LW+, Sika : Sikacim, & equivalent product of BASF, CICO, Ardex Endura, Nerolac-Perma, Asian Paints, Shalimar(STP), UltraTech, MYK Arment
5.	Water proofing for bathroom/ toilet/ balcony & other wet areas	Fosroc : Brush Bond/Brushcrete, CICO :Tapecrete, Dr. Fixit : Pidifin 2K, Sika : Nito Bond, Asain Paints : Damp Block 2 K & equivalent product of BASF, Ardex Endura, Nerolac-Perma, Shalimar(STP), UltraTech, MYK Arment
6.	Crystalline water proofing compound	Fosroc : Fosroc Crystalline
		Dr Fixit : Dr. Fixit Crystalline
		Sika : Sika Crystalline
		Asian Paints : Crystalline Quart, MYK Arment, Aqua Aum C-35
		& equivalent product of BASF, CICO, Ardex Endura, Pentron, Nerolac-Perma
7.	Grouts, Tile Adhesive	Latecrete,BASF, Ardex Endura, Ferrous Crete, Pidilite, UltraTech, Oswal Industries
8	Stone Adhesive	Pidilite - Fevimate excel, BASF, Ardex Endura, MYK Laticrete, Oswal Industries

S.No	Material	List of Preferred Make
9A	Structural Steel	SAIL, Tata Steel, RashtriyaIspat Nigam Ltd (RINL), and JSW Steel Ltd., Jindal Steel & Power Ltd, Apollo Pipes
9B	Structural Steel (For Angle, T-Section, etc. below 50mmx50mmx4mm)	SAIL, Tata Steel, RashtriyaIspat Nigam Ltd (RINL), and JSW Steel Ltd., Jindal Steel & Power Ltd, Apollo Pipes, Prithvi
10	Polycarbonate Sheet	GE Plastic, LEXAN, Bayers
11	Profile steel sheet/Deck Steel Sheets	TATA Bluescope, JSW,Eversandai, Jindal
11(A)	Sandwich Profile panel	Kingspan, Lloyd, Metclo (Note : Profile steel sheet should be of make Tata/Jindal/JSW).
12	Particle Board	Action TESA, Greenlam, Merino
13	Laminates	Action TESA, Greenlam, Century Ply, Merino, Sunmica
14	Flush door shutters	Duro, Century, Durian, Green ply, Jaindoors Pvt. Ltd.
15	Fire Rated Doors	Signum Fire Protection, Shakti Metdoor, NAVAIR, Sukri, Promat International, Bhawani Fire, Jaindoors,
16	False Ceiling System Metalic, Mineral fiber, Gypsum, GRG	Armstrong, Hunter Douglas, Saint Gobain, Aerolite, Durlum, Gyproc, Diamond ceiling
17	Plywood/ Veneer	Green ply, Greenlam, Century, Merino, Duro, Durian
18	Melamine Polish	Asian Paints Melamine Gold, Wudfin of Pidilite, Timbertone of ICI Dulux.
19	Floor Spring & Door Closure	Godrej, Dorma, Dorset, Kich, Hafele
20. (a)	Aluminium Section	Hindalco, Jindal, Indian Aluminium co.
20. (b)	AnodisedAluminium Hardware (Heavy Duty)	Kilong, Alualpha, Classic, Ebco
21	Clear/Float/Frosted/ Toughened Glass/ Refractive Glass	Saint Gobain, AIS, Modiguard, Ashai Float.
22	Stainless Steel Railing, Accessories etc.	JINDAL, Dorma, Kich, GEZE, Godrej, Dorset
23	S.S. Door & window & Fittings	Dorma, Kich, Dorset, Godrej, Hafele
24	Silicon based water repellant /Weather Sealant	G.E. Plastics, Dow Corning, Wacker, BASF, Pidilite (Dr. Fixit/Roff), Nerolac-Perma

S.No	Material	List of Preferred Make
25	Poly-Sulphide Sealant	Fosroc, Pidilite (Dr. Fixit/Roff), Sika, BASF, Nerolac-Perma
26	Mosaic tiles/ Chequered Tiles	Ultra Tiles, NITCO, Hyper(Mayur), Pavcon, Oswal, Swastik, Oswal Industries
26.	Fire door Hardware	Hafele, Dorma, GEZE, Ingersol raid
27	Ceramic Tiles	Kajaria, Somany, Johnson, AGL, Orient bell
28	Vitrified Tiles (Satin/Matt/Glazed finish)& Paver Tiles	Kajaria, Somany, Johnson, Restile, AGL, Orient bell
29	Paver block &Kerb Stone	Pavcon, AkshayInfrasys, Marudhara, Hyper Tiles/Dynamic Industries/ Mayur, Oswal Industries
30	Dash / Anchoring Fasteners	HILTI, Fischer, Bosch, Wurth.
31	Cement Based Wall putty	Birla wall care, JK White, Berger, Asian Paints
32	Oil Bound Washable Distemper / Dry Distemper	Asian Paints : Professional Acrylic Distemper, Nerolac: Beauty Acrylic Distemper, Berger : Bison Acrylic Distemper, AkzonobelDULUX : Maxilite
33	1st Quality Acrylic Distemper (washable/Ready mix/ Low VOC)	Asian Paints : Tractor Aqua Lock Paint, Berger : Commando or equivalent paints of Nerolac or Akzonobel DULUX
34	Acrylic Emulsion Paints	Asian Paints : Professional Premium Interior Emulsion Paint, Nerolac : Beauty Gold, Berger : Rangoli total care, AkzonobelDULUX : Akzonobel Dulux Professional Solitaire A1000
35	Plastic Emulsion Paint	Asian Paints : Apcolite Heavy Duty Premium Emulsion Paint, Nerolac : Impression, Berger : Easy Clean, Akzonobel DULUX : Akzonobel Dulux Professional Solitaire Stain Resist
36	Premium Acrylic Emulsion Paints (Interior)	Asian Paints : Royale Luxury Emulsion, Nerolac : Impression , Berger : Silk, Akzonobel Dulux : Akzonobel Dulux Velvet Touch

S.No	Material	List of Preferred Make
37	Textured Exterior Paint	Asian paints, Nerolac, Berger Paints, Ultratech Paints, Luxture, Akzonobel Dulux
38	Acrylic Smooth Exterior Paint	Asian Paints : Apex/ Professional Premium Exterior Emulsion, Nerolac : XL,Berger : Weather Coat, Akzonobel Dulux : Professional Weathershield
39	Premium Acrylic Smooth Exterior Paint with Silicon additive.	Asian Paints : Apex Ultima Nerolac : XL Total Berger : Weather Coat all guard Akzonobel Dulux : Professional Ultra Clean
40	Synthetic Enamel Paint	Asian : Apcolite Premium gloss enamel, Nerolac : Synthetic Hi gloss Berger : Luxol Hi gloss Akzonobel Dulux : Akzonobel Dulux Gloss
41	Cement Primer	Nerolac, BP White(Berger), Decoprime WT(Asian), White primer (ICI)
42	Steel Primer(Red Oxide Zinc Chromate Primer)	Asian Paints, Nerolac, Berger, ICI
43	Wood Primer	Asian Paints (Wood Primer - White/Pink), Berger, ICI, Nerolac,
44	Epoxy Paint	Asian, Nerolac, Berger, ICI, Kansai Akzo Nobel
45	Fire Paint	Caboline, Akzo Nobel Coatings India Ltd., PROMAT, Jotun, Asian Paints, Berger
46	G.I. / M.S. Pipe	Tata, Jindal (Hisar)
47	G.I. Fittings	Unik, AVR, Zoloto, UCO
48	HDPE Pipes	Reliance, JainPipes, ORIPLAST, Supreme
49	DI PIPES	Electrosteel, Jindal, TATA DUCTURA, Kapilansh, Kesoram, NECO
50	DI Fittings	Electrosteel, Jindal, TATA DUCTURA, Kapilansh, Kesoram, Neco
51	UPVC pipe and Fittings	Astral, Supreme, Ashirwad, Finolex
52	Centrifugally Cast (spun) Iron Pipes & Fittings	NECO, Kapilansh, SKF
53	C.I. Manhole covers, frames & GI Gratings	NECO, RAJ Iron Foundary Agra, BIC, Kapilansh
54	SFRC Manhole covers & gratings	KK, JAIN, PARGATI

S.No	Material	List of Preferred Make
55	CP Brass Fittings (Superior Range)	Jaquar, Grohe, Roca, kohler
56	CP Brass Fittings (Normal Range)	Jaquar, CERA, Hindware, Roca
57 (a)	Sanitary ware, Fittings & accessories (Superior Range)	Jaquar, Kohler, Roca, CERA
57 (b)	Sanitary ware, Fittings & accessories (Normal Range)	Jaquar, Hindware, CERA, Roca
58	Mirror Glass	Atul, Modi Guard, Jaquar, CERA
59	CPVC Pipe & fitting	Astral, Supreme, Finolex
60	Stainless Steel Sink	Neelkanth, Niralli, CERA
61	RCC Pipes (NP-2)	Lakshmi, Sood&Sood, Jain Pipe Co. (Newai), Mahaveer Enterprises (Newai),Work well spun pipes, Pali.
62	UPVC Doors & Windows (PROFILE makers & their authorized Fabricators only)	Fenesta, KOMERLING, RHEAU, Aluplast, VEKA.
63	Extruded Polystrene Insulation Board	Dowcorning, Supreme, Texas, Analco
64	Heat Resistant Tiles	Johnson, Swastik, Thermatek, Oswal
65	Gypsum Plaster	Ferrous Crete, Gyproc Saint Gobain, Boral, UltraTech-Birla white, JK lakshmi
66	Floor hardener	Ironite, Ferrok, Hardonate
67	Modular Expansion Joint	Herculus, Sanfield India Ltd. Vexcolt, Tristar
68	Glass Wool	Dow Corning, U.P. Twiga, Isover
69	UPVC doors and window hardware	Rotto, Dorset, Kinlong, Dorma
70	AAC Block Adhesive	Xtralite, Orifix, Ardex Endura, Ferrous Crete, UltraTech, MYK haticte
71	AAC Block	UltraTech, Orilite, Magicrete, HIL-Aerocon,seporex (Buildtex)
72	Stone Polymer Composite tile Flooring	Welspan, Fundermax, Egger
73	Artificial/Synthetic Grass	Welspan, Floortex, Matrix turf

*** Batch test certificate of Paints and Primer shall be supplied along with each lot.**

Note:

1. The Contractor shall obtain approval from the Engineer-In-Charge before placing order for any specific material or engaging any of the specialized agencies wherever applicable.
2. The Engineer-In-Charge may approve any material equivalent to that specified in the tender subject to proof being offered by the Contractor for equivalence tohis satisfaction.
3. Unless otherwise specified, in the tender document all the materials which are ISI Marked shall be used in the work and if the ISI marked materials are not available, materials

conforming to IS shall be used, and for the materials which are neither ISI marked nor conform to IS, the manufacturer's Specification shall be followed.

4. Wherever makes and models have been specified in BOQ, the agency has to supply them, in such case list of preferred makes shall not be applicable.

Annexure –II

The contractor gives an authority letter addressed to the Engineer-in-charge on a non-judicial stamp paper of Rs. 100 in the format given below :-

Authority Letter for Payment to Third Party

To,

The Registrar
Central University of Rajasthan,
Bandarsindri, Kishangarh,
Ajmer Raj. 305817

Sub:- **Authority for payment to third party.**

I/We authorize the **The Registrar Central University of Rajasthan** to pay directly on my / our behalf to ..... (name of third party) an amount of Rs. ..... (Rupees ..... in words) for the work done or supplies made by ..... (name of third party). I/We shall be responsible for the quality and quantity of the same under the provisions of agreement No. .....

Signature of Contractor

Note :-

1. The total payment to third party (or parties) shall not exceed 10% of the agreement cost of the work.
2. Full reasons for proposing such third party payment shall be recorded and prior written approval of the next higher authority shall be obtained before making such payment.

Part – C

ELECTRICAL WORKS

TERMS AND CONDITIONS FOR INTERNAL AND EXTERNAL ELECTRICAL WORKS

General Commercial & Technical Conditions:

All the works shall be carried out as per CPWD General specification for Electrical Works, Part-I (Internal)-2013; Part-II (External), Part-IV (Sub-Station), amended up to date and should also comply with relevant provisions of the Indian Electricity Rules and Acts as applicable, amended up to date.

The contractor is advised to visit the site of work to have an idea of the execution of the work; failure to do so shall not absolve their responsibility to do the work as specified in agreement.

Rates:

The work shall be treated as on works contract basis and the rates tendered shall be for complete items of work inclusive of all taxes including GST, duties, and levies etc. and all charges for items contingent to the work, such as packing, forwarding, insurance, freight and delivery at site for the materials to be supplied by the contractor, watch and ward of all materials for the work at site etc.

Prices quoted shall be firm.

Mobilization Advance:
No mobilization advance shall be paid for the work, unless otherwise stipulated in tender papers for any individual works/ composite work.

Completeness of Tender:
All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.

Works to be done by the contractor:
Unless and otherwise mentioned in the tender documents, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost: -
Cutting and making good all damages caused during installation and restoring the same to their original finish.
Sealing of all floor openings provided by him for pipes and cables, from fire safety point of view, after laying of the same.
Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/distribution gear items, cubicle switchboard etc. Damages to finished surfaces of these items while handling and erection, shall however be rectified to the satisfaction of the Engineer-in-Charge.
Testing and commissioning of completed installation.
Storage space for all equipments, components and materials for the work.

Storage and Custody of Materials:
The contractor has to make his own arrangement for the storage of the material at site & necessary watch and ward of the electrical installation during the execution of work till the same is handed over to the department. No extra payment will be made on this account. The storage space shall however be arranged by the department at site, if available.

The main contractor shall arrange for proper storage of the electrical fans and fittings at site and that double lock system shall be arranged for the fans and fittings after receipt at site until the time they are taken for installation. The contractor shall however be responsible for proper storage and safe custody of the same till their installation and handing over to the department.

Electric Power Supply and Water Supply:
Power and water supply will be arranged by the contractor at the site for installation and testing purpose.

Contractor will take due care to ensure safety of electrical installation during execution of work.

Tools for handling and Erecting:
All tools and tackles required for handling of equipments and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.

Payment Terms:
Payment shall be made as per the relevant clauses of form PWD 7/8 forming part of the tender documents.

Co-ordination with other agencies:
The contractor shall co-ordinate with all other agencies involved in the building work so that the building work is not hampered due to delay in his work. Recessed conduit and other works, which directly affect the progress of building work, should be given priority.

Care of infrastructure:
Care shall be taken by the contractor to avoid damage to the existing infrastructure during execution of his part of the work. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove, at his costs, all unwanted and waste materials arising out of his work, from the site.

Structural Alterations to Buildings/Infrastructure:
No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-n-charge.
Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. Where these required modifications, or fresh provisions are required to be made, such contingent works shall be carried out by the contractor at his cost.
All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.
All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

Addition to an installation:
Any addition, temporary or permanent, to the existing electrical installation shall not be made without a properly worked out scheme/design by a qualified Electrical Engineer to ensure that such addition does not lead to overloading, safety violation of the existing system.

Work in Occupied Buildings: Deleted

Drawings:
After award of the work, the firm will be required to prepare &submit the drawings of Electrical Installation in accordance to inventory of the proposed work in addition to layout plan, conduit routes, cable routes etc. in both AutoCAD & PDF format for approval of Engineer-in-charge.
The work shall be carried out in accordance with the drawings and the tender documents and also in accordance with modification thereto from time to time as approved by the Engineer-in-charge.
All wiring diagrams shall be deemed to be ‘Drawings’ within the meaning of the term as used in Clause 11 of the conditions of contract (PWD 7). They shall indicate the main switch board, the distribution boards (with circuit numbers controlled by them), the runs of various mains and sub mains and the position of all points with their controls.
All circuits shall be indicated and numbered in the wiring diagram and the points shall be given the same number as the circuit to which they are electrically connected.

Conformity to IE act, IE Rules, and standards:

All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended up to date (Date of call of tender unless specified otherwise). List of rules of particular importance to electrical installations under these General Specifications is given in Appendix C for reference.

General requirements of components:

Quality of material: All materials and equipments supplied by the contractor shall be new and must be in Original seal-pack. They shall be of such design, size and materials as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

Inspection of materials and equipments:

Materials and equipments to be used in the work shall be inspected by the departmental officers. Such inspection will be of following categories:
Inspection of materials / equipments may be witnessed at the Manufacturer's premises in accordance with relevant BIS /Agreement Inspection Procedure.
To receive materials at site with Manufacturer's Test Certificate(s)
To inspect materials at the authorized dealer's go downs to ensure delivery of genuine materials at site.
To receive materials after physical inspection at site.

Adequate care to ensure that only tested and genuine materials of proper quality are used in work shall be ensured by firm. The firm shall ensure that:
(i) Material will be ordered & delivered at site only with the prior approval of the department to ensure timely delivery.
(ii) As and when the order is placed for the fittings/ fixtures, cables, switchgears, poles, rising main, other main items etc., its copy shall be endorsed to the CPWD Engineer-in-charge.
(iii) The firm will be required to procure material like exhaust fans, MCB's & DB's, switches & sockets, wires & cables, conduits and switchgears etc. directly from the manufacturer/ authorized dealers to ensure genuineness & quality and as per the approved makes only. Proof in this regard shall be submitted by the contractor if required by the department.
(iv) Inspection at factory or at go down of the manufacturer, as required, shall be arranged by the firm for a mutually agreed date.
(v) Delivery of material shall be taken up only with the consent of department, after clearance of the material.
(vi) Department shall reserve the right to waive inspection in lieu of suitable test certificate, at its discretion.

Similarly, for fabricated equipments, the contractor will first submit dimensional detailed drawings for approval before fabrication is taken up in the factory. Suitable stage inspection at factory also will be made to ensure proper use of materials, workmanship and quality control.

Ratings of components:

All components in a wiring installation shall be of appropriate ratings of voltage, current and frequency, as required at the respective sections of the electrical installations in which they are used.

All conductors, switches and accessories shall be of such size as to be capable of carrying the maximum current, which will normally flow through them, without their respective ratings being exceeded.

Conformity to standards:

All components shall conform to relevant Indian Standard Specifications wherever existing. Materials with ISI certification mark shall be preferred.

Relevant Indian Standards including amendments or revisions thereof up to the date of tender acceptance shall be applicable in the respective contracts for respective items, firm to ensure its compliance.

Interchangeability:
Similar parts of all switches, lamp holders, distribution fuse boards, Switch gears, ceiling roses, brackets, pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

Workmanship:

Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall conform to sound engineering practice.

Proper supervision/skilled workmen: The contractor shall be a licensed electrical contractor of appropriate class suitable for execution of the electrical work. He shall engage suitably skilled/licensed workmen of various categories for execution of work supervised by supervisors / Engineer of appropriate qualification and experience to ensure proper execution of work. They will carry out instruction of Engineer-in-charge and other senior officers of the Department during the progress of work.

Use of quality materials: Only quality materials of reputed make as specified in the tender will be used in work.

Fabrication in reputed workshop: Switch boards and LT panels shall be fabricated in a factory/workshop having modern facilities like quality fabrication, seven tank process, powder/epoxy paint plant, proper testing facilities, manned by qualified technical personnel. These shall be as per make / item approved.

Testing:
All testes prescribed in this General Specification, to be done before, during and after installation, shall be carried out, and the test results shall be submitted to the Engineer-in-charge in prescribed Performa, forming part of the Completion Certificate.

Commissioning on completion:
After the work is completed, it shall be ensured that the installation is tested and commissioned.

Completion plan and completion certificate:

For all works completion certificate after completion of work as given in Appendix –E of CPWD Specification shall be submitted to the Engineer-in-charge.

Completion plan drawing indicating the following, along with three copies of the same shall also be submitted.
General layout of the building.
(ii) Locations of main switchboard and distribution boards, indicating the circuit numbers controlled by them.
(iii) Position of all points and their controls.
(iv) Types of fittings, viz. LED Light fixtures, pendants, brackets, bulk head, Ceiling fans, exhaust/fresh air fans etc.
Name of work, job number, tender reference, actual date of completion, names of Division/ Sub-division and name of the firm who executed the work with their signature.

26. INTERPRETING SPECIFICATIONS
In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:
(a) Schedule of quantities
(b) Technical specifications
(c) Drawing (If any)
(d) General Specifications
(e) Relevant BIS or other international code in case BIS code is not available.

27. The work is to be executed at the existing site where some electrical work like laying of conduit pipes & fixing of switch boxes has been executed by the former agency. During the execution of electrical work all the existing pipes & modular switch boxes shall be used for wiring work.

TECHNICAL SPECIFICATIONS FOR EI WORK

GENERAL

SCOPE OF WORK:

The specifications given below pertain to the internal electrical installation work and CPWD Specifications are to be followed.

2.0 POINT WIRING:

2.1 The wires used for the point wiring and power wiring shall be of 650 / 1100 Volts grade FRLS PVC insulated multi stranded copper conductor single core cables.

All mounting boxes for plate type accessories shall be of metallic construction and of the same make as that of the plate type switches and accessories.

3.1 Copper and Aluminium Cables

3.1.1. This specification covers the supply, installation, testing and commissioning of 1100 V grade cables.

The design, manufacture and performance of the cables should conform to the relevant IS.

4.0 MOULDED CASE CIRCUIT BREAKERS

4.1 The MCCBs shall comprise single units of triple pole/four pole construction as specified, shall be rated for 415 V AC.

All live parts shall be totally enclosed and shrouded with a heat resistant moulded insulating material housing. Operating mechanism shall be quick make, quick break and trip free type.

The MCCB shall be provided with the following features in microprocessor release:
Inverse-time-current tripping characteristics under sustained overload.
Instantaneous tripping on short circuit

MCCBs shall be of current limiting type.

The rated service breaking capacity (Ics) shall not be less than the ultimate short circuit breaking capacity (Ics = 100%Icu)

Variable Thermal setting shall be provided in all MCCB s with thermal magnetic Release.

All circuit breaker below 250 amps rating shall be provided with thermal magneticrelease& circuit breakers of 250 amps rating and above shall be provided with Microprocessor based release unless otherwise specified.

4.3 All MCCBs shall be provided with rotary handles and links for which nothing extra shall be paid.

5.0 Additional Conditions:

5.1 GUARANTEE/WARRANTEE

The installation will be handed over to the department after necessary testing and commissioning. The LED light luminaries/ fixtures provided under the contract shall be guaranteed for a period of 5 years.50% of the performance guarantee shall be refunded to the contractor soon after the completion of the work and recording of the completion certificate. 50% of the performance guarantee shall be retained as security deposit. 50% of the performance guarantee retained as security deposit plus 2.5 % security deposit already deducted from running bills (1.5 + 2.5 = 4%) shall be refunded year wise proportionately from the date of completion/ handing over whichever is later. In this regard contractor shall furnish an undertaking and bond for Guarantee/Warrantee of 5 years. Warrantee for the other electrical fixtures shall be one (1) year. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith rectified/ repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & building on the contractor.

5.2 The contractor shall submit the relevant test certificates at the time of supply of equipment/Material.

5.3 All the modular switches & MCBs shall be supplied & installed of same make as per the make of existing modular boxes & MCBs boxes already installed at site.

GENERAL AND COMMERCIAL CONDITIONS
FOR LT PANEL & FEEDER PILLAR WORKS

1.0 GENERAL

This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation and final testing & commissioning of the equipments.

1.1 The work shall be executed as per CPWD General Specifications for Electrical Works Part – I, II & IV as amended up to date, relevant I.E. Rules, BIS/IEC and as per directions of Engineer-in-charge. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in the in the contract shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

1.2 The tenderer should, in its own interest, visit the site and get familiarized with the site conditions before tendering.

1.3 No T & P shall be issued by the Department and nothing extra shall be paid on account of this.

1.4 Type of Contract: The work to be awarded by this tender shall be treated as indivisible works contract.

2.0 TERMS OF PAYMENTS

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.
70% after initial inspection (wherever specified) & delivery at site in good condition on pro-rata basis.
10% after completion of installation in all respects.
Balance 20% will be paid after testing, commissioning and handing over to the department for beneficial use.

Works to be carried out by CURAJ

Unless otherwise mentioned in the tender specifications, the following works shall be carried out by the department.
Space for accommodating all the equipments and components involved in the work. However, watch and ward shall be responsibility of the contractor.

4.0 Works to be done by the contractor

In addition to supply, installation, testing and commissioning of all the equipments, as per schedule of work, and specifications, the following works shall be deemed to be included within the scope of work to be executed by the contractor.
Tools and tackles required for handling and installation of equipments.
Protection required for the equipments from rain, dust storm etc. during transportation i.e. polythene cover and tarpaulin.
Necessary equipments for commissioning/site testing.

5.0 RATES

The rates quoted by the tenderer, shall be firm and inclusive of all taxes including GST, packing, transportation, handling etc. The tendered rates should also include charges for installation, testing, commissioning etc. at site including temporary construction of storage

5.1 The contractor has to carry out maintenance as per manufacturer's standards for a period of 12 months from the date of handing over for which nothing extra shall be paid.

6.0 COMPLETENESS OF TENDER

All sundry equipments, fittings, unit assemblies, accessories, hardware items, foundation, foundation bolts, painting, termination lugs for electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

7.0 STORAGE AND CUSTODY OF MATERIALS

The Store room of Electrical Inquiry may be used for storage of sundry materials and erection equipments or else the agency has to make its own arrangements. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

8.0 CARE OF THE BUILDING

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

9.0 COMPLETION PERIOD

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc., arrangement of materials &equipments, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

10.0 GUARANTEE

10.1 All equipments shall be guaranteed for a period of 12 months, from the date of taking over the installation by the department, against unsatisfactory performance and/or break down due to defective design, workmanship or material. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & building on the contractor.

10.2 The tenderer shall guarantee among other things, the following:
(a) Quality, strength and performance of the materials used as per manufacturers standards.
(b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
(c) Satisfactory operation during the maintenance period.

11.0 POWER SUPPLY

Power Supply for the purpose of Installation of LT/Feedar Panel shall be arranged by the contractor themselves and nothing shall be paid on this account.

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12.0 ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS

The acceptable makes of various equipments/components/accessories have been indicated in the List of Acceptable Makes of equipments/ materials". The tenderer shall work out the cost of the offer on this basis.

13.0 DATA MANUAL AND DRAWINGS TO BE FURNISHED BY THE TENDERER.

13.1 With Tender: The renderer shall furnish along with the tender, detailed technical literature, pamphlets and performance data for appraisal and evaluation of the offer.

13.2 After award of work

The successful tendered would be required to submit the following drawings for approval of the department.
General arrangement drawing of the LT Panels, Feeder Pillars & Meter Boards with complete dimensions.
Single line diagram of LT Panels, Feeder Pillars & Meter Boards.
Schematic drawing of LT including all safety interlocking.
Details of foundations for the equipments and the weights of assembled equipments.
Equipment details proposed to be procured for the execution of the work for the approval of the Engineer-in-charge.
Cables rating & sizes, Layout and routes.
Any other drawings necessary for the job.

The successful tendered should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments, operation and maintenance including preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue etc. all in triplicate

14.0 The successful tendered should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments, operation and maintenance including preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue etc. all in triplicate.

15.0 EXTENT OF WORK

15.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning, as may be required by the department. The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been specifically mentioned in bill of quantity in the tender document. However, major equipment not covered in the scope of the work and required subsequently as an additional feature, not covered in the contract specifications, shall be paid extra. The decision of the engineer-in-charge in the matter shall be final and binding upon the contractor.

15.2 In addition to supply, installation, testing and commissioning of sub-station equipments, following works shall be deemed to be included within the scope of work to be executed by the renderer.
Minor works necessary for installation of equipments, foundation, making of opening in walls or in floors and restoring them to their original condition/ finish and necessary grouting etc. as reqd.

16.0 INSPECTION AND TESTING

16.1 All the equipments and fabricated items etc. shall be offered for initial inspection at manufacturer's works. All routine tests conforming to relevant IS shall be carried out in the presence of Engineer-in-Charge or his authorized representative. Contractor will give sufficient notice for the same. The department reserves the right to inspect or not to inspect the equipment at the works of the manufacturer. In the later case confirmation in writing will be issued by the department. The department will bear to &fro expenses of the officer deputed for carrying out inspection. However, nothing extra shall be paid for conducting routine test in the presence of department's representative.

Copies of all manufacturers' routine and type test, certificates of the equipments shall be furnished to the inspecting officer at the time of inspection at the factory.

After completion of work in all respect the contractor shall offer the installation for testing and operation.

17 Defect Liability Period:

17.1 All the equipments shall be guaranteed for a period of 12 months from the date of completion. Any defective materials and equipment shall be replaced free of cost at the direction of Engineer-in-Charge.

18 INTERPRETING SPECIFICATIONS

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

(a) Schedule of quantities
(b) Technical specifications
(c) Drawing (If any)

(d) General Specifications
(e) Relevant BIS or other international code in case BIS

19.0 COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS

19.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

(i) Factories Act.
(ii) Indian Electricity Rules.
(iii) B.I.S. & other standards as applicable.
(iv) Workmen's compensation Act.

19.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

20.0 INDEMNITY

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian law and regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

21.0 ERECTION TOOLS

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

22.0 COOPERATION WITH OTHER AGENCIES

The successful tenderer shall co-ordinate with other contractors and agencies engaged in the construction of buildings, if any, and exchange freely all technical information so as to make the execution of this work/contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself.

23.0 The work will be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

24.0 MOBILIZATION ADVANCE

No mobilization advance shall be paid to the contractor.

25.0 INSURANCE AND STORAGE

All consignments are to be duly insured up to the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.

26.0 VERIFICATION OF CORRECTNESS OF EQUIPMENT AT DESTINATION

The contractor shall have to produce all the relevant records to certify that the genuine equipments from the manufacturers has been supplied and erected.

27.0 PAINTING

This shall include cost of painting of the entire installation. The major equipments shall be factory final finish painted. The agency shall be required to do only touching to the damages caused to the painting during transportation, handling & installation at site, if there is no major damage to the painting. However, hangers, supports etc. of bus trunking shall be painted with required shade including painting with two coats of anticorrosive primer paint at site.

TECHNICAL SPECIFICATIONS FOR LT PANELS

LT SWITCHBOARD (PANEL) AND SWITCHGEARS

This section covers the detailed requirements of Low Voltage switchboard for 415 volts, 3 phases, 50 Hz, 4 wire systems.

Standards and Codes
Updated and current Indian Standard Specifications and Codes of Practice will apply to the equipment and the work covered by the scope of this contract.
Low Voltage switchgear Assemblies IEC 61 439-1/2/ IS: 8623
Low Voltage switchgear & control gear IEC 60 947-1/2/IS 13947:1993
Part I : General rules
Part II : Circuit Breakers
Part III : Switches, disconnectors, switch disconnectors and fuse combination units
Part IV : Contactors and Motor starters
Part V : Control circuit devices and switching elements Degree of Protection of Enclosures for low voltage switchgear. IEC60529 /IS 2147: 1962

1.2 LT PANELS

The scope of this section covers design, manufacture, supply, installation, testing and commissioning of Power Distribution Panels including ACBs, MCCBs, MCBs rated up to 415-430 volts. The panel shall be fabricated i/c all switch as per cpwd specification for electrical work (part-I) and Sub-station work (Part IV) amended to date.

1.2.1. Basic Structure:
a) All electrical panels will be fabricated from 2mm thick CRCA sheet steel for robust construction properly supported with angles and channels.
b) Panels shall be totally enclosed, dust and vermin proof, fully compartmentalized, cubical design modular construction. The covers and doors shall be very well gasket with neoprene rubber gaskets so as to obtain dust proof enclosure.
c) The cubicle will be floor-mounted type unless specified otherwise.
d) The cabinet will be welded construction and not of jointing construction.
e) Door shall be made of 1.6mm/2mm sheet steel, with foamed seal polyurethane gasket, square section under tabular frame with punching in DIN pitch pattern.

1.2.2. Cubical Panel

The cubical panel shall be made out as per CPWD specification and as per relevant Indian Electricity Rules as amended till date.

The firm shall submit the drawing of cubical panel mentioning all the dimensions and schematic diagram along with detail and capacity of each switch gear. The cubical panel shall be fabricated only after approval of drawings from the Engineer-in-charge.

All incoming ACB`s shall have microprocessor-based releases with overload, short circuit, earth fault protections all with adjustable settings and also with adjustable time delays; alongwith adjustable instantaneous short circuit protection; RS485 communication port.

All outgoing and bus coupler MCCB`s of above 250 A capacity shall have microprocessor based releases with overload and short circuit protection with adjustable settings and also with adjustable time delays; along with adjustable instantaneous short circuit protection

Incomers and Bus coupler shall be mechanically inter locked

All metering CT’s and PT’s shall be cast resin type of accuracy class 1.0 Multi-function meter shall be LCD display of accuracy 1.0. All CT's shall be 15VA burden class.

All indicating lights shall be LED type only.

Air Circuit Breakers (ACBs): The ACBs shall comply to IEC 60947 Part I & II and IS 13947 Part I & II and shall be suitable for operation on 415 Volts, 50 Hz 3 Phase system.

Moulded Case Circuit Breaker: The Moulded case circuit breaker (MCCB) shall conform to latest IEC-60 947-2/ IS13947- 2. The circuit breaker shall comply with the isolation function requirement of IEC 60 947-2 section 7.1.2 to marked as suitable for isolation/ disconnection to facilitate safety of operating personnel while the breaker is in use.

Miniature Circuit Breakers (MCB): MCBs shall be hand operated, air break, quick make, quick break type conforming to applicable standards. MCB shall comply with IS : 8828, 1996/IEC 898. MCB shall have minimum power loss (watts) per pole defined as per IS/IEC and the manufacturer shall publish the values.

Current Transformers: Current transformers shall be in conformity with IS: 2705 (part I,II& III)

Test At Manufactures Work: All routine tests specified in IS: 8623-1977 shall be carried out and test certificates produced to the Department.

The bus-bars will be insulated with heat shrinkable sleeves and properly supported. All live parts shall be shrouded by means of acrylic / steel /FRP sheets to ensure no accidental contact with live parts during maintenance and provide simultaneous inspection. The bus-bar supports will be designed to withstand short circuit current equivalent to 35 MVA at 415 volts. The bus-bars will be adequately insulated and protected to prevent accidental contact during operation and maintenance.

Each Panel shall be provided with an earth bus bar running along the entire length of the board. Material and size of the earth bus bar shall be as per CPWD specifications amended upto date.

1.3 FEEDER PILLARS

1.3.1 Outdoor type Feeder Pillars shall be suitable for 3 phase, 50Hz, 415 volts, A.C. system and shall generally conform to IS 5039. Rating and size of Feeder pillar shall be as per designed load and requirement.

1.3.2 The Feeder pillar shall be provided with degree of protection IP 65 as per IS : 2147.

1.3.3 Each door shall open to minimum 135 degrees. Locking on both the doors with two keys for each lock shall be provided with each pillar.

1.3.4 The enclosure shall be provided with ventilated louver cover with wire mesh, lifting hooks, supporting legs and double earth terminal with double washer.

1.3.5 Moulded case circuit breaker shall be provided for incoming and MCB shall be provided as per IS 8828-1978 for outgoing. Gland plate shall be 3mm thick with suitable number of flanged type brass cable glands of required sizes shall be provided.

1.3.6 All civil work for feeder pillar foundation shall form part of feeder pillar installation work. This shall include excavation, backfilling, brickwork, plastering and providing PVC sleeves. Cost of civil work shall deem to be included in quoted rates.

1.3.7 BUS BAR

i) The bus bars shall be air insulated and made of high conductivity, high strength aluminium alloy complying with the requirement of gradeE-91E of IS : 5082.

ii) Capacity of aluminium bus bars shall be considered as 1.3 Amp per sq.mm of cross section area of the bus bar and also conforming to Table -VI of CPWD specifications for Electrical Works (Part-I).

iii) The main bus bars shall have continuous current rating throughout the length of Feeder Pillars. The cross section of neutral bus bars shall be same as that of phase bus bar for busbars of capacity upto 200Amp; for higher capacity the neutral bus bar shall not be less than half (50%) the cross section of that the phase bus bars.

(iv) Busbars to be colour coded with PVC sleeves.

LT Switchgears

MOULDED CASE CIRCUIT BREAKERS (MCCB)

2.1.1 General

The Moulded case circuit Breaker (MCCB) shall confirm to the latest IEC 60947-2 and IEC 60 947-3-1989. MCCB's shall be suitable for rated operation voltage up to 415 VAC & rated insulation voltage up to 690 VAC.

MCCB's in AC circuits shall be of triple pole / four pole construction as per enclosed BOQ. The "ON", "OFF" and "TRIP" positions of the MCCB's shall be clearly indicated and visible to the operator when mounted as in service. Front of door operating handle shall be provided with pad lock and door interlock. Front of door operating handle shall be provided with door interlock defeat mechanism to facilitate inspection of the MCCB during 'ON' position. MCCB shall be suitable for Positive isolation / disconnection according to IEC 60947-1 & 2 for optimum user safety.

The Service short circuit Breaking capacity (Ics at 415 VAC) of all MCCB's shall be as specified in BOQ and shall have (Ics=100% Icu).

All MCCB should have "Class-II" front facia as per IEC 60664.
All circuit breaker below 250 amps rating shall be provided with thermal magnetic

Release& circuit breakers of 250 amps rating and above shall be provided with Microprocessor based release unless otherwise specified.

All MCCBs shall be provided with rotary handles, spreader links and phase barrier on both incoming & outgoing sides for which nothing extra shall be paid.

2.2 Miniature Circuit Breaker (MCB)

Miniature circuit breakers shall be of approved design and make and must be tested and validated as per IS/IEC 60898, IEC/EN 60898 and IEC 60947-2 standards.

MCBs shall be suitable for operation at 230V/415V, 50Hz supply. The MCB ratings shall be available from 1--125A in 1P/2P/3P/4P versions. The rated short circuit capacity acc to IS/IEC 60898 shall be of 10,000A. MCBs shall be offered with B, C or D tripping characteristics as per the BOQ requirements. The MCBs shall be suitable for mounting on a 35mm DIN rail.

MCBs shall carry ISI and CE marking.

MCBs shall ensure complete electrical Isolation of downstream circuit or equipment, when the MCB is switched OFF

3.0 CABLE WORK

The L.T. Power cables shall be XLPE insulated PVC sheathed type aluminium conductor armoured cable conforming to IS : 7098 : 1988 (Part-I) with up-to date amendments whereas control cable shall be XLPE insulated and PVC sheathed copper conductor armoured/ unarmoured cable conforming to IS:7098 (Part-I) 1988.

All the street light Cables shall be laid in 50mm dia. HDPE pipes, as per the direction of Engineer-In-Charge. Cable laying shall be carried out as per CPWD general specifications for electrical works (part-II External)-1994.

Cable tags shall be made out of 2mm thick aluminium sheets, each tag 1-1/2 inch in dia with one hole of 2.5mm dia, 6mm below the periphery. Cable designations are to be punched with letter/number punches and the tags are to be tied inside the panels beyond the glanding as well as below the glands at cable entries. Trays tags are to be tied at all bends. On straight lengths, tags shall be provided at every 15 metres.

Prior to installation, burying of cables, following tests shall be carried out. Insulation test between phases, phase & neutral, phase & earth for each length of cable.

a. Before laying.

b. After laying.
c. After jointing.

Prior to installation, the following tests shall be conducted in the presence of the Engineer-In-Charge.

a. Insulation Resistance Test (Sectional and overall).
b. Continuity Resistance Test.
c. Earth Test.

All tests shall be carried out in accordance with relevant Indian Standard code of practice and Indian Electricity Rules. The Contractor shall provide necessary instruments, equipments and labour for conducting the above tests & shall bear all expenses of conducting such tests.

CENTRAL UNIVERSITY OF RAJASTHAN

Name of work: Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

PART-D
(SCHEDULE OF QUANTITY)

SCHEDULE OF QUANTITY FOR WORK

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

GENERAL ABSTRACT			
S.No.	DESCRIPTION	Annexure	Amount (INR)
1	Civil Work	A	
	MS Trellis	A-1	2,59,50,536.38
	Water Fountain- 3nos	A-2	39,27,709.02
	Stone Sculpture	A-3	27,00,000.00
	Seating area with Sand Stone	A-4	97,364.24
	Open Air Theater	A-5	47,94,045.17
	Central Garden Toe wall	A-6	54,84,141.65
	Dismantling work	A-7	1,51,036.63
2	Infrastructure Work	B	
	Paved Pathway & Driveway	B-1	1,23,92,555.92
	Soft Pathway	B-2	45,95,051.81
	Unipole, Signage & Dustbins	B-3	2,70,311.63
3	Water supply and Drainage work	C	
	Water supply and Drainage work of Landscape area		28,74,145.00
4	Electrical Work	D	
	Electrical work of Landscape		54,87,839.00
5	Horticulture and Landscapping Work	E	74,21,315.88
6	Irrigation System	F	13,31,948.00
8	Construction of Rain Water Harvesting -1nos	G	8,77,647.43
	Total		7,83,55,648.00

Annexure- A1

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

MS Trellis							Rates are based on CPWD DSR 2023			
S.No.	D.S.R. Item No.	Description of Items	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	2.8.1	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. . All kinds of soil	Cum							
		Earth Excavation								
		MS Trellis Foundation								
		Piers	Cum	196	1.95	1.95	1.5	1117.94		
		Total	Cum					1117.94	260.30	290998.48
2.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum							
		PCC								
		MS Trellis Foundation								
		Piers	Cum	196	1.95	1.95	0.15	111.79		
		Total	Cum					111.79	6812.00	761537.32

3.0	5.1.2	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 : 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)	Cum							
		MS Trellis Foundation								
		Footing	Cum	196	1.8	1.8	0.4	254.02		
		Bases of Column	Cum	196	0.75	0.75	0.95	104.74		
		Total	Cum					358.75	9045.75	3245194.47
4.0	4.5.1	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete. 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)								
		Stone Masonary Top								
		Piers	Cum	196	0.6	0.6	0.05	3.53		
		Total	Cum					3.53	10105.10	35650.79

5.0	5.9.1	Centering and shuttering including strutting, propping etc. and removal of form for Foundations, footings, bases of columns, etc. for mass concrete								
		MS Trellis Foundation								
		Footing	Sqm	392	1.8		0.4	282.24		
			Sqm	392	1.8		0.4	282.24		
		Bases of Column	Sqm	392	0.75		0.95	279.30		
			Sqm	392	0.75		0.95	279.30		
		Total	Sqm					1123.08	392.15	440415.82
6.0	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.								
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more								
		Qty taken 100 kg per cum	Kg	100	358.75			35875.35		
		Total	Kg					35875.35	107.85	3869156.50
7.0	7.8	Coursed rubble masonry with hard stone (first or second sort) in superstructure above plinth level and upto floor five level.								
	7.8.1	Masonry work (first sort), in cement mortar 1:6 (1 cement : 6 coarse sand)								
		Stone Masonry Work								
		MS Trellis Foundation								

		Piers	Cum	196	0.6	0.6	2.35	165.82		
		Total	Cum					165.82	10741.60	1781129.15
8.0	7.10.1	Extra for coursed rubble masonry with hard stone (first or second sort) in: Square or rectangular pillars								
		Under Foundation								
		MS Trellis Foundation								
		Piers	Sqm	196	0.6	0.6	2.35	165.82		
		Total	Sqm					165.82	1060.50	175847.87
9.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.								
	16.87.1	With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.								
		Stone Masonary Top								
		Piers	Sqm	196	0.65	0.65		82.81		
		Total	Sqm					82.81	4950.90	409984.03

10.0	12.23.1 .1	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens or structural steel sections (Karries or battens or structural steel sections to be paid separately), including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand) complete : Red sand stone slab 40 to 50 mm thick	Sqm					3000.60 0	1138.20	3415282.92
		Stone Slab over MS Trellis								
		Total length : 500 mtr @ 300 mm spacing both side	Sqm	3334	3	0.3		3000.60		
		50x300x 3000 mm								
11.0	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg							
		Pergola / MS Trills	Kg							
		Stone Pier to Stone pier								
		Length : 2.2+1.4+.2+6.625+.2+1.4+2.2 = 14.225 mtr	Mtr	98	14.22 5			1394.05		
		Top member : 4 x 500 = 2000 mtr	Mtr	4	500			2000.00		
		Total Length						3394.05		
		MS Square section 150x150 mm								
		Qty taken 23 kg per rmt	Kg	23	3394. 05			78063.1 5		
		Add Base plate	Kg	196	4.50			882.00		
		Add 20% additional qty	Kg	0.2	15612 .63			3122.53		

		Total	Kg					82067.68	133.70	10972448.28
12.0	13.62.1	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture								
		Pergola / MS Trills	Sqm	4	3394.05	0.15		2036.43		
		Total length : 3394.05 mtr								
		Add 20% additional qty	Sqm	0.2	2036.43			407.29		
		Total	Sqm					2443.72	226.25	552890.75
		TOTAL								25950536.38
								Say in lacs		259.51

Annexure-A2

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Water Fountain- 3nos				Rates are based on CPWD DSR 2023						
S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	Market Rate	Providing and fixing of Outdoor Central water fountatain with including Jet nozzle, pipe,glass panel, Pumping, Electrical system including all material and labor etc. and as per directed by engineer	Nos	1.00				1.000	350000.00	350000.00
2.0	Market Rate	Providing & installing of high relif mural 3d art work in single stone made of Bansi Paharpur stone finish. Sculpture including carving, plannig, developing all loading - unloading , transportation, scaffolding, hoisting , installation with all required T & P , fixing over/ on base/ surface as per shape-size & placement as per approved drawing, finishing , surface treatment etc. covering properly till the date of opening , inauguration of site etc. complete job in all respect as per approved design & drawing under approval of project consultant , appointed for the project & as per directions of Engineer - In - Charge.								
		Center sculpture	Cum	1.00	1.80	1.80	1.80	5.83	90000.00	524880.00

3.0	2.8.1	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. . All kinds of soil	Cum					19.013	260.30	4948.95
		Earth excavation								
		Bottom Base fountain area	Cum	1.00	6.500	6.500	0.450	19.013		
		Bottom Base Sump area	Cum	1.00	1.200	1.200	0.600	0.864		
		Concrete Work								
4.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					5.400	6812.00	36784.80
		PCC								
		Bottom Base	Cum	1.00	6.000	6.000	0.150	5.400		
5.0	5.1.2	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 : 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)	Cum					7.311	9045.75	66133.48
		Central Fountain								
		Bottom Base	Cum	1.00	6.000	6.000	0.150	5.400		

		Outer and internal RCC Wall								
		L-1 / Outer	Cum	1.00	19.000	0.150	0.260	0.741		
		L-2 / Internal	Cum	1.00	8.000	0.150	0.750	0.900		
		L-3 / Sump	Cum	2.00	0.900	0.150	0.600	0.162		
		L-4 / Sump	Cum	2.00	0.600	0.150	0.600	0.108		
6.0	4.5.1	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete. 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)	Cum		`			0.285	10105.10	2879.95
		Outer and internal RCC Toe wall top								
		L-1 / Outer	Cum	1.00	19.000	0.190	0.050	0.181		
		L-2 / Internal	Cum	1.00	8.000	0.190	0.050	0.076		
		L-3 / Sump	Cum	2.00	0.900	0.190	0.050	0.017		
		L-4 / Sump	Cum	2.00	0.600	0.190	0.050	0.011		
		Stone Masonry Work								
7.0	7.12.1.1	Stone work in plain ashlar in super structure upto floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with cementmortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : One face dressed Red sand stone	Cum					0.075	68294.00	5122.05
		Central								

		Stone Pedestal	Cum	1.00	0.500	0.500	0.300	0.075		
8.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	Sqm					36.000	883.15	31793.40
		PCC								
		Bottom Base	Sqm	1.00	6.000	6.000		36.000		
		Plaster Work								
9.0	13.3	Plaster on new surface on walls in cement sand mortar 1:6 including racking of joint etc. complete fine finish : :								
	13.3.2	20 mm thick	Sqm					25.480	450.00	11466.00
		Outer and internal RCC Wall								
		L-1 / Outer	Sqm	2.00	19.000		0.260	9.880		
		L-2 / Internal	Sqm	2.00	8.000		0.750	12.000		
		L-3 / Sump	Sqm	4.00	0.900		0.600	2.160		
		L-4 / Sump	Sqm	4.00	0.600		0.600	1.440		
		Floor finishes								
10.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.						24.800	4950.90	122782.32
	16.87.1	With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.	Sqm							

		Internal Fountain area	Sqm	1.00	24.800			24.800		
11.0	8.2.2.2	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels. Granite stone slab of colour black, Cherry/Ruby red Area of slab over 0.50 sqm	Sqm					29.680	5136.30	152445.38
		Outer and internal RCC Wall								
		L-1 / Outer	Sqm	2.00	19.000		0.260	9.880		
		L-2 / Internal	Sqm	2.00	8.000		0.750	12.000		
		L-3 / Sump	Sqm	2.00	0.900		0.600	1.080		
		L-4 / Sump	Sqm	2.00	0.600		0.600	0.720		
		Top Base								
		L-1 / Outer	Sqm	1.00	19.000	0.200		3.800		
		L-2 / Internal	Sqm	1.00	8.000	0.200		1.600		
		L-3 / Sump	Sqm	2.00	0.900	0.200		0.360		
		L-4 / Sump	Sqm	2.00	0.600	0.200		0.240		
		For one Nos								1309236.34
		For 3 Nos	Nos	3.00						3927709.02
		Total								3927709.02
								Say in Lacs		39.28

Annexure-A3

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Stone Sculpture			Rates are based on Market							
S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	MR	Providing & installing of Butter ball in Natural single Boulder resting on a short incline as a balancing Sculpture including carving, plannig, developing all loading - unloading , transportation, scaffolding, hoisting , installation with all required T & P , fixing over/ on base/ surface as per shape-size & placement as per approved drawing, finishing , surface treatment etc. covering properly till the date of opening , inauguration of site etc. complete job in all respect as per approved design & drawing under approval of project consultant , appointed for the project & as per directions of Engineer - In - Charge.								
		Sizes: 1.2x 1.5 x 1.5 mtr	Cum	1.00	1.20	1.50	1.50	2.70		
		Weight : 1000 kg per cum								
		Total weight	Tonne	1.00	2.70			2.70		
		For one nos						2.70	25000.00	67500.00
		For 40 nos	Nos	40.00						2700000.00
		Grand Total								2700000.00
								Says in lacs		27.00

Annexure-A4

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Seating area with Sand Stone			Rates are based on CPWD DSR 2023							
S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	7.12.1.1	Stone work in plain ashlar in super structure upto floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : One face dressed Red sand stone	Cum					0.009	68294.00	614.65
		Stone Bench								
		Pedestal	Cum	2.00	0.200	0.100	0.225	0.009		
2.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.								
	16.87.1	With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.	Sqm					0.368	4950.90	1819.46
		Stone Top	Sqm	1.00	1.050	0.350		0.368		
		For One nos								2434.11
		for 40 nos	Nos	40.00	2434.106					97364.24
		Grand Total								97364.24
								Says in lacs		0.97

Annexure-A5

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Open Air Theater				Rates are based on CPWD DSR 2023						
S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	2.8.1	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. . All kinds of soil	Cum					1204.769	260.30	313601.44
		Earth excavation								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	1.500	2.900	269.700		
		L-2 / Stage outer wall	Cum	1.00	34.000	1.500	2.900	147.900		
		Internal OAT Area								
		L-1	1.00	1.00	21.730	34.500	1.050	787.169		
2.0	2.25	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.	Cum					361.431	196.00	70840.43
		Back Filling								
		Qty taken 30% of Total quantity of item no. 2.8.1	Cum	0.30	1204.769			361.431		
		Concrete Work								

3.0	4.1	Providing and laying in position cement concrete including curing, compaction etc. complete in specified grade excluding the cost of centering and shuttering - All work up to plinth level.								
	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					97.818	6812.00	666336.22
		PCC								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	1.500	0.150	13.950		
		L-2 / Stage outer wall	Cum	1.00	34.000	1.500	0.150	7.650		
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Cum	1.00	32.000	0.765	0.150	3.672		
		L-2 / Lvl at - 600 mm	Cum	1.00	32.000	0.765	0.150	3.672		
		L-3 / Lvl at -1200 mm	Cum	1.00	25.000	0.765	0.150	2.869		
		L-4 / Lvl at -1050 mm	Cum	1.00	31.000	0.385	0.150	1.790		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Cum	1.00	32.000	0.900	0.150	4.320		
		L-2 / Lvl at - 1050	Cum	1.00	32.000	0.900	0.150	4.320		
		L-3 / Lvl at - 1650	Cum	1.00	25.000	0.900	0.150	3.375		
		PCC at Path and Stage								
		L-1 / Stage	Cum	1.00	155.000		0.150	23.250		
		L-2 / Lvl at -2100	Cum	1.00	109.000		0.150	16.350		
		L-3 / Both side passage	Cum	2.00	21.000	2.000	0.150	12.600		

4.0	4.6.1	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), including the cost of required centering, shuttering complete. . 1:1½:3 (1 Cement: 1½ coarse sand (zone-III) derived from natural sources: 3 graded stone aggregate 20 mm nominal size derived from natural sources).	Cum					9.405	8726.85	82076.02
		Coping top Stone wall								
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.600	0.150	2.880		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.600	0.150	2.880		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.600	0.150	2.250		
		L-4 / Lvl at -1050 mm	Sqm	1.00	31.000	0.300	0.150	1.395		
5.0	5.1.2	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing andreinforcement - All work up to plinth level : 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)	Cum					70.961	9045.75	641890.94
		RCC wall								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	0.325	2.370	47.756		
		L-2 / Stage outer wall	Cum	1.00	34.000	0.325	2.100	23.205		

6.0	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.								
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg					5676.840	107.85	612247.19
		Steel roof taken 80 kg per cum	Kg	80.000	70.961			5676.840		
		Stone Masonry Work								
7.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					49.050	7311.25	358616.81
		Stone Masonry Work								
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Cum	1.00	32.000	0.600	0.900	17.280		
		L-2 / Lvl at - 600 mm	Cum	1.00	32.000	0.600	0.750	14.400		
		L-3 / Lvl at -1200 mm	Cum	1.00	25.000	0.600	0.600	9.000		
		L-4 / Lvl at -1050 mm	Cum	1.00	31.000	0.300	0.900	8.370		
8.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	Sqm					652.120	883.15	575919.78
		Soiling								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000	1.500		93.000		
		L-2 / Stage outer wall	Sqm	1.00	34.000	1.500		51.000		

		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.765		24.480		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.765		24.480		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.765		19.125		
		L-4 / Lvl at -1050 mm	Sqm	1.00	31.000	0.385		11.935		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Sqm	1.00	32.000	0.900		28.800		
		L-2 / Lvl at - 1050	Sqm	1.00	32.000	0.900		28.800		
		L-3 / Lvl at - 1650	Sqm	1.00	25.000	0.900		22.500		
		PCC at Path and Stage								
		L-1 / Stage	Sqm	1.00	155.000			155.000		
		L-2 / Lvl at -2100	Sqm	1.00	109.000			109.000		
		L-3 / Both side passage	Sqm	2.00	21.000	2.000		84.000		
		Plaster Work								
9.0	13.3	Plaster on new surface on walls in cement sand mortar 1:6 including racking of joint etc. complete fine finish : :								
	13.3.2	20 mm thick	Sqm					628.080	450.00	282636.00
		Internal Plaster								
		Stone Masonry Work								
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	2.00	32.000		0.900	57.600		
		L-2 / Lvl at - 600 mm	Sqm	2.00	32.000		0.750	48.000		
		L-3 / Lvl at -1200 mm	Sqm	2.00	25.000		0.600	30.000		
		L-4 / Lvl at -1050 mm	Sqm	2.00	31.000		0.900	55.800		

		RCC wall								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	4.00	31.000		2.370	293.880		
		L-2 / Stage outer wall	Sqm	2.00	34.000		2.100	142.800		
		Floor finishes								
10.0	11.28.1	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush. Red sand stone	Sqm					703.250	1280.10	900230.33
		Flooring								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000	0.325		20.150		
		L-2 / Stage outer wall	Sqm	1.00	34.000	0.325		11.050		
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.650		20.800		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.650		20.800		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.650		16.250		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Sqm	1.00	32.000	0.900		28.800		
		L-2 / Lvl at - 1050	Sqm	1.00	32.000	0.900		28.800		
		L-3 / Lvl at - 1650	Sqm	1.00	25.000	0.900		22.500		
		PCC at Path and Stage								
		L-1 / Stage	Sqm	1.00	155.000			155.000		
		L-2 / Lvl at -2100	Sqm	1.00	109.000			109.000		
		L-3 / Both side passage	Sqm	2.00	21.000	2.000		84.000		

		Walls								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000		1.150	71.300		
		L-2 / Stage outer wall	Sqm	1.00	34.000		1.150	39.100		
		L-3 / Lvl at -1050 mm	Sqm	1.00	31.000		1.150	35.650		
		L-4 / Lvl at 0.00	Sqm	1.00	32.000		0.450	14.400		
		L-5 / Lvl at - 600 mm	Sqm	1.00	32.000		0.450	14.400		
		L-6 / Lvl at -1200 mm	Sqm	1.00	25.000		0.450	11.250		
11.0		Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	Kg					375.000	772.40	289650.00
		Railing								
		Total length : 25 mtr	Kg	15	25			375		
		Qty taken 15 kg per Rmt								
		Total								4794045.17
								Say in Lacs		47.94

Annexure-A6

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Central Garden Toe wall				Rates are based on CPWD DSR 2023						
S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	2.8.1	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. . All kinds of soil	Cum					494.010	260.30	128590.80
		Earth excavation								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.600	1.850	38.850		
		L-2 / Near fountain	Cum	1.00	51.000	0.600	1.250	38.250		
		L-3 / Near fountain	Cum	1.00	64.000	0.600	0.650	24.960		
		L-4 / Outer	Cum	1.00	253.000	0.600	0.650	98.670		
		L-5 / Outer	Cum	4.00	43.000	0.600	1.250	129.000		
		L-6 / Outer	Cum	4.00	37.000	0.600	1.850	164.280		
		Concrete Work								
2.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					43.380	6812.00	295504.56
		PCC under footing								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.600	0.100	2.100		
		L-2 / Near fountain	Cum	1.00	51.000	0.600	0.100	3.060		

		L-3 / Near fountain	Cum	1.00	64.000	0.600	0.100	3.840		
		L-4 / Outer	Cum	1.00	253.000	0.600	0.100	15.180		
		L-5 / Outer	Cum	4.00	43.000	0.600	0.100	10.320		
		L-6 / Outer	Cum	4.00	37.000	0.600	0.100	8.880		
		Stone Masonry Work								
3.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					300.420	7311.25	2196445.73
		Stone Masonry Work								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.400	1.750	24.500		
		L-2 / Near fountain	Cum	1.00	51.000	0.400	1.150	23.460		
		L-3 / Near fountain	Cum	1.00	64.000	0.400	0.550	14.080		
		L-4 / Outer	Cum	1.00	253.000	0.400	0.550	55.660		
		L-5 / Outer	Cum	4.00	43.000	0.400	1.150	79.120		
		L-6 / Outer	Cum	4.00	37.000	0.400	1.750	103.600		
		Floor finishes								
4.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.						578.400	4950.90	2863600.56

	16.87.1	With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.	Sqm							
		Internal Boundary wall Toe wall sides								
		L-1 / Near Fountain	Sqm	1.00	35.00		0.350	12.250		
		L-2 / Near fountain	Sqm	1.00	51.00		0.350	17.850		
		L-3 / Near fountain	Sqm	1.00	64.00		0.350	22.400		
		L-4 / Outer	Sqm	1.00	253.00		0.350	88.550		
		L-5 / Outer	Sqm	4.00	43.00		0.350	60.200		
		L-6 / Outer	Sqm	4.00	37.00		0.350	51.800		
		Internal Boundary wall Toe wall Top								
		L-1 / Near Fountain	Sqm	1.00	35.00	0.450		15.750		
		L-2 / Near fountain	Sqm	1.00	51.00	0.450		22.950		
		L-3 / Near fountain	Sqm	1.00	64.00	0.450		28.800		
		L-4 / Outer	Sqm	1.00	253.00	0.450		113.850		
		L-5 / Outer	Sqm	4.00	43.00	0.450		77.400		
		L-6 / Outer	Sqm	4.00	37.00	0.450		66.600		
		Total								5484141.65
								Say in Lacs		54.84

Annexure-A7

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Dismantling work

Rates are based on CPWD DSR 2023

S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	15.2.1	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge. Nominal concrete 1:3:6 or richer mix (including equivalent design mix)	Cum					10.000	2434.25	24342.50
		Existing block	Cum							
2.0	16.83	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge	Sqm		0.200	3650.40		730.080	131.75	96188.04
		Existing block	Sqm							
3.0	16.82	Taking out existing kerb stones of all types from footpath/ central verge, including removal of mortar etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.	Meter					775.250	39.35	30506.09
		Existing block	Meter							
		Total								151036.628
								Say in Lacs		1.51

Annexure- B1

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

DETAILED ABSTRACT										
Paved Pathway & Driveway			Rates are based on CPWD DSR 2023							
S.No.	D.S.R. Item No.	Description of Items	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	2.28.1	Surface dressing of the ground including removing vegetation and in- equalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m. All kinds of soil	Sqm					4657.404	34.15	159050.35
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Sqm	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Sqm	1.000	355.824			355.82		
		P-3 Near Central Lawn	Sqm	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Sqm	1.000	159.010			159.01		
		Outer Driveway	Sqm	1.000	3650.400			3650.40		
2.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	Sqm					4657.404	883.15	4113186.34
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Sqm	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Sqm	1.000	355.824			355.82		
		P-3 Near Central Lawn	Sqm	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Sqm	1.000	159.010			159.01		
		Outer Driveway	Sqm	1.000	3650.400			3650.40		

3.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					675.660	6812.00	4602598.64
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120		0.100	9.11		
		P-2 Near Mound Landscape	Cum	1.000	355.824		0.100	35.58		
		P-3 Near Central Lawn	Cum	1.000	401.050		0.100	40.11		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010		0.100	15.90		
		Outer Driveway	Cum	1.000	3650.400		0.150	547.56		
		Under Stone masonary for paved pathway								
		P-1 Near Dry Landscape	Cum	1.000	67.000	0.500	0.100	3.35		
		P-2 Near Mound Landscape	Cum	1.000	167.000	0.500	0.100	8.35		
		P-3 Near Central Lawn	Cum	1.000	202.000	0.500	0.100	10.10		
		P-4 Near OAT Theater lawn	Cum	1.000	112.000	0.500	0.100	5.60		
4.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					135.946	7311.25	993931.83
		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120	0.300	0.450	12.30		
		P-2 Near Mound Landscape	Cum	1.000	355.824	0.300	0.450	48.04		
		P-3 Near Central Lawn	Cum	1.000	401.050	0.300	0.450	54.14		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010	0.300	0.450	21.47		

5.0	16.91.2	Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50 mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge. 80 mm thick C.C. paver block of M-35 grade with approved colour design and pattern.	Sqm					730.080	1091.50	796882.32
		Outer Driveway 20% qty taken	Sqm	0.200	3650.400			730.08		
6.0	16.92	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20 mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10 mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in-charge.	Sqm					73.008	2189.15	159825.46
		Add 10% extra additional qty as per item no. 16.91.2	Sqm					73.01		
7.0	11.28.1	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush. Red sand stone	Sqm					1007.004	1280.10	1289065.82
		Paved Pathway 3.0 Mtr wide								

		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Cum	1.000	355.824			355.82		
		P-3 Near Central Lawn	Cum	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010			159.01		
8.0	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineerin-charge (length of finished kerb edging shall be measured to calculate volume for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	Cum					27.480	10117.00	278015.16
		Outer Driveway								
		Both side	Cum	2.00	1145.000	0.100	0.600			
		Outer Driveway 20% qty taken	Cum	0.20	137.400			27.48		
		TOTAL								12392555.92
								Say in lacs		123.93

Annexure- B2

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works

Soft Pathway			Rates are based on CPWD DSR 2023							
S.No.	D.S.R. Item No.	Description of Items	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	2.8.1	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. . All kinds of soil	Cum					242.550	260.30	63135.77
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Cum	1.000	539.000	3.000	0.150	242.55		
2.0	16.10	Making bajri path including preparation of subgrade, supplying and laying brick aggregate of 50 mm nominal size 7.5 cm deep with blinding material consisting of 12 mm moorum and 12 mm red bajri consolidated with road roller.	Sqm					1617.000	191.25	309251.25
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Sqm	1.000	539.000	3.000		1617.00		

3.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					215.600	6812.00	1468667.20
		PCC Below Peebles								
		Soft Pathway	Cum	1.000	539.000	3.000	0.100	161.70		
		Both side								
		Total length: 490.0 mtr around Central garden	Cum	2.00	539.000	0.500	0.100	53.90		
4.0	2.50	Providing & fixing of White River (Stone) Pebbles size of 2" to 2.50" dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Qtl.					808.500	610.70	493750.95
		Peebles Pathway								
		Soft Pathway	Cum	1.000	539.000	3.000	0.050	80.85		
5.0	23.5	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in Pathway area, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum					323.400	1509.80	488269.32
		Peebles Pathway								
		Soft Pathway	Cum	1.000	539.000	3.000	0.200	323.40		
6.0	16.92	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20 mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10 mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in-charge.	Sqm					323.400	2189.15	707971.11

		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Sqm	2.000	539.000	0.300		323.40		
7.0	7.1.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					145.530	7311.25	1064006.21
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden	Cum	2.00	539.000	0.300	0.450	145.53		
		Add 10% 49.0 mtr								
		TOTAL								4595051.81
								Say in lacs		45.95

Annexure-B3

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

DETAILED ABSTRACT						
Unipole, Signage & Dustbins			Rates are based on CPWD DSR 2023			
S.No.	D.S.R. Item No.	Description of Items	Unit	Qty.	Rate	Amount
		"G-Schedule"				
		Signage				
1	16.60	Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 2 mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 as approved by Engineer-in-charge, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat. The rate includes the cost of rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge.(Structural frame work including M.S. plate to be provided separately. Rectangular area of the sheet only shall be measured for payment).				
	16.60.1	Overhead informatory road signage	Each	6.00	5879.90	35279.40
		UniPole - 2 Nos				
2	2.8.1	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. . All kinds of soil	Cum	3.71	260.30	966.36

3	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum	0.34	6812.00	2299.05
4	5.1.2	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 : 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)	Cum	2.16	9045.75	19538.82
5	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	840.00	133.70	112308.00
		"H-Schedule"				
		Dust Bins				
6	Non BSR Item	Proving and installation of Dustbin Rabbit:-It should be made by fiber glass reinforced plastic with 2.5 mm FRP thickness overall and thickness should be made by 2 layers of 450 gms roving mat and suspend in unsupported resin in pigment with promoter and exalter. Gelcote proposed with using color take pigment of multy color. Height should be 1.2 mtr. and capacity should be 100 liter for penguin shape and 90 liter for rabbit shape. And install by hole fast c.c. foundation system as order by engineer in charge.	Nos	4.00	8100.00	32400.00
7	Non BSR Item	Providing and installation of Hanging dusbin :- Providing and installation of litter bins as per specification, litter bins should be made by fiber glass reinforced plastic 5 mm with Mully process make 1" layer of 450 gsm emulsion glass reinforced stunned mats with one layer of uv gecote with gpg resin 2nd layer of 450 gsm emulsion glass reforced stunned mats with pigment and hardener and supere layer of resin and gelcote liter bins and supreme layer of resin and gelcote liter bins and supreme layer of resin and gelcote litter ins should be perfectly grinded by grinder and mounted on 32 mm ODMS pipe with proper fitment like visor, total thickness of FRP litterbins should be 5 mm in FRP total height 1.5 mtr. and length should be 0.8 mtr. width should be 0.5 mtr. supporting pipe should be pain by epoxy power quoting and FRP litter bins should be brightly paint by 3 litter of P.U. paint with smooth finishing on the front and back side there are no any sharp corners not seen on	Nos	4.00	8350.00	33400.00

		the ltters bins.				
8	Non BSR Item	Providing and installation of dustbin penguin shap:- It should be made by fiber glass reinforced plasstic with 2.5 mm FRP thickness overall and thickness should be made by 2 layers of 450 gsm roving mat and suspended in unsupported resin in pigment with promoter and exalter. Gelcote proposed with using color take pigment of multy color height should be 1.3 mtr and capacity should be 100 liter for pendguin shape and 90 liter for rabbit shape and installation by hole fast c.c. foundation systeme ase order by engineer in charge.	Nos	4.00	8530.00	34120.00
		TOTAL				270311.63
				Say in lacs		2.70

Annexure-C

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Water supply and Drainage work of Landscape area					
S.No.	Description of Items	Unit	Qty.	Rate	Amount
1	Excavating trenches of required width for pipes cables, etc including excavation for socket, and dressing of sides,ramming of bottom, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc and disposing of surplus excavated soil as directed within a lead of 50 m.				
2	All kinds of soil pipes, cables etc, exceeding 80 mm dia but not exceeding 300 mm dia	metre	511	320.00	1,63,440.00
3	Providing and laying plain cement concrete M15 grade (using mechanical concrete mixer) using 20mm graded hard crusher broken stone aggregate, laying in layers of not more than 15cm thick, for bedding having width = outer dia of pipe (Bc) + 200mm or 1.25Bc (whichever is higher), thickness below pipe = 0.25Bc or 100mm (whichever is higher) and haunching = 0.25Bc, for RCC pipes of following sizes, including compaction, curing, formwork, etc complete as per drawing and/ or as directed by Engineer.				
4	110mm dia	Mtr.	400.0	550.00	2,20,000.00
5	160mm dia	Mtr.	385.0	750.00	2,88,750.00
6	200mm dia	Mtr.	150.0	800.00	1,20,000.00
7	250mm dia	Mtr.	200.0	950.00	1,90,000.00
8	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. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	Kg	100	150.00	15,000.00
9	Providing and Fixing Aquasafe agriculture pipe(is 4985:2000) working Pressure 6kg /cm2 approved quality with Fitting including joining the pipe with solvent cement and lubricant.				
10	110mm dia	Mtr.	400.0	650.00	2,60,000.00

11	160mm dia	Mtr.	385.0	820.00	3,15,700.00
12	200mm dia	Mtr.	150.0	1200.00	1,80,000.00
13	250mm dia	Mtr.	200.0	1860.00	3,72,000.00
14	Construction of chamber in all type of soil with 300 mm thick masonry in CM 1:6 m 10 cm thick C.C. 1:5:10 in foundation, 20mm thick insider plaster in Cm 1:6, finished with floating neat cement, 50mm thick M-15 grade C.C. flooring , earthwork etc. complete as per design including disposal of surplus earth within a lead of 50 mtr.				
15	Inside size 300 x 300mm depth upto .45 M Cement cover with frame.	Each	38	3500.00	1,33,000.00
16	Inside size 600 x 300mm depth upto .6 M Cement cover with frame.	Each	14	5500.00	77,000.00
17	Inside size 1200 x 450mm depth upto 1.0 M Cement cover with frame.	Each	12	7800.00	93,600.00
18	Inside size 1200 x 600mm depth upto 1.3 M Cement cover with frame.	Each	10	10000.00	1,00,000.00
19	Inside size 1200 x 900mm depth upto 1.5 M Cement cover with frame.	Each	4	15000.00	60,000.00
20	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete 450 mm dia RCC pipes.	Meter	100	2676.55	2,67,655.00
21	Providing and Fixing Aquasafe agriculture pipe(is 4985:2000) working Pressure 6kg/cm2 approved quality with Fitting including joining the pipe with solvent cement and lubricant.				
	50mm dia (Sump Outlet Pipe)	Mtr.	60	300	18,000.0
	Total				2874145.00
		Says in lacs			28.74

Annexure-D

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Electrical work of Landscape			Rates are based on CPWD DSR 2023			
S. No.	D.S.R. Item No.	Description	Unit	Qty.	Rate	Amount
		"G-Schedule"				
		WIRING AND SUBMAIN WIRING				
1	1.14	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
	1.14.1	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Mtr	500	233.00	116500.00
	1.14.2	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Mtr	500	275.00	137500.00
	1.14.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Mtr	280	334.00	93520.00
2	1.21	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	1.21.1	20 mm	Mtr	20	128.00	2560.00
	1.21.2	25 mm	Mtr	100	145.00	14500.00
3	1.32	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	10	586.00	5860.00
4	1.35	Erection of wall bracket /ceiling fittings of all sizes and shapes containing upto two GLS lamps per fitting, complete with all accessories including connection etc. as required.	Each	650	119.00	77350.00
		DISTRIBUTION BOARDS				
5	2.2	Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
	2.2.13	100 Amp, 30KA, FP MCCB	Each	2	7,723.00	15446.00
6	2.4	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	2.4.3	8 way (4 + 24), Double door (TPN)	Each	1	5,967.00	5967.00

7	2.10	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.10.1	Single pole	Each	24	256.00	6144.00
	2.10.5	Triple pole and neutral	Each	1	1,228.00	1228.00
8	2.11	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	Each	0	13.00	0.00
9	2.14	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.14.2	40 amps	Each	2	2,642.00	5284.00
10	2.15	Supplying and fixing following rating, 4 pole, (3 phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 30 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.15.3	63 amps	Each	2	2,872.00	5744.00
11	2.18	Supplying and fixing 20 amps, 240 volts, SPN industrial type, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	0	1,621.00	0.00
12	2.19	Supplying and fixing 20 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	5	2,590.00	12950.00
13	2.21	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	2	269.00	538.00
	5	E A R T H I N G				
14	5.2	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	2	6,855.00	13710.00

15	5.7	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	Mtr	500	51.00	25500.00
16	5.11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Mtr	30	706.00	21180.00
17	5.15	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Mtr	20	244.00	4880.00
18	14.16	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
	14.16.2	90 mm dia (OD-90 mm & ID-76 mm nominal)	Mtr	100	290.00	29000.00
	14.16.4	160 mm dia (OD-160 mm & ID-135 mm nominal)	Mtr	250	481.00	120250.00
		PUBLIC ADDRESS SYSTEM				
19	17.3.1	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.	Each	0	1,26,411.00	0.00
20	17.3.2	Supplying, installation, testing & commissioning of 1.5/3/6W ceiling speaker complete as required.	Each	50	965.00	48250.00
21	17.3.7	Supplying, installation, testing & commissioning of digital audio amplifier 75 Watt, 25V rms operating at 240 Volt AC Supply complete as required.	Each	1	1,45,793.00	145793.00
22	17.5.3	Supplying and drawing of cable Fire Retardant PVC insulated copper conductorcable in the existing surface / recessed steel conduit of following pairs, cores and size including connections and interconnections etc. as required.				
	17.5.3.2	Speaker cable Two pair, 2-core, 1.5 sqmm	Mtr	1000	89.00	89000.00
23	1.21	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	1.21.1	20 mm	Mtr	800	128.00	102400.00
24	17.5.4	Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required.	Mtr	25	53.00	1325.00
		TOTAL COST OF DSR ITEM (A)				11 02 379.00

		"H-Schedule"				
25		Providing & Fixing of IK10 IP65 protected 600 mm height LED Bollard Luminarie with base plate made of powder coated die cast alluminium housing with UV stabalized PC diffuser. The System level Luminous efficacy ≥ 90 Lumen/W. SMD LEDs is to be used, System CRI>70, CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency > 85%, PF>0.9, THD<20% and input Voltage range of 90-270V AC at 50Hz. System life of 30000 Burning hours with 70% of Initial Lumens maintained Light output in Cool white or Warm White Colour as per engineers choice. driver current <750mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. 10 Watt	Each	29	10,000.00	290000.00
26		Providing & Fixing of IK08 IP65 protected Top/Bottom mounted LED Post top Luminarie made of single piece construction powder coated die cast alluminium housing with UV stabalized Clear / frosted Polycarbonate diffuser and Aluminium anodised with sand blast reflector. The System level Luminous efficacy ≥ 100 Lumen/W. SMD LEDs is to be used, System CRI>70, CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency > 85%, PF>0.9, THD<10% and input Voltage range of 140-270V AC at 50Hz. System life of 50000 Burning hours with 70% of Initial Lumens maintained . Driver current <750mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. 35 Watt	Each	36	11,105.00	399780.00

27		Supply and erection of Galvanized Iron pole with galvanizing done in single dipping (Average coating thickness Minimum 65 Microns) continuously tapered poles having Octagonal / Circular cross-sections designed to withstand the maximum wind speed as per IS 875, The pole shaft shall be made from sheet steel (HT Steel Conforming to grade S355JO) and confirming to BSEN 10025 and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process. pole shafts shall be provided with the rigid flange plate of suitable thickness (Fe 410 conforming to IS 226 / IS 2062) with provision for fixing 4 no. foundation bolts, This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside.The octagonal Poles shall have lockable door of approximate 500 mm length at the elevation of 500 mm from the Base plate with bakelite sheet having 6A SP MCB and 16 sqmm stud type connector (4 nos) inside the pole at door opening for cable connection of following length and dimension with base plate and foundation bolt on the cement concrete foundation. All as per pre approved by Engineer in charge.	No	36	3,500.00	126000.00
28		12 watt, LED , Tree Uplighter, having not less than 1000 lumen output, suitable to operate on 230 volts,50 Hz, single phase AC supply etc as reqd	Each	290	3,000.00	870000.00
29		6 watt, LED Inground (Drive overLight) stainless steel 304, IP-68 rating having not less than 200 lumen output, suitable to operate on 230 volts,50 Hz, single phase AC supply etc as reqd	Each	8	3,500.00	28000.00
30		5 watt ,LED Step Lights, having not less than 200 lumen output, suitable to operate on 230 volts, 50 Hz,single phase AC supply etc as reqd	Each	135	3,278.00	442530.00
31		8 watt ,LED Up & Down Light having not less than 650 lumen output, suitable to operate on 230 volts, 50 Hz,single phase AC supply etc as reqd	Each	104	1,850.00	192400.00
32		SITC of flexi encapsulated strip light (IP68) with homogeneoues and spot free illumination suitable to operate 230 volts 50 Hz, single phase AC supply i/c S/laying FRLS Copper wire/Aluminium armoured cable	Mtr.	670	500.00	335000.00

33		Surface/ recess type circular LED down lighter neutral white (5700 K) with LED having pressure die cast aluminium hang body having high efficiency diffuser with more than 85% transmittance with rated life of L-70@ 50000 hrs having system lumen output better than 1150 lumens and efficacy better than 100 lumen/ watt with CRI>80, Reverse Polarity and Surge Protection up to 2Kv, THD<10%.	Nos	135	1,450.00	195750.00
34		Provide & Fixing of underwater Luminaire 5 watt suitable for use with 230V reflector lamp in R30 shell with corrosion resistant housing made from Brass Conector box ,Heat Resistant toughened glass front Cover , Heat Resistant silicon rubber gasket to provide ingress protection of IP-67 .	Nos	18	3,500.00	63000.00
35		P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand,IInd class bricks covering, refilling earth,compaction of earth, making necessary connection, testing etc. as required of size.				
		4.0C X 25 Sqmm Armoured Al. Cable	Mtr.	0	380.0	0.00
		4.0C X 4 Sqmm Armoured Al. Cable	Mtr.	6700	180.0	1206000.00
36		Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.				
		4.0C X 25 Sqmm	Mtr.	0	200.0	0.00
37		Supply, Installation, Testing and Commissioning of KIOSK TYPE DISTRIBUTION FEEDER PILLAR BOX MADE OF 2 mm CRCA MS sheet of IP 55 protection comprising of following items	Nos.	2	75,000.00	150000.00
		Sump Pump				

38		SITC of Dewatering Submersible Motor Pump set, motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011. with SS Impellor, body, shaft, mechanical seal etc. as required. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively complete in all respect. OEM shall have submit NABL / CPRI / ERDA accrediated lab type test certificate before execution. All as per pre approved by Engineer in charge. 2.0 HP, 3-Ø, (5 -18)Mtr, (480 - 66) LPM	Each	2	40000.0	80,000.0
39		Supply and fixing of Oil / Air break Starter panel made out of sheet steel powder coated enclosure comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps etc. complete in all respect suitable for following rating motors. 2.0/3.0 HP, 3-Ø, DOL starter	Each	2	3500.0	7,000.0
		TOTAL COST OF NON-DSR ITEM (B)				43 85 460.00
		GRAND TOTAL COST (A+B)				54 87 839.00
				Say in Lacs		54.88

Annexure-E

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Horticulture and Landscapping Work			Rates are based on CPWD DSR 2020			
S.No.	D.S.R. Item No.	Description of Items	Unit	Qty.	Rate	Amount
		"G-Schedule"				
		SUB HEAD 2.0:HORTICULTURE AND LAND SCAPING				
1	2.10	Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly levelling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or / and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	Cum	3600.00	78.10	281160.00
2	2.20	Supplying and stacking of good earth at site including royalty and carriage upto 5 km lead complete (earth measured in stacks will be reduced by 20% for payment).	Cum	4500.00	515.60	23,20,200.0
3	2.40	Supplying and stacking at site dump manure from approved source, including carriage upto 5 km lead complete (manure measured in stacks will be reduced by 8% for payment) :				
	2.4.1	Screened through sieve of I.S. designation 20 mm	Cum	1200.00	254.15	304980.00
4	2.50	Rough dressing the trenched ground including breaking clods.	Sqm	6000.00	1.50	9000.00
5	2.60	Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation.	Sqm	6000.00	4.90	29400.00
6	2.70	Fine dressing of the ground.	Sqm	6000.00	3.70	22200.00
7	2.80	Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately).	Cum	5700.00	52.35	298395.00
8	2.90	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	5700.00	36.55	208335.00

9	2.10	Grassing with selection No. 1 Doob grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and good earth shall be paid for separately).				
	2.10.1	In rows 5 cm apart in both directions	Sqm	5700.00	17.70	100890.00
10	2.13	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately)	Cum	2480.00	222.85	552668.00
11	2.14	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)				
	2.14.1	Holes 1.2 m dia and 1.2 m deep	Each	87.00	335.50	29188.50
	2.14.2	Holes 90 cm dia, and 90 cm deep	Each	64.00	143.10	9158.40
12	2.25	Supplying and stacking of well decayed cattle manure at site including royalty and carriage upto 5 Km lead complete (Cattle manure measured in stacks will reduced by 8% for Payment).	Cum	754.00	247.50	186615.00
13	2.28	Preparation of mounds of various size and shape by available excavated / supplied earth in layers not exceeding 20 cm in depth, breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.	Cum	224.00	456.35	102222.40

14	2.35	Supplying & Stacking of Selection No.1 doob grass turf at site fresh & free from weeds having proper roots in green including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Sqm	570.00	50.80	28956.00
15	2.40	Complete maintenance of the entire garden features having as per yard stick in the garden area i.e. lawn trees, shrubs, herbs, edge, flower beds, foliages, creepers etc. including hoeing,weeding, Pruning, replacement of plants, gap filling, watering, mowing of lawn, grass cutting by lawn mover and brush cutter, removal of garden waste, applying insecticide, pesticide & fertilizers(whenever required) top dressing of lawn with good earth and manure and maintenance of other garden related works as directed by office-in-charge (Cost of Good Earth, Manure, Fertilizer, Insecticide, Pesticide will be provided by the Department & lawn mover and brush cutter with fuel and other T & P material/articles shall be provided by the contractor.) and as per direction of officer in charge.				
	2.40.2	Permanent office accommodation.(1Mali for 1.25Acre) - For 6 Months (Total Area 17300 Sqm)	Per Sqm Per Month	103800.00	3.85	399630.00
16	2.50	Providing & fixing of White River (Stone) Pebbles size of 2" to 2.50" dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Qtl.	258.40	610.70	157804.88
17	2.53	Providing and wartering of irrigation water through water tanker of Horticulture features i.e. lawn, tree, shrubs, hedge/edge, ground cover etc. at the site of work. Water tanker having 5000 lit. capacity with one labour for watering i/c cost of water, filling of tanker, wartering at site with all leads and lifts as per direction of officer-in-charge.	Per Trip		932.95	0.00
18	2.57	Plantation of Trees, Shrubs, and Hedge at site i/c watering and removal of unserveiceable material's as per direction of officer in charge (excluding cast of plant & water)				
	2.57.1	Trees Plant	Each	64.00	7.30	467.20
	2.57.2	Shrubs Plant	Each	17170.00	3.65	62670.50
	2.57.3	Hedge Plant /Ground cover	Each	17000.00	2.45	41650.00
		SUB HEAD 8.0:SHRUBS				

19	8.34	Providing and stacking of Hamelia patens (Dwarf) of height 30-45 cm. with 3-4 branches in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	5375.00	40.00	215000.00
20	8.46	Providing and stacking of Murraya exotica of height 45-60 cm. in poly bags of size 15 cm as per direction of the officer-in-charge.	Each	1850.00	15.00	27750.00
		SUB HEAD 9.0:CREEPER PLANTS				
21	9.40	Providing and stacking of Bougainvillea (Variety Butiana, Lady Mary Baring, Mahara,Mohan,Scarlet Queen, Variegated, Glabra Formosa, Peruviana Odissi, Paratha, Subhra,Thimma, Spectabilis L.N Birla, Refulgens) of height 30 cm. to 45 cm. with 2-3 branches in 20 cm size of Earthen pots / Plastic pots & as per direction of the officer-in-charge.	Each	9545.00	40.00	381800.00
		TOTAL COST OF DSR ITEM (A)				5770140.88
		"H-Schedule"				
	A	HORTICULTURE AND LAND SCAPING WORK				
22	1.00	Grassing with Maxican Doob grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and good earth shall be paid for separately).				
	2.00	In rows 5 cm apart in both directions	Sqm	300.00	20.00	6000.00
23	3.00	Supplying & Stacking of Maxican doob grass turf at site fresh & free from weeds having proper roots in green including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Sqm	30.00	80.00	2400.00
24	4.00	Providing and applying anti termite treatment of Palm trees after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 50 ml Imidacloprid per tree i/c cost of chemical) and as per direction of officer-in-charge.	Per Tree	87.00	90.00	7830.00
25	5.00	Providing and applying anti termite treatment of Trees after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 10 ml Imidacloprid per tree i/c cost of chemical) and as per direction of officer-in-charge.	Per Tree	64.00	20.00	1280.00

26	6.00	Providing and applying anti termite treatment of shrubs and ground covers after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 2 ml Imidacloprid per plant i/c cost of chemical) and as per direction of officer-in-charge.	Per Plant	34170.00	3.00	102510.00
27	7.00	Providing and applying anti termite treatment of Palm trees after plantation by mixing Fipronil 0.6 % GR (@ 250 gram Fipronil per tree i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Tree	87.00	25.00	2175.00
28	8.00	Providing and applying anti termite treatment of Trees after plantation by mixing Fipronil 0.6 % GR (@ 100 gram Fipronil per tree i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Tree	64.00	10.00	640.00
29	9.00	Providing and applying anti termite treatment of shrubs and ground covers after plantation by mixing Fipronil 0.6 % GR (@ 20 gram Fipronil per plant i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Plant	34170.00	2.00	68340.00
	B	Providing and stacking of Palms and Trees:				
30	1.00	Providing and stacking of Plumeria rubra of height 210-240 cm. with 5-6 branches and thick stem in big size HDPE bags as per direction of the officer-in-charge.	Per Plant	24.00	2500.00	60000.00
31	2.00	Providing and stacking of Bismarkia nobilis Palm of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	24.00	8000.00	192000.00
32	3.00	Providing and stacking of Phoenix sylvestris Roxb. (Wild date palm/khajur) of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	56.00	10000.00	560000.00
33	4.00	Providing and stacking of Conocarpus erectus of height 250-300 cm. with dense foliage and thick stem in big size HDPE bags as per direction of the officer-in-charge.	Per Plant	40.00	1500.00	60000.00
34	5.00	Providing and stacking of Washingtonia fillifera Palm of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	7.00	9000.00	63000.00
	C	Providing and stacking of Shrubs:				
35	1.00	Providing and stacking of Fountain Grass (Red) of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	120.00	40.00	4800.00
36	2.00	Providing and stacking of Fountain Grass (Green) of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	135.00	40.00	5400.00

37	3.00	Providing and stacking of Lemon Grass of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	120.00	40.00	4800.00
	D	Providing and stacking of Ground Covers:				
38	1.00	Providing and stacking of Spider Lily of height 30-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	17000.00	30.00	510000.00
		TOTAL COST OF DSR ITEM (B)				1651175.00
		GRAND TOTAL COST (A+B)				74 21 315.88
				Say in Lacs		74.21

Annexure-F

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Irrigation System						
1.0	PIPE WORK	Make/model	Units	Qty	Rate	Amount
	Providing, laying & jointing in position PVC pipe conforming to ISI standard and suitable for the respective working pressures with all fittings and accessories e.g. couplings, tees, bends, reducers, screwed adapters, flanged tail pieces etc. jointing as per manufacturers' instruction,	Supreme/Finolex/Prince				
1.1	HDPE 75mm-PN8		Rm	500.00	290.00	145000.00
1.2	PVC pipe 75mm-6 kg/cm2		Rm	318.00	270.00	85860.00
1.3	PVC pipe 63mm-6 kg/cm2		Rm	318.00	145.00	46110.00
1.4	PVC pipe 50mm-6 kg/cm2		Rm	450.00	105.00	47250.00
1.5	PVC pipe 40mm-6 kg/cm2		Rm	1100.00	82.00	90200.00
1.6	Earth work excavation and refilling 300x450mm		Rm	2686.00	50.00	134300.00
2.0	SPRINKLERS & ACCESSORIES					
2.1	Supply Installation Testing & Commisioining of I-25/PRO SPORT Pop-up ROTOR sprinkler, Radius of throw 13.9 - 20.9 mtr radius rotor, Patented automatic arc return feature returns the turret back to the original arc pattern if vandalised; adjustable arc from 50° to 360° ,Nozzle choices: 5 Nos , pressure range 4 to 4.5 bar, Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel , Flat-top nozzles allow fast, easy insertion , QuickCheck™ arc mechanism for fast arc adjustment.	Hunter/ K-Rain	Nos	30.00	3,150.00	94500.00
2.2	Providing & Fixing of Four Elbow Swing joint Assembly 1". The fittings shall be made of UV resistant thermo plastic etc. item complete.	Hunter/ JAIN	Nos	30.00	850.00	25500.00
2.3	Providing and fixing of PP service saddle of varying size.1"	Rainson/Gokul/equ	Nos	30.00	79.00	2370.00
2.4	Supply Installation Testing & Commisioining of PGP Ultra Pop-up ROTOR sprinkler, Radius of throw 4.9 - 14 mtr radius rotor, Patented automatic arc return feature returns the turret back to the original arc pattern if vandalised; adjustable arc from 50° to 360° ,Nozzle choices: 34 Nos , pressure range 1.7 to 4.5 bar, Non-strippable drive mechanism is	Hunter/ K-Rain	Nos	35.00	980.00	34300.00

	protected from damage if turned in the opposite direction of travel , Flat-top nozzles allow fast, easy insertion , QuickCheck™ arc mechanism for fast arc adjustment, Nozzle trajectory: standard = 25°, low-angle = 13° , with automatic arc return and non strippable drive part and full circle in one model with check valve ,flow 1.2 to 53.8 lpm. Complete Etc					
2.5	Providing & Fixing of SJ- 712, 3/4" Pop up Connecting Four Elbow Swing joint Assembly. The fittings shall be made of UV resistant thermo plastic etc. item complete.	Hunter/ K-Rain	Nos	35.00	185.00	6475.00
2.6	Providing and fixing of PP service saddle of varying size.3/4"	Rainson/Gokul/equ	Nos	35.00	79.00	2765.00
2.7	Supply of 1/2" Spray Pop up having colour coded Nozzle with multiple stream water spray capable of covering 2m- 4.7m with Matched Precipitation Rate .The Spray Head body shall be constructed of heavy-duty, ultraviolet resistant plastic with small exposed cover.	Hunter/ K-Rain	Nos	50.00	260.00	13000.00
2.8	Providing & Fixing of SJ- 512, 1/2" Pop up Connecting Four Elbow Swing joint Assembly. The fittings shall be made of UV resistant thermo plastic.	Hunter/ K-Rain	Nos	50.00	180.00	9000.00
2.9	Providing and fixing of PP service saddle of varying size.1/2"	Rainson/Gokul/equ	Nos	50.00	79.00	3950.00
3.0	VALVES & ACCESSORIES					
3.1	Providing & fixing of Isolation Valve in mainline for bypass and flow diversion of approved quality 75 MM	Harit/Eqiov.	Nos	1.00	780.00	780.00
3.2	Providing and fixing of PVC Ball Valve,security pivot to maintain lever in space,double water tight joint,direct injection stem non mechanical ,with a base which permits maximum penetration into the valve of size 63mm.	Harit/Eqiov.	Nos	12.00	680.00	8160.00
3.3	Providing & fixing of a double acting 1" Air release valve, The Air release valve shall be capable of both releasing and admitting air from and into the line. The working pressure shall be 5 bar. Including service saddle and riser assembly.	Harit/Eqiov.	Nos	1.00	980.00	980.00

3.4	Providing & fixing of 12" Rectangular Valve Box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	12.00	1665.00	19980.00
3.5	Providing & fixing of 10" Rectangular Valve Box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	0.00	875.00	0.00
3.6	Providing & fixing of 6"Round box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	11.00	375.00	4125.00
3.7	Providing & fixing of Brass Quick coupling valve 1" made up of solid brass with locking cover corrosion resistant and stainless steel spring. Including service saddle and riser assembly.	Harit/Eqiov.	Nos	10.00	1380.00	13800.00
3.8	Providing & fixing of 1" Brass Key threads into top of QCV to provide water access And Brass Swivel Elbow	Harit/Ecoaqua/Equ.	Nos	2.00	1380.00	2760.00
4.00	FILTERATION UNIT					
4.1	Providing & Fixing of 3" Filter unit with disc filter and gravel filter with manual back wash filtration with capacity matching pump design flow having an suitable inlet connections , to create a helical effect in the incoming water ,spinning particulate in suspension away from the filtering element and so minimizing cleanings frequency ,3/4" outlet for flushing at bottom of filter & maximum working presure of 10 Bars. with pressure gauge (50 M3).	Azud/Amiad/Armas	Nos	1.00	36800.00	36800.00
6.0	PUMPING UNIT					
6.1	Providing & Fixing of (Monoblock/Openwell submersible) pumpset of having discharge 5.28 lps@ 60 mtr head . suitable for pumpset etc.(One Working One Stand By)	LUBI/CROMPTON/CRI	Nos	1.00	44,700.00	44,700.00
6.2	Providing and fixing of control panel suitable for pumpset having panel box and fixed alongwith following accessories starter,start/stop push buttons , Ammeter,Voltmeter , Indicating lamps,MCB,with cable,etc.	VIRAAL	Nos	1.00	12,600.00	12,600.00
6.3	Providing & Fixing of Suction,Delivery & Header Pipe UPVC	Supreme/ Prince/ Finolex	Nos	18.00	370.00	6,660.00

6.4	Providing & fixing of Control Valve /Butterfly Valve 2.5" in mainline for bypass and flow diversion of approved quality	LP/Kartar/zoloto	Nos	0.00	670.00	-
6.5	Providing & fixing of Non Return Valve 2.5" to prevent back flow	Harit/Eqiov.	Nos	1.00	1,900.00	1,900.00
6.6	Providing and fixing of Pressure Release Valve 2".	Harit/Rafel/ Equiv.	Nos	1.00	11,800.00	11,800.00
7.0	Automation Equipment					
7.1	Supply and fixing of Direct burial 1.5sq mm x 2c cable for two way communication between controller and valves	Finolex/Polycab Equ.	Mtr	830.00	69.00	57270.00
7.2	Supply and fixing of Direct burial 14 AWG x 1C cable for One way communication between controller and valves	Finolex/Polycab Equ.	Mtr	0.00	-	0.00
7.3	PVC conduit Pipe 32 mm with Accessories	Supreme/ Aashirwad/ Finolex	Mtr	830.00	23.00	19090.00
7.4	Commercial decoder based controller with module for 12 working station with 230/240 VAC internal transformer, Automatic Short Circuit Protection. Seasonal Adjustment:Manual or Automatic programmability,Programmable Click Delay,Non-Water Days,Non-volatile memory,Rain Sensor bypass,One Touch manual Start	Hunter	Nos	1	29800.00	29800.00
7.5	Supply and fixing of 2" Solenoid globe Valves with fabric reinforced diaphram and rugged PVC construction ,compatible with and slow closing to prevent water hammer,pressure rating upto 10 bar with 24AC solenoid, with provision to attach Pressure Regulator	Hunter/ K-rain/Harit	Nos	12.00	4,450.00	53400.00
7.6	Supply and fixing of EZ1 Decoder	Hunter	Nos	12.00	5,900.00	70800.00
7.7	Supply and fixing of direct bury -on wire connector with strain relief , with waterproof silicon sealant.	Hunter	Nos	48.00	160.00	7680.00
					TOTAL	11,43,665.00
					GST	188283.00
					TOTAL PROJECT COST	13,31,948.00

Annexure-G

Cost Estimate of Proposed Beautification and Landscape of CURAJ

Construction of Rain Water Harvesting -1nos			Rates are based on CPWD DSR 2023			
S. No.	D.S.R. Item No.	Description	Unit	Qty.	Rate	Amount
		RAIN WATER HARVESTING				
1	2.8.1	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. . All kinds of soil	Cum	22.22	260.30	5782.56
2	2.26.1	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil / depth of excavation above 1.5 m and upto 3.0	Cum	18.84	387.10	7292.96
		depth of excavation above 3.0 m and upto 4.5	Cum	1.70	513.90	871.37
		depth of excavation above 4.5 m and upto 6.0	Cum	1.70	640.70	1086.37
		depth of excavation above 6.0 m and upto 7.5	Cum	1.70	767.50	1301.37
		depth of excavation above 7.5 m and upto 9.0	Cum	5.09	894.30	4549.13
3	4.1	Providing and laying in position cement concrete including curing, compaction etc. complete in specified grade excluding the cost of centering and shuttering - All work up to plinth level.				
	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum	2.22	6812.00	15132.86
4	5.1.2	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 : 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)	Cum	19.28	9045.75	174380.71
5	5.9.1	Centering and shuttering including strutting, propping etc. and removal	Sqm	164.97	392.15	64694.55

		of form for Foundations, footings, bases of columns, etc. for mass concrete				
6	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg	1503.84	107.85	162189.14
7	23.2.1.1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level. All types of soil 300 mm dia	Mtr	60.00	825.70	49542.00
8	23.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of useable water yield without sandcontent (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed,measuring yield of well by “V” notch method or any other approved method, measuring static level & draw down etc. by step draw downmethod, collecting water samples & getting tested in approved laboratory, including disinfection of tubewell, all complete, including hire & labourcharges of air compressor, tools & accessories etc., all as per requirementand direction of Engineer-in-charge.	Hour.	24.00	1085.05	26041.20

9	23.11.3	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge. 200 mm nominal size dia	Mtr	30.00	2571.05	77131.50
10	23.3.3	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. 200 mm nominal size dia	Mtr	60.00	1113.35	66801.00
11	23.4.3	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge. 200 mm nominal size dia	Mtr	150.00	1255.70	188355.00
12	23.7	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.	Cum	3.00	1538.25	4614.75
13	23.6	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineerin-charge.	Cum	12.00	1538.25	18459.00

14	23.9	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	Each	1.00	1399.95	1399.95
15	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	60.00	133.70	8022.00
		For one Nos.	Nos.			877647.43
		For 1 Nos	Nos.	1.00		877647.43
		Total				877647.43
				Say in Lacs		8.78

Part – C

ELECTRICAL WORKS

TERMS AND CONDITIONS FOR INTERNAL AND EXTERNAL ELECTRICAL WORKS

General Commercial & Technical Conditions:

1.0 All the works shall be carried out as per CPWD General specification for Electrical Works, Part-I (Internal)-2013; Part-II (External), Part-IV (Sub-Station), amended up to date and should also comply with relevant provisions of the Indian Electricity Rules and Acts as applicable, amended up to date.

2.0 The contractor is advised to visit the site of work to have an idea of the execution of the work; failure to do so shall not absolve their responsibility to do the work as specified in agreement.

3.0 **Rates:**

3.1. The work shall be treated as on works contract basis and the rates tendered shall be for complete items of work inclusive of all taxes including GST, duties, and levies etc. and all charges for items contingent to the work, such as packing, forwarding, insurance, freight and delivery at site for the materials to be supplied by the contractor, watch and ward of all materials for the work at site etc.

3.2. Prices quoted shall be firm.

4.0 **Mobilization Advance:**
No mobilization advance shall be paid for the work, unless otherwise stipulated in tender papers for any individual works/ composite work.

5.0 **Completeness of Tender:**
All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the tender, whether such items are specifically mentioned in the tender documents or not.

6.0 **Works to be done by the contractor:**
Unless and otherwise mentioned in the tender documents, the following works shall be done by the contractor, and therefore their cost shall be deemed to be included in their tendered cost: -

(i) Cutting and making good all damages caused during installation and restoring the same to their original finish.
(ii) Sealing of all floor openings provided by him for pipes and cables, from fire safety point of view, after laying of the same.
(iii) Painting at site of all exposed metal surfaces of the installation other than pre-painted items like fittings, fans, switchgear/distribution gear items, cubicle switchboard etc. Damages to finished surfaces of these items while handling and erection, shall however be rectified to the satisfaction of the Engineer-in-Charge.
(iv) Testing and commissioning of completed installation.
(v) Storage space for all equipments, components and materials for the work.

7.0 **Storage and Custody of Materials:**
The contractor has to make his own arrangement for the storage of the material at site & necessary watch and ward of the electrical installation during the execution of work till the same is handed over to the department. No extra payment will be made on this account. The storage space shall however be arranged by the department at site, if available.

The main contractor shall arrange for proper storage of the electrical fans and fittings at site and that double lock system shall be arranged for the fans and fittings after receipt at site until the time they are taken for installation. The contractor shall however be responsible for proper storage and safe custody of the same till their installation and handing over to the department.

8.0 **Electric Power Supply and Water Supply:**
Power and water supply will be arranged by the contractor at the site for installation and testing purpose.

Contractor will take due care to ensure safety of electrical installation during execution of work.

9.0 **Tools for handling and Erecting:**

All tools and tackles required for handling of equipments and materials at site of work as well as for their assembly and erection and also necessary test instruments shall be the responsibility of the contractor.

10.0 **Payment Terms:**

Payment shall be made as per the relevant clauses of form PWD 7/8 forming part of the tender documents.

11.0 **Co-ordination with other agencies:**

The contractor shall co-ordinate with all other agencies involved in the building work so that the building work is not hampered due to delay in his work. Recessed conduit and other works, which directly affect the progress of building work, should be given priority.

11.1. **Care of infrastructure:**

Care shall be taken by the contractor to avoid damage to the existing infrastructure during execution of his part of the work. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove, at his costs, all unwanted and waste materials arising out of his work, from the site.

12.0 **Structural Alterations to Buildings/Infrastructure:**

(i) No structural member in the building shall be damaged/altered, without prior approval from the competent authority through the Engineer-n-charge.

(ii) Structural provisions like openings, cutouts, if any, provided by the department for the work, shall be used. Where these required modifications, or fresh provisions are required to be made, such contingent works shall be carried out by the contractor at his cost.

(iii) All such openings in floors provided by the department shall be closed by the contractor after installing the cables/conduits/rising mains etc. as the case may be, by any suitable means as approved by the Engineer-in-charge without any extra payment.

(iv) All chases required in connection with the electrical works shall be provided and filled by the contractor at his own cost to the original architectural finish of the buildings.

13.0 **Addition to an installation:**

Any addition, temporary or permanent, to the existing electrical installation shall not be made without a properly worked out scheme/design by a qualified Electrical Engineer to ensure that such addition does not lead to overloading, safety violation of the existing system.

14.0 **Work in Occupied Buildings: Deleted**

15.0 **Drawings:**

i) After award of the work, the firm will be required to prepare &submit the drawings of Electrical Installation in accordance to inventory of the proposed work in addition to layout plan, conduit routes, cable routes etc. in both AutoCAD & PDF format for approval of Engineer-in-charge.

ii) The work shall be carried out in accordance with the drawings and the tender documents and also in accordance with modification thereto from time to time as approved by the Engineer-in-charge.

iii) All wiring diagrams shall be deemed to be 'Drawings' within the meaning of the term as used in Clause 11 of the conditions of contract (PWD 7). They shall indicate the main switch board, the distribution boards (with circuit numbers controlled by them), the runs of various mains and sub mains and the position of all points with their controls.

iv) All circuits shall be indicated and numbered in the wiring diagram and the points shall be given the same number as the circuit to which they are electrically connected.

16.0 **Conformity to IE act, IE Rules, and standards:**

16.1. All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 2003 and Indian Electricity Rules, 1956 amended up to date (Date of call of tender unless specified otherwise). List of rules of particular importance to electrical installations under these General Specifications is given in Appendix C for reference.

17.0 **General requirements of components:**

17.1. **Quality of material:** All materials and equipments supplied by the contractor shall be new and must be in Original seal-pack. They shall be of such design, size and materials as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

18.0 **Inspection of materials and equipments:**

18.1. Materials and equipments to be used in the work shall be inspected by the departmental officers. Such inspection will be of following categories:

(i) Inspection of materials / equipments may be witnessed at the Manufacturer's premises in accordance with relevant BIS /Agreement Inspection Procedure.
(ii) To receive materials at site with Manufacturer's Test Certificate(s)
(iii) To inspect materials at the authorized dealer's go downs to ensure delivery of genuine materials at site.
(iv) To receive materials after physical inspection at site.

18.2. Adequate care to ensure that only tested and genuine materials of proper quality are used in work shall be ensured by firm. The firm shall ensure that:

(i) Material will be ordered & delivered at site only with the prior approval of the department to ensure timely delivery.
(ii) As and when the order is placed for the fittings/ fixtures, cables, switchgears, poles, rising main, other main items etc., its copy shall be endorsed to the CPWD Engineer-in-charge.
(iii) The firm will be required to procure material like exhaust fans, MCB's & DB's, switches & sockets, wires & cables, conduits and switchgears etc. directly from the manufacturer/ authorized dealers to ensure genuineness & quality and as per the approved makes only. Proof in this regard shall be submitted by the contractor if required by the department.
(iv) Inspection at factory or at go down of the manufacturer, as required, shall be arranged by the firm for a mutually agreed date.
(v) Delivery of material shall be taken up only with the consent of department, after clearance of the material.
(vi) Department shall reserve the right to waive inspection in lieu of suitable test certificate, at its discretion.

18.3. Similarly, for fabricated equipments, the contractor will first submit dimensional detailed drawings for approval before fabrication is taken up in the factory. Suitable stage inspection at factory also will be made to ensure proper use of materials, workmanship and quality control.

19.0 **Ratings of components:**

19.1. All components in a wiring installation shall be of appropriate ratings of voltage, current and frequency, as required at the respective sections of the electrical installations in which they are used.

19.2. All conductors, switches and accessories shall be of such size as to be capable of carrying the maximum current, which will normally flow through them, without their respective ratings being exceeded.

20.0 **Conformity to standards:**

20.1. All components shall conform to relevant Indian Standard Specifications wherever existing. Materials with ISI certification mark shall be preferred.

20.2. Relevant Indian Standards including amendments or revisions thereof up to the date of tender acceptance shall be applicable in the respective contracts for respective items, firm to ensure its compliance.

21.0 **Interchangeability:**

Similar parts of all switches, lamp holders, distribution fuse boards, Switch gears, ceiling roses, brackets, pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

22.0 **Workmanship:**

22.1. Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall conform to sound engineering practice.

22.2. Proper supervision/skilled workmen: The contractor shall be a licensed electrical contractor of appropriate class suitable for execution of the electrical work. He shall engage suitably skilled/licensed workmen of

various categories for execution of work supervised by supervisors / Engineer of appropriate qualification and experience to ensure proper execution of work. They will carry out instruction of Engineer-in-charge and other senior officers of the Department during the progress of work.

22.3. Use of quality materials: Only quality materials of reputed make as specified in the tender will be used in work.

22.4. Fabrication in reputed workshop: Switch boards and LT panels shall be fabricated in a factory/workshop having modern facilities like quality fabrication, seven tank process, powder/epoxy paint plant, proper testing facilities, manned by qualified technical personnel. These shall be as per make / item approved.

23.0 **Testing:**

All testes prescribed in this General Specification, to be done before, during and after installation, shall be carried out, and the test results shall be submitted to the Engineer-in-charge in prescribed Performa, forming part of the Completion Certificate.

24.0 **Commissioning on completion:**

After the work is completed, it shall be ensured that the installation is tested and commissioned.

25.0 **Completion plan and completion certificate:**

25.1. For all works completion certificate after completion of work as given in Appendix –E of CPWD Specification shall be submitted to the Engineer-in-charge.

25.2. Completion plan drawing indicating the following, along with three copies of the same shall also be submitted.

(i) General layout of the building.
(ii) Locations of main switchboard and distribution boards, indicating the circuit numbers controlled by them.
(iii) Position of all points and their controls.
(iv) Types of fittings, viz. LED Light fixtures, pendants, brackets, bulk head, Ceiling fans, exhaust/fresh air fans etc.
(v) Name of work, job number, tender reference, actual date of completion, names of Division/ Sub-division and name of the firm who executed the work with their signature.

26. **INTERPRETING SPECIFICATIONS**

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

(a) Schedule of quantities
(b) Technical specifications
(c) Drawing (If any)
(d) General Specifications
(e) Relevant BIS or other international code in case BIS code is not available.

27. The work is to be executed at the existing site where some electrical work like laying of conduit pipes & fixing of switch boxes has been executed by the former agency. During the execution of electrical work all the existing pipes & modular switch boxes shall be used for wiring work.

TECHNICAL SPECIFICATIONS FOR EI WORK

1.0 GENERAL

SCOPE OF WORK:

The specifications given below pertain to the internal electrical installation work and CPWD Specifications are to be followed.

2.0 POINT WIRING:

2.1 The wires used for the point wiring and power wiring shall be of 650 / 1100 Volts grade FRLS PVC insulated multi stranded copper conductor single core cables.

2.2 All mounting boxes for plate type accessories shall be of metallic construction and of the same make as that of the plate type switches and accessories.

3.1 COPPER AND ALUMINIUM CABLES

3.1.1. This specification covers the supply, installation, testing and commissioning of 1100 V grade cables.

3.1.2 The design, manufacture and performance of the cables should conform to the relevant IS.

4.0 MOULDED CASE CIRCUIT BREAKERS

4.1 The MCCBs shall comprise single units of triple pole/four pole construction as specified, shall be rated for 415 V AC.

4.2 All live parts shall be totally enclosed and shrouded with a heat resistant moulded insulating material housing. Operating mechanism shall be quick make, quick break and trip free type.

4.2.1 The MCCB shall be provided with the following features in microprocessor release:
a)Inverse-time-current tripping characteristics under sustained overload.
b)Instantaneous tripping on short circuit

4.2.2 MCCBs shall be of current limiting type.

4.2.3 The rated service breaking capacity (Ics) shall not be less than the ultimate short circuit breaking capacity (Ics = 100%Icu)

4.2.4 Variable Thermal setting shall be provided in all MCCB s with thermal magnetic Release.

4.2.5 All circuit breaker below 250 amps rating shall be provided with thermal magneticrelease& circuit breakers of 250 amps rating and above shall be provided with Microprocessor based release unless otherwise specified.

4.3 All MCCBs shall be provided with rotary handles and links for which nothing extra shall be paid.

5.0 Additional Conditions:

5.1 GUARANTEE/WARRANTEE

The installation will be handed over to the department after necessary testing and commissioning. The LED light luminaries/ fixtures provided under the contract shall be guaranteed for a period of 5 years.50% of the performance guarantee shall be refunded to the contractor soon after the completion of the work and recording of the completion certificate. 50% of the performance guarantee shall be retained as security deposit. 50% of the performance guarantee retained as security deposit plus 2.5 % security deposit already deducted from running bills (1.5 + 2.5 = 4%) shall be refunded year wise proportionately from the date of completion/ handing over whichever is later. In this regard contractor shall furnish an undertaking and bond for Guarantee/Warrantee of 5 years. Warrantee for the other electrical fixtures shall be one (1) year. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith rectified/ repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & building on the contractor.

5.2 The contractor shall submit the relevant test certificates at the time of supply of equipment/Material.

5.3 All the modular switches & MCBs shall be supplied & installed of same make as per the make of existing modular boxes & MCBs boxes already installed at site.

GENERAL AND COMMERCIAL CONDITIONS FOR LT PANEL & FEEDER PILLAR WORKS

1.0 GENERAL

This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation and final testing & commissioning of the equipments.

1.1 The work shall be executed as per CPWD General Specifications for Electrical Works Part – I, II & IV as amended up to date, relevant I.E. Rules, BIS/IEC and as per directions of Engineer-in-charge. These additional specifications/ conditions are to be read in conjunction with above and in case of variations; specifications given in the in the contract shall apply. However, nothing extra shall be paid on account of these additional specifications and conditions, as the same are to be read along with schedule of quantities for the work.

1.2 The tenderer should, in its own interest, visit the site and get familiarized with the site conditions before tendering.

1.3 No T & P shall be issued by the Department and nothing extra shall be paid on account of this.

1.4 **Type of Contract:** The work to be awarded by this tender shall be treated as indivisible works contract.

2.0 TERMS OF PAYMENTS

The following percentage of contract rates for the various items included in the contract shall be payable against the stage of work shown herein.

i) 70% after initial inspection (wherever specified) & delivery at site in good condition on pro-rata basis.
ii) 10% after completion of installation in all respects.
iii) Balance 20% will be paid after testing, commissioning and handing over to the department for beneficial use.

3.0 Works to be carried out by CURAJ

Unless otherwise mentioned in the tender specifications, the following works shall be carried out by the department.

(i) Space for accommodating all the equipments and components involved in the work. However, watch and ward shall be responsibility of the contractor.

4.0 Works to be done by the contractor

In addition to supply, installation, testing and commissioning of all the equipments, as per schedule of work, and specifications, the following works shall be deemed to be included within the scope of work to be executed by the contractor.

i) Tools and tackles required for handling and installation of equipments.
ii) Protection required for the equipments from rain, dust storm etc. during transportation i.e. polythene cover and tarpaulin.
iii) Necessary equipments for commissioning/site testing.

5.0 RATES

The rates quoted by the tenderer, shall be firm and inclusive of all taxes including GST, packing, transportation, handling etc. The tendered rates should also include charges for installation, testing, commissioning etc. at site including temporary construction of storage

5.1 The contractor has to carry out maintenance as per manufacturer's standards for a period of **12 months** from the date of handing over for which nothing extra shall be paid.

6.0 COMPLETENESS OF TENDER

All sundry equipments, fittings, unit assemblies, accessories, hardware items, foundation, foundation bolts, painting, termination lugs for electrical connections, and all other items which are useful and necessary for efficient assembly and installation of equipment and components of the work shall be deemed to have been included in the tender irrespective of the fact whether such items are specifically mentioned in the tender documents or not.

7.0 STORAGE AND CUSTODY OF MATERIALS

The Store room of Electrical Inquiry may be used for storage of sundry materials and erection equipments or else the agency has to make its own arrangements. No separate storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

8.0 CARE OF THE BUILDING

Care shall be taken by the contractor while handling and installing the various equipments and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish at his cost. He shall also remove at his cost all unwanted and waste materials arising out of the installation from the site of work.

9.0 COMPLETION PERIOD

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings etc., arrangement of materials &equipments, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

10.0 GUARANTEE

10.1 All equipments shall be guaranteed for a period of 12 months, from the date of taking over the installation by the department, against unsatisfactory performance and/or break down due to defective design, workmanship or material. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in-Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & building on the contractor.

10.2 The tenderer shall guarantee among other things, the following:

(a) Quality, strength and performance of the materials used as per manufacturers standards.
(b) Safe mechanical and electrical stress on all parts under all specified conditions of operation.
(c) Satisfactory operation during the maintenance period.

11.0 POWER SUPPLY

Power Supply for the purpose of Installation of LT/Feedar Panel shall be arranged by the contractor themselves and nothing shall be paid on this account.

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12.0 ACCEPTABLE MAKES OF VARIOUS EQUIPMENTS

The acceptable makes of various equipments/components/accessories have been indicated in the List of Acceptable Makes of equipments/ materials". The tenderer shall work out the cost of the offer on this basis.

13.0 DATA MANUAL AND DRAWINGS TO BE FURNISHED BY THE TENDERER.

13.1 **With Tender:** The renderer shall furnish along with the tender, detailed technical literature, pamphlets and performance data for appraisal and evaluation of the offer.

13.2 **After award of work**

The successful tendered would be required to submit the following drawings for approval of the department.

(a) General arrangement drawing of the LT Panels, Feeder Pillars & Meter Boards with complete dimensions.
(b) Single line diagram of LT Panels, Feeder Pillars & Meter Boards.
(c) Schematic drawing of LT including all safety interlocking.
(d) Details of foundations for the equipments and the weights of assembled equipments.
(e) Equipment details proposed to be procured for the execution of the work for the approval of the Engineer-in-charge.
(f) Cables rating & sizes, Layout and routes.
(g) Any other drawings necessary for the job.

The successful tendered should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments, operation and maintenance including preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue etc. all in triplicate

14.0 The successful tendered should furnish well in advance three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments, operation and maintenance including preventive maintenance & trouble shooting together with all the relevant data sheets, spare parts catalogue etc. all in triplicate.

15.0 EXTENT OF WORK

15.1 The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning, as may be required by the department. The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts whether or not those have been specifically mentioned in bill of quantity in the tender document. However, major equipment not covered in the scope of the work and required subsequently as an additional feature, not covered in the contract specifications, shall be paid extra. The decision of the engineer-in-charge in the matter shall be final and binding upon the contractor.

15.2 In addition to supply, installation, testing and commissioning of sub-station equipments, following works shall be deemed to be included within the scope of work to be executed by the renderer.

a) Minor works necessary for installation of equipments, foundation, making of opening in walls or in floors and restoring them to their original condition/ finish and necessary grouting etc. as reqd.

16.0 INSPECTION AND TESTING

16.1 All the equipments and fabricated items etc. shall be offered for initial inspection at manufacturer's works. All routine tests conforming to relevant IS shall be carried out in the presence of Engineer-in-Charge or his authorized representative. Contractor will give sufficient notice for the same. The department reserves the right to inspect or not to inspect the equipment at the works of the manufacturer. In the later case confirmation in writing will be issued by the department. The department will bear to &fro expenses of the officer deputed for carrying out inspection. However, nothing extra shall be paid for conducting routine test in the presence of department's representative.

Copies of all manufacturers' routine and type test, certificates of the equipments shall be furnished to the inspecting officer at the time of inspection at the factory.

After completion of work in all respect the contractor shall offer the installation for testing and operation.

17 Defect Liability Period:

17.1 All the equipments shall be guaranteed for a period of 12 months from the date of completion. Any defective materials and equipment shall be replaced free of cost at the direction of Engineer-in-Charge.

18 **INTERPRETING SPECIFICATIONS**

In interpreting the specifications, the following order of decreasing importance shall be followed in case of contradictions:

(a) Schedule of quantities
(b) Technical specifications
(c) Drawing (If any)
(d) General Specifications
(e) Relevant BIS or other international code in case BIS

19.0 COMPLIANCE WITH REGULATIONS AND INDIAN STANDARDS

19.1 All works shall be carried out in accordance with relevant regulation, both statutory and those specified by the Indian Standards related to the works covered by this specification. In particular, the equipment and installation will comply with the following:

(i) Factories Act.
(ii) Indian Electricity Rules.
(iii) B.I.S. & other standards as applicable.
(iv) Workmen's compensation Act.

19.2 Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes.

20.0 INDEMNITY

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian law and regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising there from during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide all insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

21.0 ERECTION TOOLS

No tools and tackles either for unloading or for shifting the equipments for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

22.0 COOPERATION WITH OTHER AGENCIES

The successful tenderer shall co-ordinate with other contractors and agencies engaged in the construction of buildings, if any, and exchange freely all technical information so as to make the execution of this work/contract smooth. No remuneration should be claimed from the department for such technical cooperation. If any unreasonable hindrance is caused to other agencies and any completed portion of the work has to be dismantled and re-done for want of cooperation and coordination by the tenderer during the course of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the tenderer himself.

23.0 The work will be carried out with least disturbance during shifting & shut down taken in consultation with the client department.

24.0 MOBILIZATION ADVANCE

No mobilization advance shall be paid to the contractor.

25.0 INSURANCE AND STORAGE

All consignments are to be duly insured up to the destination from warehouse at the cost of the contractor. The insurance covers shall be valid till the equipment is handed over duly installed, tested and commissioned.

26.0 VERIFICATION OF CORRECTNESS OF EQUIPMENT AT DESTINATION

The contractor shall have to produce all the relevant records to certify that the genuine equipments from the manufacturers has been supplied and erected.

27.0 PAINTING

This shall include cost of painting of the entire installation. The major equipments shall be factory final finish painted. The agency shall be required to do only touching to the damages caused to the painting during transportation, handling & installation at site, if there is no major damage to the painting. However, hangers, supports etc. of bus trunking shall be painted with required shade including painting with two coats of anticorrosive primer paint at site.

TECHNICAL SPECIFICATIONS FOR LT PANELS

1.1 LT SWITCHBOARD (PANEL) AND SWITCHGEARS

This section covers the detailed requirements of Low Voltage switchboard for 415 volts, 3 phases, 50 Hz, 4 wire systems.

Standards and Codes

Updated and current Indian Standard Specifications and Codes of Practice will apply to the equipment and the work covered by the scope of this contract.

Low Voltage switchgear Assemblies IEC 61 439-1/2/ IS: 8623

Low Voltage switchgear & control gear IEC 60 947-1/2/IS 13947:1993

Part I : General rules

Part II : Circuit Breakers

Part III : Switches, disconnectors, switch disconnectors and fuse combination units

Part IV : Contactors and Motor starters

Part V : Control circuit devices and switching elements Degree of Protection of Enclosures for low voltage switchgear. IEC60529 /IS 2147: 1962

1.2 LT PANELS

The scope of this section covers design, manufacture, supply, installation, testing and commissioning of Power Distribution Panels including ACBs, MCCBs, MCBs rated up to 415-430 volts. The panel shall be fabricated i/c all switch as per CPWD specification for electrical work (part-I) and Sub-station work (Part IV) amended to date.

1.2.1. Basic Structure:

a) All electrical panels will be fabricated from 2mm thick CRCA sheet steel for robust construction properly supported with angles and channels.

b) Panels shall be totally enclosed, dust and vermin proof, fully compartmentalized, cubical design modular construction. The covers and doors shall be very well gasket with neoprene rubber gaskets so as to obtain dust proof enclosure.

c) The cubicle will be floor-mounted type unless specified otherwise.

d) The cabinet will be welded construction and not of jointing construction.

e) Door shall be made of 1.6mm/2mm sheet steel, with foamed seal polyurethane gasket, square section under tabular frame with punching in DIN pitch pattern.

1.2.2. Cubical Panel

The cubical panel shall be made out as per CPWD specification and as per relevant Indian Electricity Rules as amended till date.

The firm shall submit the drawing of cubical panel mentioning all the dimensions and schematic diagram along with detail and capacity of each switch gear. The cubical panel shall be fabricated only after approval of drawings from the Engineer-in-charge.

All incoming ACB`s shall have microprocessor-based releases with overload, short circuit, earth fault protections all with adjustable settings and also with adjustable time delays; alongwith adjustable instantaneous short circuit protection; RS485 communication port.

All outgoing and bus coupler MCCB`s of above 250 A capacity shall have microprocessor based releases with overload and short circuit protection with adjustable settings and also with adjustable time delays; along with adjustable instantaneous short circuit protection

Incomers and Bus coupler shall be mechanically inter locked

All metering CT’s and PT’s shall be cast resin type of accuracy class 1.0 Multi-function meter shall be LCD display of accuracy 1.0. All CT's shall be 15VA burden class.

All indicating lights shall be LED type only.

Air Circuit Breakers (ACBs): The ACBs shall comply to IEC 60947 Part I & II and IS 13947 Part I & II and shall be suitable for operation on 415 Volts, 50 Hz 3 Phase system.

Moulded Case Circuit Breaker: The Moulded case circuit breaker (MCCB) shall conform to latest IEC-60 947-2/ IS13947- 2. The circuit breaker shall comply with the isolation function requirement of IEC 60 947-2 section 7.1.2 to marked as suitable for isolation/ disconnection to facilitate safety of operating personnel while the breaker is in use.

Miniature Circuit Breakers (MCB): MCBs shall be hand operated, air break, quick make, quick break type conforming to applicable standards. MCB shall comply with IS : 8828, 1996/IEC 898. MCB shall have minimum power loss (watts) per pole defined as per IS/IEC and the manufacturer shall publish the values.

Current Transformers: Current transformers shall be in conformity with IS: 2705 (part I,II& III)

Test At Manufactures Work: All routine tests specified in IS: 8623-1977 shall be carried out and test certificates produced to the Department.

The bus-bars will be insulated with heat shrinkable sleeves and properly supported. All live parts shall be shrouded by means of acrylic / steel /FRP sheets to ensure no accidental contact with live parts during maintenance and provide simultaneous inspection. The bus-bar supports will be designed to withstand short circuit current equivalent to 35 MVA at 415 volts. The bus-bars will be adequately insulated and protected to prevent accidental contact during operation and maintenance.

Each Panel shall be provided with an earth bus bar running along the entire length of the board. Material and size of the earth bus bar shall be as per CPWD specifications amended upto date.

1.3 FEEDER PILLARS

1.3.1 Outdoor type Feeder Pillars shall be suitable for 3 phase, 50Hz, 415 volts, A.C. system and shall generally conform to IS 5039. Rating and size of Feeder pillar shall be as per designed load and requirement.

1.3.2 The Feeder pillar shall be provided with degree of protection IP 65 as per IS : 2147.

1.3.3 Each door shall open to minimum 135 degrees. Locking on both the doors with two keys for each lock shall be provided with each pillar.

1.3.4 The enclosure shall be provided with ventilated louver cover with wire mesh, lifting hooks, supporting legs and double earth terminal with double washer.

1.3.5 Moulded case circuit breaker shall be provided for incoming and MCB shall be provided as per IS 8828-1978 for outgoing. Gland plate shall be 3mm thick with suitable number of flanged type brass cable glands of required sizes shall be provided.

1.3.6 All civil work for feeder pillar foundation shall form part of feeder pillar installation work. This shall include excavation, backfilling, brickwork, plastering and providing PVC sleeves. Cost of civil work shall deem to be included in quoted rates.

1.3.7 BUS BAR

i) The bus bars shall be air insulated and made of high conductivity, high strength aluminium alloy complying with the requirement of gradeE-91E of IS : 5082.

ii) Capacity of aluminium bus bars shall be considered as 1.3 Amp per sq.mm of cross section area of the bus bar and also conforming to Table -VI of CPWD specifications for Electrical Works (Part-I).

iii) The main bus bars shall have continuous current rating throughout the length of Feeder Pillars. The cross section of neutral bus bars shall be same as that of phase bus bar for busbars of capacity upto 200Amp; for higher capacity the neutral bus bar shall not be less than half (50%) the cross section of that the phase bus bars.

(iv) Busbars to be colour coded with PVC sleeves.

2.0 LT Switchgears

2.1 MOULDED CASE CIRCUIT BREAKERS (MCCB)

2.1.1 General

The Moulded case circuit Breaker (MCCB) shall confirm to the latest IEC 60947-2 and IEC 60 947-3-1989. MCCB's shall be suitable for rated operation voltage up to 415 VAC & rated insulation voltage up to 690 VAC.

MCCB's in AC circuits shall be of triple pole / four pole construction as per enclosed BOQ. The "ON", "OFF" and "TRIP" positions of the MCCB's shall be clearly indicated and visible to the operator when mounted as in service. Front of door operating handle shall be provided with pad lock and door interlock. Front of door operating handle shall be provided with door interlock defeat mechanism to facilitate inspection of the MCCB during 'ON' position. MCCB shall be suitable for Positive isolation / disconnection according to IEC 60947-1 & 2 for optimum user safety.

The Service short circuit Breaking capacity (Ics at 415 VAC) of all MCCB's shall be as specified in BOQ and shall have (Ics=100% Icu).

All MCCB should have "Class-II" front facia as per IEC 60664.
All circuit breaker below 250 amps rating shall be provided with thermal magnetic

Release& circuit breakers of 250 amps rating and above shall be provided with Microprocessor based release unless otherwise specified.

All MCCBs shall be provided with rotary handles, spreader links and phase barrier on both incoming & outgoing sides for which nothing extra shall be paid.

2.2 Miniature Circuit Breaker (MCB)

Miniature circuit breakers shall be of approved design and make and must be tested and validated as per IS/IEC 60898, IEC/EN 60898 and IEC 60947-2 standards.

MCBs shall be suitable for operation at 230V/415V, 50Hz supply. The MCB ratings shall be available from 1--125A in 1P/2P/3P/4P versions. The rated short circuit capacity acc to IS/IEC 60898 shall be of 10,000A. MCBs shall be offered with B, C or D tripping characteristics as per the BOQ requirements. The MCBs shall be suitable for mounting on a 35mm DIN rail.

MCBs shall carry ISI and CE marking.

MCBs shall ensure complete electrical Isolation of downstream circuit or equipment, when the MCB is switched OFF

3.0 CABLE WORK

The L.T. Power cables shall be XLPE insulated PVC sheathed type aluminium conductor armoured cable conforming to IS : 7098 : 1988 (Part-I) with up-to date amendments whereas control cable shall be XLPE insulated and PVC sheathed copper conductor armoured/ unarmoured cable conforming to IS:7098 (Part-I) 1988.

All the street light Cables shall be laid in 50mm dia. HDPE pipes, as per the direction of Engineer-In-Charge. Cable laying shall be carried out as per CPWD general specifications for electrical works (part-II External)-1994.

Cable tags shall be made out of 2mm thick aluminium sheets, each tag 1-1/2 inch in dia with one hole of 2.5mm dia, 6mm below the periphery. Cable designations are to be punched with letter/number punches and the tags are to be tied inside the panels beyond the glanding as well as below the glands at cable entries. Trays tags are to be tied at all bends. On straight lengths, tags shall be provided at every 15 metres.

Prior to installation, burying of cables, following tests shall be carried out. Insulation test between phases, phase & neutral, phase & earth for each length of cable.

a. Before laying.
b. After laying.
c. After jointing.

Prior to installation, the following tests shall be conducted in the presence of the Engineer-In-Charge.

a. Insulation Resistance Test (Sectional and overall).
b. Continuity Resistance Test.
c. Earth Test.

All tests shall be carried out in accordance with relevant Indian Standard code of practice and Indian Electricity Rules**.** The Contractor shall provide necessary instruments, equipments and labour for conducting the above tests & shall bear all expenses of conducting such tests.

CENTRAL UNIVERSITY OF RAJASTHAN

Name of work: **Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.**

PART-D

(SCHEDULE OF QUANTITY)

SCHEDULE OF QUANTITY FOR WORK

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

GENERAL ABSTRACT			
S.No.	**DESCRIPTION**	**Annexure**	**Amount (INR)**
1	**Civil Work**	**A**	
	MS Trellis	A-1	2,59,50,536.38
	Water Fountain- 3nos	A-2	39,27,709.02
	Stone Sculpture	A-3	27,00,000.00
	Seating area with Sand Stone	A-4	97,364.24
	Open Air Theater	A-5	47,94,045.17
	Central Garden Toe wall	A-6	54,84,141.65
	Dismantling work	A-7	1,51,036.63
2	**Infrastructure Work**	**B**	
	Paved Pathway & Driveway	B-1	1,23,92,555.92
	Soft Pathway	B-2	45,95,051.81
	Unipole, Signage & Dustbins	B-3	2,70,311.63
3	**Water supply and Drainage work**	**C**	
	Water supply and Drainage work of Landscape area		28,74,145.00
4	**Electrical Work**	**D**	
	Electrical work of Landscape		54,87,839.00
5	**Horticulture and Landscapping Work**	**E**	74,21,315.88
6	**Irrigation System**	**F**	13,31,948.00
8	**Construction of Rain Water Harvesting -1nos**	**G**	8,77,647.43
	Total		**7,83,55,648.00**

Annexure- A1

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

MS Trellis								**Rates are based on CPWD DSR 2023**		
S.No.	**D.S.R. Item No.**	**Description of Items**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	2.8.1	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. . **All kinds of soil**	Cum							
		Earth Excavation								
		MS Trellis Foundation								
		Piers	Cum	196	1.95	1.95	1.5	1117.94		
		Total	Cum					**1117.94**	260.30	**290998.48**
2.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum							
		PCC								
		MS Trellis Foundation								
		Piers	Cum	196	1.95	1.95	0.15	111.79		
		Total	Cum					**111.79**	6812.00	**761537.32**

3.0	5.1.2	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 : 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)	Cum							
		MS Trellis Foundation								
		Footing	Cum	196	1.8	1.8	0.4	254.02		
		Bases of Column	Cum	196	0.75	0.75	0.95	104.74		
		Total	Cum					**358.75**	9045.75	**3245194.47**
4.0	4.5.1	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete. 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)								
		Stone Masonary Top								
		Piers	Cum	196	0.6	0.6	0.05	3.53		
		Total	Cum					**3.53**	10105.10	**35650.79**

5.0	5.9.1	Centering and shuttering including strutting, propping etc. and removal of form for Foundations, footings, bases of columns, etc. for mass concrete								
		MS Trellis Foundation								
		Footing	Sqm	392	1.8		0.4	282.24		
			Sqm	392	1.8		0.4	282.24		
		Bases of Column	Sqm	392	0.75		0.95	279.30		
			Sqm	392	0.75		0.95	279.30		
		Total	Sqm					**1123.08**	392.15	**440415.82**
6.0	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.								
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more								
		Qty taken 100 kg per cum	Kg	100	358.75			35875.35		
		Total	Kg					**35875.35**	107.85	**3869156.50**
7.0	7.8	Coursed rubble masonry with hard stone (first or second sort) in superstructure above plinth level and upto floor five level.								
	7.8.1	Masonry work (first sort), in cement mortar 1:6 (1 cement : 6 coarse sand)								
		Stone Masonry Work								
		MS Trellis Foundation								

		Piers	Cum	196	0.6	0.6	2.35	165.82		
		Total	Cum					**165.82**	10741.60	**1781129.15**
8.0	7.10.1	Extra for coursed rubble masonry with hard stone (first or second sort) in: Square or rectangular pillars								
		Under Foundation								
		MS Trellis Foundation								
		Piers	Sqm	196	0.6	0.6	2.35	165.82		
		Total	Sqm					**165.82**	1060.50	**175847.87**
9.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.								
	16.87.1	**With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.**								
		Stone Masonary Top								
		Piers	Sqm	196	0.65	0.65		82.81		
		Total	Sqm					**82.81**	4950.90	**409984.03**

10.0	12.23.1 .1	Providing sand stone slab for roofing and laying them in cement mortar 1 : 4 (1 cement : 4 coarse sand) over wooden karries or R.C.C. battens or structural steel sections (Karries or battens or structural steel sections to be paid separately), including pointing the ceiling joints with cement mortar 1:3 (1 cement : 3 fine sand) complete : Red sand stone slab 40 to 50 mm thick	Sqm					**3000.600**	1138.20	**3415282.92**
		Stone Slab over MS Trellis								
		Total length : 500 mtr @ 300 mm spacing both side	Sqm	3334	3	0.3		3000.60		
		50x300x 3000 mm								
11.0	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg							
		Pergola / MS Trills	Kg							
		Stone Pier to Stone pier								
		Length : 2.2+1.4+.2+6.625+.2+1.4+2.2 = 14.225 mtr	Mtr	98	14.225			1394.05		
		Top member : 4 x 500 = 2000 mtr	Mtr	4	500			2000.00		
		Total Length						3394.05		
		MS Square section 150x150 mm								
		Qty taken 23 kg per rmt	Kg	23	3394.05			78063.15		
		Add Base plate	Kg	196	4.50			882.00		
		Add 20% additional qty	Kg	0.2	15612.63			3122.53		

		Total	Kg					**82067.68**	133.70	**10972448.28**
12.0	13.62.1	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : Two or more coats on new work over an under coat of suitable shade with ordinary paint of approved brand and manufacture								
		Pergola / MS Trills	Sqm	4	3394.05	0.15		2036.43		
		Total length : 3394.05 mtr								
		Add 20% additional qty	Sqm	0.2	2036.43			407.29		
		Total	Sqm					**2443.72**	226.25	**552890.75**
		TOTAL								**25950536.38**
								Say in lacs		**259.51**

Annexure-A2

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Water Fountain- 3nos				*Rates are based on CPWD DSR 2023*						
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	Market Rate	Providing and fixing of Outdoor Central water fountatain with including Jet nozzle, pipe,glass panel, Pumping, Electrical system including all material and labor etc. and as per directed by engineer	Nos	1.00				**1.000**	350000.00	**350000.00**
2.0	Market Rate	Providing & installing of high relif mural 3d art work in single stone made of Bansi Paharpur stone finish. Sculpture including carving, plannig, developing all loading - unloading , transportation, scaffolding, hoisting , installation with all required T & P , fixing over/ on base/ surface as per shape-size & placement as per approved drawing, finishing , surface treatment etc. covering properly till the date of opening , inauguration of site etc. complete job in all respect as per approved design & drawing under approval of project consultant , appointed for the project & as per directions of Engineer - In - Charge.								
		Center sculpture	Cum	1.00	1.80	1.80	1.80	5.83	90000.00	524880.00

3.0	2.8.1	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. . **All kinds of soil**	Cum					**19.013**	260.30	**4948.95**
		Earth excavation								
		Bottom Base fountain area	Cum	1.00	6.500	6.500	0.450	19.013		
		Bottom Base Sump area	Cum	1.00	1.200	1.200	0.600	0.864		
		Concrete Work								
4.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					**5.400**	6812.00	**36784.80**
		PCC								
		Bottom Base	Cum	1.00	6.000	6.000	0.150	5.400		
5.0	5.1.2	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 : 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)	Cum					**7.311**	9045.75	**66133.48**
		Central Fountain								
		Bottom Base	Cum	1.00	6.000	6.000	0.150	5.400		

		Outer and internal RCC Wall								
		L-1 / Outer	Cum	1.00	19.000	0.150	0.260	0.741		
		L-2 / Internal	Cum	1.00	8.000	0.150	0.750	0.900		
		L-3 / Sump	Cum	2.00	0.900	0.150	0.600	0.162		
		L-4 / Sump	Cum	2.00	0.600	0.150	0.600	0.108		
6.0	4.5.1	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete. 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)	Cum		`			**0.285**	10105.10	**2879.95**
		Outer and internal RCC Toe wall top								
		L-1 / Outer	Cum	1.00	19.000	0.190	0.050	0.181		
		L-2 / Internal	Cum	1.00	8.000	0.190	0.050	0.076		
		L-3 / Sump	Cum	2.00	0.900	0.190	0.050	0.017		
		L-4 / Sump	Cum	2.00	0.600	0.190	0.050	0.011		
		Stone Masonry Work								
7.0	7.12.1.1	Stone work in plain ashlar in super structure upto floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with cementmortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : One face dressed Red sand stone	Cum					**0.075**	68294.00	5122.05
		Central								

		Stone Pedestal	Cum	1.00	0.500	0.500	0.300	0.075		
8.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	Sqm					**36.000**	883.15	**31793.40**
		PCC								
		Bottom Base	Sqm	1.00	6.000	6.000		36.000		
		Plaster Work								
9.0	13.3	Plaster on new surface on walls in cement sand mortar 1:6 including racking of joint etc. complete fine finish : :								
	13.3.2	20 mm thick	Sqm					**25.480**	450.00	**11466.00**
		Outer and internal RCC Wall								
		L-1 / Outer	Sqm	2.00	19.000		0.260	9.880		
		L-2 / Internal	Sqm	2.00	8.000		0.750	12.000		
		L-3 / Sump	Sqm	4.00	0.900		0.600	2.160		
		L-4 / Sump	Sqm	4.00	0.600		0.600	1.440		
		Floor finishes								
10.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.						**24.800**	4950.90	**122782.32**
	16.87.1	**With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.**	Sqm							

		Internal Fountain area	Sqm	1.00	24.800			24.800		
11.0	8.2.2.2	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing of edges to give high gloss finish etc. complete at all levels. Granite stone slab of colour black, Cherry/Ruby red Area of slab over 0.50 sqm	Sqm					**29.680**	5136.30	**152445.38**
		Outer and internal RCC Wall								
		L-1 / Outer	Sqm	2.00	19.000		0.260	9.880		
		L-2 / Internal	Sqm	2.00	8.000		0.750	12.000		
		L-3 / Sump	Sqm	2.00	0.900		0.600	1.080		
		L-4 / Sump	Sqm	2.00	0.600		0.600	0.720		
		Top Base								
		L-1 / Outer	Sqm	1.00	19.000	0.200		3.800		
		L-2 / Internal	Sqm	1.00	8.000	0.200		1.600		
		L-3 / Sump	Sqm	2.00	0.900	0.200		0.360		
		L-4 / Sump	Sqm	2.00	0.600	0.200		0.240		
		For one Nos								**1309236.34**
		For 3 Nos	Nos	3.00						**3927709.02**
		Total								**3927709.02**
								Say in Lacs		**39.28**

Annexure-A3

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Stone Sculpture									**Rates are based on Market**	
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	MR	Providing & installing of Butter ball in Natural single Boulder resting on a short incline as a balancing Sculpture including carving, plannig, developing all loading - unloading , transportation, scaffolding, hoisting , installation with all required T & P , fixing over/ on base/ surface as per shape-size & placement as per approved drawing, finishing , surface treatment etc. covering properly till the date of opening , inauguration of site etc. complete job in all respect as per approved design & drawing under approval of project consultant , appointed for the project & as per directions of Engineer - In - Charge.								
		Sizes: 1.2x 1.5 x 1.5 mtr	Cum	1.00	1.20	1.50	1.50	2.70		
		Weight : 1000 kg per cum								
		Total weight	Tonne	1.00	2.70			2.70		
		For one nos						2.70	25000.00	67500.00
		For 40 nos	Nos	40.00						**2700000.00**
		Grand Total								**2700000.00**
									Says in lacs	**27.00**

Annexure-A4

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Seating area with Sand Stone								*Rates are based on CPWD DSR 2023*		
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	7.12.1.1	Stone work in plain ashlar in super structure upto floor five level in cement mortar 1:6 (1 cement : 6 coarse sand) including pointing with cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : One face dressed Red sand stone	Cum					**0.009**	68294.00	614.65
		Stone Bench								
		Pedestal	Cum	2.00	0.200	0.100	0.225	0.009		
2.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.								
	16.87.1	**With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.**	Sqm					**0.368**	4950.90	1819.46
		Stone Top	Sqm	1.00	1.050	0.350		0.368		
		For One nos								**2434.11**
		for 40 nos	Nos	40.00	2434.106					97364.24
		Grand Total								**97364.24**
									Says in lacs	**0.97**

Annexure-A5

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Open Air Theater				*Rates are based on CPWD DSR 2023*						
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	2.8.1	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. . **All kinds of soil**	Cum					**1204.769**	260.30	**313601.44**
		Earth excavation								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	1.500	2.900	269.700		
		L-2 / Stage outer wall	Cum	1.00	34.000	1.500	2.900	147.900		
		Internal OAT Area								
		L-1	1.00	1.00	21.730	34.500	1.050	787.169		
2.0	2.25	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.	Cum					**361.431**	196.00	**70840.43**
		Back Filling								
		Qty taken 30% of Total quantity of item no. 2.8.1	Cum	0.30	1204.769			361.431		

		Concrete Work								
3.0	4.1	Providing and laying in position cement concrete including curing, compaction etc. complete in specified grade excluding the cost of centering and shuttering - All work up to plinth level.								
	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					**97.818**	6812.00	**666336.22**
		PCC								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	1.500	0.150	13.950		
		L-2 / Stage outer wall	Cum	1.00	34.000	1.500	0.150	7.650		
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Cum	1.00	32.000	0.765	0.150	3.672		
		L-2 / Lvl at - 600 mm	Cum	1.00	32.000	0.765	0.150	3.672		
		L-3 / Lvl at -1200 mm	Cum	1.00	25.000	0.765	0.150	2.869		
		L-4 / Lvl at -1050 mm	Cum	1.00	31.000	0.385	0.150	1.790		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Cum	1.00	32.000	0.900	0.150	4.320		
		L-2 / Lvl at - 1050	Cum	1.00	32.000	0.900	0.150	4.320		
		L-3 / Lvl at - 1650	Cum	1.00	25.000	0.900	0.150	3.375		
		PCC at Path and Stage								

		L-1 / Stage	Cum	1.00	155.000		0.150	23.250		
		L-2 / Lvl at -2100	Cum	1.00	109.000		0.150	16.350		
		L-3 / Both side passage	Cum	2.00	21.000	2.000	0.150	12.600		
4.0	4.6.1	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), including the cost of required centering, shuttering complete. . 1:1½:3 (1 Cement: 1½ coarse sand (zone-III) derived from natural sources: 3 graded stone aggregate 20 mm nominal size derived from natural sources).	Cum					**9.405**	8726.85	**82076.02**
		Coping top Stone wall								
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.600	0.150	2.880		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.600	0.150	2.880		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.600	0.150	2.250		
		L-4 / Lvl at -1050 mm	Sqm	1.00	31.000	0.300	0.150	1.395		
5.0	5.1.2	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing andreinforcement - All work up to plinth level : 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)	Cum					**70.961**	9045.75	**641890.94**
		RCC wall								

		RCC Outer wall								
		L-1 / Near Mounds both sides	Cum	2.00	31.000	0.325	2.370	47.756		
		L-2 / Stage outer wall	Cum	1.00	34.000	0.325	2.100	23.205		
6.0	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.								
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg					5676.840	107.85	612247.19
		Steel roof taken 80 kg per cum	Kg	80.000	70.961			5676.840		
		Stone Masonry Work								
7.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					**49.050**	7311.25	**358616.81**
		Stone Masonry Work								
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Cum	1.00	32.000	0.600	0.900	17.280		
		L-2 / Lvl at - 600 mm	Cum	1.00	32.000	0.600	0.750	14.400		
		L-3 / Lvl at -1200 mm	Cum	1.00	25.000	0.600	0.600	9.000		
		L-4 / Lvl at -1050 mm	Cum	1.00	31.000	0.300	0.900	8.370		
8.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and	Sqm					**652.120**	883.15	**575919.78**

		preparing surface complete.								
		Soiling								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000	1.500		93.000		
		L-2 / Stage outer wall	Sqm	1.00	34.000	1.500		51.000		
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.765		24.480		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.765		24.480		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.765		19.125		
		L-4 / Lvl at -1050 mm	Sqm	1.00	31.000	0.385		11.935		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Sqm	1.00	32.000	0.900		28.800		
		L-2 / Lvl at - 1050	Sqm	1.00	32.000	0.900		28.800		
		L-3 / Lvl at - 1650	Sqm	1.00	25.000	0.900		22.500		
		PCC at Path and Stage								
		L-1 / Stage	Sqm	1.00	155.000			155.000		
		L-2 / Lvl at -2100	Sqm	1.00	109.000			109.000		
		L-3 / Both side passage	Sqm	2.00	21.000	2.000		84.000		
		Plaster Work								
9.0	13.3	Plaster on new surface on walls in cement sand mortar 1:6 including racking of joint etc. complete fine finish : :								
	13.3.2	20 mm thick	Sqm					**628.080**	450.00	**282636.00**
		Internal Plaster								
		Stone Masonry Work								

		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	2.00	32.000		0.900	57.600		
		L-2 / Lvl at - 600 mm	Sqm	2.00	32.000		0.750	48.000		
		L-3 / Lvl at -1200 mm	Sqm	2.00	25.000		0.600	30.000		
		L-4 / Lvl at -1050 mm	Sqm	2.00	31.000		0.900	55.800		
		RCC wall								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	4.00	31.000		2.370	293.880		
		L-2 / Stage outer wall	Sqm	2.00	34.000		2.100	142.800		
		Floor finishes								
10.0	11.28.1	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush. Red sand stone	Sqm					**703.250**	1280.10	**900230.33**
		Flooring								
		RCC Outer wall								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000	0.325		20.150		
		L-2 / Stage outer wall	Sqm	1.00	34.000	0.325		11.050		
		Internal OAT Area								
		Stone Masonary wall								
		L-1 / Lvl at 0.00	Sqm	1.00	32.000	0.650		20.800		
		L-2 / Lvl at - 600 mm	Sqm	1.00	32.000	0.650		20.800		
		L-3 / Lvl at -1200 mm	Sqm	1.00	25.000	0.650		16.250		
		Seating area PCC								
		L-1 / Lvl at -450 mm	Sqm	1.00	32.000	0.900		28.800		
		L-2 / Lvl at - 1050	Sqm	1.00	32.000	0.900		28.800		

		L-3 / Lvl at - 1650	Sqm	1.00	25.000	0.900		22.500		
		PCC at Path and Stage								
		L-1 / Stage	Sqm	1.00	155.000			155.000		
		L-2 / Lvl at -2100	Sqm	1.00	109.000			109.000		
		L-3 / Both side passage	Sqm	2.00	21.000	2.000		84.000		
		Walls								
		L-1 / Near Mounds both sides	Sqm	2.00	31.000		1.150	71.300		
		L-2 / Stage outer wall	Sqm	1.00	34.000		1.150	39.100		
		L-3 / Lvl at -1050 mm	Sqm	1.00	31.000		1.150	35.650		
		L-4 / Lvl at 0.00	Sqm	1.00	32.000		0.450	14.400		
		L-5 / Lvl at - 600 mm	Sqm	1.00	32.000		0.450	14.400		
		L-6 / Lvl at -1200 mm	Sqm	1.00	25.000		0.450	11.250		
11.0		Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	Kg					**375.000**	772.40	**289650.00**
		Railing								

		Total length : 25 mtr	Kg	15	25			375		
		Qty taken 15 kg per Rmt								
		Total								**4794045.17**
								Say in Lacs		**47.94**

Annexure-A6

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Central Garden Toe wall				*Rates are based on CPWD DSR 2023*						
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	2.8.1	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. . **All kinds of soil**	Cum					**494.010**	260.30	**128590.80**
		Earth excavation								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.600	1.850	38.850		
		L-2 / Near fountain	Cum	1.00	51.000	0.600	1.250	38.250		
		L-3 / Near fountain	Cum	1.00	64.000	0.600	0.650	24.960		
		L-4 / Outer	Cum	1.00	253.000	0.600	0.650	98.670		
		L-5 / Outer	Cum	4.00	43.000	0.600	1.250	129.000		
		L-6 / Outer	Cum	4.00	37.000	0.600	1.850	164.280		
		Concrete Work								
2.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					**43.380**	6812.00	**295504.56**
		PCC under footing								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.600	0.100	2.100		
		L-2 / Near fountain	Cum	1.00	51.000	0.600	0.100	3.060		

		L-3 / Near fountain	Cum	1.00	64.000	0.600	0.100	3.840		
		L-4 / Outer	Cum	1.00	253.000	0.600	0.100	15.180		
		L-5 / Outer	Cum	4.00	43.000	0.600	0.100	10.320		
		L-6 / Outer	Cum	4.00	37.000	0.600	0.100	8.880		
		Stone Masonry Work								
3.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					**300.420**	7311.25	**2196445.73**
		Stone Masonry Work								
		Masonary footing								
		L-1 / Near Fountain	Cum	1.00	35.000	0.400	1.750	24.500		
		L-2 / Near fountain	Cum	1.00	51.000	0.400	1.150	23.460		
		L-3 / Near fountain	Cum	1.00	64.000	0.400	0.550	14.080		
		L-4 / Outer	Cum	1.00	253.000	0.400	0.550	55.660		
		L-5 / Outer	Cum	4.00	43.000	0.400	1.150	79.120		
		L-6 / Outer	Cum	4.00	37.000	0.400	1.750	103.600		
		Floor finishes								
4.0	16.87	Providing and laying gang saw cut 30 mm thick, mirror polished pre moulded and pre polished machine cut granite stone of required size and shape of approved shade, colour and texture in footpath, flooring in road side plazas and similar locations, laid over 20 mm thick base of cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement mixed with matching pigment, epoxy touch ups etc. complete as per direction of Engineer-in-Charge.						**578.400**	4950.90	**2863600.56**

	16.87.1	**With granite stone of colour black, cherry/ruby red of area less than 0.50 sqm.**	Sqm							
		Internal Boundary wall Toe wall sides								
		L-1 / Near Fountain	Sqm	1.00	35.00		0.350	12.250		
		L-2 / Near fountain	Sqm	1.00	51.00		0.350	17.850		
		L-3 / Near fountain	Sqm	1.00	64.00		0.350	22.400		
		L-4 / Outer	Sqm	1.00	253.00		0.350	88.550		
		L-5 / Outer	Sqm	4.00	43.00		0.350	60.200		
		L-6 / Outer	Sqm	4.00	37.00		0.350	51.800		
		Internal Boundary wall Toe wall Top								
		L-1 / Near Fountain	Sqm	1.00	35.00	0.450		15.750		
		L-2 / Near fountain	Sqm	1.00	51.00	0.450		22.950		
		L-3 / Near fountain	Sqm	1.00	64.00	0.450		28.800		
		L-4 / Outer	Sqm	1.00	253.00	0.450		113.850		
		L-5 / Outer	Sqm	4.00	43.00	0.450		77.400		
		L-6 / Outer	Sqm	4.00	37.00	0.450		66.600		
		Total								**5484141.65**
								Say in Lacs		**54.84**

Annexure-A7

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Dismantling work

Rates are based on CPWD DSR 2023

S. No.	D.S.R. Item No.	Description	Unit	Nos	L	B	H	Qty.	Rate	Amount
1.0	15.2.1	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge. Nominal concrete 1:3:6 or richer mix (including equivalent design mix)	Cum					**10.000**	2434.25	**24342.50**
		Existing block	Cum							
2.0	16.83	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge	Sqm		0.200	3650.40		**730.080**	131.75	**96188.04**
		Existing block	Sqm							
3.0	16.82	Taking out existing kerb stones of all types from footpath/ central verge, including removal of mortar etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge.	Meter					**775.250**	39.35	**30506.09**
		Existing block	Meter							
		Total								**151036.628**
								Say in Lacs		**1.51**

Annexure- B1

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

DETAILED ABSTRACT										
Paved Pathway & Driveway									*Rates are based on CPWD DSR 2023*	
S.No.	**D.S.R. Item No.**	**Description of Items**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	2.28.1	Surface dressing of the ground including removing vegetation and in- equalities not exceeding 15 cm deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m. All kinds of soil	Sqm					**4657.404**	34.15	**159050.35**
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Sqm	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Sqm	1.000	355.824			355.82		
		P-3 Near Central Lawn	Sqm	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Sqm	1.000	159.010			159.01		
		Outer Driveway	Sqm	1.000	3650.400			3650.40		
2.0	16.11	Dry stone pitching 22.5 cm thick including supply of stones and preparing surface complete.	Sqm					**4657.404**	883.15	**4113186.34**
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Sqm	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Sqm	1.000	355.824			355.82		
		P-3 Near Central Lawn	Sqm	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Sqm	1.000	159.010			159.01		
		Outer Driveway	Sqm	1.000	3650.400			3650.40		

3.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					**675.660**	6812.00	**4602598.64**
		Paved Pathway 3.0 Mtr wide								
		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120		0.100	9.11		
		P-2 Near Mound Landscape	Cum	1.000	355.824		0.100	35.58		
		P-3 Near Central Lawn	Cum	1.000	401.050		0.100	40.11		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010		0.100	15.90		
		Outer Driveway	Cum	1.000	3650.400		0.150	547.56		
		Under Stone masonary for paved pathway								
		P-1 Near Dry Landscape	Cum	1.000	67.000	0.500	0.100	3.35		
		P-2 Near Mound Landscape	Cum	1.000	167.000	0.500	0.100	8.35		
		P-3 Near Central Lawn	Cum	1.000	202.000	0.500	0.100	10.10		
		P-4 Near OAT Theater lawn	Cum	1.000	112.000	0.500	0.100	5.60		
4.0	7.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :								
	7.1.1	Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					**135.946**	7311.25	**993931.83**
		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120	0.300	0.450	12.30		
		P-2 Near Mound Landscape	Cum	1.000	355.824	0.300	0.450	48.04		
		P-3 Near Central Lawn	Cum	1.000	401.050	0.300	0.450	54.14		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010	0.300	0.450	21.47		

5.0	16.91.2	Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50 mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge. 80 mm thick C.C. paver block of M-35 grade with approved colour design and pattern.	Sqm					**730.080**	1091.50	**796882.32**
		Outer Driveway 20% qty taken	Sqm	0.200	3650.400			730.08		
6.0	16.92	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20 mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10 mm wide filled with same mortar including ruled pointing etc. complete as per direction of engineer-in-charge.	Sqm					**73.008**	2189.15	**159825.46**
		Add 10% extra additional qty as per item no. 16.91.2	Sqm					73.01		
7.0	11.28.1	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush. Red sand stone	Sqm					**1007.004**	1280.10	**1289065.82**
		Paved Pathway 3.0 Mtr wide								

		Central garden								
		P-1 Near Dry Landscape	Cum	1.000	91.120			91.12		
		P-2 Near Mound Landscape	Cum	1.000	355.824			355.82		
		P-3 Near Central Lawn	Cum	1.000	401.050			401.05		
		P-4 Near OAT Theater lawn	Cum	1.000	159.010			159.01		
8.0	16.69	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineerin-charge (length of finished kerb edging shall be measured to calculate volume for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	Cum					**27.480**	10117.00	**278015.16**
		Outer Driveway								
		Both side	Cum	2.00	1145.000	0.100	0.600			
		Outer Driveway 20% qty taken	Cum	0.20	137.400			27.48		
		TOTAL								**12392555.92**
								Say in lacs		**123.93**

Annexure- B2

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works

Soft Pathway										***Rates are based on CPWD DSR 2023***
S.No.	**D.S.R. Item No.**	**Description of Items**	**Unit**	**Nos**	**L**	**B**	**H**	**Qty.**	**Rate**	**Amount**
1.0	2.8.1	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. . **All kinds of soil**	Cum					**242.550**	260.30	**63135.77**
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Cum	1.000	539.000	3.000	0.150	242.55		
2.0	16.10	Making bajri path including preparation of subgrade, supplying and laying brick aggregate of 50 mm nominal size 7.5 cm deep with blinding material consisting of 12 mm moorum and 12 mm red bajri consolidated with road roller.	Sqm					**1617.000**	191.25	**309251.25**
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Sqm	1.000	539.000	3.000		1617.00		

3.0	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum					**215.600**	6812.00	**1468667.20**
		PCC Below Peebles								
		Soft Pathway	Cum	1.000	539.000	3.000	0.100	161.70		
		Both side								
		Total length: 490.0 mtr around Central garden	Cum	2.00	539.000	0.500	0.100	53.90		
4.0	2.50	Providing & fixing of White River (Stone) Pebbles size of 2" to 2.50" dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Qtl.					**808.500**	610.70	**493750.95**
		Peebles Pathway								
		Soft Pathway	Cum	1.000	539.000	3.000	0.050	80.85		
5.0	23.5	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in Pathway area, in the required thickness, for all leads & lifts, all complete as per direction of Engineer-in-charge.	Cum					**323.400**	1509.80	**488269.32**
		Peebles Pathway								
		Soft Pathway	Cum	1.000	539.000	3.000	0.200	323.40		
6.0	16.92	Providing and fixing 10x10x7.50 cm Granite stone block hand cut and chisel dressed on top, for paving in floors, drains etc. laid over 20 mm thick base mortar 1:4 (1 cement : 4 coarse sand) with joints 10 mm wide filled with same mortar including ruled pointing etc. complete as per direction of	Sqm					**323.400**	2189.15	**707971.11**

		engineer-in-charge.								
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden								
		Add 10% 49.0 mtr	Sqm	2.000	539.000	0.300		323.40		
7.0	7.1.1	Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand)	Cum					**145.530**	7311.25	**1064006.21**
		Soft Pathway 3.0 Mtr wide								
		Total length: 490.0 mtr around Central garden	Cum	2.00	539.000	0.300	0.450	145.53		
		Add 10% 49.0 mtr								
		TOTAL								**4595051.81**
								Say in lacs		**45.95**

Annexure-B3

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

DETAILED ABSTRACT						
Unipole, Signage & Dustbins					*Rates are based on CPWD DSR 2023*	
S.No.	**D.S.R. Item No.**	**Description of Items**	**Unit**	**Qty.**	**Rate**	**Amount**
		"G-Schedule"				
		Signage				
1	16.60	Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 2 mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 as approved by Engineer-in-charge, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat. The rate includes the cost of rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge.(Structural frame work including M.S. plate to be provided separately. Rectangular area of the sheet only shall be measured for payment).				
	16.60.1	Overhead informatory road signage	Each	6.00	5879.90	35279.40
		UniPole - 2 Nos				
2	2.8.1	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. . **All kinds of soil**	Cum	3.71	260.30	966.36
3	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum	0.34	6812.00	2299.05

4	5.1.2	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 : 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)	Cum	2.16	9045.75	19538.82
5	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	840.00	133.70	112308.00
		"H-Schedule"				
		Dust Bins				
6	Non BSR Item	**Proving and installation of Dustbin Rabbit:-** It should be made by fiber glass reinforced plastic with 2.5 mm FRP thickness overall and thickness should be made by 2 layers of 450 gms roving mat and suspend in unsupported resin in pigment with promoter and exalter. Gelcote proposed with using color take pigment of multy color. Height should be 1.2 mtr. and capacity should be 100 liter for penguin shape and 90 liter for rabbit shape. And install by hole fast c.c. foundation system as order by engineer in charge.	Nos	4.00	8100.00	32400.00
7	Non BSR Item	**Providing and installation of Hanging dusbin :-** Providing and installation of litter bins as per specification, litter bins should be made by fiber glass reinforced plastic 5 mm with Mully process make 1" layer of 450 gsm emulsion glass reinforced stunned mats with one layer of uv gecote with gpg resin 2nd layer of 450 gsm emulsion glass reforced stunned mats with pigment and hardener and supere layer of resin and gelcote liter bins and supreme layer of resin and gelcote liter bins and supreme layer of resin and gelcote litter ins should be perfectly grinded by grinder and mounted on 32 mm ODMS pipe with proper fitment like visor, total thickness of FRP litterbins should be 5 mm in FRP total height 1.5 mtr. and length should be 0.8 mtr. width should be 0.5 mtr. supporting pipe should be pain by epoxy power quoting and FRP litter bins should be brightly paint by 3 litter of P.U. paint with smooth finishing on the front and back side there are no any sharp corners not seen on the ltters bins.	Nos	4.00	8350.00	33400.00

8	Non BSR Item	**Providing and installation of dustbin penguin shap:-** It should be made by fiber glass reinforced plasstic with 2.5 mm FRP thickness overall and thickness should be made by 2 layers of 450 gsm roving mat and suspended in unsupported resin in pigment with promoter and exalter. Gelcote proposed with using color take pigment of multy color height should be 1.3 mtr and capacity should be 100 liter for pendguin shape and 90 liter for rabbit shape and installation by hole fast c.c. foundation systeme ase order by engineer in charge.	Nos	4.00	8530.00	34120.00
		TOTAL				**270311.63**
				Say in lacs		**2.70**

Annexure-C

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Water supply and Drainage work of Landscape area					
S.No.	**Description of Items**	**Unit**	**Qty.**	**Rate**	**Amount**
1	Excavating trenches of required width for pipes cables, etc including excavation for socket, and dressing of sides,ramming of bottom, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc and disposing of surplus excavated soil as directed within a lead of 50 m.				
2	All kinds of soil pipes, cables etc, exceeding 80 mm dia but not exceeding 300 mm dia	metre	511	320.00	**1,63,440.00**
3	Providing and laying plain cement concrete M15 grade (using mechanical concrete mixer) using 20mm graded hard crusher broken stone aggregate, laying in layers of not more than 15cm thick, for bedding having width = outer dia of pipe (Bc) + 200mm or 1.25Bc (whichever is higher), thickness below pipe = 0.25Bc or 100mm (whichever is higher) and haunching = 0.25Bc, for RCC pipes of following sizes, including compaction, curing, formwork, etc complete as per drawing and/ or as directed by Engineer.				
4	110mm dia	Mtr.	400.0	550.00	**2,20,000.00**
5	160mm dia	Mtr.	385.0	750.00	**2,88,750.00**
6	200mm dia	Mtr.	150.0	800.00	**1,20,000.00**
7	250mm dia	Mtr.	200.0	950.00	**1,90,000.00**
8	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. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	Kg	100	150.00	**15,000.00**
9	Providing and Fixing Aquasafe agriculture pipe(is 4985:2000) working Pressure **6kg /cm2** approved quality with Fitting including joining the pipe with solvent cement and lubricant.				
10	110mm dia	Mtr.	400.0	650.00	**2,60,000.00**
11	160mm dia	Mtr.	385.0	820.00	**3,15,700.00**
12	200mm dia	Mtr.	150.0	1200.00	**1,80,000.00**
13	250mm dia	Mtr.	200.0	1860.00	**3,72,000.00**

14	Construction of *chamber* in all type of soil with 300 mm thick masonry in CM 1:6 m 10 cm thick C.C. 1:5:10 in foundation, 20mm thick insider plaster in Cm 1:6, finished with floating neat cement, 50mm thick M-15 grade C.C. flooring , earthwork etc. complete as per design including disposal of surplus earth within a lead of 50 mtr.				
15	Inside size 300 x 300mm depth upto .45 M Cement cover with frame.	Each	38	3500.00	**1,33,000.00**
16	Inside size 600 x 300mm depth upto .6 M Cement cover with frame.	Each	14	5500.00	**77,000.00**
17	Inside size 1200 x 450mm depth upto 1.0 M Cement cover with frame.	Each	12	7800.00	**93,600.00**
18	Inside size 1200 x 600mm depth upto 1.3 M Cement cover with frame.	Each	10	10000.00	**1,00,000.00**
19	Inside size 1200 x 900mm depth upto 1.5 M Cement cover with frame.	Each	4	15000.00	**60,000.00**
20	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including collars/spigot jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete **450 mm dia RCC pipes.**	Meter	100	2676.55	**2,67,655.00**
21	Providing and Fixing Aquasafe agriculture pipe(is 4985:2000) working **Pressure 6kg/cm2** approved quality with Fitting including joining the pipe with solvent cement and lubricant.				
	50mm dia (Sump Outlet Pipe)	Mtr.	60	300	**18,000.0**
	Total				**2874145.00**
				Says in lacs	**28.74**

Annexure-D

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Electrical work of Landscape					*Rates are based on CPWD DSR 2023*	
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Qty.**	**Rate**	**Amount**
		"G-Schedule"				
		WIRING AND SUBMAIN WIRING				
1	1.14	Wiring for **circuit/ submain wiring** alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
	1.14.1	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	Mtr	500	233.00	**116500.00**
	1.14.2	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Mtr	500	275.00	**137500.00**
	1.14.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Mtr	280	334.00	**93520.00**
2	1.21	Supplying and fixing of following sizes of medium class **PVC conduit** along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	1.21.1	20 mm	Mtr	20	128.00	**2560.00**
	1.21.2	25 mm	Mtr	100	145.00	**14500.00**
3	1.32	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing **6 pin 5/6 & 15/16 amps** modular socket outlet and 15/16 amps modular switch, connection etc. as required.	Each	10	586.00	**5860.00**
4	1.35	Erection of wall bracket /ceiling fittings of all sizes and shapes containing upto two GLS lamps per fitting, complete with all accessories including connection etc. as required.	Each	650	119.00	**77350.00**
		DISTRIBUTION BOARDS				
5	2.2	Providing and fixing following rating and breaking capacity and pole **MCCB** in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required.				
	2.2.13	100 Amp, 30KA, FP MCCB	Each	2	7,723.00	**15446.00**

6	2.4	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	2.4.3	8 way (4 + 24), Double door (TPN)	Each	1	5,967.00	**5967.00**
7	2.10	Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.10.1	Single pole	Each	24	256.00	**6144.00**
	2.10.5	Triple pole and neutral	Each	1	1,228.00	**1228.00**
8	2.11	Supplying and fixing single pole **blanking plate** in the existing MCB DB complete etc. as required.	Each	0	13.00	**0.00**
9	2.14	Supplying and fixing following rating, **double pole,** (single phase and neutral), 240 volts, residual current circuit breaker **(RCCB)**, having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.14.2	40 amps	Each	2	2,642.00	**5284.00**
10	2.15	Supplying and fixing following rating, **4 pole,** (3 phase and neutral), 415 volts, residual current circuit breaker **(RCCB)**, having a sensitivity current upto 30 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	2.15.3	63 amps	Each	2	2,872.00	**5744.00**
11	2.18	Supplying and fixing 20 amps, 240 volts, **SPN industrial type**, socket outlet, with 2 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	0	1,621.00	**0.00**

12	2.19	Supplying and fixing 20 amps, 415 volts, **TPN industrial type**, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 20 amps "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required.	Each	5	2,590.00	**12950.00**
13	2.21	Providing and fixing M.V. danger notice plate of 200 mm X 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Each	2	269.00	**538.00**
	5	**E A R T H I N G**				
14	5.2	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	2	6,855.00	**13710.00**
15	5.7	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required.	Mtr	500	51.00	**25500.00**
16	5.11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	Mtr	30	706.00	**21180.00**
17	5.15	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	Mtr	20	244.00	**4880.00**
18	14.16	Supplying and laying of following size **DWC HDPE pipe** ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required.				
	14.16.2	90 mm dia (OD-90 mm & ID-76 mm nominal)	Mtr	100	290.00	**29000.00**
	14.16.4	160 mm dia (OD-160 mm & ID-135 mm nominal)	Mtr	250	481.00	**120250.00**
		PUBLIC ADDRESS SYSTEM				

19	17.3.1	Supplying, installation, testing & commissioning of 6 zone, voice alarm controller with USB, MP3 player (including 6 zone button paging station) with seamless integration facility with main fire alarm panel for voice evacuation complete as required.	Each	0	1,26,411.00	**0.00**
20	17.3.2	Supplying, installation, testing & commissioning of 1.5/3/6W ceiling speaker complete as required.	Each	50	965.00	**48250.00**
21	17.3.7	Supplying, installation, testing & commissioning of digital audio amplifier 75 Watt, 25V rms operating at 240 Volt AC Supply complete as required.	Each	1	1,45,793.00	**145793.00**
22	17.5.3	Supplying and drawing of cable Fire Retardant PVC insulated copper conductorcable in the existing surface / recessed steel conduit of following pairs, cores and size including connections and interconnections etc. as required.				
	17.5.3.2	Speaker cable Two pair, 2-core, 1.5 sqmm	Mtr	1000	89.00	**89000.00**
23	1.21	Supplying and fixing of following sizes of medium class **PVC conduit** along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	1.21.1	20 mm	Mtr	800	128.00	**102400.00**
24	17.5.4	Supplying and fixing 25 mm dia MS flexible pipe with PVC coating along with all ancillaries and accessories like coupler etc. as required.	Mtr	25	53.00	**1325.00**
		TOTAL COST OF DSR ITEM (A)				**11 02 379.00**
		"H-Schedule"				

25		Providing & Fixing of IK10 IP65 protected 600 mm height LED Bollard Luminarie with base plate made of powder coated die cast alluminium housing with UV stabalized PC diffuser. The System level Luminous efficacy ≥ 90 Lumen/W. SMD LEDs is to be used, System CRI>70, CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency > 85%, PF>0.9, THD<20% and input Voltage range of 90-270V AC at 50Hz. System life of 30000 Burning hours with 70% of Initial Lumens maintained Light output in Cool white or Warm White Colour as per engineers choice. driver current <750mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. 10 Watt	Each	29	10,000.00	**290000.00**
26		Providing & Fixing of IK08 IP65 protected Top/Bottom mounted LED Post top Luminarie made of single piece construction powder coated die cast alluminium housing with UV stabalized Clear / frosted Polycarbonate diffuser and Aluminium anodised with sand blast reflector. The System level Luminous efficacy ≥ 100 Lumen/W. SMD LEDs is to be used, System CRI>70, CCT: 3000/4000/6500 K. The integral electronic driver must be potted & has a unique BIS R number must be potted & has a unique BIS R number constant current and Internal/external surge protection device of min. 4KV(L-N) and efficiency > 85%, PF>0.9, THD<10% and input Voltage range of 140-270V AC at 50Hz. System life of 50000 Burning hours with 70% of Initial Lumens maintained . Driver current <750mA. Fixture must be in compliance with BIS Standards and Trade mark Certificate complete in all respect.OEM Must have its own in house NABL lab setup for all testing facilities for LED fixtures. (LM79/LM80) Certificate/ report with liable warranty of product/accessories from OEM shall be submitted. All as per pre approved by Engineer in charge. 35 Watt	Each	36	11,105.00	**399780.00**

27		Supply and erection of Galvanized Iron pole with galvanizing done in single dipping (Average coating thickness Minimum 65 Microns) continuously tapered poles having Octagonal / Circular cross-sections designed to withstand the maximum wind speed as per IS 875, The pole shaft shall be made from sheet steel (HT Steel Conforming to grade S355JO) and confirming to BSEN 10025 and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by Submerged Arc Welding (SAW) process. pole shafts shall be provided with the rigid flange plate of suitable thickness (Fe 410 conforming to IS 226 / IS 2062) with provision for fixing 4 no. foundation bolts, This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside.The octagonal Poles shall have lockable door of approximate 500 mm length at the elevation of 500 mm from the Base plate with bakelite sheet having 6A SP MCB and 16 sqmm stud type connector (4 nos) inside the pole at door opening for cable connection of following length and dimension with base plate and foundation bolt on the cement concrete foundation. All as per pre approved by Engineer in charge.	No	36	3,500.00	**126000.00**
28		12 watt, LED , Tree Uplighter, having not less than 1000 lumen output, suitable to operate on 230 volts,50 Hz, single phase AC supply etc as reqd	Each	290	3,000.00	**870000.00**
29		6 watt, LED Inground (Drive overLight) stainless steel 304, IP-68 rating having not less than 200 lumen output, suitable to operate on 230 volts,50 Hz, single phase AC supply etc as reqd	Each	8	3,500.00	**28000.00**
30		5 watt ,LED Step Lights, having not less than 200 lumen output, suitable to operate on 230 volts, 50 Hz,single phase AC supply etc as reqd	Each	135	3,278.00	**442530.00**
31		8 watt ,LED Up & Down Light having not less than 650 lumen output, suitable to operate on 230 volts, 50 Hz,single phase AC supply etc as reqd	Each	104	1,850.00	**192400.00**
32		SITC of flexi encapsulated strip light (IP68) with homogeneoues and spot free illumination suitable to operate 230 volts 50 Hz, single phase AC supply i/c S/laying FRLS Copper wire/Aluminium armoured cable	Mtr.	670	500.00	**335000.00**

33		Surface/ recess type circular LED down lighter neutral white (5700 K) with LED having pressure die cast aluminium hang body having high efficiency diffuser with more than 85% transmittance with rated life of L-70@ 50000 hrs having system lumen output better than 1150 lumens and efficacy better than 100 lumen/ watt with CRI>80, Reverse Polarity and Surge Protection up to 2Kv, THD<10%.	Nos	135	1,450.00	**195750.00**
34		Provide & Fixing of underwater Luminaire 5 watt suitable for use with 230V reflector lamp in R30 shell with corrosion resistant housing made from Brass Conector box ,Heat Resistant toughened glass front Cover , Heat Resistant silicon rubber gasket to provide ingress protection of IP-67 .	Nos	18	3,500.00	**63000.00**
35		P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Aluminium conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand,IInd class bricks covering, refilling earth,compaction of earth, making necessary connection, testing etc. as required of size.				
		4.0C X 25 Sqmm Armoured Al. Cable	Mtr.	0	380.0	**0.00**
		4.0C X 4 Sqmm Armoured Al. Cable	Mtr.	6700	180.0	**1206000.00**
36		Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size.				
		4.0C X 25 Sqmm	Mtr.	0	200.0	**0.00**
37		Supply, Installation, Testing and Commissioning of KIOSK TYPE DISTRIBUTION FEEDER PILLAR BOX MADE OF 2 mm CRCA MS sheet of IP 55 protection comprising of following items	Nos.	2	75,000.00	**150000.00**
		Sump Pump				

38		SITC of Dewatering Submersible Motor Pump set, motor should be IE2 class as per IEC 60034-2-1: 2007, IEC 60034-30: 2008, & IS12615:2011. with SS Impellor, body, shaft, mechanical seal etc. as required. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively complete in all respect. OEM shall have submit NABL / CPRI / ERDA accrediated lab type test certificate before execution. All as per pre approved by Engineer in charge. **2.0 HP**, 3-Ø, (5 - 18)Mtr, (480 - 66) LPM	Each	2	40000.0	**80,000.0**
39		Supply and fixing of Oil / Air break Starter panel made out of sheet steel powder coated enclosure comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps etc. complete in all respect suitable for following rating motors. **2.0/3.0 HP, 3-Ø, DOL starter**	Each	2	3500.0	**7,000.0**
		TOTAL COST OF NON-DSR ITEM (B)				**43 85 460.00**
		GRAND TOTAL COST (A+B)				**54 87 839.00**
					Say in Lacs	**54.88**

Annexure-E

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Horticulture and Landscapping Work					*Rates are based on CPWD DSR 2020*	
S.No.	**D.S.R. Item No.**	**Description of Items**	**Unit**	**Qty.**	**Rate**	**Amount**
		"G-Schedule"				
		SUB HEAD 2.0:HORTICULTURE AND LAND SCAPING				
1	2.10	Trenching in ordinary soil up to a depth of 60 cm including removal and stacking of serviceable materials and then disposing of surplus soil, by spreading and neatly levelling within a lead of 50 m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or / and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	Cum	3600.00	78.10	281160.00
2	2.20	Supplying and stacking of good earth at site including royalty and carriage upto 5 km lead complete (earth measured in stacks will be reduced by 20% for payment).	Cum	4500.00	515.60	23,20,200.00
3	2.40	Supplying and stacking at site dump manure from approved source, including carriage upto 5 km lead complete (manure measured in stacks will be reduced by 8% for payment) :				
	2.4.1	Screened through sieve of I.S. designation 20 mm	Cum	1200.00	254.15	304980.00
4	2.50	Rough dressing the trenched ground including breaking clods.	Sqm	6000.00	1.50	9000.00
5	2.60	Uprooting weeds from the trenched area after 10 to 15 days of its flooding with water including disposal of uprooted vegetation.	Sqm	6000.00	4.90	29400.00
6	2.70	Fine dressing of the ground.	Sqm	6000.00	3.70	22200.00
7	2.80	Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately).	Cum	5700.00	52.35	298395.00
8	2.90	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	5700.00	36.55	208335.00

9	2.10	Grassing with selection No. 1 Doob grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and good earth shall be paid for separately).				
	2.10.1	In rows 5 cm apart in both directions	Sqm	5700.00	17.70	100890.00
10	2.13	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20%: one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately)	Cum	2480.00	222.85	552668.00
11	2.14	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)				
	2.14.1	Holes 1.2 m dia and 1.2 m deep	Each	87.00	335.50	29188.50
	2.14.2	Holes 90 cm dia, and 90 cm deep	Each	64.00	143.10	9158.40
12	2.25	Supplying and stacking of well decayed cattle manure at site including royalty and carriage upto 5 Km lead complete (Cattle manure measured in stacks will reduced by 8% for Payment).	Cum	754.00	247.50	186615.00

13	2.28	Preparation of mounds of various size and shape by available excavated / supplied earth in layers not exceeding 20 cm in depth, breaking clods, watering of each layer, dressing etc., lead upto 50 meter and lift upto 1.5 m complete as per direction of Officer-in-charge.	Cum	224.00	456.35	102222.40
14	2.35	Supplying & Stacking of Selection No.1 doob grass turf at site fresh & free from weeds having proper roots in green including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Sqm	570.00	50.80	28956.00
15	2.40	Complete maintenance of the entire garden features having as per yard stick in the garden area i.e. lawn trees, shrubs, herbs, edge, flower beds, foliages, creepers etc. including hoeing,weeding, Pruning, replacement of plants, gap filling, watering, mowing of lawn, grass cutting by lawn mover and brush cutter, removal of garden waste, applying insecticide, pesticide & fertilizers(whenever required) top dressing of lawn with good earth and manure and maintenance of other garden related works as directed by office-in-charge (Cost of Good Earth, Manure, Fertilizer, Insecticide, Pesticide will be provided by the Department & lawn mover and brush cutter with fuel and other T & P material/articles shall be provided by the contractor.) and as per direction of officer in charge.				
	2.40.2	Permanent office accommodation.(1Mali for 1.25Acre) - For 6 Months (Total Area 17300 Sqm)	Per Sqm Per Month	103800.00	3.85	399630.00
16	2.50	Providing & fixing of White River (Stone) Pebbles size of 2" to 2.50" dia in natural colour at site of work including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Qtl.	258.40	610.70	157804.88
17	2.53	Providing and wartering of irrigation water through water tanker of Horticulture features i.e. lawn, tree, shrubs, hedge/edge, ground cover etc. at the site of work. Water tanker having 5000 lit. capacity with one labour for watering i/c cost of water, filling of tanker, wartering at site with	Per Trip		932.95	0.00

		all leads and lifts as per direction of officer-in-charge.				
18	2.57	Plantation of Trees, Shrubs, and Hedge at site i/c watering and removal of unserveiceable material's as per direction of officer in charge (excluding cast of plant & water)				
	2.57.1	Trees Plant	Each	64.00	7.30	467.20
	2.57.2	Shrubs Plant	Each	17170.00	3.65	62670.50
	2.57.3	Hedge Plant /Ground cover	Each	17000.00	2.45	41650.00
		SUB HEAD 8.0:SHRUBS				
19	8.34	Providing and stacking of Hamelia patens (Dwarf) of height 30-45 cm. with 3-4 branches in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	5375.00	40.00	215000.00
20	8.46	Providing and stacking of Murraya exotica of height 45-60 cm. in poly bags of size 15 cm as per direction of the officer-in-charge.	Each	1850.00	15.00	27750.00
		SUB HEAD 9.0:CREEPER PLANTS				
21	9.40	Providing and stacking of Bougainvillea (Variety Butiana, Lady Mary Baring, Mahara,Mohan,Scarlet Queen, Variegated, Glabra Formosa, Peruviana Odissi, Paratha, Subhra,Thimma, Spectabilis L.N Birla, Refulgens) of height 30 cm. to 45 cm. with 2-3 branches in 20 cm size of Earthen pots / Plastic pots & as per direction of the officer-in-charge.	Each	9545.00	40.00	381800.00
		TOTAL COST OF DSR ITEM (A)				**5770140.88**
		"H-Schedule"				
	A	**HORTICULTURE AND LAND SCAPING WORK**				
22	1.00	Grassing with Maxican Doob grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and good earth shall be paid for separately).				
	2.00	In rows 5 cm apart in both directions	Sqm	300.00	20.00	6000.00
23	3.00	Supplying & Stacking of Maxican doob grass turf at site fresh & free from weeds having proper roots in green including loading, unloading, carriage and all taxes paid etc.and as per direction of officer in charge.	Per Sqm	30.00	80.00	2400.00

24	4.00	Providing and applying anti termite treatment of Palm trees after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 50 ml Imidacloprid per tree i/c cost of chemical) and as per direction of officer-in-charge.	Per Tree	87.00	90.00	7830.00
25	5.00	Providing and applying anti termite treatment of Trees after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 10 ml Imidacloprid per tree i/c cost of chemical) and as per direction of officer-in-charge.	Per Tree	64.00	20.00	1280.00
26	6.00	Providing and applying anti termite treatment of shrubs and ground covers after plantation by drenching chemical emulsion 0.5% (Imidacloprid 17.8 %) concentration (@ 2 ml Imidacloprid per plant i/c cost of chemical) and as per direction of officer-in-charge.	Per Plant	34170.00	3.00	102510.00
27	7.00	Providing and applying anti termite treatment of Palm trees after plantation by mixing Fipronil 0.6 % GR (@ 250 gram Fipronil per tree i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Tree	87.00	25.00	2175.00
28	8.00	Providing and applying anti termite treatment of Trees after plantation by mixing Fipronil 0.6 % GR (@ 100 gram Fipronil per tree i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Tree	64.00	10.00	640.00
29	9.00	Providing and applying anti termite treatment of shrubs and ground covers after plantation by mixing Fipronil 0.6 % GR (@ 20 gram Fipronil per plant i/c cost of chemical) with pit filling and as per direction of officer-in-charge.	Per Plant	34170.00	2.00	68340.00
	B	**Providing and stacking of Palms and Trees:**				
30	1.00	Providing and stacking of Plumeria rubra of height 210-240 cm. with 5-6 branches and thick stem in big size HDPE bags as per direction of the officer-in-charge.	Per Plant	24.00	2500.00	60000.00
31	2.00	Providing and stacking of Bismarkia nobilis Palm of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	24.00	8000.00	192000.00
32	3.00	Providing and stacking of Phoenix sylvestris Roxb. (Wild date palm/khajur) of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	56.00	10000.00	560000.00

33	4.00	Providing and stacking of Conocarpus erectus of height 250-300 cm. with dense foliage and thick stem in big size HDPE bags as per direction of the officer-in-charge.	Per Plant	40.00	1500.00	60000.00
34	5.00	Providing and stacking of Washingtonia fillifera Palm of height 250-300 cm. in Big HDPE Bag as per direction of the officer-in-charge.	Per Plant	7.00	9000.00	63000.00
	C	**Providing and stacking of Shrubs:**				
35	1.00	Providing and stacking of Fountain Grass (Red) of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	120.00	40.00	4800.00
36	2.00	Providing and stacking of Fountain Grass (Green) of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	135.00	40.00	5400.00
37	3.00	Providing and stacking of Lemon Grass of height 45-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	120.00	40.00	4800.00
	D	**Providing and stacking of Ground Covers:**				
38	1.00	Providing and stacking of Spider Lily of height 30-60 cm. in earthen pots/PB as per direction of the officer-in-charge.	Each	17000.00	30.00	510000.00
		TOTAL COST OF DSR ITEM (B)				**1651175.00**
		GRAND TOTAL COST (A+B)				**74 21 315.88**
					Say in Lacs	**74.21**

Annexure-F

Cost Estimate for Development of Central Court between Administrative, Central Library and Academic Buildings at CURAJ - Landscaping and other associated works.

Irrigation System						
1.0	**PIPE WORK**	**Make/model**	**Units**	**Qty**	**Rate**	**Amount**
	Providing, laying & jointing in position PVC pipe conforming to ISI standard and suitable for the respective working pressures with all fittings and accessories e.g. couplings, tees, bends, reducers, screwed adapters, flanged tail pieces etc. jointing as per manufacturers' instruction,	Supreme/ Finolex/Prince				
1.1	HDPE 75mm-PN8		Rm	500.00	290.00	145000.00
1.2	PVC pipe 75mm-6 kg/cm2		Rm	318.00	270.00	85860.00
1.3	PVC pipe 63mm-6 kg/cm2		Rm	318.00	145.00	46110.00
1.4	PVC pipe 50mm-6 kg/cm2		Rm	450.00	105.00	47250.00
1.5	PVC pipe 40mm-6 kg/cm2		Rm	1100.00	82.00	90200.00
1.6	Earth work excavation and refilling 300x450mm		Rm	**2686.00**	50.00	134300.00
2.0	**SPRINKLERS & ACCESSORIES**					
2.1	Supply Installation Testing & Commisioining of **I-25/PRO SPORT Pop-up ROTOR** sprinkler, Radius of throw 13.9 - 20.9 mtr radius rotor, Patented automatic arc return feature returns the turret back to the original arc pattern if vandalised; adjustable arc from 50° to 360° ,Nozzle choices: 5 Nos , pressure range 4 to 4.5 bar, Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel , Flat-top nozzles allow fast, easy insertion , QuickCheck™ arc mechanism for fast arc adjustment.	Hunter/ K-Rain	Nos	30.00	3,150.00	94500.00
2.2	Providing & Fixing of Four Elbow Swing joint Assembly 1". The fittings shall be made of UV resistant thermo plastic etc. item complete.	Hunter/ JAIN	Nos	30.00	850.00	25500.00
2.3	Providing and fixing of **PP service saddle** of varying size.1"	Rainson/Gokul/equ	Nos	30.00	79.00	2370.00
2.4	Supply Installation Testing & Commisioining of **PGP Ultra Pop-up ROTOR** sprinkler, Radius of throw 4.9 - 14 mtr radius rotor, Patented automatic arc return feature returns	Hunter/ K-Rain	Nos	35.00	980.00	34300.00

	the turret back to the original arc pattern if vandalised; adjustable arc from 50° to 360° ,Nozzle choices: 34 Nos , pressure range 1.7 to 4.5 bar, Non-strippable drive mechanism is protected from damage if turned in the opposite direction of travel , Flat-top nozzles allow fast, easy insertion , QuickCheck™ arc mechanism for fast arc adjustment, Nozzle trajectory: standard = 25°, low-angle = 13° , with automatic arc return and non strippable drive part and full circle in one model with check valve ,flow 1.2 to 53.8 lpm. Complete Etc					
2.5	Providing & Fixing of SJ- 712, 3/4" Pop up Connecting Four Elbow Swing joint Assembly. The fittings shall be made of UV resistant thermo plastic etc. item complete.	Hunter/ K-Rain	Nos	35.00	185.00	6475.00
2.6	Providing and fixing of **PP service saddle** of varying size.3/4"	Rainson/Gokul/equ	Nos	35.00	79.00	2765.00
2.7	Supply of 1/2" Spray Pop up having colour coded Nozzle with multiple stream water spray capable of covering 2m- 4.7m with Matched Precipitation Rate .The Spray Head body shall be constructed of heavy-duty, ultraviolet resistant plastic with small exposed cover.	Hunter/ K-Rain	Nos	50.00	260.00	13000.00
2.8	Providing & Fixing of **SJ- 512**, **1/2"** Pop up Connecting **Four Elbow Swing joint** Assembly. The fittings shall be made of UV resistant thermo plastic.	Hunter/ K-Rain	Nos	50.00	180.00	9000.00
2.9	Providing and fixing of **PP service saddle** of varying size.1/2"	Rainson/Gokul/equ	Nos	50.00	79.00	3950.00
3.0	**VALVES & ACCESSORIES**					
3.1	Providing & fixing of Isolation Valve in mainline for bypass and flow diversion of approved quality 75 MM	Harit/Eqiov.	Nos	1.00	780.00	780.00
3.2	Providing and fixing of PVC Ball Valve,security pivot to maintain lever in space,double water tight joint,direct injection stem non mechanical ,with a base which permits maximum penetration into the valve of size 63mm.	Harit/Eqiov.	Nos	12.00	680.00	8160.00

3.3	Providing & fixing of a double acting 1" Air release valve, The Air release valve shall be capable of both releasing and admitting air from and into the line. The working pressure shall be 5 bar. Including service saddle and riser assembly.	Harit/Eqiov.	Nos	1.00	980.00	980.00
3.4	Providing & fixing of 12" Rectangular Valve Box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	12.00	1665.00	19980.00
3.5	Providing & fixing of 10" Rectangular Valve Box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	0.00	875.00	0.00
3.6	Providing & fixing of 6"Round box with greenlid and corrugated structure with unique shovel access slot and bolt hole knockout	Rainspa/Cepex/ Hunter	Nos	11.00	375.00	4125.00
3.7	Providing & fixing of Brass Quick coupling valve 1" made up of solid brass with locking cover corrosion resistant and stainless steel spring. Including service saddle and riser assembly.	Harit/Eqiov.	Nos	10.00	1380.00	13800.00
3.8	Providing & fixing of 1" Brass Key threads into top of QCV to provide water access And Brass Swivel Elbow	Harit/Ecoaqua/Equ.	Nos	2.00	1380.00	2760.00
4.00	**FILTERATION UNIT**					
4.1	Providing & Fixing of 3" Filter unit with disc filter and gravel filter with manual back wash filtration with capacity matching pump design flow having an suitable inlet connections , to create a helical effect in the incoming water ,spinning particulate in suspension away from the filtering element and so minimizing cleanings frequency ,3/4" outlet for flushing at bottom of filter & maximum working presure of 10 Bars. with pressure gauge (50 M^3).	Azud/Amiad/Armas	Nos	1.00	36800.00	36800.00
6.0	**PUMPING UNIT**					
6.1	Providing & Fixing of (Monoblock/Openwell submersible) pumpset of having discharge **5.28 lps@ 60 mtr** head . suitable for	LUBI/CROMPTON/CRI	Nos	1.00	44,700.00	44,700.00

	pumpset etc.(One Working One Stand By)					
6.2	Providing and fixing of control panel suitable for pumpset having panel box and fixed alongwith following accessories starter,start/stop push buttons , Ammeter,Voltmeter , Indicating lamps,MCB,with cable,etc.	VIRAAL	Nos	1.00	12,600.00	12,600.00
6.3	Providing & Fixing of Suction,Delivery & Header Pipe UPVC	Supreme/ Prince/ Finolex	Nos	18.00	370.00	6,660.00
6.4	Providing & fixing of **Control Valve /Butterfly Valve 2.5"** in mainline for bypass and flow diversion of approved quality	LP/Kartar/ zoloto	Nos	0.00	670.00	-
6.5	Providing & fixing of **Non Return Valve 2.5"** to prevent back flow	Harit/Eqio v.	Nos	1.00	1,900.00	1,900.00
6.6	Providing and fixing of **Pressure Release Valve** 2".	Harit/Rafel /Equiv.	Nos	1.00	11,800.00	11,800.00
7.0	**Automation Equipment**					
7.1	Supply and fixing of Direct burial 1.5sq mm **x 2c** cable for two way communication between controller and valves	Finolex/Polycab Equ.	Mtr	830.00	69.00	57270.00
7.2	Supply and fixing of Direct burial **14 AWG x 1C** cable for One way communication between controller and valves	Finolex/Polycab Equ.	Mtr	0.00	-	0.00
7.3	PVC conduit Pipe 32 mm with Accessories	Supreme/ Aashirwad / Finolex	Mtr	830.00	23.00	19090.00
7.4	Commercial decoder based controller with module for 12 working station with 230/240 VAC internal transformer, Automatic Short Circuit Protection. Seasonal Adjustment:Manual or Automatic programmability,Programmable Click Delay,Non-Water Days,Non-volatile memory,Rain Sensor bypass,One Touch manual Start	Hunter	Nos	1	29800.00	29800.00
7.5	Supply and fixing of 2" Solenoid globe Valves with fabric reinforced diaphram and rugged PVC construction ,compatible with and slow closing to prevent water hammer,pressure rating upto 10 bar with 24AC solenoid, with provision to attach Pressure Regulator	Hunter/ K-rain/Harit	Nos	12.00	4,450.00	53400.00
7.6	Supply and fixing of EZ1 Decoder	Hunter	Nos	12.00		70800.00

					5,900.00	
7.7	Supply and fixing of direct bury -on wire connector with strain relief , with waterproof silicon sealant.	Hunter	Nos	48.00	160.00	7680.00
					TOTAL	**11,43,665.00**
					GST	188283.00
					TOTAL PROJECT COST	**13,31,948.00**

Annexure-G

Cost Estimate of Proposed Beautification and Landscape of CURAJ

Construction of Rain Water Harvesting -1nos			*Rates are based on CPWD DSR 2023*			
S. No.	**D.S.R. Item No.**	**Description**	**Unit**	**Qty.**	**Rate**	**Amount**
		RAIN WATER HARVESTING				
1	2.8.1	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. . **All kinds of soil**	Cum	22.22	260.30	5782.56
2	2.26.1	Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials. **All kinds of soil / depth of excavation above 1.5 m and upto 3.0**	Cum	18.84	387.10	7292.96
		depth of excavation above 3.0 m and upto 4.5	Cum	1.70	513.90	871.37
		depth of excavation above 4.5 m and upto 6.0	Cum	1.70	640.70	1086.37
		depth of excavation above 6.0 m and upto 7.5	Cum	1.70	767.50	1301.37
		depth of excavation above 7.5 m and upto 9.0	Cum	5.09	894.30	4549.13
3	4.1	Providing and laying in position cement concrete including curing, compaction etc. complete in specified grade excluding the cost of centering and shuttering - All work up to plinth level.				
	4.1.8	1:4:8 (1 Cement : 4 coarse sand (zone-III) derived from natural sources : 8 graded stone aggregate 40 mm nominal size derived from natural sources)	Cum	2.22	6812.00	15132.86

4	5.1.2	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 : 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)	Cum	19.28	9045.75	174380.71
5	5.9.1	Centering and shuttering including strutting, propping etc. and removal of form for Foundations, footings, bases of columns, etc. for mass concrete	Sqm	164.97	392.15	64694.55
6	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more	Kg	1503.84	107.85	162189.14
7	23.2.1.1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, beyond 90 metre & upto 150 metre depth below ground level. **All types of soil** 300 mm dia	Mtr	60.00	825.70	49542.00

8	23.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of useable water yield without sandcontent (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed,measuring yield of well by “V” notch method or any other approved method, measuring static level & draw down etc. by step draw downmethod, collecting water samples & getting tested in approved laboratory, including disinfection of tubewell, all complete, including hire & labourcharges of air compressor, tools & accessories etc., all as per requirementand direction of Engineer-in-charge.	Hour.	24.00	1085.05	26041.20
9	23.11.3	Supplying, assembling, lowering and fixing in vertical position in bore well, ERW (Electric Resistance Welded) FE 410 plain slotted (having slot of size 1.6/3.2 mm) mild steel threaded and socketed/ plain bevel ended pipe (type A) of required dia, conforming to IS: 8110, of reputed and approved make, having wall thickness not less than 5.40 mm, including painted with outside surface with two coats of anticorrosive bitumestic paint of approved brand and manufacture, including hire & labour charges, fittings & accessories, all complete, for all depths, as per direction of Engineer -in-charge. 200 mm nominal size dia	Mtr	30.00	2571.05	77131.50
10	23.3.3	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for	Mtr	60.00	1113.35	66801.00

		all depths, as per direction of Engineer -in-charge. 200 mm nominal size dia				
11	23.4.3	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge. 200 mm nominal size dia	Mtr	150.00	1255.70	188355.00
12	23.7	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Engineer -in-charge.	Cum	3.00	1538.25	4614.75
13	23.6	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Engineerin-charge.	Cum	12.00	1538.25	18459.00
14	23.9	Providing and fixing factory made precast RCC perforated drain covers, having concrete of strength not less than M-25, of size 1000 x 450x50mm, reinforced with 8 mm dia four nos longitudinal & 9 nos cross sectional T.M.T. hoop bars, including providing 50 mm dia perforations @ 100 to125 mm c/c, including providing edge binding with M.S. flats of size 50 mm x 1.6 mm complete, all as per direction of Engineer-in-charge.	Each	1.00	1399.95	1399.95
15	10.2	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	60.00	133.70	8022.00
		For one Nos.	Nos.			**877647.43**
		For 1 Nos	Nos.	1.00		**877647.43**

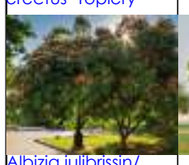
		Total				**877647.43**
					Say in Lacs	**8.78**

GENERAL NOTES
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS MENTIONED OTHERWISE.
2. ALL LEVELS INDICATED ARE FINISHED FLOOR LEVELS UNLESS OTHERWISE MENTIONED.
3. FOR SIZES OF THE COLUMNS AND SHEAR WALLS REFER TO STRUCTURAL DRAWINGS.
4. THE CONTRACTOR SHALL CHECK THE ACTUAL OPENING SIZES AT SITE AND THE NO. OF DOORS, WINDOWS, VENTILATOS, ETC., IN THE DRAWING BEFORE FABRICATIONG / PROCURING THE SAME.
5. 1000 MM WIDE PLINTH PROTECTION SHALL BE PROVIDED ALAROUND THE BUILDING.
6. 230 MM THICK INTERNAL BRICK WALLS SHALL HAVE 15 MM THICK PLASTER ON ROUGH SIDES AND 12 MM THICK ON OTHER SIDES..
7. ALL CHAJJAS, CANOPIES, PROJECTIONS, AND GUTTER PROJECTIONS SHALL HAVE DRIP MOULD GROOVES UNDERNEATH ALL ALONG PERIPHERY.
8. ALL ELECTRICAL CONDUITS / WIRING / SWITCH BOARDS SHALL BE CONCEALED IN CEINING / WALLS AS PER ELECTRICAL DRAWINGS.
9. NO CEILING PLASTER SHALL BE PROVIDED ABOVE FALSE CEILING AREA.
10. THIS DRAWING IS NOT TO BE SCALED, FOLLOW WRITTEN DIMENSIONS.

KEY PLAN


Royal Palm


Conocarpus erectus "Topiery"




Albizia julibrissin/ ebbeck OR Cassia fistula


Phoenix sylvestris (Date Palm)


Plumeria alba


Cycas revoluta



Erythrina indica OR Bombax cieba OR Spathodea campanulata


Bismarkia nobilis


Jasminum sambac


Canna Lily


Acacia auriculiformis

Royal Palm


Bougainvillea spp. "Shubhra" White


Hamelia patens (Dwarf-Hybrid)


Bougainvillea Spectabilis "Torch Gloww"


Nerium oleander (Dwarf-Red)



Furcraea foetida + Wedelia trilobata as Ground Cover


Euphorbea millii


Malpighia coccigera


Bougainvillea spp. (Mix Colours)


Furcraea foetida + Wedelia trilobata as Ground Cover


Cestrum Nocturnum


Jasminum multiflorum


Spider Lily



Murraya exotica


Ficus panda


Ficus moclame

Cllistemon citrinus + Fountain Grass (Red & Green) and Lemon Grass




LANDSCAPE & HORTICULTURE CONSULTANTS:
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REVISION INDEX:

R. No.	Date	Description	BY	CHKD	

Architects:

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Tel. : 0141-2701590, 2704457
E-mail : aayojan.2010@gmail.com

Client:

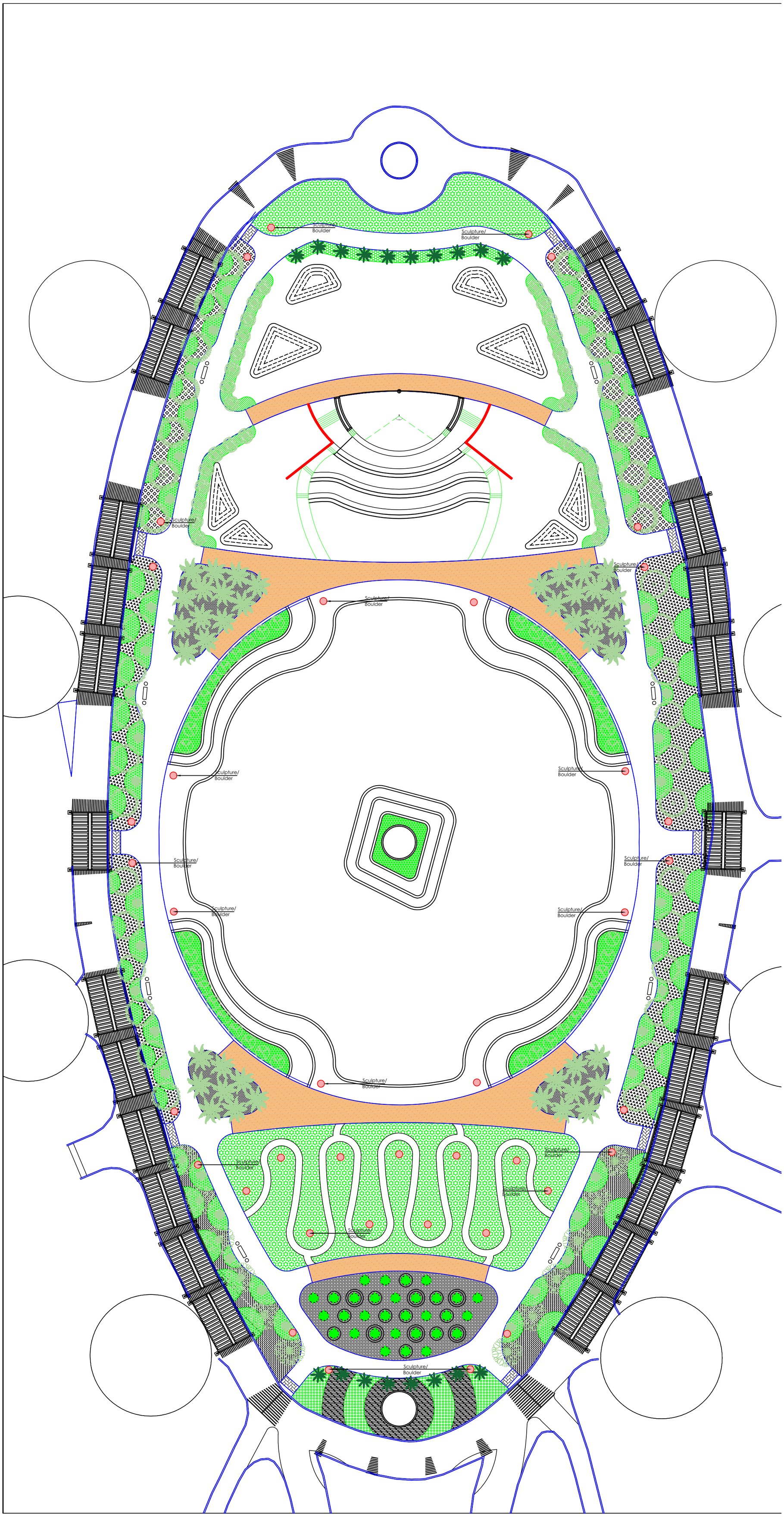
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

HORTICULTURE PLAN

Designed:	Approved: NAVEEN SHARMA	North:
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 08	Revsion: R0



GENERAL NOTES

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10. THIS DRAWING IS NOT TO BE SCALED, FOLLOW WRITTEN DIMENSIONS.

KEY PLAN

LANDSCAPE & HORTICULTURE CONSULTANTS:
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18, Vrindavan Vihar, DCM, Ajmer Road,
Jaipur 302019
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Email: vipulraj17@gmail.com

REVISION INDEX:

R. No.	Date	Description	BY	CHKD	

Architects:

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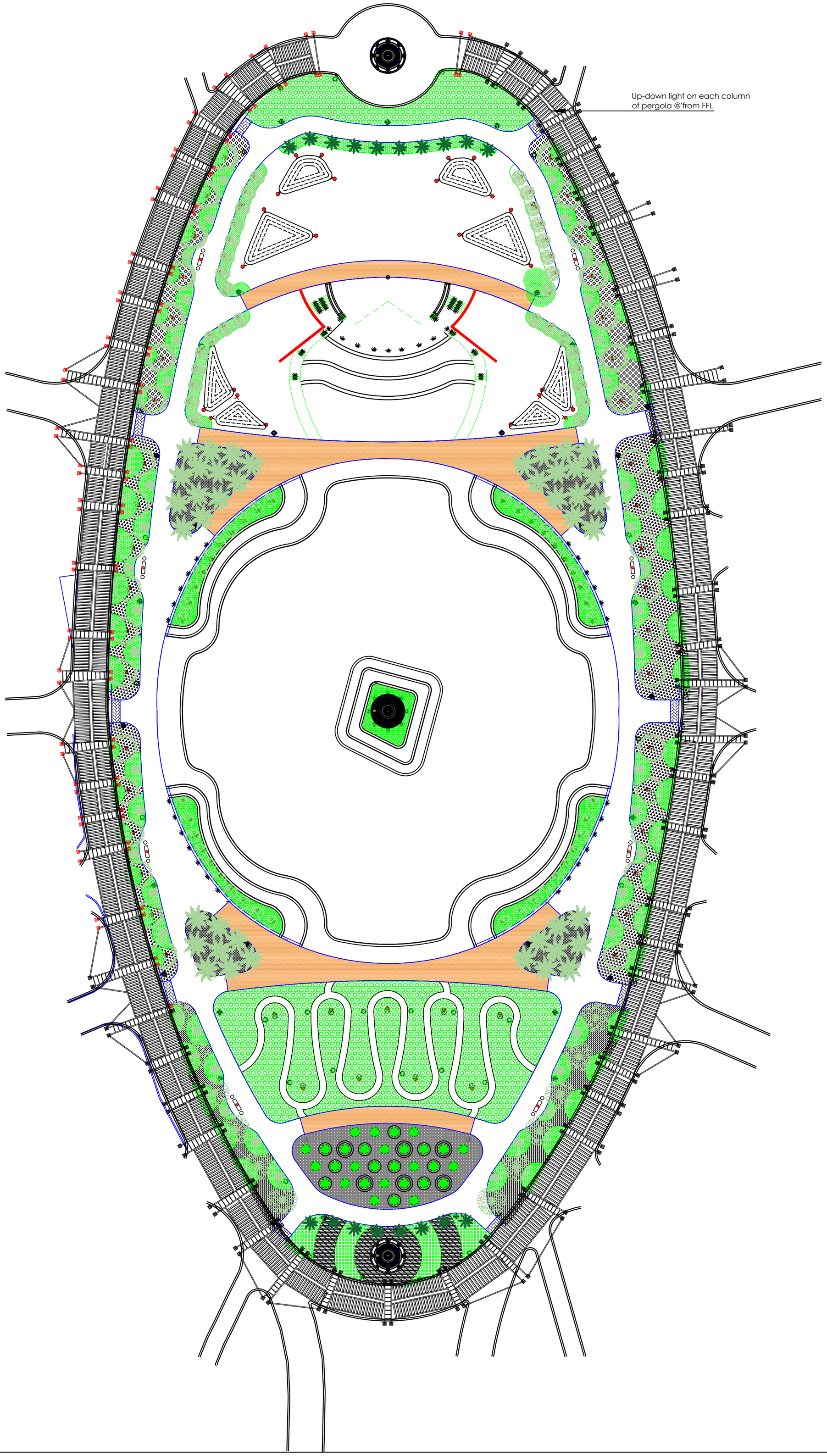
CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

BOULDERS AND SCULPTURE PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SHARMA	
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 10	Revsion: R0



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KEY PLAN

LEGEND - LIGHT FIXTURE (All LIGHT 3000k)

S.N.	Symbol	Code	Description	Location	Quantity	Watt
1		TUL	Tree up Lighter	On ground	290 nos	12 W
2		SLI	Step Light	Center of step riser	135 nos	5 W
3		BL	Bollard Light	On ground	29 nos	18 W
4		UWL	Under water light	Water body	18 nos	5 W
5		DOL	Drive over light	Under stone bench	8 nos	6 W
6		CL	Cove light	Central garden	670m	18 W per Mt.
7		PTL	Post -top light	On ground	36 nos	35 W
8		UDL	UP-down light	Pergola column		8 W

LANDSCAPE & HORTICULTURE CONSULTANTS:
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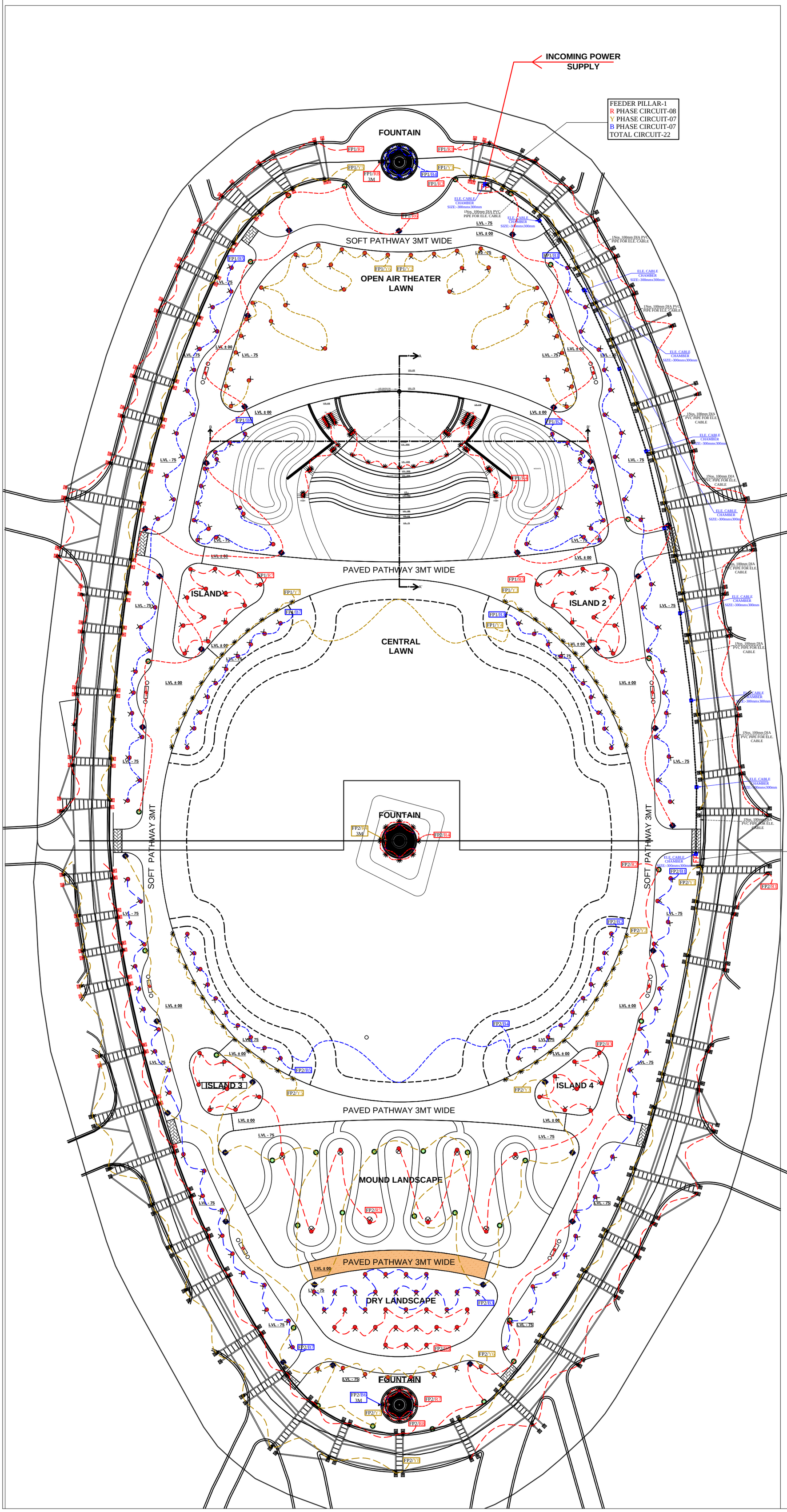
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

LIGHTING PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SHARMA	
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 11	Revsion: R0



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KEY PLAN

LEGEND - LIGHT FIXTURE (All LIGHT 3000k)

S.N.	Symbol	Code	Description	Location	Quantity	WATTS.
1		TUL	Tree up Lighter	On ground	290 nos	12W
2		SL1	Step Light	Center of step riser	135 nos	5W
3		BL	Bollard Light	On ground	29 nos	18W
4		UWL	Under water light	Water body	18 nos	5W
5		DOL	Drive over light	Under stone bench	8 nos	6W
6		CL	Cove light	Central garden	670m	18W/M
7		PTL	Post -top light	On ground	36 nos	35W
8		UDL	UP-down light	Pergola column	104 nos	8W

LEGENDS:

QTY.	ID	Symbol	Description
	CABLE		R PHASE CONTROL CABLE 1Run x 4Core x 4.0 Sqmm Al. Ar. Cable
	CABLE		Y PHASE CONTROL CABLE 1Run x 4Core x 4.0 Sqmm Al. Ar. Cable
	CABLE		B PHASE CONTROL CABLE 1Run x 4Core x 4.0 Sqmm Al. Ar. Cable
		FP/R	FEEDER PILLAR NO./ R PHASE CIRCUIT NO.
		FP/Y	FEEDER PILLAR NO./ Y PHASE CIRCUIT NO.
		FP/B	FEEDER PILLAR NO./ B PHASE CIRCUIT NO.
02	FP	FP	FEEDER PILLAR
03	PP		16A POWER POINT
10			ELE. CABLE CHAMBER SIZE:-300x300mm
			100mm DIA PVC PIPE FOR ELE. CABLE

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DRAWN BY:	CHECKD BY :	APPD.:-
VIJESH	SANJAY	VIPUL AGARWAL

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CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

SITE LANDSCAPE LIGHTING ELECTRIC CONTROL WIRING PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SHARMA	
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 12	Revsion: R0

GENERAL NOTES
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KEY PLAN

FOUNTAIN
SOFT PATHWAY 3MT WIDE
OPEN AIR THEATER LAWN
PAVED PATHWAY 3MT WIDE
ISLAND 1
ISLAND 2
CENTRAL LAWN
SOFT PATHWAY 3MT
FOUNTAIN
ISLAND 3
ISLAND 4
PAVED PATHWAY 3MT WIDE
MOUND LANDSCAPE
PAVED PATHWAY 3MT WIDE
DRY LANDSCAPE
FOUNTAIN
LVL - 75
LVL ± 00

LEGENDS:

QTY.	ID	Symbol	Description
42	SPKR		SPEAKER POINT

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VIJESH	SANJAY	VIPUL AGARWAL

REVISION INDEX:

R. No.	Date	Description	BY	CHKD
R0	1.12.2024	CONCEPTUAL LAYOUT		
R1	3.12.2024	CONCEPTUAL LAYOUT		

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CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

SITE LANDSCAPE AREA SPEAKER PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SHARMA	
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 13	Revsion: R0

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KEY PLAN

FOUNTAIN
SOFT PATHWAY 3MT WIDE
OPEN AIR THEATER LAWN
PAVED PATHWAY 3MT WIDE
ISLAND 1
ISLAND 2
CENTRAL LAWN
SOFT PATHWAY 3MT
FOUNTAIN
ISLAND 3
ISLAND 4
PAVED PATHWAY 3MT WIDE
MOUND LANDSCAPE
PAVED PATHWAY 3MT WIDE
DRY LANDSCAPE
FOUNTAIN
LVL - 75
LVL ± 00

LEGENDS:

QTY.	ID	Symbol	Description
42	SPKR		SPEAKER POINT

SERVICE CONSULTANT

ASHI ASSOCIATES
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DRAWN BY:	CHECKD BY :	APPD.:-
VIJESH	SANJAY	VIPUL AGARWAL

REVISION INDEX:

R. No.	Date	Description	BY	CHKD
R0	1.12.2024	CONCEPTUAL LAYOUT		
R1	3.12.2024	CONCEPTUAL LAYOUT		

Architects:
AAYOJAN, 4,Bajaj Nagar Enclave, Jaipur-15
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E-mail : aayojan.2010@gmail.com

Client:

Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

SITE LANDSCAPE AREA SPEAKER PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SHARMA	
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 13	Revsion: R0

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KEY PLAN

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REVISION INDEX:

R. No.	Date	Description	BY	CHKD

Architects:

Client:

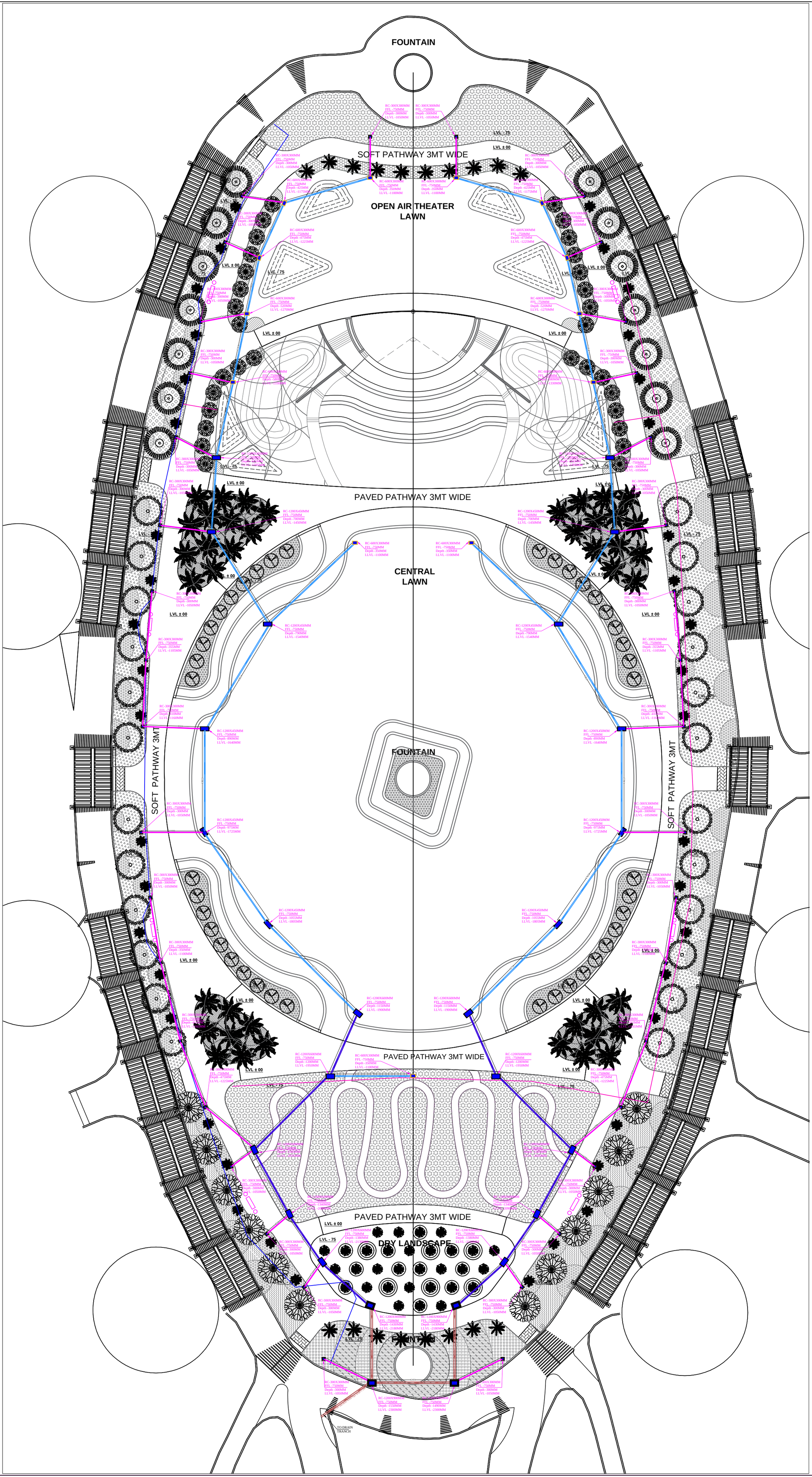
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

IRRIGATION PLAN

Designed:	Approved:	North:
KAPIL VERMA	NAVEEN SAHRMA	
Date: 05-01-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 14	Revsion: R0



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KEY PLAN

SYMBOL	DESCRIPTION
	⌀110 mm Rain Water Pipe Slope 1:200
	⌀160 mm Rain Water Pipe Slope 1:200
	⌀200 mm Rain Water Pipe Slope 1:200
	⌀250 mm Rain Water Pipe Slope 1:200
	RC-300X300MM Depth Acording to Slope
	RC-600X300MM Depth Acording to Slope
	RC-1200X450MM Depth Acording to Slope
	RC-1200X600MM Depth Acording to Slope
	RC-1200X900MM Depth Acording to Slope
	Flow Direction

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R. No.	Date	Description	BY	CHKD

Architects:

Client:

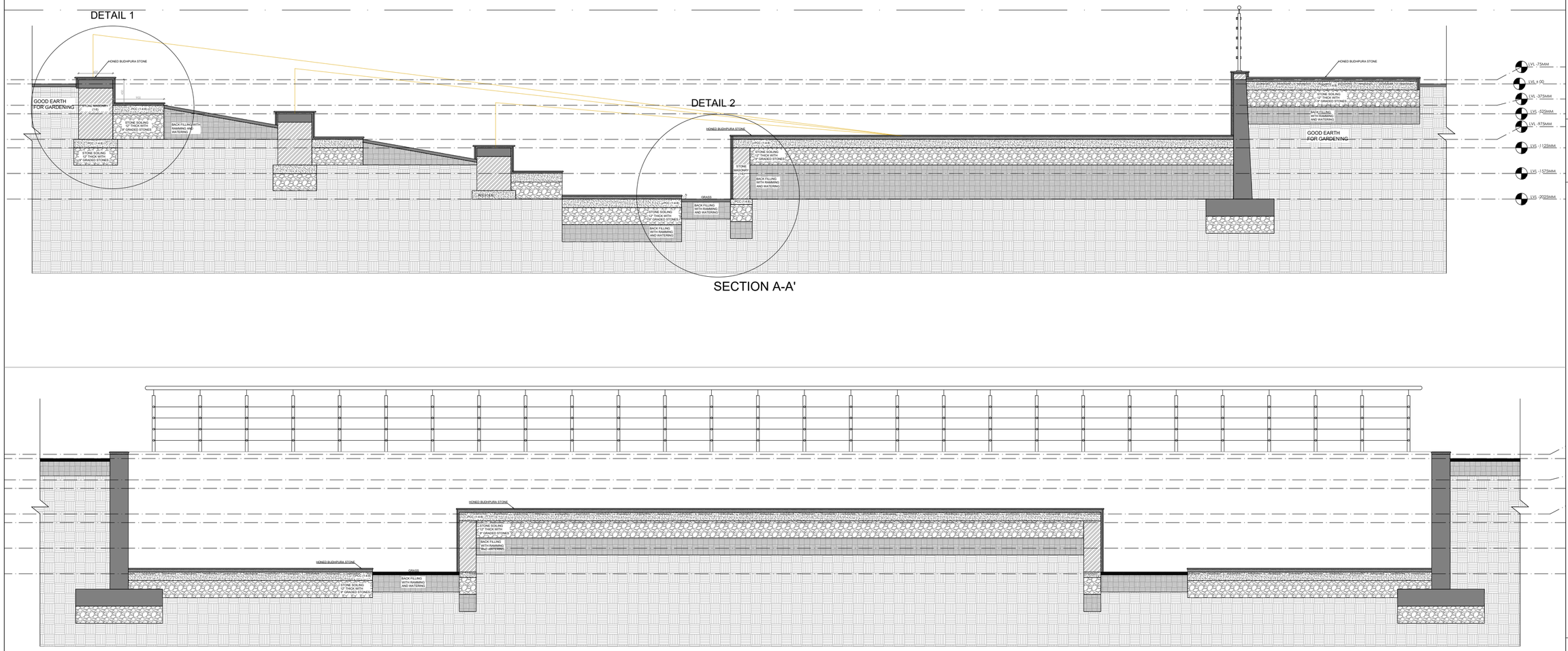
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

DRAINAGE PLAN

Designed: KAPIL VERMA	Approved: NAVEEN SHARMA	North:
Date: 07-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 15	Revsion: R1



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R0	1.12.2024	CONCEPTUAL LAYOUT		
R1	3.12.2024	CONCEPTUAL LAYOUT		

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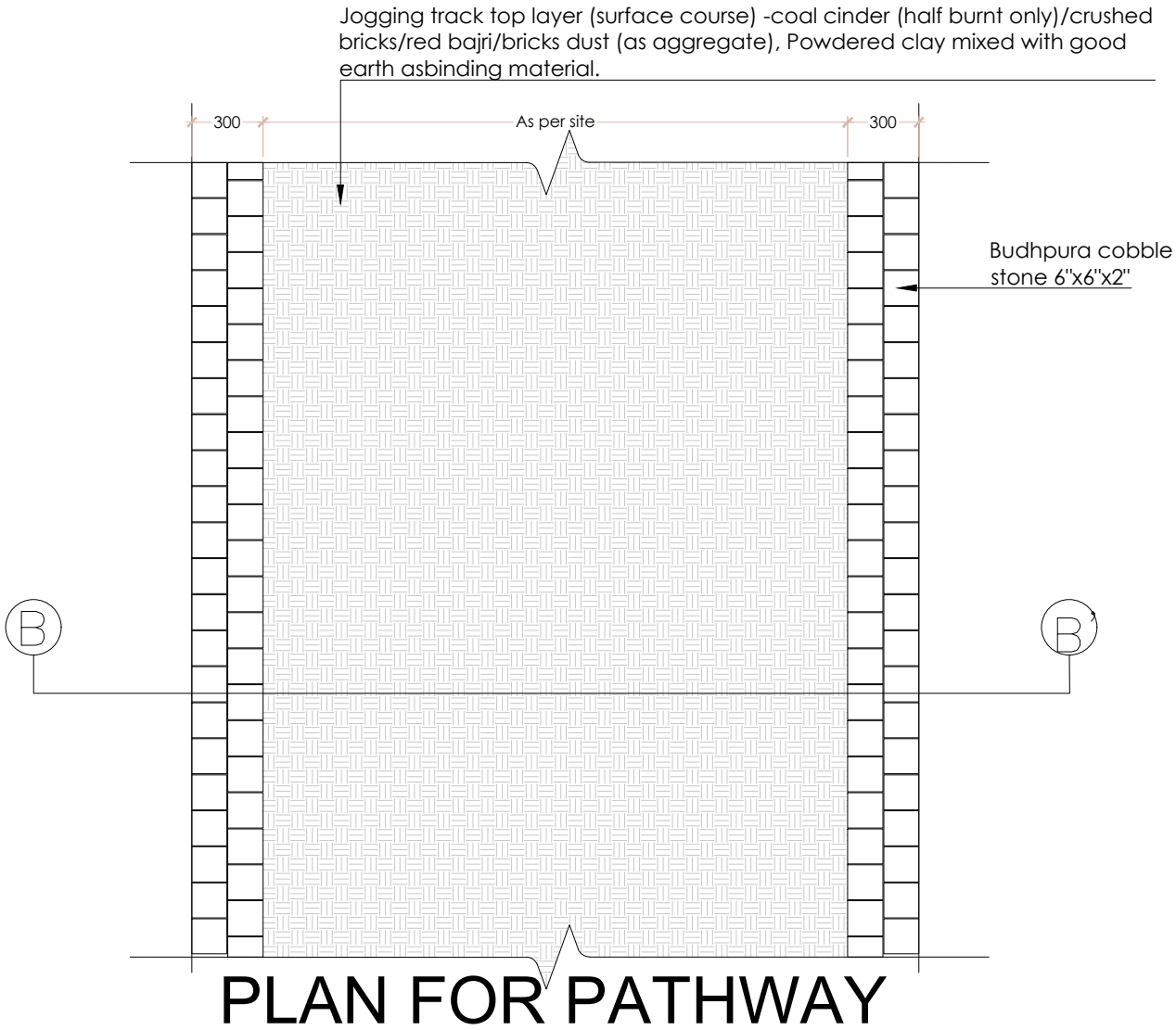
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

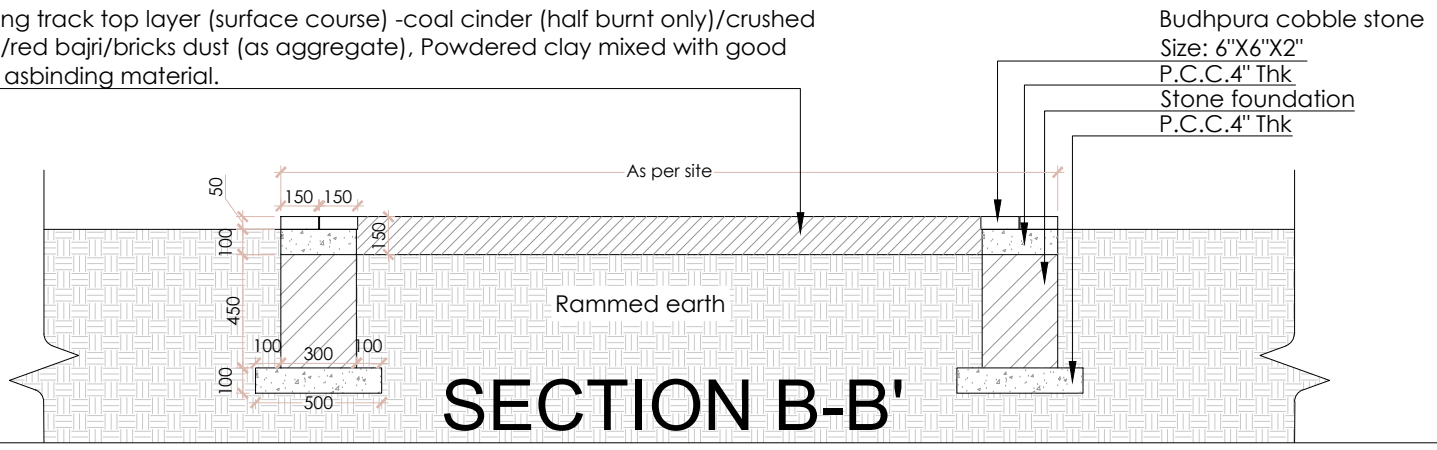
Sheet Title:

OPEN AIR THEATER SECTIONS & DETAIL

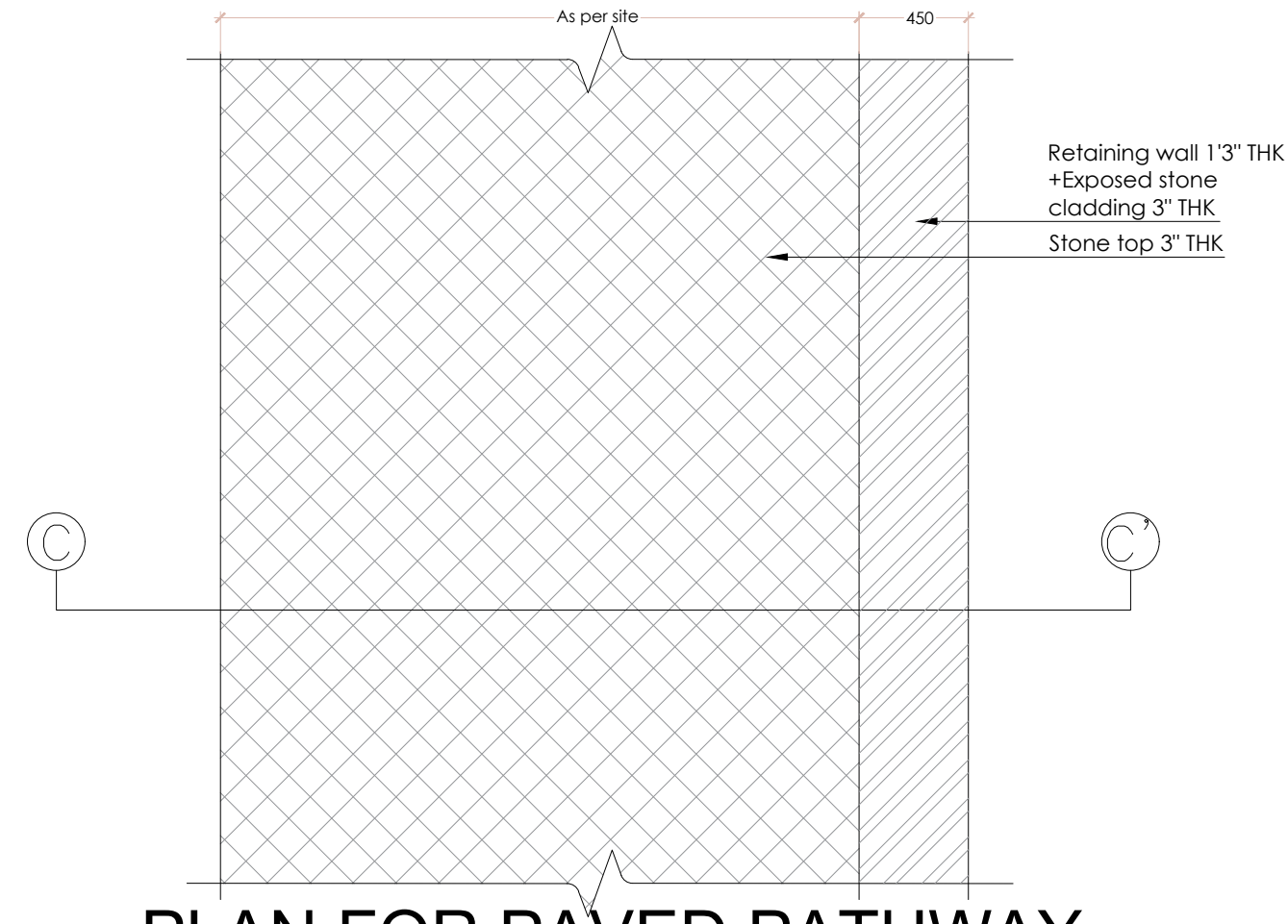
Designed: KAPIL VERMA	Approved:	North:
Date: 13-01-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: ----------	Revision: R1



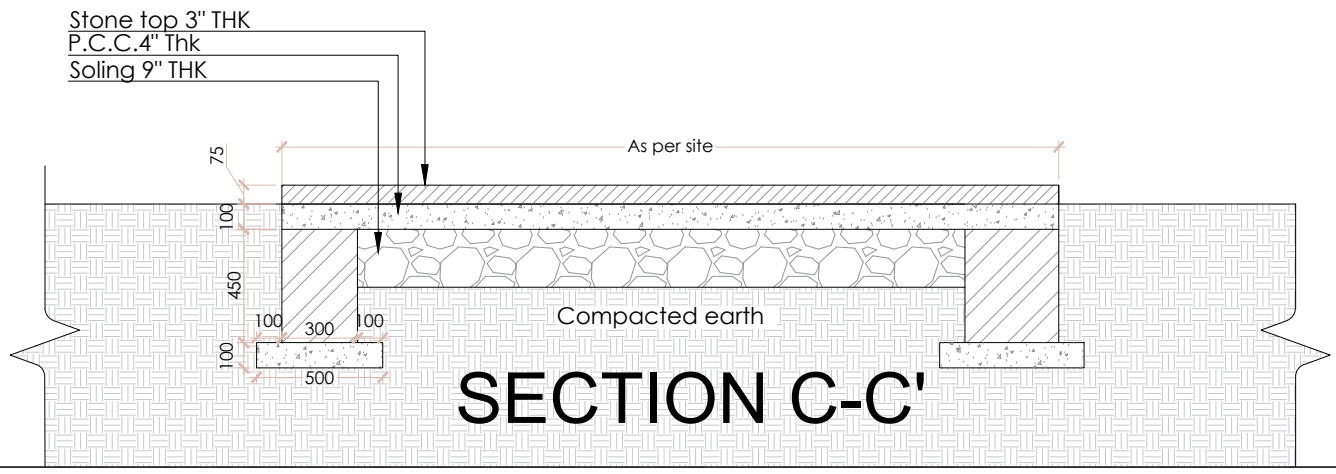
PLAN FOR PATHWAY



SECTION B-B'



PLAN FOR PAVED PATHWAY



SECTION C-C'

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E-mail : aayojan.2010@gmail.com

Client:

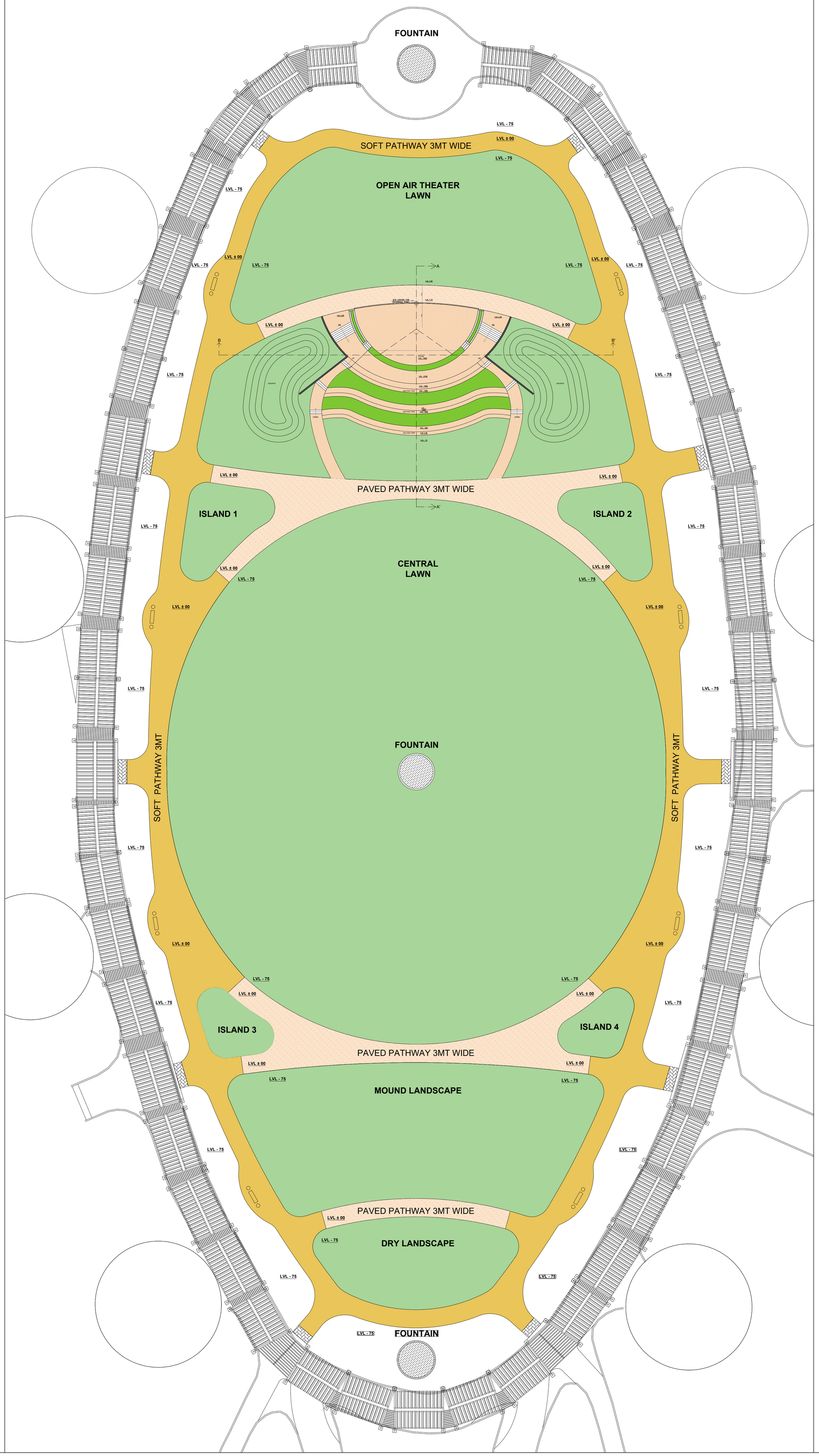
Project:

CENTRAL COURT LANDSCAPING AT CENTRAL UNIVERSITY RAJASTHAN

Sheet Titile:

PATHWAY DETAIL

Designed: KAPIL VERMA	Approved:	North:
Date: 13-01-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: ----------	Revsion: R1



GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS MENTIONED OTHERWISE.
2. ALL LEVELS INDICATED ARE FINISHED FLOOR LEVELS UNLESS OTHERWISE MENTIONED.
3. FOR SIZES OF THE COLUMNS AND SHEAR WALLS REFER TO STRUCTURAL DRAWINGS.
4. THE CONTRACTOR SHALL CHECK THE ACTUAL OPENING SIZES AT SITE AND THE NO. OF DOORS, WINDOWS, VENTILATOS, ETC., IN THE DRAWING BEFORE FABRICATIONG / PROCURING THE SAME.
5. 1000 MM WIDE PLINTH PROTECTION SHALL BE PROVIDED ALAROUND THE BUILDING.
6. 230 MM THICK INTERNAL BRICK WALLS SHALL HAVE 15 MM THICK PLASTER ON ROUGH SIDES AND 12 MM THICK ON OTHER SIDES..
7. ALL CHAJJAS, CANOPIES, PROJECTIONS, AND GUTTER PROJECTIONS SHALL HAVE DRIP MOULD GROOVES UNDERNEATH ALL ALONG PERIPHERY.
8. ALL ELECTRICAL CONDUITS / WIRING / SWITCH BOARDS SHALL BE CONCEALED IN CEINING / WALLS AS PER ELECTRICAL DRAWINGS.
9. NO CEILING PLASTER SHALL BE PROVIDED ABOVE FALSE CEILING AREA.
10. THIS DRAWING IS NOT TO BE SCALED, FOLLOW WRITTEN DIMENSIONS.

KEY PLAN

REVISION INDEX:

R. No.	Date	Description	BY	CHKD	
R0	1.12.2024	CONCEPTUAL LAYOUT			
R1	3.12.2024	CONCEPTUAL LAYOUT			

Architects:

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SITE PLAN

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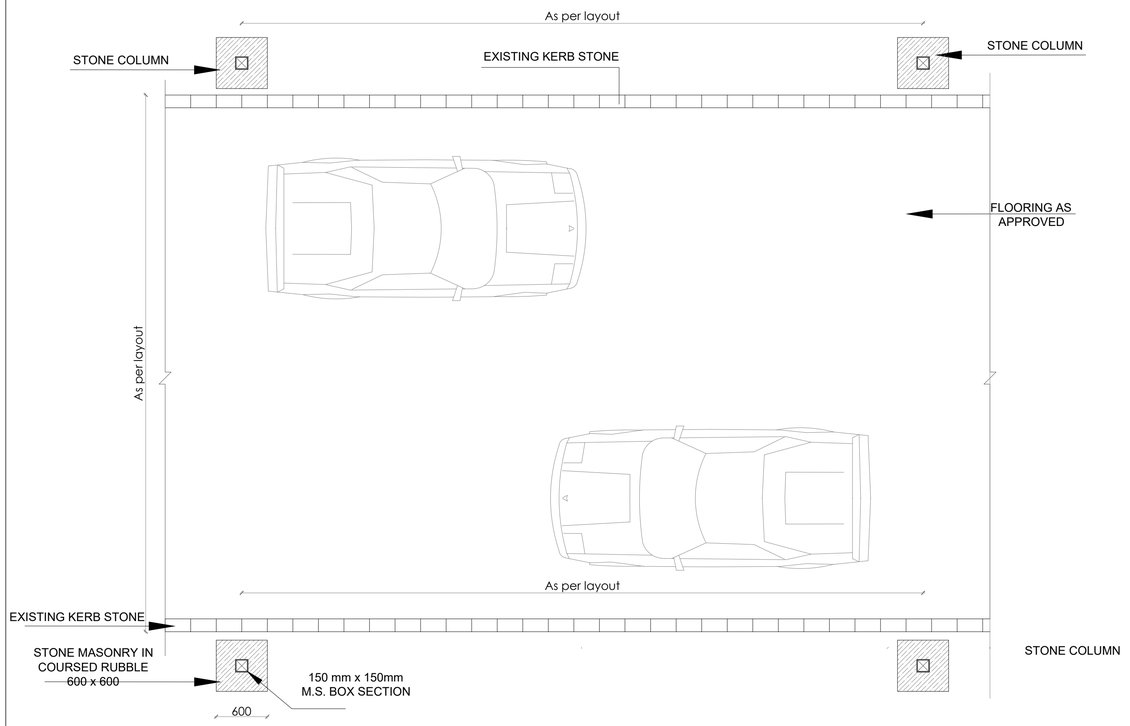
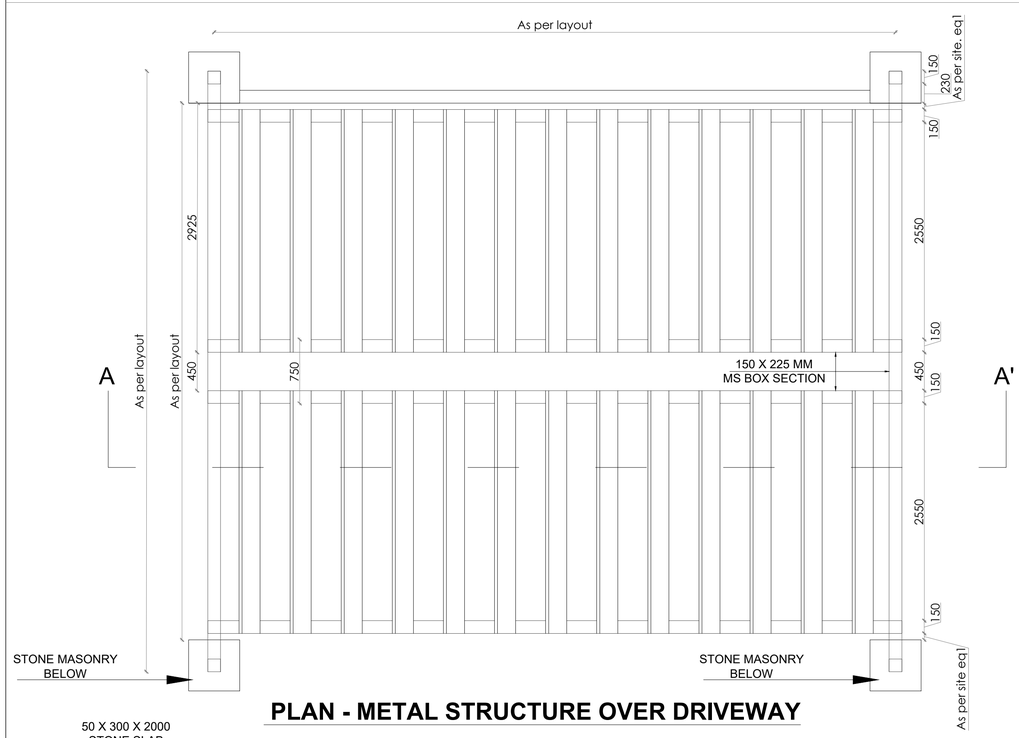
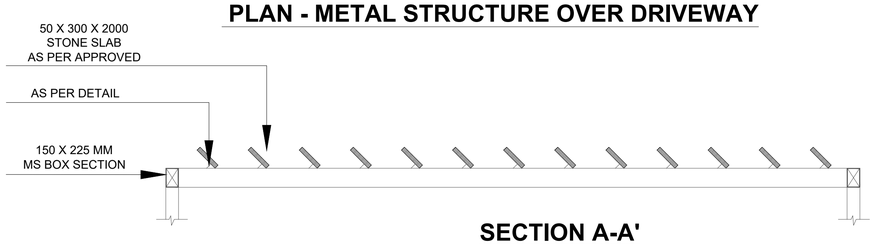


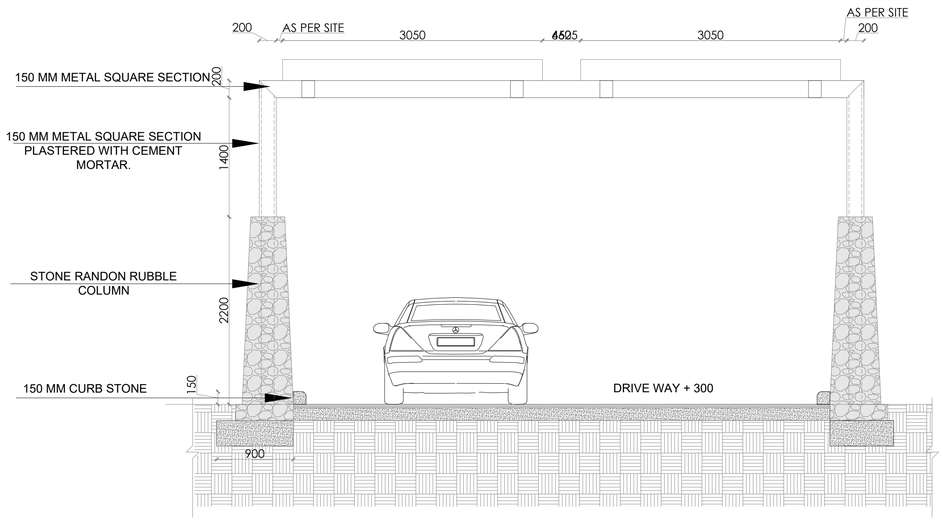
PLAN OF DRIVE WAY



PLAN - METAL STRUCTURE OVER DRIVEWAY



SECTION A-A'



SECTION - AA' - DRIVE WAY

VISUAL IMPRESSION

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KEY PLAN

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METAL STRUCTURE SECTION

Designed: KAPIL VERMA	Approved:	North:
Date: 13-01-2025	Scale: NOT TO SCALE	
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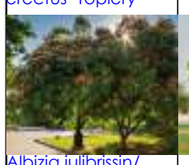
KEY PLAN


Royal Palm


Conocarpus erectus "Topiery"




Albizia julibrissin/ ebbeck OR Cassia fistula


Phoenix sylvestris (Date Palm)


Plumeria alba


Cycas revoluta



Erythrina indica OR Bombax cieba OR Spathodea campanulata


Bismarkia nobilis


Jasminum sambac


Canna Lily


Acacia auriculiformis

Royal Palm


Bougainvillea spp. "Shubhra" White


Hamelia patens (Dwarf-Hybrid)


Bougainvillea Spectabilis "Torch Gloww"


Nerium oleander (Dwarf-Red)



Furcraea foetida + Wedelia trilobata as Ground Cover


Euphorbea millii


Malpighia coccigera


Bougainvillea spp. (Mix Colours)


Furcraea foetida + Wedelia trilobata as Ground Cover


Cestrum Nocturnum


Jasminum multiflorum


Spider Lily



Murraya exotica


Ficus panda


Ficus moclame

Cllistemon citrinus + Fountain Grass (Red & Green) and Lemon Grass




LANDSCAPE & HORTICULTURE CONSULTANTS:
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Jaipur 302019
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Architects:

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Sheet Titile:

HORTICULTURE PLAN

Designed:	Approved: NAVEEN SHARMA	North:
Date: 05-02-2025	Scale: NOT TO SCALE	
Status: PROPOSAL	Project Code No.: ----------	
Drawing Type:	Drawing No.: 08	Revsion: R0