

# REQUEST FOR PROPOSAL

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## **Development, Operation and Maintenance of 6 MTPD capacity Mahua Processing Unit in the State of Chhattisgarh**

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### *Volume 1: Instructions to Bidder*

Managing Director  
Chhattisgarh Minor Forest Produce (T&D) Cooperative Federation Ltd  
Van Dhan Bhawan, Sector 24, Nava Raipur, Atal Nagar  
Chhattisgarh

August 2022

**Development, Operation and Maintenance of 6 MTPD capacity Mahua Processing Unit**

**Press Note**



**Chhattisgarh State Minor Forest Produce (T&D)  
Co-operative Federation Limited**  
"Van Dhan Bhawan", Sector - 24, Nava Raipur Atal Nagar  
Tel.: 0771-2513100-110, E-mail: mfpfed.cg@nic.in, Website: www.cgmpfed.org

Notification No: MFP Fed/03/ Mahua (2022) - II Dated 25/08/2022

**Request for Proposal for Development, Operation and Maintenance of 6 MT capacity Mahua Processing Unit in the State of Chhattisgarh**

**Online Submission and Opening of e-Bid :** e-Bids can be submitted online on the dates mentioned in table below till 3:00 PM in the e-procurement portal <https://cgmpfedtenders.abcprocure.com> only, the tenders will be opened online from 3:10 PM on the mentioned in table below.

Bid Round	Bid downloading start date	Online Bid submission Start date	Online Bid submission End date	Date of online opening of Bid
First	01.09.2022	20.09.2022	27.09.2022	27.09.2022
Second	03.10.2022	05.10.2022	13.10.2022	13.10.2022

The RFP and Draft O&M Agreement may be downloaded from the website [www.cgmpfed.org](http://www.cgmpfed.org) and e-Procurement portal <https://cgmpfedtenders.abcprocure.com> only. Amendments/Notices will be available on above website and e-Procurement portal.

**Managing Director**

**Important Dates**

1.	Pre-Bid Meeting	15-09-2022 at 12:30 PM
2.	Last Date of Submission of Bid (Online and Hard Copy Submission)	27-09-2022 by 3:00 PM
3.	Date of Opening of Technical Bid	27-09-2022 by 3:10 PM

### Date Sheet

<b>1.</b>	Name of the project	Development, Operation and Maintenance of 6 MTPD capacity Mahua Processing Unit
<b>2.</b>	Tender issued by	Chhattisgarh Minor Forest Produce (T&D) Cooperative Federation Ltd
<b>3.</b>	Development, Operation and Maintenance Period	<b>18 Months (Construction &amp; commissioning)</b> <b>20 Years (Operation &amp; Maintenance)</b>
<b>4.</b>	Cost of Tender Documents	<b>Rs. 5,000.00 (To be paid online through e-Tender Portal)</b>
<b>5.</b>	Bid Security	<b>Rs.2,00,000.00 in the form of BG /DD</b>
<b>6.</b>	Date of issue tender document	<b>25/08/2022</b>
<b>7.</b>	Date from which Bid Documents can be downloaded	<b>01/09/2022</b>
<b>8.</b>	Pre-bid meeting (Meeting can be attended through virtual / physical mode)	<b>15/09/2022 at 12:30 PM</b>
<b>9.</b>	Date from which online submission will start	<b>20/09/2022</b>
<b>10.</b>	Last date & time for submission of Bid (Bid Due Date – Online Submission and Hard Copy submission)	<b>Up to 3:00 P.M. on or before 27/09/2022</b>
<b>11.</b>	Date and Time of opening Technical Bid.	<b>27/09/2022 at 3:10 P.M.</b>
<b>12.</b>	Opening of Financial Bid	<b>Time &amp; Date will be announced only after evaluation of Technical Bid.</b>
<b>13.</b>	Email for Correspondence	<a href="mailto:mfpfed.cg@nic.in">mfpfed.cg@nic.in</a>

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## **Disclaimer**

The information contained in this Request for Proposals document (**the “RFP”**) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Authority or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is neither an offer nor invitation by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Authority in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Authority, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Authority, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way for participation in this Bid Stage.

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.

The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Selected Bidder or Licensee, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

The Authority reserves its right to withdraw from the process at any stage of the process and/or modify the process or any part thereof or to vary any terms at any time or stage without assigning any reasons whatsoever. In such an event, no financial obligation of whatsoever nature shall accrue to the Authority or any of its respective officers, employees, advisors or agents.

Each Bidder's procurement of this RFP constitutes its agreement to, and acceptance of, the terms set forth in this Disclaimer. By acceptance of this RFP, the recipient agrees that this RFP and any information herewith supersedes document(s) or earlier information, if any, in relation to the subject matter hereto.

## Glossary

<b>Associate</b>	As defined in Clause 2.2.1(iv)
<b>Authority</b>	As defined in Clause 1.1.1
<b>Bank Guarantee</b>	As defined in Clause 2.26.1
<b>Bids(s)</b>	As defined in Clause 1.2.2
<b>Bidders</b>	As defined in Clause 1.2.2
<b>Bidding Documents</b>	As defined in Clause 1.1.9
<b>Bid Due Date</b>	As defined in Clause 1.1.9
<b>Bidding Process</b>	As defined in Clause 1.2.1
<b>Bid Security</b>	As defined in Clause 1.2.8
<b>Commercial Operation Date</b>	As defined in Clause 2.2.1(iv)
<b>Consortium</b>	As defined in Clause 2.2.1(i)
<b>Conflict of Interest</b>	As defined in Clause 2.2.1(iii)
<b>Damages</b>	As defined in Clause 2.2.1(iii)
<b>Demand Draft</b>	As defined in Clause 2.26.2
<b>Estimated Project Cost</b>	As defined in Clause 1.1.6
<b>Government</b>	Government of Chhattisgarh
<b>Highest Bidder</b>	As defined in Clause 1.2.10
<b>Joint Bidding Agreement</b>	As defined in Clause 2.3.4(h)
<b>LOA</b>	As defined in Clause 4.4.4
<b>Lead Member</b>	As defined in Clause 2.3.4 (c)
<b>License Agreement</b>	As defined in Clause 1.1.4
<b>Licensee</b>	As defined in Clause 1.1.4
<b>Member</b>	Member of a Consortium
<b>Project</b>	As defined in Clause 1.1.2
<b>Price Bid Stage</b>	As defined in Clause 1.2.5
<b>Price Bid</b>	As defined in Clause 1.2.5
<b>Re. or Rs. Or INR</b>	Indian Rupee
<b>Annual License Fee</b>	As defined in Clause 4.3.1
<b>RFP</b>	As defined in the Disclaimer
<b>Selected Bidder</b>	As defined in Clause 4.3.2

**SPV**

As defined in Clause 2.3.4

**Tie Bidders**

As defined in Clause 4.4.1

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto hereinabove.

## 1. Instructions for Online Bid Submission

The bidders are required to submit softcopies of their bids electronically on the Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the Departments' e-procurement portal, prepare their bids in accordance with their requirements and submitting their bids online on the Department's e-procurement portal. More information useful for submitting online bids on the Department's e-procurement Portal may be obtained at: <https://cgmpfedtenders.abcprocure.com> and as per details provided in Annexure A8.

### PREPARATION OF BIDS

- 1) Bidders should take into account any corrigendum published on the tender document before submitting their bids.
- 2) Please go through the RFP invitation and the RFP document along with Draft Agreement carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents- including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.

### SUBMISSION OF BID

- 1) Bidders should register n the state e-procurement portal as per Annexure 8 and login to the website (<https://cgmpfedtenders.abcprocure.com>) well in advance for bid submission so that they can upload the bid in time i.e., on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder should also submit hard copy of proposal on or before the Bid due (Hard Copy submission) date as per clause 1.3.
- 4) In case of any discrepancy in the documents submitted by the bidder, between online and hardcopy submission, documents submitted online shall be considered for the purpose of evaluation.

### ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the BID Inviting Authority for a tender or the relevant contact person indicated in the tender. Any queries relating to the process of online bid submission or queries relating to Department's e-procurement Portal in general may be directed to Helpdesk whose contact details are mentioned in **Annexure 9**.

## INTRODUCTION

### 1.1 Background

- 1.1.1** Chhattisgarh State Minor Forest produce (Trading & Development) Cooperative Federation Limited, Raipur (“**Authority**”) has been appointed as an authorized body for collection, purchase and trade of Minor Forest Produce (MFP) in whole of the state as per orders of the Government. Authority promotes sustainable collection and marketing of these forest produce in the interest of MFP gathering Tribal on co-operative pattern. Authority is presently engaged in conservation and distribution of income generated from these activities to gather tribal families through many socio-economic welfare schemes and promotion of primary processing units to carry out primary and secondary processing, thus adding value to realize better market value for MFP. Presently Authority through its existing processing unit/s established across state promotes value addition of these MFP. The processed products are being sold to consumers under the brand name “Chhattisgarh Herbals” through the Sanjeevani outlets across the State.

Further to promote and provide impetus to Minor Forest Produces based industries in the State, Government of Chhattisgarh desires to develop a Central Processing Unit in Durg District of Chhattisgarh. Total land earmarked for the project is approximately 110 acres located in Jamgaon Village, Patan development Block in Durg District, which is located approximately at a distance of 40 Km from State Capital Raipur. Out of 110 acres of available land, area admeasuring approx. 40 Acres will be developed by Chhattisgarh State Industrial Development Corporation (CSIDC) and remaining 70 acres will be developed by the Authority. The Authority endeavors to establish processing units for identified five (5) MFP processing unit(s) as a part of Central Processing Unit (CPU). The Authority will develop common infrastructure facilities such as warehouse (Godown), Cold storage, Testing Laboratory etc. which will be available on pay and use basis for all the unit/s established in the central processing Unit zone. Out of 70 Acre of land, approximately 40 Acres of land is earmarked for developing processing unit/s for 5 MFP (Including Mahua) based processing units through Private Sector Participation.

The Authority has envisioned to establish Mahua Processing Unit of minimum capacity of 6 MTPD (as production capacity) approximately over 3.59 acres land parcel located at Jamgaon (Village), Patan (Development Block) in Durg District. The Authority has decided to undertake the development, operation, and maintenance of Mahua Processing unit (the “**Project**”) on design, build, operate, maintain and transfer basis, and has therefore, decided to carry out the bidding process for selection of entity (**Licensee**) to whom the project may be awarded.

Particular	Detail
Project	Mahua Processing Unit
Area	3.59 Acres (Approx.); (Plot 2 & Plot 3)
Location	Jamgaon, Patan, Dist- Durg (CG)
Project Capacity	6 MTPD (Production Capacity)
Raw Material	Mahua
Finished Products	Mahua Energy Bar ( <b>Mahua - Kodo , Mahua – Sesame, Mahua - Ragi</b> ) and Mahua Liquid Jaggery
Estimated Project Cost	INR 12.50 Cr

The selected Licensee can also process other MFPs utilizing the same machines after obtaining prior approval in writing from the Authority. To utilize, medicinal and nutritive importance of Mahua along with its future prospective to improve the livelihood of the tribal people with the increase chances of the employment, the Authority roped in CSIR-CFTRI for developing feasible process /technology for manufacturing mahua energy bar and mahua liquid jaggery.

**1.1.2** The Selected Bidder, who is either a company incorporated under the Companies Act, 1956/2013 Partnership Firm, Society, Proprietorship, Trust, LLP shall be required to incorporate a SPV (Special Purpose Vehicle as a Company) as such prior to execution of the agreement (the “**License Agreement**”). The Licensee shall provide detailed civil infrastructure design and plan based on the specifications provided by the Authority. The Authority shall provide the detailed specifications for requirement of Machinery and the Licensee shall be responsible for designing, constructing, operating, managing and maintaining the Mahua Processing Unit. The Licensee will design, build, operate, maintain and transfer the Project for a period of 21 years (Twenty One years) including construction period along with one time first right of refusal, subject to satisfactory performance during License period within the provisions of the License Agreement, to be entered into between the Selected Bidder and the Authority in the form provided by the Authority as part of the bidding documents.

**1.1.3** The scope of work of Licensee in respect of the Project will broadly include design & development, construction, engineering, procurement, commissioning, operation, and maintenance of the of Mahua Processing Unit through the Selected Bidder, subject to and in accordance with applicable regulatory/statutory approvals, license/clearances/consents/permits/norms/rules/schemes of competent Government authorities and Good Industry Practices. The process/ technology for the Mahua processing unit is developed by CSIR-CFTRI for Mahua energy bar (Mahua - Kodo, Mahua - Sesame and Mahua - Ragi) and Mahua liquid jaggery. The Selected Bidder shall prepare detailed civil infrastructure design and plan based of the specification provided by the Authority as per the PPR (Preliminary Project Report) enclosed as (**Appendix D**) and shall carry out construction of civil infrastructure and electrical fittings after obtaining prior approval in writing from the Authority. However, any extra cost over and above the cost mentioned in the PPR shall be borne by the Operator. The selected bidder shall procure the machinery as per the PPR (Preliminary Project Report) and shall be responsible for the installation & commissioning of Plant and Machinery at the Mahua



Processing Unit subject to conforming to the applicable laws and regulations/ norms/standards for respective project components. The Selected Bidder shall obtain all the requisite licenses/ approvals required for commencement of construction and commercial operation of the plant, completion of construction of civil infrastructure and procurement and commissioning of Machinery.

- 1.1.4 The Preliminary Project Report (PPR) of the project is enclosed which includes the Project cost, list of machinery which would be installed at the site. The cost mentioned in the attached PPR (Preliminary Project Report) would be used for calculation of performance securities which are required to be submitted by the Licensee. The Performance Bank Guarantee for the mentioned amount needs to be submitted before the execution of the License Agreement and shall remain active till the completion of Development, Operation and Maintenance Period.
- 1.1.5 The License Agreement sets forth the detailed terms and conditions for grant of rights to the Licensee, including the scope of the Licensee's services and obligations.
- 1.1.6 The statements and explanations contained in the RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Licensee set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the Project to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted, and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority.
- 1.1.7 The Authority shall receive Bids pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP, as modified, altered, amended, and clarified from time to time by the Authority (collectively the "**Bidding Documents**"), and all Bids shall be prepared and submitted in accordance with such terms on or before the date specified in Clause 1.3 for submission of Bids (the "**Bid Due Date**").

## 1.2 Brief description of Bidding Process

- 1.2.1 The Authority has adopted a single-stage bidding process (the "**Bidding Process**") for selection of the Bidder for award of the Project (collectively referred to as the "**Bidding Process**").

The tendering process is online at e-portal <https://cgmpfedtenders.abcprocure.com>. Aspiring bidders may go through the details given in "Instructions for Online Bid Submission" of the RFP document.

- 1.2.2 The Bidders (the "**Bidders**"), which expression shall, unless repugnant to the context, include the Member of the Consortium, are required to submit their bids (the "**Bids**") in two envelopes

(i) Technical Bid and (ii) Financial Bid and other supporting documents through the e-portal (<https://cgmpfedtenders.abcprocure.com>).

- 1.2.3** At the time of submission of the Bid, the Bidder shall pay to the Authority a sum of Rs 5,000 (Five Thousand only) as the cost of the RFP. The cost of RFP is to be paid online on the e-tendering portal (<https://cgmpfedtenders.abcprocure.com>).
- 1.2.4** The pre-qualification stage (the “PQ Stage”) of the Bidding Process involves pre-qualification (the “PQ”) of prospective bidder(s) in accordance with the provisions of this RFP which expression shall, unless repugnant to the context, include the members of the Bidder bidding as joint venture of entities. At the end of this stage, the Authority shall shortlist pre-qualified Bidders fulfilling the qualification criteria.
- 1.2.5** The Bidders shortlisted as above after the pre-qualification stage shall be eligible for opening and evaluation of their Price Bids at Price Bid stage of the Bidding Process (the “**Price Bid Stage**”) comprising the opening and evaluation of price Bid (the “**Price Bid**”).
- 1.2.6** Government of India has issued guidelines (see **Appendix-A6**) for qualification of bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply mutatis mutandis to this Bidding Process. The Authority shall be entitled to disqualify a Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid and should give an undertaking to this effect in the form at Appendix-A1.
- 1.2.7** The Bidding Documents include the Draft License Agreement for the Project. Subject to the provisions of Clause 2.6.1, the aforesaid documents and any addenda issued subsequent to this RFP Document, will be deemed to form part of the Bidding Documents.
- 1.2.8** In terms of the RFP, Bid security in the form of Demand Draft in favor of Managing Director, Chhattisgarh State Minor Forest Produce Federation Ltd., on any **scheduled bank payable at Raipur** or in format BG as per Appendix A5. Bidder will be required to deposit, along with its Bid, a bid security (the “Bid Security”) for INR 2 (Two) Lakhs **Payable at Raipur**, refundable no later than 60 (sixty) days from the Bid Due Date, except in the case of the selected Bidder whose Bid Security shall be retained till it has provided a Performance Security in terms of the RFP. The Bidders will be required to provide Bid Security in the form of a bank **guarantee payable at Raipur** or Demand Draft issued by a Scheduled Commercial Bank in India acceptable to the Authority and BG being valid for a period of not be less than 180 (one hundred and eighty) days from the Bid Due Date and Demand Draft being valid for a period of not less than 90 (ninety) days, inclusive of a claim period of 60 (sixty) days and may be extended as may be mutually agreed between the Authority and the Bidder from time to time. The Bid shall be summarily rejected if it is not accompanied by the Bid Security.
- 1.2.9** During the Bid Stage, Bidders are invited to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids for award of the License for implementing the Project.

- 1.2.10** Generally, the Highest Bidder (the “**Highest Bidder**”) shall be the Selected Bidder. The remaining Bidders shall be kept in reserve and may, in accordance with the process specified in Clause 4 of this RFP, be invited to match the Bid submitted by the Highest Bidder in case such Highest Bidder withdraws or is not selected for any reason. In the event that none of the other Bidders match the Bid of the Highest Bidder, the Authority may, in its discretion, either invite fresh Bids from the remaining Bidders or annul the Bidding Process.
- 1.2.11** The Licensee shall, in consideration of its services, be entitled to collect revenues as per the provisions of License Agreement.
- 1.2.12** Details of the process to be followed at the Bid Stage and the terms thereof are spelt out in this RFP.
- 1.2.13** The bidder may upload their queries, if any, as specified in clause 2.12.1. No other mode of raising queries shall be accepted. The Authority shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive bidding process, however, no queries received after prescribed date shall be entertained.
- 1.2.14** The Authority reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons

### **1.3 Schedule of Bidding Process**

The authority shall endeavor to adhere to the following schedule:

<b>S. No.</b>	<b>Event Description</b>	<b>Date</b>
1	Availability of Bid Documents at website	01-09-2022
2	Pre-Bid Conference	15-09-2022
3	Authority response to queries latest by	19-09-2022
4	<b>Bid Due Date (Online Submission and Hard copy submission)</b>	27-09-2022 by 03:00 Hours
5	Opening date and time of Technical Bid	27-09-2022 at 03:10 Hours onwards
6	Announcement of short-listed bidders for Price Bid Stage	To be intimated
7	Opening date and time of Financial Bid	To be intimated.
8	Issue of Letter of Award	Within 30 days of Bid Due Date
9	Validity of Bids	120 days of Bid Due Date
10	Signing of License Agreement	Within 60 days of LOA

### **1.4 Pre-Bid Conference**

A Pre-Bid Conference shall be held to clarify the issues and to answer questions on any matter, that may be raised at this stage. The date, time and venue of the Pre-Bid Conference shall be:

Details of Pre-Bid Conference	
Date	15-09-2022
Time	12:30 PM
Venue	Vandhan Bhawan, Sector 24, Nava Raipur, Atal Nagar
Pre-Bid Meeting can be attended through virtual / physical mode. The link to attend the pre-bid meeting on virtual platform will be notified a day prior to the scheduled pre bid meeting date, on the official website of the Authority ( <a href="http://www.cgmpfed.org">www.cgmpfed.org</a> )	

## 2. INSTRUCTIONS TO BIDDERS

### A. GENERAL

#### 2.1 Scope of the Bid

- 2.1.1 The Authority wishes to receive Bids in order to select experienced and capable Bidder for the Project. The price bids of the Bidders fulfilling the pre-qualification criteria shall be subsequently evaluated.

#### 2.2 Eligibility of Bidders

- 2.2.1 For determining the eligibility of bidders for their Pre-Qualification hereunder, the following shall apply:
- The Bidder for pre-qualification may be a single entity or a group of entities (the **“Consortium”**), coming together to implement the Project. However, no Bidder applying individually or as a member of a Consortium, as the case may be, can be member of another Bidder or apply individually, as the case may be. The term Bidder used herein would apply to both a single entity and a Consortium.
  - For the purposes of this RFP, the Bidder may be a company incorporated under Indian Companies Law [as amended, consolidated, re-enacted, and modified from time to time] , Partnership Firm, Society, Proprietorship, Trust, LLP or any combination of such entities with a formal intent to enter into an agreement or under an existing agreement to form a Consortium. A Consortium shall be eligible for consideration subject to the conditions set out in Clause 2.3.4 below.
  - The Bidder shall not have a conflict of interest (the **“Conflict of Interest”**) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Authority and not by way of penalty for, *inter alia*, the time, cost and effort of the Authority, including consideration of such Bidder’s proposal (the **“Damages”**), without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the License Agreement or otherwise. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if

- a. The Bidder, its Member or Associate (or any constituent thereof) and any other Bidder, its Member or any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, its Member or an Associate thereof (or any shareholder thereof having a shareholding of more than 5 per cent of the paid up and subscribed share capital of such Bidder, Member or Associate, as the case may be) in the other Bidder, its Member or Associate is less than 5 per cent of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in sub-section (72) of section 2 of the Companies Act, 2013. For the purposes of this Clause 2.2.1(iii), indirect shareholding held through one or more intermediate persons shall be computed as follows:
- where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “Subject Person”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and
  - subject always to sub-clause (i) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (ii) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or
- b. a constituent of such Bidder is also a constituent of another Bidder; or
- c. such Bidder or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any Associate, or has provided any such subsidy, grant, concession/ loan or subordinated debt to any other Bidder, its Member or any Associate thereof; or
- d. such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or
- e. such Bidder, or any Associate thereof, has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other’s information about, or to influence the Bid of either or each other; or
- f. such Bidder or any Associate thereof has participated as a consultant to the Authority in the preparation of any documents, design or technical specifications of the Project.
- iv. A Bidder shall be liable for disqualification if any legal, financial or technical adviser of the Authority in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to the Project. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated prior to the Bid Due Date. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from COD (the “**Commercial Operation Date**”) of the Project.

*Explanation:*

In case a Bidder is a Consortium, then the term Bidder as used in this Clause 2.2.1, shall include each Member of such Consortium.

For purposes of this RFP, Associate means, in relation to the Bidder/ Consortium Member, a person who controls, is controlled by, or is under the common control with such Bidder/ Consortium Member (the “**Associate**”). As used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person by operation of law or by contract or otherwise.

v. Damages on Conflict of Interest

Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall be entitled to forfeit and appropriate 5% of the value of the Bid Security or equivalent amount from the Performance Security, as the case may be, as mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by the Authority and not by way of penalty for, inter alia, the time, cost and effort of the Authority, including consideration of such Bidder’s proposal (the “Damages”), without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/or the License Agreement or otherwise.

2.2.2 Deleted

2.2.3 Deleted

## **2.3 Pre-Qualification Criteria**

2.3.1 To be eligible for short-listing i.e., opening and evaluation of the Financial Bid, the Bidder shall fulfil the following condition:

A. Technical Capacity:

- I. The bidder should have experience of running and operating any Food/Agriculture/Minor Forest Produce (MFP<sup>1</sup>) processing unit (raw material utilized in the unit is farm/ forest/ land grown /raw material combination allowed within MFP list) with average annual capacity of 500 Metric Tonnes (Not less than total of 1500 tonnes over the last three years) over the last three years from one unit or multiple units in India (**Category 1**); Or
- II. Start-up recognized by Department for Promotion of Industries and Internal Trade (DPIIT), Government of India, or recognized by any State Government or UT Government in India related to Herbal/ Food Processing/ Agriculture sector (**Category 2**)

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<sup>1</sup> Minor Forest Produce shall include Tamarind, saal seed, Harra and other MFPs (total 31) listed on the following official website: [https://www.cgmpfed.org/new/msp\\_scheme.php](https://www.cgmpfed.org/new/msp_scheme.php)

B. Financial Capacity: The Bidder shall have

- I. Average Annual Turnover of minimum INR 5 (Five) crores over the last three years (In case of consortium combined Turnover of all consortium partners) for Food/Agriculture/Minor Forest Produce (MFP) based processing unit or multiple units in India (**Category 1**); and

Minimum Net worth of 2.5 Cr as on 31<sup>st</sup> March 2021 (In case of consortium combined Net worth of all consortium partners), (**Category 1**).

- II. Minimum Net worth of the directors/ promoters of the bidder above INR 5 Crore as on 31 March 2021 (**Category 2**).

C. High Net worth Criteria (High Net worth Route)

The prospective bidder having a Net-worth of Rs 10 Crores (Ten Crores) & above, as on 31<sup>st</sup> March 2021 will be exempted from the above stated "Eligibility Criteria" in "para 2.3.1 (A) and para 2.3.1 (B)".

However, such bidder shall have to demonstrate this Net-worth independently, without forming a Consortium/ Joint Venture

In case of bidder getting selected through High Network Criteria mentioned above, the bidder shall have to appoint Operation and Maintenance partner and enter into an agreement as per clause 4.1.3 (d) of the License agreement having similar experience of operating and managing Food /Agriculture Processing Industry/Minor forest produce based industry etc. for Operating and Managing the Mahua Processing Unit.

It is to confirm that the Bidder/ Lead Member and each of the other members together with their Associates whose Technical and/or Financial experience has been evaluated for the purposes of the RFP, has to subscribe at least 26% (twenty six percent) or more of the paid up and subscribed Equity of the Licensee and further commits that each such member shall, for a period of 5 (Five) years in line with the duration of project as per License Agreement, hold Equity share capital not less than:

- (i) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for Lead member;
- (ii) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for each of the other members and,
- (iii) 5% (five per cent) of the Total Project Cost specified in the License Agreement;

- 2.3.2 The Bidders shall enclose with its Bid, to be submitted as per the format at APPENDIX B3, Complete with the Annexes, the following:

- i. certificate(s) from statutory auditors of the Bidder or its Associates specifying the Annual Turnover of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such Turnover conforms to the provisions of this RFP (**For Category 1 Applicants Only**).
- ii. certificate(s) from statutory auditors of the Bidder or its Associates specifying the Net Worth of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such Net Worth conforms to the provisions of this Clause 2.3.2 (ii). For the purposes of this RFP, net worth (the “Net Worth”) shall mean the sum of subscribed and paid up equity and reserves from which shall be deducted the sum of revaluation reserves, miscellaneous expenditure not written off and reserves not available for distribution to equity shareholders.

2.3.3 The Bidder should submit a Power of Attorney as per the format at Appendix-A2, authorizing the signatory of the Bidder to commit the Bidder. In the case of a Consortium, the Members should submit a Power of Attorney in favour of the Lead Member as per format at Appendix-A3.

2.3.4 The Bidder shall be required to form an appropriate special purpose vehicle, by way of a new company incorporated under the Indian Companies Act, 2013 [and the rules notified thereunder] (the “SPV”), to execute the License Agreement and implement the Project. In case the Bidder is a Consortium, it shall, in addition to fulfilling the aforesaid requirements, comply with the following additional requirements:

- a. Number of members in a consortium shall not exceed 3 (three);
- b. subject to the provisions of sub-clause (a) above, the Bid should contain the information required for each member of the Consortium;
- c. members of the Consortium shall nominate one member as the lead member (the “Lead Member”), who shall have an equity share holding of at least 26% (twenty six per cent) of the paid up and subscribed equity of the SPV. The nomination(s) shall be supported by a Power of Attorney, as per the format at Appendix-A3, signed by all the other members of the Consortium;
- d. The other members of the Consortium shall have an equity shareholding of at least 26% (twenty-six per cent) of the paid up and subscribed equity of the SPV;
- e. The Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical know-how and License obligations;
- f. An individual Bidder cannot at the same time be member of a Consortium submitting a bid. Further, a member of a particular Bidder Consortium cannot be member of any other Bidder Consortium submitting a bid;
- g. Members of the Consortium shall enter into a binding Joint Bidding Agreement, substantially in the form specified at Appendix-A4 (the “Joint Bidding Agreement”), for the purpose of making the Bid. The Joint Bidding Agreement, to be submitted along with the Bid, shall, inter alia:
  - i. Convey the intent to form an SPV with shareholding/ownership equity commitment(s) in accordance with this RFP, which would enter into the License Agreement and subsequently perform all the obligations of the Licensee in terms of the License Agreement, in case the License to undertake the Project is awarded to the Consortium;
  - ii. clearly outline the proposed roles and responsibilities, if any, of each member;



- iii. commit that the Lead Member and each of the other members whose experience will be evaluated for the purposes of this RFP, shall subscribe at least 26% (twenty six percent) or more and 26% (twenty six percent) or more respectively of the paid up and subscribed equity of the SPV and shall further commit that each such member shall, for a period of 5(Five) years in line with the duration of contract as per License Agreement, hold equity share capital not less than: (i) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for Lead member; (ii) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for each of the other members and, (ii) 5% (five percent) of the Total Project Cost specified in the License Agreement;
- iv. include a statement to the effect that all members of the Consortium shall be liable jointly and severally for all obligations of the Licensee in relation to the Project in accordance with the License Agreement; and
- v. Except as provided under this RFP and the Bidding Documents, there shall not be any amendment to the Joint Bidding Agreement without the prior written consent of the Authority.

2.3.5 Any entity which has been barred by the Central/ State Government, or any entity controlled by it, from participating in any project (BOT or otherwise), and the bar subsists as on the date of Bid, would not be eligible to submit a Bid, either individually or as member of a Consortium.

2.3.6 A Bidder including any Consortium Member or Associate should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, Consortium Member or Associate, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder, Consortium Member or Associate. Provided, however, that where a Bidder claims that its disqualification arising on account of any cause or event specified in this Clause 2.3.6 is such that it does not reflect (a) any malfeasance on its part in relation to such cause or event; (b) any willful default or patent breach of the material terms of the relevant contract; (c) any fraud, deceit or misrepresentation in relation to such contract; or (d) any rescinding or abandoning of such contract, it may make a representation to this effect to the Authority for seeking a waiver from the disqualification hereunder and the Authority may, in its sole discretion and for reasons to be recorded in writing, grant such waiver if it is satisfied with the grounds of such representation and is further satisfied that such waiver is not in any manner likely to cause a material adverse impact on the Bidding Process or on the implementation of the Project.

2.3.7 In computing the Turnover of the Bidder/Consortium Members under Clause 2.3.1, the Turnover of their respective Associates would also be eligible here under.

2.3.8 The following conditions shall be adhered to while submitting a Bid:

- a. Bidder should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Appendices is insufficient. Alternatively, Bidders may format the prescribed forms making due provision for incorporation of the requested information;

- b. Information supplied by a Bidder (or other constituent Member if the Bidder is a Consortium) must apply to the Bidder, Member or Associate named in the Bid and not, unless specifically requested, to other associated companies or firms.
- c. In responding to the Bid submissions, Bidders should demonstrate their capabilities in accordance with Section 2 (Instructions to Bidders), Section 3 (Evaluation of Bids) and Section 4 (Criteria For Evaluation).
- d. In case the Bidder is a Consortium, each Member should substantially satisfy the qualification requirements to the extent specified herein.

2.3.9 While Qualification is open to persons from any country, the following provisions shall apply:

- a. Where, on the date of the Bid, 25% (twenty five per cent) or more of the aggregate issued, subscribed and paid up equity share capital in a Bidder or its Member is held by persons resident outside India or where a Bidder or its Member is controlled by persons resident outside India; or
- b. if at any subsequent stage after the date of the Bid, there is an acquisition of 25% (twenty five per cent) or more of the aggregate issued, subscribed and paid up equity share capital or control, by persons resident outside India, in or of the Bidder or its Member;
- c. [then the Qualification of such Bidder or in the event described in sub clause (b) above, the continued Qualification of the Bidder shall be subject to approval of the Authority from national security and public interest perspective. The decision of the Authority in this behalf shall be final and conclusive and binding on the Bidder]
- d. [The holding or acquisition of equity or control, as above, shall include direct or indirect holding/ acquisition, including by transfer, of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, the Authority shall be guided by the principles, precedents and definitions contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011, or any substitute thereof, as in force on the date of such acquisition]

The Bidder shall promptly inform the Authority of any change in the shareholding, as above, and failure to do so shall render the Bidder liable for disqualification from the Qualification/Bidding Process.

2.3.10 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within 3 (three) months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 3 (three) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

## **2.4 General terms of Bidding**

2.4.1 Deleted

2.4.2 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the Draft License Agreement shall have overriding effect; provided, however, that any

conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the License Agreement.

- 2.4.3 Any condition or qualification or any other essential stipulation contained in the Bid shall render the Bid liable to rejection as a non-responsive Bid.
- 2.4.4 The documents including this RFP and all attached documents, provided by the Authority are and shall remain or become the properties of the Authority and are transmitted to the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 2.4.4 shall also apply mutatis mutandis to Bids and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any Bid, document or any information provided along therewith.
- 2.4.5 A Bidder shall be liable for disqualification and forfeiture of Bid Security if any legal, financial or technical adviser of the Authority in relation to the Project is engaged by the Bidder, its Members or any Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the License Agreement. In the event any such adviser is engaged by the Selected Bidder or Licensee, as the case may be, after issue of the LOA or execution of the License Agreement for matters related or incidental to the Project, then notwithstanding anything to the contrary contained herein or in the LOA or the License Agreement and without prejudice to any other right or remedy of the Authority, including the forfeiture and appropriation of the Bid Security or Performance Security, as the case may be, which the Authority may have thereunder or otherwise, the LOA or the License Agreement, as the case may be, shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Selected Bidder or Licensee for the same. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated prior to the Bid Due Date. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from Handover Date of the Project.
- 2.4.6 This RFP is not transferable.
- 2.4.7 Any award of License pursuant to this RFP shall be subject to the terms of Bidding Documents.
- 2.4.8 All documents and other information supplied by the Authority or submitted by a Bidder to the Authority shall remain or become the property of the Authority. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The Authority will not return any Bid or any information provided along therewith.

- 2.4.9 The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

## **2.5 Change in composition of the consortium**

- 2.5.1 No change in the Consortium members is allowed once the Bids have been submitted.

## **2.6 Change of Ownership**

- 2.6.1 By submitting the Bid, the Bidder acknowledges that the Lead Member and each of the other members together with their Associates whose technical experience has been evaluated for the purposes of the RFP, has to subscribe at least 26% (twenty six per cent) or more of the paid up and subscribed Equity of the Licensee and further commits that each such member shall, for a period of 5 (Five) years from the Commercial Operation Date, hold Equity share capital not less than:

- (i) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for Lead member;
- (ii) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for the technical member; and
- (iii) 5% (five per cent) of the Total Project Cost specified in the License Agreement;

The Bidder further acknowledges and agrees that the aforesaid obligation shall be the minimum and shall be in addition to such other obligations as may be contained in the License Agreement, and a breach hereof shall, notwithstanding anything to the contrary contained in the License Agreement, be deemed to be a breach of the License Agreement and dealt with as such thereunder. For the avoidance of doubt, the provisions of this Clause 2.6.1 shall apply only when the Bidder is a Consortium.

- 2.6.2 By submitting the Bid, the Bidder shall also be deemed to have acknowledged and agreed that in the event of a change in control of a Consortium Member or an Associate whose Financial Capacity was taken into consideration for the purposes of short-listing and pre-qualification under and in accordance with the RFP, the Bidder shall be deemed to have knowledge of the same and shall be required to inform the Authority forthwith along with all relevant particulars about the same and the Authority may, in its sole discretion, disqualify the Bidder or withdraw the LOA from the Selected Bidder, as the case may be. In the event such change in control occurs after signing of the License Agreement but prior to Financial Close of the Project, it would, notwithstanding anything to the contrary contained in the License Agreement, be deemed to be a breach of the License Agreement, and the same shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Licensee. In such an event, notwithstanding anything to the contrary contained in the License Agreement, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be

available to the Authority under the Bidding Documents and/ or the License Agreement or otherwise

## **2.7 Number of Bids and costs thereof**

2.7.1 No Bidder shall submit more than one Bid for the Project. A Bidder applying individually or as a member of a Consortium shall not be entitled to submit another Bid either individually or as a member of any Consortium, as the case may be.

2.7.2 The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

## **2.8 Site visit and verification of information**

2.8.1 Bidders are encouraged to submit their respective Bids after visiting the Project site and ascertaining for themselves the site conditions, location, surroundings, climate, availability of power, water and other utilities for construction and commissioning, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them.

## **2.9 Acknowledgement of the Bidders**

2.9.1 It shall be deemed that by submitting a Bid, the Bidder has:

- a) made a complete and careful examination of the Bidding Documents;
- b) received all relevant information requested from the Authority;
- c) accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters referred to in Clause 2.9.1 above;
- d) satisfied itself about all matters, things and information including matters referred to in Clause 2.9.1 herein above necessary and required for submitting an informed Bid, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.9.1 hereinabove shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the License Agreement by the Licensee;
- f) acknowledged that it does not have a Conflict of Interest; and
- g) agreed to be bound by the undertakings provided by it under and in terms hereof.

- 2.9.2 The Authority shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, the Bidding Documents or the Bidding Process, including any error or mistake therein or in any information or data given by the Authority.

## **2.10 Verification and disqualification**

- 2.10.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to accept or reject any Bid and to annul or modify the Bidding Process and reject all Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefor. In the event that the Authority rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

### **2.10.2 Right to accept or reject any or all Bids**

Notwithstanding anything contained in this RFP, The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP or the Bidding Documents and the Bidder shall, when so required by the Authority, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

- 2.10.3 The Authority reserves the right to reject any Bid and appropriate the Bid Security if:

- a) at any time, a material misrepresentation is made or uncovered, or
- b) the Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the Bid.

Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Consortium, then the entire Consortium and each Member may be disqualified / rejected. If such disqualification / rejection occurs after the Bids have been opened and the Highest Bidder gets disqualified / rejected, then the Authority reserves the right to:

- a) invite the remaining Bidders to submit their Bids in accordance with Clauses 4.4.2 and 4.4.3; or
- b) take any such measure as may be deemed fit in the sole discretion of the Authority, including annulment of the Bidding Process.

- 2.10.4 In case it is found during the evaluation or at any time before signing of the License Agreement or after its execution and during the period of subsistence thereof, including the Project thereby granted by the Authority, that one or more of the qualification conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Licensee either by issue of the LOA or entering into of the License Agreement, and if the Selected Bidder has already been issued the LOA or has entered into

the License Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority to the Selected Bidder or the Licensee, as the case may be, without the Authority being liable in any manner whatsoever to the Selected Bidder or the Licensee. In such an event, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the License Agreement, or otherwise.

## **B. DOCUMENTS**

### **2.11 Contents of the RFP**

2.11.1 This RFP comprises the Disclaimer set forth herein above, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.13.

#### **GLOSSARY**

Section 1	INTRODUCTION
Section 2	INSTRUCTIONS TO BIDDERS
Section 3	EVALUATION OF BIDS
Section 4	CRITERIA FOR EVALUATION
Section 6	FRAUD AND CORRUPT PRACTICES
Section 7	PRE-BID CONFERENCE
Section 8	MISCELLANEOUS

#### **APPENDICES:**

##### **PART A – FORMATS FOR BID SUBMISSION**

Appendix A1-Letter comprising the Bid for Pre-qualification and Financial Evaluation

Appendix A2-Power of Attorney for Signing of Bid

Appendix A3-Power of Attorney for Lead Member of Consortium

Appendix A4-Joint Bidding Agreement

Appendix A5-Bank Guarantee / Demand Draft for Bid Security

Appendix A6-Guidelines of the Department of Disinvestment

Appendix A7-Statement of Legal Capacity

Appendix A8- Undertaking to prepare and submit project implementation schedule

## **PART B – FORMATS FOR TECHNICAL BID SUBMISSION**

Appendix B1-Particulars of the Bidder

Appendix B2 – Technical Capacity of the Bidder

Appendix B3 - Financial Capacity of the Bidder

Appendix B4- Format for Cost of RFP document

Appendix B5- Checklist of document to be uploaded online on e-Tender Portal

## **PART C – FORMAT FOR FINANCIAL BID SUBMISSION**

Appendix C1-Financial Bid Form

- 2.11.2 The Draft License Agreement along with indicative details “Preliminary Project Report (PPR)” provided by the Authority as part of the Bidding Documents shall be deemed to be part of this RFP.

## **2.12 Clarifications**

- 2.12.1 Bidders requiring any clarification on the RFP Document may send their queries by email to [mfpfed.cg@nic.in](mailto:mfpfed.cg@nic.in) and [cgmfpfed.vandhan@gmail.com](mailto:cgmfpfed.vandhan@gmail.com) with subject title “**Development, Operation and Maintenance of 6 MTPD Mahua Processing Unit**”. Pre-bid queries should be sent in the format mentioned below. A Pre-Bid Conference can be held to clarify the issues and to answer questions on any matter, if any, that may be raised at this stage. The responses will be uploaded on e-tender portal and the website <https://cgmfpfed.org>. The Authority will forward its responses, at its sole discretion, to all the Bidders and would include a description of the enquiry and the response of the Authority without identifying the source of the enquiry.

### **Format for sending pre-bid queries:**

Ref: RFP Notification no <xxx> dated <dd/mm/by>

Name of The Bidder<<..... >>

Contact Number and Address of The Bidder - <<.....>>

S.No	Section Number	Page Number	RFP clause	Query	Remark



- 2.12.2 The Authority shall endeavour to respond to the questions raised or clarifications sought by the Bidders. However, the Authority reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification.
- 2.12.3 The Authority may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by the Authority shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on the Authority.
- 2.12.4 To facilitate evaluation of Bidders, the Authority may, at its sole discretion, seek clarifications from any Bidder regarding its Bid. Such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.
- 2.12.5 If a Bidder does not provide clarifications sought under Clause 2.12.4 above within the prescribed time, its Bid shall be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.

## **2.13 Amendment of Bidding Documents**

- 2.13.1 At any time prior to the Bid Due Date, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the bidding documents by issuance of addenda.
- 2.13.2 Any Addendum issued shall be part of the Bidding Document and shall be available on the website or sent to the bidders.
- 2.13.3 In order to afford the Bidders a reasonable time for taking an Addendum into account for preparing their bids, or for any other reason, the Authority may, in its sole discretion, extend the Bid Due Date.

## **C. PREPARATION AND SUBMISSION OF BIDS**

### **2.14 Language**

- 2.14.1 The Bid and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Bidders with the Bid may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the

Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Bid, the English language translation shall prevail.

## 2.15 Preparation of Bid

- 2.15.1 The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those Bids that are received in the required formats and complete in all respects. Incomplete and /or conditional Bids shall be liable to rejection.

## 2.16 Online Bid submission

- 2.16.1 Please refer “Instructions to Bidders for Online Bid submission” given at the start of this RFP Document. The bidders are required to submit their bids electronically on the Department’s e-procurement Portal, using valid Digital Signature Certificates. The said instructions are meant to assist the bidders in registering on the Department’s e procurement Portal, prepare their bids in accordance with the requirements and submitting their bids online on the Department’s e procurement Portal. More information useful for submitting online bids on the Department’s Portal may be obtained at: <https://cgmpfedtenders.abcpocure.com>.
- 2.16.2 Technical Bid along with all the supporting documents shall be submitted through e-Tender portal by the bidder and the hard copy of the Technical Bid shall be submitted to the Authority along with the above 2.16.1 Online Bid submission of the Bid. Financial Bid shall be submitted online only.
- 2.16.3 1) Technical Bid shall be submitted (**Online as well as in Hardcopy Submission**) and shall contain duly filled Bid in the prescribed format along with the appendices and documents specified in 2.17.1.
- 2) Financial Bid shall be submitted (**Only Online**) in the prescribed format containing the details specified in 2.17.2
- 2.16.4 Notwithstanding the provisions of Online bid submission as per 2.16, the hard copy (in Original) of the following documents must be submitted in an envelope at the address given in 2.16.5 on or before the opening date and time of Technical Bid:
- (1) Letter comprising the Bid
  - (2) Power of Attorney for signing the Bid (Hard copy in original) supported by Board Resolution for commitment to invest in project, if selected as successful bidder, and to undertake the development, Development, Operation and Maintenance of the project as per the provisions of Draft License Agreement;
  - (3) Power of Attorney for Lead Member of Consortium (Hard copy in original) supported by Board Resolution for commitment to invest in project, if selected as successful bidder, and to undertake the development, Development, Operation and Maintenance of the project as per the provisions of Draft License Agreement;

- (4) Signed and stamped copy of Draft License Agreement along with any corrigendum or addendum issued thereafter;
- (5) Bank Guarantee/ Demand Draft for Bid Security (Hard copy in original); and

The envelope shall be sealed, marked with Bidder's name and labelled as **“Development, Operation and Maintenance of 6 MTPD Mahua Processing Unit”**

The Bid shall be summarily rejected if the Hard copy of all or any of the documents mentioned herein is not received by Authority on or before opening of Technical Bid.

2.16.5 The envelope containing hard copies shall be addressed to:

**Managing Director**

Chhattisgarh Minor Forest Produce (T&D) Cooperative Federation Ltd.  
Van Dhan Bhawan, Sector 24, Nava Raipur, Atal Nagar  
Chhattisgarh

## 2.17 Instructions for submission of Bid

2.17.1 **Technical Bid:** The scanned copy of following documents shall constitute the Technical Bid:

**Appendices:**

<b>PART A: FORMAT FOR SUBMISSION OF BID</b>		
1	Appendix- A1	Letter comprising the Bid (scanned copy and hard copy)
2	Appendix -A2	Power of Attorney for signing the Bid (scanned copy and hard copy)
3	Appendix-A3	Power of Attorney for Lead member of the Consortium (if applicable) (scanned copy and hard copy)
4	Appendix- A4	Joint Bidding Agreement (if applicable) (scanned copy and hard copy)
5	Appendix – A5	Bank Guarantee for Bid Security or Demand Draft
6	Appendix- A6	Guidelines of the Department of Disinvestment
7	Appendix A7	Statement of Legal Capacity
8	Appendix A8	Undertaking to prepare and submit project completion schedule before signing of Agreement
	Appendix A9	Instructions for the submission of the online Tenders
10	A copy of the Draft License Agreement along with indicative details “Preliminary Project Report (PPR)” with each page initialed/ stamped by the person signing the Bid in pursuance of the Power of Attorney (Only hard copy submission required)	

### 2.17.2 Financial Bid:

Financial Bid duly filled and digitally signed prescribed format available on the e-Tender Portal. The Financial Bid Format is as per Appendix-C1.

Utmost care should be taken to upload the Financial Bid. Any change in the format of Financial Bid file shall render it unfit for bidding. Following Steps may be followed in submission of Financial Bid:

- i. Financial Bid format available on the e-Tender Portal shall be filled by the bidder online.

- ii. Fill 'Bidder's Name' & 'financial quote' in the in the prescribed format of Financial Bid available online
- iii. Financial bid to be submitted online

The unconditional financial bid in respect of the Project proposed to be developed by Authority and operated and managed by the Successful Bidder shall be submitted online, in the format attached in Appendix C1, hereof, wherein Annual License Fee, shall be stated. Please note that the format of Financial Bid as provided in APPENDIX C1 is only for the purpose of reference/acclimatization, the bidder needs to submit the financial bid online as per the procedure mentioned above.

## **2.18 Common instructions**

2.18.1 Bids submitted by fax, telex, telegram or e-mail shall not be entertained and shall be rejected.

## **2.19 Bid Due Date**

2.19.1 Bids should be submitted online before 15:00 hours IST on the Bid Due Date (Online Submission) and the hard copy of the requisite documents should be submitted before (Hard Copy Submission) as per clause 1.3 at the address provided in Clause 2.16.5 in the manner and form as detailed in this RFP. A receipt thereof should be obtained from the person specified at Clause 2.16.5.

2.19.2 The Authority may, in its sole discretion, extend the Bid Due Date by issuing an Addendum in accordance with Clause 2.13.3 uniformly for all Bidders.

## **2.20 Late Bids**

2.20.1 Bids received by the Authority after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

## **2.21 Modifications/Substitution/Withdrawal of Bids**

2.21.1 Once the Bid is submitted on the e-tender portal, it cannot be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.

## **2.22 Rejection of Bids**

2.22.1 Notwithstanding anything contained in this RFP, the Authority reserves the right to reject any Bid and to annul or modify the Bidding Process and reject all Bids at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefor. In the event that the Authority rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

2.22.2 The Authority reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any Bid without assigning any reasons.

## **2.23 Validity of bids**

- 2.23.1 The bids shall be valid for a period of not less than 120 (one hundred and twenty) days from the Bid Due Date. The validity of Bids may be extended by mutual consent of the respective Bidders and the Authority.

## **2.24 Confidentiality**

- 2.24.1 Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to, or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

## **2.25 Correspondence with the Bidder**

- 2.25.1 Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.
- 2.25.2 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information

## **D. BID SECURITY**

### **2.26 Bid Security**

- 2.26.1 The Bidder shall furnish as part of its Bid, a Bid Security referred to in Clause 1.2.8 hereinabove in the form of Demand Draft in favor of Managing Director, Chhattisgarh State Minor Forest Produce Federation Ltd., or in the form of **“Bank Guarantee”** issued by a nationalized bank, or a Scheduled Bank in India for an amount of Rs. 2 Lakhs (Rupees Two Lakhs only ) **payable at Raipur**, in favour of the Authority in the format at Appendix–A5 (the “Bank Guarantee”) and having a validity period of not less than 180 (one hundred eighty) days from the Bid Due Date, or Demand Draft being valid for a period of not less than 90 (ninety) days, inclusive of a claim period of 60 (sixty) days, and may be extended as may be mutually agreed between the Authority and the Bidder from time to time. In case the Bank Guarantee is issued by a foreign bank outside India, confirmation of the same by any nationalized bank in India is required. For the avoidance of doubt, Scheduled Bank shall mean a bank as defined under Section 2(e) of the Reserve Bank of India Act, 1934.
- 2.26.2 The Authority shall not be liable to pay any interest on the Bid Security deposit so made and the same shall be interest free.

- 2.26.3 Any Bid not accompanied by the Bid Security shall be summarily rejected by the Authority as non-responsive.
- 2.26.4 The Bid Security of unsuccessful Bidders will be returned by the Authority, without any interest, as promptly as possible on acceptance of the Bid of the Selected Bidder or when the Bidding process is cancelled by the Authority, and in any case within 60 (sixty) days from the Bid Due Date. Where Bid Security has been paid by demand draft, the refund thereof shall be in the form of an account payee demand draft in favour of the unsuccessful Bidder(s). Bidders may by specific instructions in writing to the Authority give the name and address of the person in whose favour the said demand draft shall be drawn by the Authority for refund, failing which it shall be drawn in the name of the Bidder and shall be mailed to the address given on the Bid.
- 2.26.5 The Selected Bidder's Bid Security will be returned, without any interest, upon the Licensee signing the License Agreement and furnishing the Performance Security in accordance with the provisions thereof. The Authority may, at the Selected Bidder's option, adjust the amount of Bid Security in the amount of Performance Security to be provided by him in accordance with the provisions of the License Agreement.
- 2.26.6 The Authority shall be entitled to forfeit and appropriate the Bid Security as Damages inter alia in any of the events specified in Clause 2.26.7 herein below. The Bidder, by submitting its Bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that the Authority will suffer loss and damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid validity as specified in this RFP. No relaxation of any kind on Bid Security shall be given to any Bidder.
- 2.26.7 The Bid Security shall be forfeited as Damages without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or under the License Agreement, or otherwise, if
- a) a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as specified in Clause 5 of this RFP;
  - b) a Bidder withdraws its Bid during the period of Bid validity as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and the Authority;
  - c) the Selected Bidder fails within the specified time limit –
    - i. to sign and return the duplicate copy of LOA; or
    - ii. to sign the License Agreement; or
    - iii. to furnish the Performance Security within the period prescribed thereof in the License Agreement;
  - d) the Selected Bidder, having signed the License Agreement, commits any breach thereof prior to furnishing the Performance Security.

### **3. EVALUATION OF BIDS**

#### **3.1 Opening and Evaluation of Bids**

- 3.1.1 The Authority shall open the Bids at 15:10 hours IST on the Bid Due Date, at the place specified in Clause 2.16.5 and in the presence of the Bidders who choose to attend.
- 3.1.2 Bids for which a notice of withdrawal has been submitted in accordance with Clause 2.21 shall not be opened.
- 3.1.3 The Authority will subsequently examine and evaluate Bids in accordance with the provisions set out in Section 2, 3 and 4.
- 3.1.4 Bidders are advised that qualification of Bids will be entirely at the discretion of the Authority. Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.
- 3.1.5 Any information contained in the Bid shall not in any way be construed as binding on the Authority, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.
- 3.1.6 The Authority reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons.
- 3.1.7 To facilitate the evaluation of Bids, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Bid.

#### **3.2 Test of responsiveness**

- 3.2.1 Prior to evaluation of Bids, the Authority shall determine whether each Bid is responsive to the requirements of the RFP. A Bid shall be considered responsive only if:
  - a) it is received as per formats prescribed in Appendices;
  - b) it is received by the Bid Due Date including any extension thereof pursuant to Clause 2.19.2;
  - c) it is signed, sealed, and marked as stipulated in Clauses 2.16 and 2.17;
  - d) it is accompanied by the Power(s) of Attorney as specified in clauses 2.3.2;
  - e) it contains all the information and documents (complete in all respects) as requested in this RFP;
  - f) it contains information in formats same as those specified in this RFP/Bidding documents;
  - g) it contains copy of signed Draft License Agreement;
  - h) it does not contain any condition or qualification; and

- i) it is not non-responsive in violation of terms hereof.

3.2.2 The Authority reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by the Authority in respect of such Bid. Provided, however, that the Authority may, in its discretion, allow the Bidder to rectify any infirmities or omissions if the same do not constitute a material modification of the bid.

### **3.3 Clarifications**

3.3.1 To facilitate evaluation of Bids, the Authority may, at its sole discretion, seek clarifications from any Bidder regarding its Bid such clarification(s) shall be provided within the time specified by the Authority for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.

3.3.2 If any Bidder does not provide clarifications sought under Clause 3.3.1 above within the prescribed time, its Bid shall be liable to be rejected. In case the Bid is not rejected, the Authority may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Authority.

### **3.4 Qualification and Bidding**

3.4.1 The Authority would announce a list of Pre-Qualified bidders after the Pre-Qualification criteria evaluation. Only the Bidders who qualify under the Pre-Qualification Criteria would be eligible for Financial Evaluation (Price Bid Stage). The Authority will not entertain any query or clarification from the Bidder who could not be shortlisted.

#### **3.4.2 Opening of Price Bids**

Price bids of only those Bidders, who are short-listed after the Pre-Qualification criteria evaluation shall be opened by the Authority.

#### **3.4.3 Proprietary data**

All documents and other information supplied by the Authority or submitted by a Bidder to the Authority shall remain or become the property of the Authority. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The Authority will not return any Bid or any information provided along therewith.

#### **3.4.4 Correspondence with the Bidder**

Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.



## 4. CRITERIA FOR EVALUATION

### 4.1 Financial Evaluation

- 4.1.1 Only those Bidders who meet the Qualification Criteria specified in Clause 2.3 shall qualify for evaluation under Clause 4.1. Bids of firms/consortia who do not meet this criteria shall be rejected

### 4.2 Financial information for purposes of evaluation

- 4.2.1 The Bid must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Consortium) for the last 3 (three) financial years, preceding the year in which the Bid is made.
- 4.2.2 In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 3 (three) years preceding the year for which the Audited Annual Report is not being provided.
- 4.2.3 The Bidder must establish the Annual Turnover and/or Net Worth specified in Clause 2.3.1 (B) and provide details as per format of APPENDIX B3.

### 4.3 Financial Bid

- 4.3.1 "Bid parameter – Annual License Fee for first year of Operation (the **“Annual License Fee”**) as defined in Draft License Agreement.
- 4.3.2 The Bidder who quotes the highest Annual License Fee shall be declared as the selected bidder (the **“Selected Bidder”**).
- 4.3.3 Bidders would be ranked in the descending order of the Annual License Fee furnished by the Bidders.
- 4.3.4 The Financial Bid should be furnished in the format at Appendix–C1, clearly indicating the Annual License Fee in both figures and words, and signed by the Bidder’s authorised signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

### 4.4 Selection of Bidder

- 4.4.1 In the event that two or more Bidders quote the same value for Annual License Fee, up to one decimal place (the **“Tie Bidders”**), the Authority shall identify the Selected Bidder based on Net worth. The Bidder with the highest Net worth (As on March 2021) shall be the Selected Bidder.

- 4.4.2 In the event that the Highest Bidder withdraws or is not selected for any reason in the first instance (the “first round of bidding”), the Authority may invite all the remaining qualified Bidders to revalidate or extend their respective Bid Security, as necessary, and match the Bid of the aforesaid Highest Bidder (the “second round of bidding”). If in the second round of bidding, only one Bidder matches the Highest Bidder, it shall be the Selected Bidder. If two or more Bidders match the said Highest Bidder in the second round of bidding, then the Bidder whose Bid was higher as compared to other Bidder(s) in the first round of bidding shall be the Selected Bidder. For example, if the third and fifth highest Bidders in the first round of bidding offer to match the said Highest Bidder in the second round of bidding, the said third highest Bidder shall be the Selected Bidder.
- 4.4.3 In the event that no Bidder offers to match the Highest Bidder in the second round of bidding as specified in Clause 4.4.2, the Authority may, in its discretion, invite fresh Bids (the “third round of bidding”) from all Bidders except the Highest Bidder of the first round of bidding, or annul the Bidding Process, as the case may be. In case the Bidders are invited in the third round of bidding to revalidate or extend their Bid Security, as necessary, and offer fresh Bids, they shall be eligible for submission of fresh Bids provided, however, that in such third round of bidding, only such Bids shall be eligible for consideration which are higher than the Bid of the second highest Bidder in the first round of bidding.
- 4.4.4 After selection, a Letter of Award (the “**LOA**”) shall be issued, in duplicate, by the Authority to the Selected Bidder and the Selected Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Selected Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOA, and the next eligible Bidder may be considered.
- 4.4.5 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the Licensee to execute the License Agreement within the period prescribed in Clause 1.3. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the License Agreement.

## **4.5 Contacts during Bid Evaluation**

- 4.5.1 Bids shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, the Authority and/ or their employees/ representatives on matters related to the Bids under consideration.

## 5. FRAUD AND CORRUPT PRACTICES

- 5.1.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the License Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the License Agreement, the Authority may reject a Bid, withdraw the LOA, or the Authority may terminate the License Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder or Licensee, as the case may be, if it determines that the Bidder or Licensee, as the case may be, has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the License Agreement, or otherwise.
- 5.1.2 Without prejudice to the rights of the Authority under Clause 5.1.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the License Agreement, or otherwise if a Bidder or Licensee, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder or Licensee shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder or Licensee, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.
- 5.1.3 For the purposes of this Clause 5, the following terms shall have the meaning hereinafter respectively assigned to them:
- a) **“corrupt practice”** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the License Agreement or arising therefrom, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) save and except as permitted this RFP, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the License Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the License Agreement, who at any time has been or is a legal, financial or technical adviser of the Authority in relation to any matter concerning the Project;

- b) **“fraudulent practice”** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;
- c) **“coercive practice”** means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;
- d) **“unfair practice”** means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and
- e) **“restrictive practice”** means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

## **6. PRE-BID CONFERENCE**

- 6.1.1 Pre-Bid Conference(s) of the Bidders shall be convened at the designated date, time and place. A maximum of three representatives of each Bidder shall be allowed to participate on production of authority letter from the Bidder.
- 6.1.2 During the Pre-Bid Conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

## **7. MISCELLANEOUS**

- 7.1.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts in the State in which the Authority has its headquarters shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.
- 7.1.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
- a. suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
  - b. consult with any Bidder in order to receive clarification or further information;
  - c. retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or
  - d. independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.
- 7.1.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases the Authority, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

## SCHEDULE - I (A)

### PROJECT DETAILS & SITE MAP

Particular	Detail
Project	Mahua Processing Unit
Area	3.59 Acres (Approx.); (Plot 2 & Plot 3)
Location	Jamgaon, Patan, Dist- Durg (CG)
Project Capacity	6 MTPD (Production Capacity)
Raw Material	Mahua
Finished Products	Mahua Energy Bar ( <b>Mahua - Kodo , Mahua – Sesame, Mahua - Ragi</b> ) and Mahua Liquid Jaggery
Estimated Project Cost	INR 12.50 Cr

\*The land Area (3.59 Acres) is tentative and can be increased or decreased by 10% at the time of handing over of project site



## **APPENDICES**



## **PART A – FORMATS FOR BID SUBMISSION**

## **APPENDIX–A1**

### **Letter comprising the Bid**

*(Refer Clause 2.17)*

To,

**Managing Director**

Chhattisgarh Minor Forest Produce (T& D) Co-operative Federation Ltd.

Vandhan Bhawan, Sector 24, Nava Raipur, Atal Nagar

**District- Raipur (C.G.)**

**Sub: Development, Operation and Maintenance of 6 MTPD Mahua Processing Unit**

Dear Sir,

1. With reference to your RFP document dated ....., I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project. The Bid is unconditional and unqualified.
2. I/ We acknowledge that the Authority will be relying on the information provided in the Bid and the documents accompanying the Bid for selection of the Licensee for the aforesaid Project, and we certify that all information provided therein is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the Bid are true copies of their respective originals.
3. This statement is made for the express purpose of our selection as Licensee for the Development, Operation and Maintenance of the aforesaid Project.
4. I/ We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the Bid.
5. I/ We acknowledge the right of the Authority to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
6. I/ We certify that in the last three years, we/ any of the Consortium Members<sup>£</sup> or our/ their Associates have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
7. I/ We declare that:
  - (a) I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority; and

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<sup>£</sup> If the Bidder is not a Consortium, the provisions applicable to Consortium may be omitted.

- (b) I/ We do not have any conflict of interest in accordance with Clauses 2.2.1 (iii) and 2.3.5 of the RFP documents; and
  - (c) I/ We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 5.1.3 of the RFP document, in respect of any tender or request for proposals issued by or any agreement entered into with the Authority or any other public sector enterprise or any government, Central or State; and
  - (d) I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 5 of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; and
- 8. I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.22 of the RFP document.
  - 9. I/ We believe that we/ our Consortium satisfy(s) the Technical & Financial Capacity criteria and meet(s) the requirements as specified in the RFP document I/ We declare that we/ any Member of the Consortium, or our/ its Associates are not a Member of a/ any other Consortium submitting a Bid for the Project.
  - 10. I/ We declare that we/ any Member of the Consortium, or our/ its Associates are not a Member of a/ any other Consortium submitting a Bid for the Project.
  - 11. I/ We certify that in regard to matters other than security and integrity of the country, we/ any Member of the Consortium or any of our/ their Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.
  - 12. I/ We further certify that in regard to matters relating to security and integrity of the country, we/ any Member of the Consortium or any of our/ their Associates have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.
  - 13. I/ We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our directors/ managers/ employees. <sup>£</sup>
  - 14. I/ We further certify that we are not disqualified in terms of the additional criteria specified by the Department of Disinvestment in their OM No. 6/4/2001-DD-II dated July 13, 2001, a copy of which forms part of the RFP at Appendix-A6 thereof.

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<sup>£</sup> In case the Bidder is unable to provide certification regarding any pending investigation as specified in paragraph 13, it may precede the paragraph by the words viz. "Except as specified in Schedule ..... hereto". The exceptions to the certification or any disclosures relating thereto may be clearly stated in a Schedule to be attached to the Bid. The Authority will consider the contents of such Schedule and determine whether or not the exceptions/disclosures are material to the suitability of the Bidder for award hereunder.

15. I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above, we shall intimate the Authority of the same immediately.
16. I/We further certify that we/any Member of the Consortium or any of our/ their Association are not barred by the Central Government/State Government or any entity controlled by it, from participation in any project (BOT/ DBFOT or otherwise), and no bar subsists as on date of Bid.
17. I/ We acknowledge and undertake that if our Consortium gets qualified and short-listed on the basis of Technical and Financial Capacity of its Member who shall, for a period of 21 (Twenty One) years from the “Appointed Date” as per License agreement including construction period, hold equity share capital as per the provisions of this document.
18. I/ We acknowledge and agree that in the event of a change in control of an Associate whose Technical or Financial Capacity was taken into consideration for the purposes of short-listing and qualification under and in accordance with the RFP, I/We shall inform the Authority forthwith along with all relevant particulars and the Authority may, in its sole discretion, disqualify us/our Consortium or withdraw the Letter of Award, as the case may be. I/We further acknowledge and agree that in the event such change in control occurs after signing of the License Agreement but prior to Financial Close of the Project, it would, notwithstanding anything to the contrary contained in the Agreement, be deemed a breach thereof, and the License Agreement shall be liable to be terminated without the Authority being liable to us in any manner whatsoever.
19. I/ We understand that the Selected Bidder shall either be an existing Company incorporated under the Indian Companies Act, 1956/2013, Partnership Firm, Society, Proprietorship, Trust, LLP as per the provisions of RFP document or shall incorporate a company as SPV, prior to execution of the License Agreement.
20. I/We hereby confirm that we shall comply with the Change in Ownership requirements specified in Clause 2.5.
21. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above-mentioned Project and the terms and implementation thereof.
22. In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into a License Agreement in accordance with the draft that has been provided to me/us prior to the Bid Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
23. I/ We have studied all the Bidding Documents carefully and also surveyed the site. We understand that except to the extent as expressly set forth in the License Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Project.

24. I/ We offer a Bid Security of Rs. 2 Lakh (In words Rs two lakhs only) to the Authority in accordance with the RFP Document.
25. I/ We agree to make payment of Annual License Fee, as per the provisions of Clause 23.1 of the Draft License Agreement.
26. The Bid Security in the form of a Demand Draft/ Bank Guarantee (strike out whichever is not applicable) is attached.
27. The documents accompanying the Bid, as specified in Clause 2.16 & 2.17 of the RFP, have been submitted in separate envelopes and marked as “Technical Bid” and “Financial Bid”.
28. I/ We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I/we shall have any claim or right of whatsoever nature if the Project is not awarded to me/us or our Bid is not opened or rejected.
29. The **Annual License Fee** has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft License Agreement, our own estimates of costs and revenues and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the Project.
30. I/ We certify that in terms of the RFP, my/our Average Annual Turnover of last three years is Rs. .... (Rupees .....);
31. I/ We agree and undertake to abide by all the terms and conditions of the RFP document.
32. { We, the Consortium Members agree and undertake to be jointly and severally liable for all the obligations of the Licensee under the License Agreement till occurrence of COD in accordance with the License Agreement. }
33. I/ We shall keep this offer valid for 120 (one hundred and twenty) days from the Bid Due Date specified in the RFP.
34. In witness thereof, I/we submit this Bid under and in accordance with the terms of the RFP document.

Yours faithfully,

Date: (Signature, name and designation of the Authorized signatory)

Place: Name and seal of Bidder/Lead Member

Date:

## **APPENDIX–A2**

### **Power of Attorney for signing of Bid<sup>§</sup>**

*(Refer Clause 2.3.3)*

Know all men by these presents, We..... (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorise Mr./ Ms. (name), ..... son/daughter/wife of ..... and presently residing at ....., who is presently employed with us/ the Lead Member of our Consortium and holding the position of ....., as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for selection and submission of our bid for the ..... Project proposed or being developed by the ..... (the “Authority”) including but not limited to signing and submission of all Bids, bids and other documents and writings, participate in Pre-Bids and other conferences and providing information/ responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the License Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the Authority in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or till the entering into of the License Agreement with the Authority.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ....., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ....., 20.....

For.....

(Signature, name, designation and address)

Witnesses:

- 1.
- 2.

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<sup>§</sup> To be submitted in original.

Accepted

Notarised

(Signature, name, designation and address of the Attorney)

*Notes:*

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
  - *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- /
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Apostille certificate.*

## **Appendix-A3**

### **Power of Attorney for Lead Member of Consortium**

*(Refer Clause 2.3.3)*

Whereas the \*\*\*\*\* (“the Authority”) has invited Bids from interested parties for the \*\*\*\*\* Project (the “Project”).

Whereas, ....., and ..... (collectively the “Consortium”) being Members of the Consortium are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP) and other connected documents in respect of the Project, and

Whereas, it is necessary for the Members of the Consortium to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium’s bid for the Project and its execution.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS

We, ..... having our registered office at ....., M/s. .... having our registered office at ....., and M/s. .... having our registered office at ....., (hereinafter collectively referred to as the “Principals”) do hereby irrevocably designate, nominate, constitute, appoint and authorise M/s. .... having its registered office at ....., being one of the Members of the Consortium, as the Lead Member and true and lawful attorney of the Consortium (hereinafter referred to as the “Attorney”).

We hereby irrevocably authorise the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Consortium and any one of us during the bidding process and, in the event the Consortium is awarded the Project, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Consortium and submission of its bid for the Project, including but not limited to signing and submission of all Bids, bids and other documents and writings, participate in bidders and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the bid of the Consortium and generally to represent the Consortium in all its dealings with the Authority, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium’s bid for the Project and/ or upon award thereof till the License Agreement is entered into with the Authority.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney



in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF ....., 20.....

For ..... (Signature) ..... (Name & Title)

For ..... (Signature) ..... (Name & Title)

For ..... (Signature) ..... (Name & Title)

Witnesses:

1

2

.....

(Executants)

(To be executed by all the Members of the Consortium)

**Notes:**

- i. *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- ii. *Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- iii. *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Apostille certificate.*

## APPENDIX-A4

### Joint Bidding Agreement

*(Refer Clause 2.3.4 (h))*

*(To be executed on Stamp paper of appropriate value)*

THIS JOINT BIDDING AGREEMENT is entered into on this the ..... day of ..... 20...

#### AMONGST

1. .... Limited, a company incorporated under the Companies Act, 1956/2013<sup>¥</sup> and having its registered office at ..... (hereinafter referred to as the “**First Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

#### AND

2. .... Limited, a company incorporated under the Companies Act, 1956/2013 and having its registered office at ..... (hereinafter referred to as the “**Second Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

#### AND

3. { ..... Limited, a company incorporated under the Companies Act, 1956/2013 and having its registered office at ..... (hereinafter referred to as the “**Third Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)}

The above mentioned parties of the FIRST, SECOND, AND THIRD PART are collectively referred to as the “**Parties**” and each is individually referred to as a “**Party**”

#### WHEREAS,

(A) ....., Represented by its ..... and having its principal office at ..... (hereinafter referred to as the “**Authority**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited Bids (the **Bids**) by its Request for Proposal No. .... dated ..... (the “**RFP**”) for **Development, Operation and Maintenance of 6 MTPD Mahua Processing Unit** (the “**Project**”).

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<sup>¥</sup> A Bidder who is registered abroad may substitute the words, viz “a company registered under the Companies Act, 1956/2013” by the words, viz “a company duly organised and validly existing under the laws of the jurisdiction of its incorporation”. A similar modification may be made in Recital 2, as necessary.

- (B) The Parties are interested in jointly bidding for the Project as members of a Consortium and in accordance with the terms and conditions of the “RFP” document and other bid documents in respect of the Project, and
- (C) It is a necessary condition under the “RFP” document that the members of the Consortium shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Bid.

**NOW IT IS HEREBY AGREED as follows:**

**1. Definitions and Interpretations**

In this Agreement, the capitalized terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the “RFP”.

**2. Consortium**

- 2.1 The Parties do hereby irrevocably constitute a consortium (the “**Consortium**”) for the purposes of jointly participating in the Bidding Process for the Project.
- 2.2 The Parties hereby undertake to participate in the Bidding Process only through this Consortium and not individually and/ or through any other consortium constituted for this Project, either directly or indirectly or through any of their Associates.

**3. Covenants**

The Parties hereby undertake that in the event the Consortium is declared the selected Bidder and awarded the Project, it shall incorporate a special purpose vehicle (the “**SPV**”) under the Indian Companies Act, 2013 for entering into a License Agreement with the Authority and for performing all its obligations as the Licensee in terms of the License Agreement for the Project.

**4. Role of the Parties**

The Parties hereby undertake to perform the roles and responsibilities as described below:

- a) Party of the First Part shall be the Lead member of the Consortium ( Technical Member /Financial Member /Development, Operation and Maintenance Member/ Other Member of the Consortium of the Consortium) and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Consortium during the Bidding Process and until the Appointed Date under the License Agreement when all the obligations of the SPV shall become effective;
- (b) Party of the Second Part shall be (Financial Member/Development, Operation and Maintenance Member/ Other Member of the Consortium);

- (c) Party of the Third Part shall be (Financial Member/Development, Operation and Maintenance Member/ Other Member of the Consortium);

## **5. Joint and Several Liability**

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the “RFP” and the License Agreement, till such time as the Financial Close for the Project is achieved under and in accordance with the License Agreement.

## **6. Shareholding in the SPV**

- 6.1 The Parties agree that the proportion of shareholding among the Parties in the SPV shall be as follows:

First Party:

Second Party:

Third Party:

- 6.2 The Parties undertake that a minimum of :

- (i) 26% (twenty six percent) of the subscribed and paid up equity share capital of the SPV for Lead member;

- (ii) 10% (ten percent) of the subscribed and paid up equity share capital of the SPV for each of the other members and,

shall, at all times till the 20<sup>th</sup> anniversary from “Handover Date”

- , be held by the Parties of the First, {Second and Third} Part whose Technical and/or Financial Capacity have been reckoned for the purposes of qualification and short-listing of Bidders for the Project in terms of the “RFP”.

- 6.3 The Parties undertake that each of the Parties specified in Clause 6.2 above shall, at all times between Handover Date of the Project and the 20<sup>th</sup> anniversary of project, hold subscribed and paid up equity share capital of SPV equivalent to at least 5% (five per cent) of the Total Project Cost.

- 6.4 The Parties undertake that they shall comply with all equity lock-in requirements set forth in the License Agreement.

## **7. Representation of the Parties**

Each Party represents to the other Parties as of the date of this Agreement that:

- (a) Such Party is duly organized, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;
- (b) The execution, delivery and performance by such Party of this Agreement has been authorized by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/ power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member is annexed to this Agreement, and will not, to the best of its knowledge:
  - (i) require any consent or approval not already obtained;
  - (ii) violate any Applicable Law presently in effect and having applicability to it;
  - (iii) violate the memorandum and articles of association, by-laws or other applicable organizational documents thereof;
  - (iv) violate any clearance, permit, concession, grant, license or other governmental authorization, approval, judgment, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or
  - (v) create or impose any liens, mortgages, pledges, claims, security interests, charges or encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;
- (c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and
- (d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Associates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfilment of its obligations under this Agreement.

## **8. Termination**

This Agreement shall be effective from the date hereof and shall continue in full force and effect until the Financial Close of the Project is achieved under and in accordance with the License Agreement, in case the Project is awarded to the Consortium. However, in case the Consortium does not get selected for award of the Project, the Agreement

will stand terminated in case the Bidder is not selected or upon return of the Bid Security by the Authority to the Bidder, as the case may be.

## **9. Miscellaneous**

9.1 This Joint Bidding Agreement shall be governed by laws of India.

9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Authority.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED

For and on behalf of  
LEAD MEMBER by:

(Signature)  
(Name)  
(Designation)  
(Address)

SIGNED, SEALED AND DELIVERED

SECOND PART

(Signature)  
(Name)  
(Designation)  
(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of  
THIRD PART

(Signature)  
(Name)  
(Designation)  
(Address)

SIGNED, SEALED AND DELIVERED

In the presence of:

1.

### ***Notes:***

1. The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents

of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member.
3. For a Joint Bidding Agreement executed and issued overseas, the document shall be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney has been executed.

## **APPENDIX–A5**

### **Bank Guarantee for Bid Security**

*(Refer Clauses 1.2.8 and 2.27.1)*

B.G. No. Dated:

1. In consideration of you, ....., having its office at ....., (hereinafter referred to as the “Authority”, which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the Bid of ..... (a company registered under the Companies Act, 1956/ 2013) and having its registered office at ..... (and acting on behalf of its Consortium) (hereinafter referred to as the “Bidder” which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for the ..... Mahua Processing Unit (hereinafter referred to as “the Project”) pursuant to the RFP Document dated ..... issued in respect of the Project and other related documents including without limitation the draft concession agreement (hereinafter collectively referred to as “Bidding Documents”), we (Name of the Bank) having our registered office at ..... and one of its branches at ..... (hereinafter referred to as the “Bank”), at the request of the Bidder, do hereby in terms of Clause 1.2.8 of the RFP Document, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the RFP Document) by the said Bidder and unconditionally and irrevocably undertake to pay forthwith to the Authority an amount of Rs. .... (Rupees ..... only) (hereinafter referred to as the “Guarantee”) as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in the said Bidding Documents.
2. Any such written demand made by the Authority stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Bank.
3. We, the Bank, do hereby unconditionally undertake to pay the amounts due and payable under this Guarantee without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of the Authority is disputed by the Bidder or not, merely on the first demand from the Authority stating that the amount claimed is due to the Authority by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including failure of the said Bidder to keep its Bid open during the Bid validity period as set forth in the said Bidding Documents for any reason whatsoever.



Any such demand made on the Bank shall be conclusive as regards 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. This Guarantee shall be irrevocable and remain in full force for a period of 180 (one hundred and eighty) days from the Bid Due Date inclusive of a claim period of 60 (sixty) days or for such extended period as may be mutually agreed between the Authority and the Bidder, and agreed to by the Bank, and shall continue to be enforceable till all amounts under this Guarantee have been paid.
5. We, the Bank, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Bidding Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other authority.
6. The Guarantee shall not be affected by any change in the constitution or winding up of the Bidder or the Bank or any absorption, merger or amalgamation of the Bidder or the Bank with any other person.
7. In order to give full effect to this Guarantee, the Authority shall be entitled to treat the Bank as the principal debtor. The Authority shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee from time to time to vary any of the terms and conditions contained in the said Bidding Documents or to extend time for submission of the Bids or the Bid validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfilment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder or to postpone for any time and from time to time any of the powers exercisable by it against the said Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Bidding Documents or the securities available to the Authority, and the Bank shall not be released from its liability under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the said Bidder or any other forbearance, act or omission on the part of the Authority or any indulgence by the Authority to the said Bidder or by any change in the constitution of the Authority or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Bank from its such liability.

8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given or made if addressed to the Bank and sent by courier or by registered mail to the Bank at the address set forth herein.
9. We undertake to make the payment on receipt of your notice of claim on us addressed **to [name of Bank along with branch address, Raipur] located at Raipur, Chhattisgarh** and delivered at our above branch which shall be deemed to have been duly authorized to receive the said notice of claim.
10. It shall not be necessary for the Authority to proceed against the said Bidder before proceeding against the Bank and the guarantee herein contained shall be enforceable against the Bank, notwithstanding any other security which the Authority may have obtained from the said Bidder or any other person and which shall, at the time when proceedings are taken against the Bank hereunder, be outstanding or unrealized.
11. We, the Bank, further undertake not to revoke this Guarantee during its currency except with the previous express consent of the Authority in writing.
12. The Bank declares that it has power to issue this Guarantee and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Guarantee for and on behalf of the Bank.
13. For the avoidance of doubt, the Bank's liability under this Guarantee shall be restricted to Rs. .... Lakh (Rupees ..... Lakh only). The Bank shall be liable to pay the said amount or any part thereof only if the Authority serves a written claim on the Bank in accordance with paragraph 9 hereof, on or before [..... (indicate date falling 180 days after the Bid Due Date)].

Signed and Delivered by ..... Bank

By the hand of Mr./Ms ....., its ..... and authorised official.

(Signature of the Authorised Signatory)

(Official Seal)

## **Appendix-A6**

### **Guidelines of the Department of Disinvestment**

*(Refer Clause 1.2.6)*

No. 6/4/2001-DD-II

Government of India

Department of Disinvestment

Block 14, CGO Complex

New Delhi.

Dated 13<sup>th</sup> July, 2001.

#### **OFFICE MEMORANDUM**

Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment

Government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier, criteria like net worth, experience etc. used to be prescribed. Based on experience and in consultation with concerned departments, Government has decided to prescribe the following additional criteria for the qualification/ disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

- (a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/ adverse order by a regulatory authority that casts a doubt on the ability of the bidder to manage the public sector unit when it is disinvested, or which relates to a grave offence would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.
- (b) In regard to matters relating to the security and integrity of the country, any charge-sheet by an agency of the Government/ conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/ persons.
- (c) In both (a) and (b), disqualification shall continue for a period that Government deems appropriate.

- (d) Any entity, which is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred an appeal against the order based on which it has been disqualified. The mere pendency of appeal will have no effect on the disqualification.
- (e) The disqualification criteria would come into effect immediately and would apply to all bidders for various disinvestment transactions, which have not been completed as yet.
- (f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.
- (g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/ Managers/ employees, full details of such investigation including the name of the investigating agency, the charge/ offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, a similar undertaking shall be obtained along with EOI.

sd/

(A.K. Tewari)

Under Secretary to the Government of India

## APPENDIX - A7

### Statement of Legal Capacity

*(To be forwarded on the letterhead of the Bidder/ Lead Member of Consortium)*

Ref. Date:

To,

**Managing Director**

Chhattisgarh State Minor Forest Produce (Trading & Development) Cooperative Federation Ltd.

Vandhan Bhawan, Sector 24, Nava Raipur, Atal Nagar,

Dist – Raipur, Chhattisgarh

Dear Sir,

We hereby confirm that we/ our members in the Consortium (constitution of which has been described in the Bid) satisfy the terms and conditions laid out in the RFP document. We have agreed that ..... (insert member's name) will act as the Lead Member of our consortium.\*We have agreed that ..... (insert individual's name) will act as our representative/will act as the representative of the consortium on its behalf\* and has been duly authorized to submit the RFP. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.  
Thanking you,

Yours faithfully,

(Signature, name and designation of the authorised signatory)

For and on behalf of.....

*\* Please strike out whichever is not applicable.*

### **APPENDIX 1A**

In the event that credit is being taken for the eligible Technical Capacity experience of an Holding Company/Subsidiary Company, as defined in Clause 2.3.1, the Bidder should also provide the following documents: -

1. A certificate in the format below:

**Certificate from Statutory Auditor/ Company Secretary regarding Holding/Subsidiary<sup>s</sup>**

Based on the authenticated record of the company, this is to certify that more than 50% (fifty per cent) of the subscribed and paid up voting equity of ..... (*name of the Bidder/Consortium Member*) is held, directly, by ..... (*name of Bidder/ Consortium Member*). By virtue of the aforesaid share-holding, the latter exercises control over the former, who is an Associate in terms of Clause 2.2.1(iv) of the RFP.

A brief description of the said equity held, directly, is given below:

{*Describe the share-holding of the Bidder/ Consortium Member and the Holding/Subsidiary Company.*}

Name of the audit firm:

Seal of the audit firm: (Signature, name and designation of the authorised signatory).

Date:

## **Annexure A8**

### **UNDERTAKING TO PREPARE AND SUBMIT PROJECT COMPLETION SCHEDULE BEFORE SIGNING OF AGREEMENT**

#### **Undertaking from the Bidder**

With reference to the RFP\_\_\_\_\_, We.....  
(name of the firm and address of the registered office) hereby undertake that the project completion schedule (**Schedule H of the License agreement**) shall be prepared by us in discussion with the Authority and shall be submitted to the Authority before signing of agreement by us for approval, if we get selected through this RFP. And the <bidder> shall abide to the Project Completion Schedule (**Schedule H of the License Agreement**) once approved by the committee appointed by the Authority with or without any modifications. The approved Completion schedule shall become part of the agreement.

Yours faithfully,

Date: (Signature, name and designation of the Authorized signatory)

Place:  
Member

Name and seal of Bidder/Lead

Date:

## Annexure A9

### Instructions for the Submission of the Online Tender

Note: The following steps need to be carried out for online submission of the Tender. Detailed instructions for each of the steps are given in the Tenderer's Manual on the Home Page of <https://cgmpfedtenders.abcprocure.com>

#### 1. Sequence of steps for online tender submission:

##### Step 1 – To obtain Digital Signature Certificate (DSC) :

The DSC is issued by an approved certifying authority, authorized by the Controller of Certifying Authorities (CCA), Government of India. The individual may obtain information required for issuance of a Class II / Class III DSC from the Controller of Certifying Authorities ([www.cca.gov.in](http://www.cca.gov.in)). The tenderer will have to obtain DSC from <https://cgmpfedtenders.abcprocure.com> or any other CCA approved agency.

DSC is issued upon receipt of mandatory identity proofs and verification letters attested by a Gazetted Officer. Only upon the receipt of the required documents, a DSC can be issued.

**Important Note:** The offers submitted online should be signed electronically with a DSC to establish the identity of the tenderer. In case, during the process of a particular tender, the user loses his/her DSC (eg. due to virus attack, hardware problem, operating system problem etc.) he may not be able to submit the offer online. Hence the users are advised to back up the certificate and keep the copies at safe places under proper security to be used in case of emergencies.

In case of online tendering, the DSC issued to the authorized user of a firm and used for electronic tendering will be considered equivalent to no-objection certificate / power of attorney to that user. The firm has to authorize a specific individual via an authorization certificate signed by all partners to use the DSC as per Indian *IT Act 2000*. Unless the certificate is revoked, it shall be assumed to represent adequate authority of the user to submit tender on behalf of the firm for the Chhattisgarh State Minor Forest Produce (Trading & Development) Co-op. Federation Limited as per *Information Technology Act 2000*. The DSC of this authorized user will be binding on the firm. It shall be the responsibility of management / partners of the registered firm to inform the Certifying Authority or Sub-Certifying Authority, if the authorized user changes, and apply for a fresh Digital Signature Certificate and issue a fresh '**authorization certificate**' for the new user.

The same procedure holds true for the authorized users in a Private / Public company. In this case, the authorization certificate will have to be signed by the directors of the company.



**Step 2 – Online registration of intending bidder:**

In order to participate in the bid, the bidder is required to be registered on the e-Procurement portal (<https://cgmpfedtenders.abcprocure.com>). Only after online registration of the bidder, the bidder shall be allowed to participate in the bids floated by the C.G.M.F.P. Federation using the e-Procurement System.

The following Registration Fee will be charged by the Service Provider (i.e. e-Procurement Technologies Limited) from the bidder:

Sl. No.	Description	Charges	Service Tax @ 18%	Total Amount
1.	Online Registration (Valid for One Year)	Rs. 500/-	Rs. 90/-	Rs. 590/-

**Documents required for Registration with the e-Procurement portal**

**(I) In case of Renewal** – No documents required for renewal of registration on the e-procurement portal.

**(II) In case of New Registration** – The following documents required along with online registration form :-

**a. Individual or Proprietorship Firm –**

**Any one ID Proof and One Address Proof** (Attested by Banker or Notary or Gazetted Officer as well as Self Attested)

ID Proof	PAN Card	Address Proof	Electricity Bill
	Passport		Passport
	Voter ID		Voter ID
	Driving License		Driving License
	Aadhaar Card		Bank Passbook

**b. Partnership Firm –**

**(i) Any one ID Proof and One Address Proof** (Attested by Banker or Notary or Gazetted Officer as well as Self Attested)

ID Proof	PAN Card	Address Proof	Electricity Bill

	Passport		Passport
	Voter ID		Voter ID
	Driving License		Driving License
	Aadhaar Card		Bank Passbook

(ii) **Partnership Deed** details which have to be attested by partners with their company seal.

**c. Pvt. Ltd. Company –**

(i) **Any one ID Proof and One Address Proof** (Attested by Banker or Notary or Gazetted Officer as well as Self Attested)

<b>ID Proof</b>	PAN Card	<b>Address Proof</b>	Electricity Bill
	Passport		Passport
	Voter ID		Voter ID
	Driving License		Driving License
	Aadhaar Card		Bank Passbook

(ii) **Any one of the Organization proofs issued by Government** (Attested by authorized signatory of Organization along with organization seal)

- **Certificate of Incorporation**
- **Articles of Incorporation**
- **Memorandum of Association**

**d. Hindu Undivided Family (H.U.F) –**

**Any one ID Proof and One Address Proof** (Attested by Banker or Notary or Gazetted Officer as well as Self Attested)

<b>ID Proof</b>	PAN Card	<b>Address Proof</b>	Electricity Bill
	Passport		Passport
	Voter ID		Voter ID
	Driving License		Driving License
	Aadhaar Card		Bank Passbook

**e. Others –**

(i) **Any one ID Proof and One Address Proof** (Attested by Banker or Notary or Gazetted Officer as well as Self Attested)

ID Proof	PAN Card	Address Proof	Electricity Bill
	Passport		Passport
	Voter ID		Voter ID
	Driving License		Driving License
	Aadhaar Card		Bank Passbook

**(ii) Any other relevant documents**

The scanned copies of all required documents as above and payment proof of required fees for New Registration and payment proof of required fees for renewal are required to be submitted by the intending tenderer to e-Procurement Technologies Limited (abcProcure). After verification of the above documents the e-Procurement Technologies Limited (abcProcure) will register the Tenderer and inform by the e-mail accordingly.

After obtaining the Digital Signature Certificate successfully installed on their system, the tenderer have to be online registered through “**New Bidder Registration**” page of the e-Procurement portal (<https://cgmpfedtenders.abcprocure.com>) and mapped their Digital Signature Certificate.

After online registration your registration will be approved by the Service Provider and intimate the same to the tenderer. The tenderer will be inform about the Tenderer’s Code, login Id & password. The login Id and password will be required for online tender preparation and the Tenderer’s Code will be used for making EMD payment through RTGS / NEFT mode, if opted for.

**Step 3 – Online bid preparation**

**1. Technical Bid Envelope (Folder)**

1. Details of Bidder – **Appendix B1**
2. Technical Capacity of the Bidder – **Appendix B2**
3. Financial Capacity of the Bidder – **Appendix B3**
4. Cost of RFP- **Appendix B4**
5. Documents to be uploaded- **Appendix B5**

**2. Financial Bid Envelope (Folder)**

1. Financial Bid Form – **Appendix C1**

**Step 4 – Payment of Bid Security**

Bid Security of 2 Lakhs has to be paid through Bank Guarantee or Demand Draft. The Applicant has to upload copy of Bank Guarantee / Demand Draft in the online submission and send the hard copy of original Bank Guarantee/ Demand Draft in hard copy submission.

**Step 5 – Final submission of the bid.**

## **1. Other Information:**

### **2.1 Set-up of Machine:**

In order to operate on the e-Procurement System, following minimum operating system and hardware is required.

- Windows XP with service pack 3
- Windows vista / windows 7
- Browser Internet Explorer 7, 8 or 9
- Minimum bandwidth 512 kbps
- Minimum RAM 2 GB

### **1.2 Procedure of payment of Cost of RFP through RTGS / NEFT mode :**

Since RTGS / NEFT payments are settled by RBI in batches, intended **Cost of RFP** amount is required to be paid at least one day in advance of online bid submission by following procedure:

**A.** Please mention the following details while making the RTGS / NEFT payment from your Bank:

(i) Beneficiary account number – This will be in the following format:

**<CGMF+ Tenderer Code>**

For example, in case your Bidder Code is ABC66215, the beneficiary account number will be **CGMFABC66215**.

(ii) Beneficiary bank branch - **ICICI Bank, CMS, Mumbai**

(iii) Beneficiary IFSC code - **ICIC0000104**

**B.** After completing the online bid preparation formalities, select RTGS / NEFT payment option at the **Cost of RFP** payment screen. Upon doing so, you shall be able to view the funds already remitted by you through NEFT / RTGS as available balance in beneficiary account. Bidder should note that available balance against their name in ICICI Bank is not **Cost of RFP** amount available with C.G.M.F.P Federation.

**C.** Please proceed to deposit the **Cost of RFP** from available balance. Upon doing so, the required amount to be paid for the **Cost of RFP**, shall get appropriately deducted from the amount remitted and payment of **Cost of RFP** shall be confirmed & receipt will be generated in real time.

**D.** In case there is excess remittance i.e., money not transferred for use as **Cost of RFP**, the refund of the same can be claimed by the bidder simultaneously. On submitting refund request, the amount would be transferred in the bank account opted by you by next working day.

**E.** In case, bidder wants to utilize the excess fund (i.e., the remaining available balance) for participating in next round of bid by Federation under e-Procurement portal, they may do so instead of taking refund.

**Please feel free to get in touch with our e-procurement support team / ICICI Bank support team in case any clarification is required.**

### **1.2 Submission of Online Bids:**

C.G.M.F.P Federation will not be responsible for any failure on part of the bidder in submission of the Bid and/or the etc. before scheduled time and date, for any reason whatsoever, including, inter-alia, non-credit of said amounts of **Cost of RFP** and therefore no claims shall be entertained on these grounds.

Under this online payment system for e-Bidding, the bids will not be submitted / received by C.G.M.F.P Federation unless the **Cost of RFP** is received / credited before scheduled time and date. Hence, bidder shall remit the said amount well in advance. It is clarified that the Bids will not be considered for opening if **Cost of RFP** is not received/ credited before schedule time and date, for any reason whatsoever.

**The bidder is advised to submit his / her bid as well as pay the Cost of RFP amount well before the cut-off time and date to avoid any inconvenience on account of any problem e.g., system slow down or network problem.**

## 2.4 Helpline:

For any assistance regarding Registration on e-Procurement portal, DSC, online tender form submission and other points of e-tendering process, please contact our service provider :-

### **Important Note for Bidders for New E-Tendering portal**

abcProcure (M/s. e-Procurement Technologies Ltd.) is conducting e-Tenders for Chhattisgarh State Minor Forest Produce (Trading & Development) Co-operative Federation Limited (**CGMFPPFED**) for sale of various Minor Forest Produces and for Procurement of various Goods, Services and works. It is to herewith inform to all existing bidders who are registered on <https://cgmfppfed.abcprocure.com> that abcProcure (M/s. e-Procurement Technologies Ltd.) is introducing new e-Tender Portal for foresaid tendering activities for CGMFPPFED.

For introducing the new e-Tender portal, Training was scheduled whole month round in Mar. 2022.

It is to inform all the existing bidders that abcProcure (M/s. e-Procurement Technologies Ltd.), has shared with you your Log-IN ID, New Password for new portal (<https://cgmfppfedtenders.abcprocure.com>) on your registered email ID on 16.03.2022. All existing Bidders registered on <https://cgmfppfed.abcprocure.com> shall use Log-In and new Password shared over email on 16.03.2022 to login on new e-Tendering portal i.e., <https://cgmfppfedtenders.abcprocure.com>.

After logging in on new e-Tendering portal, bidders are mandatorily required to change their password and attach DSC. Once DSC is attached, bidders are required to get it verified from abcProcure (M/s. e-Procurement Technologies Ltd.) by getting in touch with DSC verification Team reachable on +91-9099090830 / +91-6353217080 and [info@AbcProcure.com](mailto:info@AbcProcure.com).

Further, All the bidders are issued new e-Wallet / Virtual Account for remitting EMD in new e-Tender portal which has been shared on your registered E-Mail ID on 10.03.2022. Bidders are required to use the same e-Wallet / Virtual account for remitting payment by NEFT/RTGS for e-Tender which are floated on new e-Tendering portal i.e., <https://cgmfppfedtenders.abcprocure.com>. Bidders are strongly requested to not to use their current/ existing e-Wallet / Virtual account for new e-Tender portal. The same is applicable for old e-Tendering portal only and not valid for new e-Tendering portal. Please take strong note of this.

Bidders can download Bidder Manual to get familiar with the new portal from <https://cgmfppfedtenders.abcprocure.com/EPROC/ajaxcall/downloadfile/23/577>

**For New Registration/DSC Support/Profile Approval, Please call or write on:**

Cell Number: +91-9099090830 / +91-6353217080

e-mail at: [info@AbcProcure.com](mailto:info@AbcProcure.com)

**Call/write for e-Tender Submission / e-Auction Bid Support:**

Phone Numbers: +91-79 6813 6854/50/48/49

Cell Number: +91-9374519729 / 9904406300 / 9510812971

Write by e-mail at: Support@AbcProcure.com

**Call/write for e-Payment Related Queries:**

Phone Numbers: +91-9374519729 / 9081000427

Write by e-mail at: Payment@eptl.in

**Office Hours:**

Monday to Friday - 10:00AM to 07:00PM

1st,3rd & 5th Saturday -10:00AM to 06:00PM

2nd & 4th Saturday - Holiday

**For any assistance regarding banking transactions, please contact ICICI Bank, Civil Lines, Raipur at the following numbers:**

Mr. Shivam Shekhar	– 7077102017
Ms. Shubhangi Gupta	– 9993822514

**MANAGING DIRECTOR**

**Chhattisgarh State Minor Forest Produce**

**(Trading & Development) Co-op.**

**Federation Limited**

## **PART B – FORMATS FOR TECHNICAL BID SUBMISSION**



## **APPENDIX B1**

### **Details of Bidder**

1. (a) Name:  
(b) Country of incorporation:  
(c) Address of the corporate headquarters and its branch office(s), if any, in India:  
(d) Date of incorporation and/ or commencement of business:
2. Brief description of the Company including details of its main lines of business and proposed role and responsibilities in this Project:
3. Details of individual(s) who will serve as the point of contact/ communication for the Authority:
  - (a) Name:
  - (b) Designation:
  - (c) Company:
  - (d) Address:
  - (e) Telephone Number:
  - (f) E-Mail Address:
  - (g) Fax Number:
4. Particulars of the Authorised Signatory of the Bidder:
  - (a) Name:
  - (b) Designation:
  - (c) Address:
  - (d) Phone Number:
  - (e) Fax Number:
5. In case of a Consortium:
  - (a) The information above (1-4) should be provided for all the Members of the Consortium.
  - (b) A copy of the Jt. Bidding Agreement, as envisaged in Clause 2.3.4 (h) should be attached to the Bid.
  - (c) Information regarding the role of each Member should be provided as per table below:

<b>Sl. No.</b>	<b>Name of Member</b>	<b>Role {Refer Clause 2.3.4}</b>	<b>Percentage of equity in the Consortium {Refer Clause 2.3.4}</b>
1.			

2.			
3.			

(d) The following information shall also be provided for each Member of the Consortium:

**Name of Bidder/ member of Consortium:**

No.	Criteria	Yes	No
1.	Has the Bidder/ constituent of the Consortium been barred by the [Central/ State] Government, or any entity controlled by it, from participating in any project (BOT or otherwise)?		
2.	If the answer to 1 is yes, does the bar subsist as on the date of Bid?		
3.	Has the Bidder/ constituent of the Consortium paid liquidated damages of more than 5% (five per cent) of the contract value in a contract due to delay or has been penalised due to any other reason in relation to execution of a contract, in the last three years?		

6. A statement by the Bidder and each of the Members of its Consortium (where applicable) or any of their Associates disclosing material non-performance or contractual non-compliance in past projects, contractual disputes and litigation/ arbitration in the recent past is given below (Attach extra sheets, if necessary):

## APPENDIX B2

### A. Technical Capacity of the Bidder

*(Refer to Clauses 2.3.1(A))*

- 1) Name of Bidder/ Bidder Firm/ Consortium Members: \_\_\_\_\_
- 2) Technical Capacity- For Category 1 Only. In case of Category 2 (start-up) below table is not required to be filled only certificate of recognition from DPIIT shall be submitted.

Parameters	Particulars of the Project
Title of the Project	
Description of Project	
Name and Address of processing unit	
Annual Average Capacity of processing unit (In Tonnes)	a) 2018-19 _____ b) 2019-20 _____ c) 2020-21 _____  Average annual capacity in last 3 years _____  (Please provide supporting documentation as mentioned below)
Start Date (MM/YYYY)	
Completion Date (MM/YYYY)	
Duration of Operations (In Years)	
Date of Completion/commissioning	
Details of proof submitted	
Whether credit is being taken for the Eligible Experience of member of consortium or single entity (Please Specify)	

Enclosures –

1. To certify the manufacturing unit capacity (as per clause 2.3.1 (A)), the bidders have to submit a certificate from Statutory Auditor indicating the capacity (raw material) of the plant or certificate from Industries Department or commercial production certificate issued by competent authority certifying the capacity (raw material) of the manufacturing Unit
2. In case of Development, Operation and Maintenance experience Notarized certificate from the client for successful completion of the project (The certificate from the client should clearly set out the name of the project, activities undertaken under the scope of services,

and fees per year / value of services per year. Projects without proof of experience shall not be considered for evaluation.)

3. In case the Fee per year / value of services per year from the Project is not set out in the certificate from the Client, the bidders can submit a certificate from Statutory Auditor indicating the same.

Yours faithfully,

Date:

(Signature of the Authorized signatory)

(Name and designation of the of the Authorized  
signatory)

Place:

Name and seal of Bidder

## APPENDIX B3

### Financial Capacity of the Bidder

*(Refer to Clauses 2.3.1 (B), 2.3.1 (B) (ii) and 3.2 of the RFP)*

**(Annual Turnover in the last three years from the processing unit for Category 1 applicants Only)**

Financial Year	Turnover from Processing Unit (INR Crore)			
	Member 1	Member 2	Member 3	Total
2018-19				
2019-20				
2020-21				
Total				
Average Annual Turnover For the past three years				

Enclosures –

1. Audited Financial Statement for FY 2019-20, 2020-21 and 2021-22
2. Certificate from the Statutory Auditor/Chartered Accountant (Turnover not certified by Statutory Auditor/Chartered Accountant shall not be considered for evaluation)

Yours faithfully,

Date: (Signature of the Authorized signatory)

Place: (Name and designation of the of the Authorized signatory)  
Name and seal of Bidder

**CA certificate certifying Annual Turnover and Net worth for Category 1 and CA certificate certifying Net worth for Category 2 and High Net worth route applicants.**

**Name of Firm / Member of Consortium:** .....

Bidder Name	Net worth	Annual Turnover		
		Year 1	Year 2	Year 3
Bidder 1 (Consortium member 1)				
Bidder 2 (Consortium member 2)				
Bidder 3 (Consortium member 3)				

Dated this \_\_\_\_ day of \_\_\_\_\_ 2022

(Name & Signature of Authorised Signatory) \_\_\_\_\_

In the capacity of \_\_\_\_\_ (position) duly authorized to sign this Bid for and behalf of \_\_\_\_\_ (name of sole Bidder / lead member of the consortium).

\_\_\_\_\_ (Address)

Name of Statutory Auditor's firm: \_\_\_\_\_

\_\_\_\_\_  
Seal of the Statutory Auditor's firm: (Signature, name and designation of the Authorised Signatory)

**Instructions:**

1. The Bidder/ its Consortium members shall attach copies of Audited Annual Reports for 3 (three) preceding years from the Bid Due Date. The Audited Annual Reports shall:
  - a. be audited by Statutory Auditor;
  - b. be complete, including all notes to the financial statements; and
  - c. correspond to accounting periods already completed and audited (no statements for partial period shall be requested or accepted).

## **APPENDIX B4**

### **Cost of RFP**

<b>1.</b>	Cost of RFP	<b>Rs. 5000</b>
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## APPENDIX– B5

### Checklist of documents to be uploaded online on e-Tender Portal

S.No	Checklist of Documents
1.	Scanned copy of PAN Card (Mandatory)
2.	Scanned copy of Aadhaar Card of Managing Director of the Company and in case of Partnership firm Aadhaar Card of at least two of Partners required, in case of Hindu Undivided Family (HUF) Aadhaar Card of Karta and one adult family member is to be enclosed (Mandatory)
3.	Scanned copy of certificate of Goods and Services Tax Identification Number (GSTIN) (Mandatory)
4.	Scanned copy of Letter comprising the Bid – Appendix A1 (Mandatory)
5.	Scanned copy of Certificate of Company Incorporation and List of Latest Directors of Company (if applicable)
6.	Scanned copy of Power of Attorney – Appendix A2
7.	Scanned copy of Power of Attorney for Lead Member of Consortium – Appendix A3
8.	Scanned copy of Joint Bidding Agreement – Appendix A4
9.	Scanned copy of Bank guarantee for Bid Security/ Demand Draft – Appendix A5
10.	Scanned copy of Statement of Legal Capacity – Appendix A7
11.	Scanned copy of Certificate from Statutory Auditor/ Company Secretary – Appendix 1A
12.	Scanned copy of documents as per enclosures in Technical Capacity of the Bidder – Appendix B2 (Mandatory)
13.	Scanned copy of documents as per enclosures in Financial Capacity of the Bidder – Appendix B3 (Mandatory)
14.	Audited Financial Statement of the tenderer for the year 2018-19 (For Category 1 Applicant)
15.	Audited Financial Statement of the tenderer for the year 2019-20 (For Category 1 Applicant)
16.	Audited Financial Statement of the tenderer for the year 2020-21 (For Category 1 Applicant)
17.	Any other relevant Document

\* In case soft copy file size of scanned audited financial statements are more only the summary report of the audit report may be uploaded on the e-tender portal and the summary report along with all the annexures of the audited financial statements have to be submitted in hard copy.



## **PART C – FORMAT FOR FINANCIAL BID SUBMISSION**

## APPENDIX– C1

### Financial Bid Form

*(Refer Clauses 2.17.2 and 4.3.4)*

**Financial Bid is to be submitted online ONLY, in the prescribed format shared on the e-tendering portal**

To

Managing Director

Chhattisgarh Minor Forest Produce (T&D) Co-operative Federation Ltd.

Vandhan Bhawan, Sector 24, Nava Raipur, Atal Nagar

District- Raipur (C.G.)

Sub: Financial Bid - Development, Operation and Maintenance of Mahua Processing Unit in the State of Chhattisgarh

Annual License Fee as applicable for 6 MTPD Mahua Processing Unit for the first year of operation.	_____ (INR Lakhs) (Exclusive of Taxes) Amount in figures and words
--	---

**\*GST or any other tax applicable shall be borne by the Licensee over and above the Annual License Fee quoted above.**

I undertake to abide all the provisions of Draft License Agreement.

Yours faithfully,

Date:

(Signature, name and designation of the Authorised Signatory)

Place:

Name and seal of the Bidder/ Lead Member

## **APPENDIX D – PRELIMINARY PROJECT REPORT**

**PROJECT BRIEF OF MAHUA (MADHUCA)  
FLOWER BASED VALUE ADDED PRODUCTS  
PROCESSING UNIT**

**BY**

Chhattisgarh State Minor Forest Produce  
(Trade & Development) Cooperative  
Federation Limited Raipur



S. No.	Particular	Details
1	Project Name	<b>MAHUA (MADHUCA) FLOWER-BASED VALUE-ADDED PRODUCTS PROCESSING UNIT</b>
2	Location & GPS Coordinates (how to reach from Raipur, Durg)	Vill. - Jamgaon M, Tehsil – Patan Dist. – Durg - Raipur to Jamgaon – 25 kms via Amleshwar & Kapsi - Durg to Jamgaon – 33 Kms via Charoda, Sirsakalan, & Bhatgaon
3	Land Area (open area, built-up area)	Plot: 14576.08 Sq Meter Factory Shed: 2956.45 Sq Meter
4	The capacity of the Unit in terms of Finished Product Production (in MTPD)	4.59 MT Mahua Energy Bar & 0.9 MT Mahua Liquid Jaggery
5	Raw Material (Quantity of Mahua and Other products in MT per Annum)	A. Mahua Flower: 3.285 MT B. Chironji: 1.054 MT C. Honey 0.935 MT D. Sesame: 0.136MT E. Pea Nut: 0.85 MT F. Ragi Flakes: 0.170 MT G. Kodo Flakes: 0.170 MT
6	Number of Working days	250 Days in a Year
7	Total Project Cost	12.5 Cr
8	Indicative Costs (It's bifurcation into total civil and total machinery costs)	A. Total Civil Cost: 2.5 Cr B. Total Machinery Cost: 10 Cr
9	Projected electricity water requirement	Water – 50,000 KL per annum
10	List of Tentative finished Products	Mahua Energy Bar (Mahua Sesame Energy Bar, Mahua Ragi Energy Bar, Mahua Kodo Energy Bar) and Mahua Liquid Jaggery

**PROJECT BRIEF– MAHUA (MADHUCA)**  
**FLOWER BASED VALUE ADDED PRODUCTS**  
**PROCESSING UNIT**

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## **CHAPTER 1: INTRODUCTION**

The project was conceptualized by The Chhattisgarh State Minor Forest Produce Co-operative Federation, Ltd., Chhattisgarh.

Mahua flowers are a rich source of natural sugars like glucose, fructose and sucrose and have a lot of medicinal properties. The issue of postharvest degradation of flowers limits the utilization of flowers which at present is used for liquor production by the tribals of the area. The post-harvest spoilage of the flowers is due to the inappropriate collection, handling practices and storage conditions and it becomes our utmost responsibility to see that the flowers harvested are edible in nature. After clarifications regarding the feasible products from Mahua flower, an agreement was made to undertake the project for the preparation of value-added products, and setting up of a manufacturing unit.

There has always been a lack of an organized market for Mahua which is a forest produce. Though the flowers are collected by the tribals and the villagers, they are purchased by the local middleman who supplies them to the markets. About 75% of the produce is sold to the merchant due to constraints in transportation, cost and practices in the market. This non-timber forest produce is considered nature's gift to the poor families as it is their source of income. The flower is an important raw material for the preparation of country liquor.

During 2015 and 2021, the market for Mahua was mainly for its oil and liquor and only a very few value-added products were found in the market. Growth patterns also increased a steady rise in the requirement of mahua oil and the increasing demand also indicated that in the next decade it might even reach 20 times the size of the market that is today. The cost of the flower has been found to be increasing depending on the quality of the raw material The wild flower

though normally converted into liquor and consumed by the tribals, can also be converted into value added food products.

Ninety percent of the flowers collected are used for brewing into liquor and the tribals who collect the produce are also the ultimate consumers. The change in form of the flower was not desired due to the many constraints. The production of mahua flower varies from with prices varying from 18 to 24 in the retail market. Currently the Chattisgarh government does not allow large scale mechanized brewing. This may be considered as a constraint as well as a boon in converting most of the flower into value added food products. The constraint in tapping the external market both domestic and international market may be due to the stringent standards imposed in the manufacturing processes. Storage facilities also play a very important role. Non-timber forest produce (NTFP) constitutes an important source of livelihood for millions of people of which India constitutes for about 50 million dependents. The interesting part in the marketing of mahua flowers is the collectors who sell flowers again become consumers and purchase mahua flowers from middlemen and wholesalers at a higher price.

Though there has been a constant endeavor by government and non-governmental agencies to develop value added products, these have not reached the levels of quality and standardization necessary for its feasibility and commercialization. Present work was taken up in this context at the behest of Chhattisgarh State Minor Forest Produce Co-operative Federation, Ltd., Chhattisgarh.



## CHAPTER 2: ABOUT MAHUA

### **INTRODUCTION**

*Madhuca longifolia* or Mahua holds an important space as a panacea in Ayurvedic medication. It is also called Butternut tree, which belongs to Sapotaceae family [Ramadan and Sharanbasappa, 2006]. It is commonly known as mahua, mahuva, ippe, poonam, moha, mohoka, illupai. In Sanskrit, Madhu means honey- symbolizing the exceptionally sugar-rich) flowers of Mahua (Chand and Mahapatra, 1983). Mahua flower, fruits stem, leaves, roots are all used for the daily requirements such as food, medicine, and shelter [Sikarwar, 2002]. Mahua provides livelihood to many tribal households who collect it both for consumption and for sale. However, most gatherers rarely get true value for what they barter it for - their daily grocery needs.

*Madhuca Indica*, a plant of Indian origin is having very good nutritional value and hence tremendous potential utilization. However, because of lack of awareness among the people it is not completely utilized. It is one of the multipurpose forest tree species that gives a response to the three significant F's i.e., Food, Fodder and Fuel and hence is an important source of seasonal income.

Mahua tree is a shady and deciduous tree about 17m tall with an enormous top having evergreen or semi-evergreen foliage. Tree is medium to enormous in size having good crown growth. The tree matures and begins bearing flowers and fruits in about 8 to 15 years after planting and bears fruits up to 60 years. Mahuva is an adaptable tree bringing a wide variety of products to the local individuals. Mahua, is an economic imperative for the tribal population because of the extensive usage of its different parts, to be specific, flowers, fruits, seeds and timber.



Mahua Tree

Mahua Fruit

Mahua trees have enormous spreading tap root system and many of the roots are superficial. Wood is extremely hard with enormous sapwood. Hardwood is reddish brown in colour. Mahua tree is also greatly valued for its seeds which have abundant amount of oil. Mahua flowers are rich in sugars which are generally used for the preparation of sweets and alcoholic beverages. Spent flowers (after fermentation) are used as feed for cattle. In India about 0.12 million-ton seeds are produced and these seeds collected from different parts of the country are used for the purpose oil extraction. Production of mahua flowers is estimated as more than one million tons in the country. Government of India encourages people to produce and collect Mahua flowers and its seed, as it is a good source of income for the tribals. On the other hand, Government would also provide the basic support price for it, so that they can sell it to the government agency or local buyer.



Fresh mahua flowers



Dry mahua flowers

*Madhuca longifolia* is an Indian origin tree with enormous medicinal and beneficial utilization. Because of lack of awareness among the people these resources are not completely exploited. However, due to the improper scientific investigation and postharvest processing technologies, mahua flowers are collected and subjected to open yard sun drying, where 80% moisture is removed for the safe storage with a longer shelf life. If not dried to the required moisture the microbial load increases and degrades its food value, and hence not suitable for the human consumption. This way a precious, organic and easily available source of natural sugar is being under-utilized (Patel and Naik, 2008).

Mahua flowers and seeds contain a range of medicinal and nutritional properties in it which are collected and dried for a longer shelf life. A single mature tree can provide an income of about Rs.1500 from its flowers and seeds, apart from income it also provides various tangible and intangible benefits to the tribal people.

*Madhuca longifolia* the flowers are having plenty of therapeutic properties, have been traditionally used as cooling agent, tonic, aphrodisiac, astringent, demulcent, helminthes, acute, chronic tonsillitis, pharyngitis and for the treatment of bronchitis. According to Jayasree et al., *Madhuca longifolia* leaves are expectorant and also used for chronic bronchitis and Cushing's disease. Mahua seeds are good source of edible fats and hence they are having economic importance as well.

### **Nutritional Composition of Mahua Flower:**

Mahua flowers are rich source of sugars, vitamin A, vitamin C (Hoffman and Leaders, 1996). Riboflavin and niacin content of flower is more than that of apple, banana, mango and raisin. Flowers also contain minerals like Ca, P, Fe and K in

it. (Patel and Naik, 2010). Few amounts of proteins and fats are also present in mahua flowers. Brief composition of mahua flower is given in the following Table.

Table 1: Nutritional Composition of Mahua flower

Sl. No	Constituents	Fresh Flowers	Dry Flowers
1	Moisture	73.6-79.82 (% , d.b.)	11.61-19.8 (% , w.b)
2	pH	4.6	.....
3	Starch (g/100 g)	0.94	.....
4	Ash(%)	1.5	1.4-4.36
5	Total sugars (g/100 g)	47.35-54.06	41.62
6	Total Inverts (%)	54.24	.....
7	Cane sugars (%)	3.43	.....
8	Reducing sugars (g/100 g)	36.3-50.62	28.12
9	Proteins (%)	6.05-6.37	5.62
10	Fats (%)	1.6	0.09-0.06
11	Fibers (%)	10.8	.....
12	Calcium (mg/100 g)	45	0.14-8
13	Phosphorus(mg/100 g)	22	0.14-2
14	Carotene (µg/100 g)	307	.....
15	Vitamin-C(mg/100 g)	40	7

Source: Pinakin et al., (2018) Gopalan et al., (2007); Swain et al., (2007); Hiwale, (2015)

### **Physico-chemical analysis of Mahua flower:**

The physical and chemical properties of the substance is very important in deciding the unit operations, these helps a lot for the possible utilization of the raw material. Phytochemical constituents are responsible for definite physiological action of the human body. The phytochemical screening of plants gives the general idea about the class of compounds present in those plants. (Sinha et al., 2017).

#### **Phytochemical screening of mahua flowers:**

Phytochemical constituents present in the flowers are responsible for the particular physiological action in the human body. Basically, phytochemicals are divided into two groups, according to their functions in plant metabolism i.e., primary and secondary constituents. Primary constituents consist of common sugars, amino acid, proteins, and chlorophyll, whereas secondary constituents consist of alkaloids, terpenoids, Saponins, phenolic compounds, flavonoids, tannins and so on.

Verma et al. has reported the presence of phytochemical compounds in *Madhuca longifolia* flowers. Ethanolic and methanolic extracts of fresh flowers were investigated for seven principle bioactive compounds. Following table shows the behavior of these phytoconstituents in the ethanolic and methanolic extract.

Table 2. Preliminary Phyto-constituents in Mahua flowers:

Phyto-constituents	Tests	Ethanollic extract	Methanollic extract
Alkaloids	Tannic acid test	+ve	+ve
Tannins	Lactic acid test	+ve	+ve
Flavonoids	Alkaline reagent test	-ve	-ve
Proteins	Biuret test	+ve	-ve
Carbohydrates	Molish's test	+ve	+ve
Amino acids	Ninhydrin reagent test	-ve	-ve
Volatile oils	Sudan red III test	-ve	-ve
( +ve): present; (-ve): absent			

## PROCESSING OF FLOWERS

Traditional operations followed during processing of mahua flowers are: collection of flowers, drying of flowers, removal of stamen, storage and marketing of dried flowers.

### Collection of flowers

Primary collectors would pick up the flowers by hands in the early morning that would fall on the ground. A long bamboo stick is used to pluck the flowers from the tree as it has an anchoring arrangement or also by shaking the branches also flowers are collected (Bakhara et al., 2016). The floor beneath the tree has grass and fallen flowers that should be cleaned up before collection, usually people put fire to clean the floor beneath the tree to collect the blossoms. (Chandel et al., 2018). It requires more time to collect the flowers because these flowers are collected manually using hand one by one from the ground (Ranjana et al., 2018).



## Pre-processing

Pre-processing treatment of fresh mahua flowers involves washing, manual removal of stamens and blanching with additives. Stamen would be taken out from the flowers either manually or mechanically. The dehydration of flowers can be done in shade drying on trays and under shade netting on black sheets (Kumari et al., 2018).



## Drying

According to Chandel et al., 2018 collected mahua flowers are spread on clean floor and drying uniformly for the period of 3-4 days under sunlight (40 to 43°C). Once the flower is completely dried under sun, stamens are removed from the flower by beating with the help of wooden plank. The presence of stamen in Mahua flower gives bitter taste to the product which is not liked by the consumers. (Bakhara et al., 2016).





## Storage

Usually, gunny bags are used for the storage of the dried Mahua flowers. They are stored in dark rooms which are usually not well ventilated. Mahua flowers show the property of hygroscopicity, i.e. tends to absorb atmospheric moisture, especially during the rainy season at that time moisture infiltrates from the earthen floors and roofs (Behera et al., 2012). The higher moisture content allows growth of various spoilage bacteria.





## **Post-harvest spoilage of flowers and potential methods for prevention: -**

Around 30 per cent of the total collected flowers get spoilt, and spoilage is attributed to the lack of appropriate storage facilities and inadequate processing of flowers. Fresh mahua flowers have higher moisture and nutritious content, therefore they contain higher microbial load (Behera and Swain, 2013). Bacterial genus involved in the spoilage of Mahua flowers are *Bacillus*, *Micrococcus*, *Siderococcus*, *Pseudomonas* and *Nocardia*. However, fungi are found to be spoiling more than bacteria which include *Aspergillus niger*, *Aspergillus flavus*, *Penicillium* and *Rhizopus* are the key spoiling fungi present in Mahua flowers (Behera and Swain, 2013).

Various studies have been suggested that the biochemical parameters like total sugar and ascorbic content decreases much significantly due to pathogen (*Aspergillus niger* and *Rhizopus oryzae*) infectivity. (Behera et al., 2012). Apart from bacteria and fungi, various insects including their larvae belonging to family Noctuidae, Anthocoridae, Cucujidae, Bostrychidae, Tephritidae and Formicidae during the storage cause a major damage to the mahua flowers (Behera and Swain, 2013). Various storage and processing techniques can be used to prevent the spoilage of mahua flowers which include: -

### **1. Reducing moisture:**

Moisture is an important parameter which is responsible for the spoilage of flowers. Drying of Mahua flowers can be enhanced by modern drying techniques such as oven drying, hot air tray drying, solar cabinet drying etc. So, the reduced moisture content will not favor microbial growth and will enhance longevity of the flowers during storage. Use of humectants would also be an effective remedy to keep moisture away to overcome hygroscopicity of flowers. Either the floors

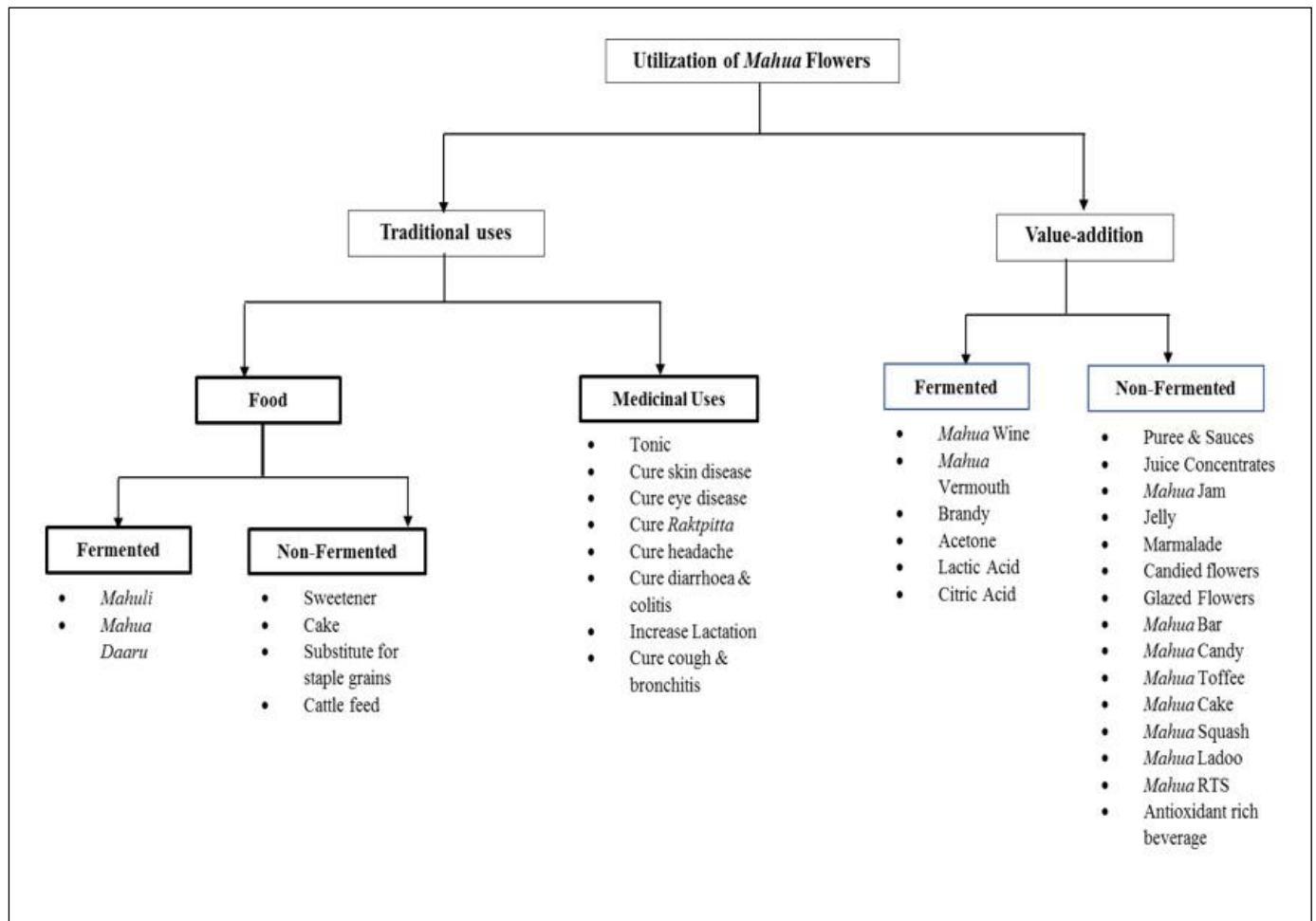
should be cemented or tarpaulin can be used to prevent percolation of moisture from the earthen floors.

## **2. Controlled storage facilities:**

The frequent UV irradiation, treatment with antibiotics and storage in controlled atmosphere can be effective method to check deterioration. The humidity and sample moisture need to be monitored regularly. Government supported or cooperative warehouses should be built in tribal areas with such facility so that tribal need not to sell their produce at cheap price in season.



Dried Mahua Flowers



Utilisation of Mahua flowers

### CHAPTER 3: MARKET POTENTIAL

Mahua flowers are rich source of natural sugars (glucose, fructose, sucrose, etc.) and hence are deliberately used for liquor production by tribal besides various its use in food products like Mahua laddoo, barfi, kheer, sweet puri etc. Mahua as medicine has been curing people since ages in rakhtpitta, diarrhoea and skin diseases and as aphrodisiac, galactagogue, carminative, antihelmenthic, antibacterial and antioxidant. The products envisaged in this project will be valued high due to the use of least additives and containing natural sugar.

Mahua based energy bars are a new class of products and the market needs to be assessed. However, the energy bar market is expanding at a two-digit CAGR. Chhattisgarh Government State Minor Forest Produce Cooperative Federation Limited, Raipur will also assess the market potential. It is also envisaged by the Federation to look for the possible distribution to school children as supplementary food.

Jaggery, or gur, is made from unrefined sugar, and is obtained by boiling raw, concentrated sugar cane juice. Liquid jaggery is a great alternative to refined sugar and contains several minerals, vitamins and antioxidants, boosting the immune and digestive system. Mahua flowers contain both reducing and non-reducing sugars, the total sugar content reported is around 40 to 70 % on dry weight basis of which reducing sugar constitutes 48 – 57 % and non-reducing sugar 13 – 18 %. Hence Mahua flowers has a huge market potential as a novel source of sweetener in the form of liquid jaggery for the preparation of products. CSIR-CFTRI has developed a feasible process for manufacture of shelf-stable mahua liquid jaggery, which can be used as sweetener and as a sweetening agent in any product preparation / formulation.

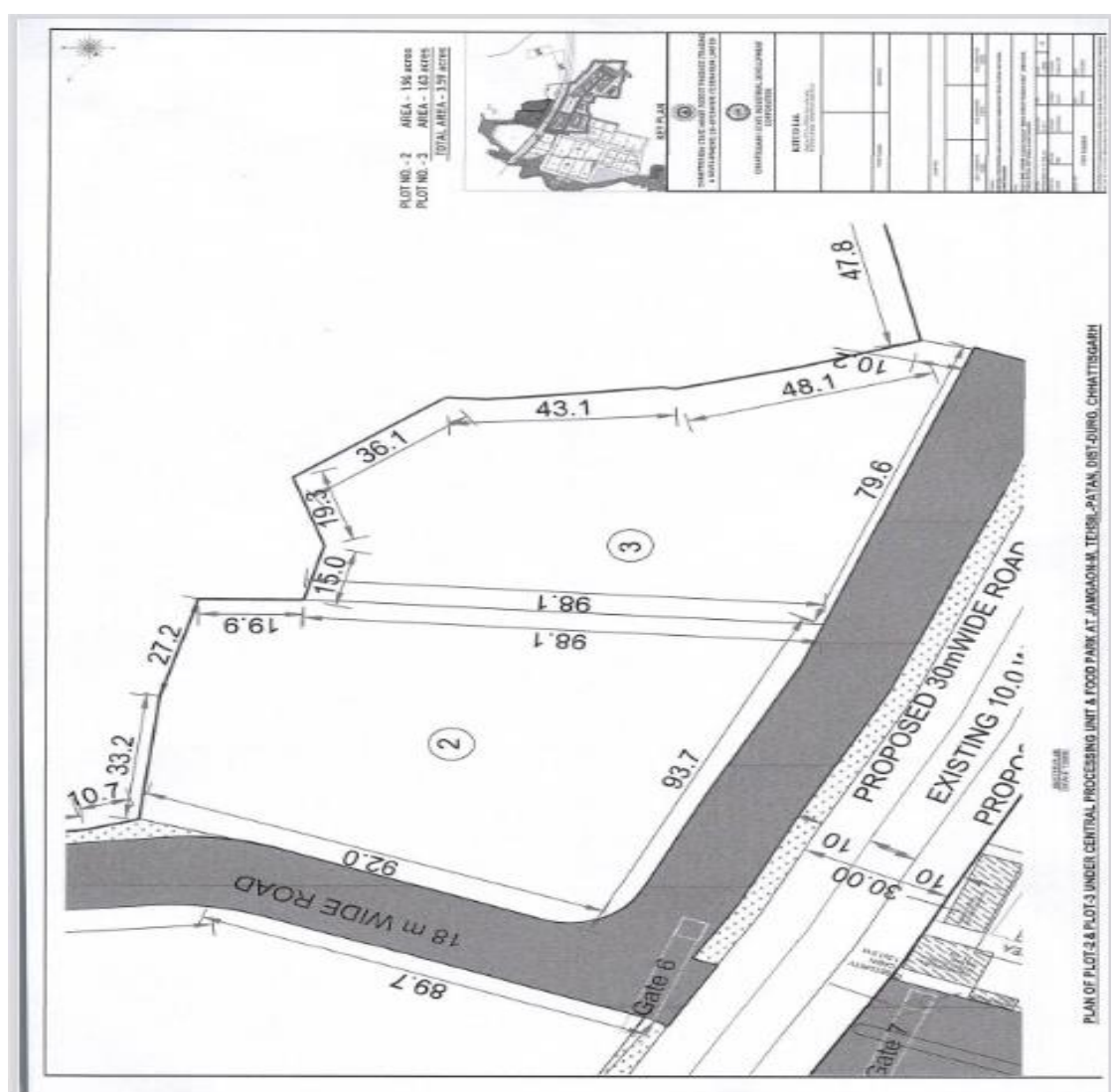
The other products developed by CSIR – CFTRI include Mahua candy, ready to serve beverages, Mahua bael- jam and Mahua ladoo, which would also have a good market potential considering the novelty of the products and also in terms of its nutritional value and its microbial safety.

The development of the above products will also pave the way in improving the livelihood of the tribal people with the increase chances of the employment.

## CHAPTER 4: LOCATION AND INFRASTRUCTURE

The envisaged plant will be set up by Chhattisgarh Government State Minor Forest Produce Cooperative Federation Limited, Chhattisgarh at the site mentioned.

- Site is located at Plot No. 2 & Plot No. 3 under Central Processing Unit & Food Park at Jamgaon-M, Tehsil-Patan, Dist-Durg, Chhattisgarh.
- External Infrastructure such as Boundry Wall, Connecting Roads and Necessary utilities connection etc. will be constructed by CGMFP Federation.
- Internal Boundry walls & Processing unit roads shall be constructed by the processing unit party along with other construction.

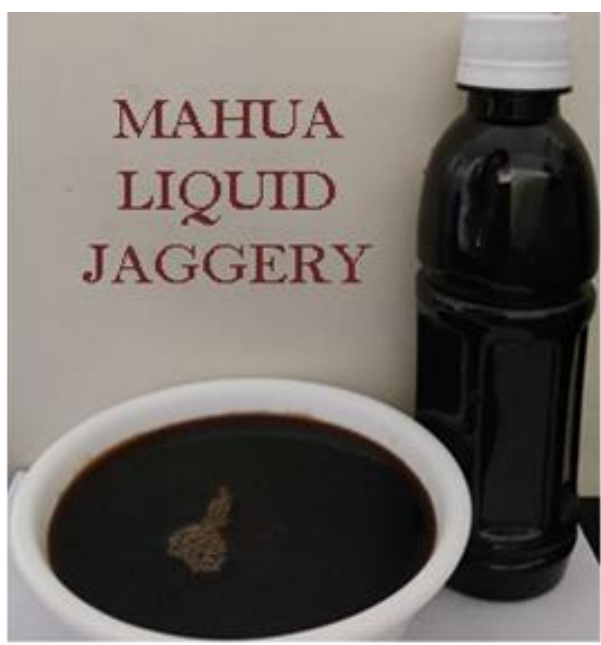


## CHAPTER 5: TECHNOLOGY

These Products and their processing technology are developed with the collaboration of CFTRI Mysuru.

Millets-based Mahua Energy bars (Ragi- Mahua, Sesame- Mahua, Kodo Mahua Energy Bars) and Mahua liquid Jaggery are very innovative and specific forest-based value-added products has abundance nutrition and medicinal properties which are not available in the market. There is a unique thermal technology is developed to produce mahua based energy bars and mahua liquid jaggery products.

Product Formulation and Technology is the whole proprietary of the CGMFP Fed. This will be shared at the time of mutual agreement with all terms and conditions.



**Mahua Liquid Jaggery**



**Energy Bar**

## **CHAPTER 6: FINAL PRODUCT**

### **A. Mahua Energy Bars**

Fruit, Nuts and Energy bars (candy bars) are supplemental bars containing cereals, nuts, fruits and other high energy foods targeted at people who require quick energy but do not have time for a meal. The products are loaded with carbs and sugar to give you a quick boost during long distance training sessions. In order to provide energy quickly, most of the carbohydrates and various types of sugars like fructose, glucose, maltodextrin combined with complex carbohydrate sources like oats, cereals and barley. Fats in energy bars are kept to minimum and their main sources are often cocoa butter and dark chocolate. Energy bars are used as energy source during athletic events like marathon, triathlon and other events and outdoor activities, where energy expenditure is high, for longer period of time. Demand for such bars is more evident among the young as compared to the upper age group. However, much effort has still not gone into the development of bars which are cost effective, with less chemical additives and more emphasis to the nutritional requirement.

Mahua flowers contain more than 54% sugar and are very sweet. Because of the high amount of sugar, the flowers are utilized as a sweetener in preparation of numerous traditional dishes like halwa, kheer, meethi puri and barfi in mahua production belt of India. Therefore, a new energy- bar has been developed using mahua flower as a source of sugar and other bioactive compounds.

### **Mahua bars with Sesame / Kodo and Ragi**

These are the supplemental bars containing nuts and other high energy foods targeted at people who require quick energy but do not have time for a meal. Mahua is a rich source of natural sugars and the product optimized contains all natural ingredients like chironjee, peanut, honey and mahua flowers. The



product has a good shelf life and the added advantage is that, it has no added sugar making it safer to the consumers of all age group.

### **B. Mahua Liquid Jageery**

Mahua flowers are rich source of natural sugars (glucose, fructose, sucrose, etc.) and hence are deliberately used for liquor production by tribal besides various food products, namely, Mahua ladoo, barfi, kheer, sweet puri and as grain staple. Mahua in medicine has been curing people since ages such as in rakhtpitta, diarrhoea and skin diseases and as aphrodisiac, galactagogue, carminative, anti helmenthic, antibacterial and antioxidant.

Jaggery, or gur, is made from unrefined sugar, and is obtained by boiling raw, concentrated sugar cane juice. Liquid jaggery is a great alternative to refined sugar and contains several minerals, vitamins and antioxidants, boosting the immune and digestive system. Mahua flowers contain both reducing and non-reducing sugars, the total sugar content reported is around 40 to 70 % on dry weight basis of which reducing sugar constitutes 48 – 57 % and non-reducing sugar 13 – 18 %. Hence Mahua flowers have a huge market potential as a novel source of sweetener in the form of liquid jaggery for the preparation of products.

Mahua candy, cake, ready to serve beverages, toffee, squash, ladoo, bars, sauce, etc. could also be developed using the concentrate/liquid jaggery from mahua flowers as a substitute for brown sugar. Excellent bakery products like candy, biscuits and cookies could also be produced with no added sugar.

## CHAPTER 7: PLANT AND MACHINERY

### **A. PRE-PROCESSING LINE- Major equipment only**

<b>Sl. No.</b>	<b>Description</b>	<b>No. of units</b>
1.	<b>Pre dry cleaner with Lump breaker</b> Purpose: To clean the dust and separate impurities Cap: 01 TPH MOC: Material contact area made of SS 304	01
2.	<b>Bubble washer / Rotary Drum Washer 1</b> Purpose: To wash Mahua flower Cap.: 1TPH MOC: Material contact area made of SS 304	02
3.	<b>Bubble washer / Rotary Drum Washer 2</b> Purpose: To wash the Mahua flower Cap.: 500 kg/hr MOC: Material contact area made of SS 304	02
4.	<b>Dehydrator with air blower</b> Purpose: To remove the adhering water Cap.: 500 kg/hr MOC: Material contact area made of SS 304	01
5.	<b>Continuous drying system / Multi deck dryer.</b> Purpose: To dry mahua flower Cap.: 250 kg/h MOC: SS 304	02

**B. Mahua-Energy Bar Line- Major equipment only**

<b>Sl. No.</b>	<b>Description</b>	<b>No. of units</b>
1.	<b>Rotary type continuous roaster with cooling drum</b> Purpose: Continuous drum type roaster for oil seeds with electrical heating. Cap.: 300 kg/h MOC: SS 304	02
2.	<b>Ribbon Blender</b> Purpose: To mix the ingredients Cap: 100 kg /batch MOC: Contact parts made of SS304	02
3.	<b>Pulveriser/multi mill</b> Purpose: To grind the pre-mix Cap: 1 TPH MOC: Contact parts made of SS304	02
4.	<b>Steam Jacketed kettle with low speed scraping stirrer</b> Purpose: pre heat the honey Cap.: 200 liter MOC: SS 304	02
5.	<b>Sigma mixer with tilting mechanism</b> Purpose: To mix the ingredients Cap: 250 kg/batch MOC: SS 304	03
6.	<b>Bar forming and cutting unit (as used in energy or protein bar)</b> Purpose: Parallel bar forming and cutting machine with auto feeding system with viscous lump Cap: 500 kg/h MOC: SS 304	02
7.	<b>Continuous baking oven</b> Purpose: To bake the bar Cap: 500/h MOC: Contact parts made of SS304	02
8.	<b>Horizontal flow wrap packing machine (double headed)</b> Purpose: to wrap the bar Cap: 200 pieces/min MOC: Contact parts made of SS304	02

### C. Mahua Liquid Jaggery Line- Major equipment only

Sl. No.	Description	No. of units
1.	<b>Fruit mill</b> Purpose: To crush mauha flower Cap.: 500 kg/h MOC: SS 304	02
2.	<b>Steam Jacketed kettle with low speed scraping stirrer</b> Purpose: Aqueous extraction Cap.: 500 liter MOC: SS 304	06
3.	<b>Screw press/ Juice extractor</b> Purpose: To extract the juice Cap: 1 TPH MOC: Made of SS304	02
4.	<b>Continuous decanter</b> Purpose: To separate the suspended solids Cap: 1 TPH MOC: SS 304	03
5.	<b>Double effect Forced circulation evaporator system.</b> Purpose: To Concentrate the mahua juice Cap: 500 kg/h MOC: SS 304	02
6.	<b>Bottling line with all accessories</b> Purpose: to fill in PET bottles Cap: 30 BPM MOC: Contact parts made of SS304	01
7.	<b>Tray/cabinet/Crossflow drier (Electrical/Steam Heating)</b> (with an extra set of perforated trays) Purpose: To dry the pomace Cap.: 192 trays MOC: Inner- wall & trays made of SS 304, outer-wall MS	01

<b>LIST OF MACHINERY AND THEIR UNIT</b>		
	<b>Equipment</b>	
	<b>A. Principal Equipment</b>	<b>No. of units</b>
	Pre-processing Line	
1	Pre dry cleaner with Lump breaker	1
2	Bubble Washer/ Rotary Drum Washer -1	2
3	Bubble Washer/ Rotary Drum Washer -2	2
4	Dehydrator with blower	1
5	Continuous Multideck Dryer	2
	<b>Energy Bar Line</b>	
6	Continuous Roaster with Cooler	2
7	Ribbon Blender	2
8	Pulveriser/ Multi-mill	2
9	Steam Jacketed Kettle	2
10	Sigma Mixer with tilting Mechanism	3
11	Bar forming and cutting machine	2
12	Continuous Baking Oven	2
13	Horizontal Flow Wrapping Machine	2
	<b>Mahua Liquid Jaggery Line</b>	
14	Fruit Mill	2
15	Steam Jacketed vessel with stirrer	6
16	Screw Press/ Juice Extractor	2
17	Continuous Decanter	3
18	Double Effect Evaporator	2
19	Bottling Line with accessories	1
20	Drier	1

	<b>B. Auxiliary equipment</b>	
1	Cold room, Walk-in Cooler	1
2	Boiler with accessories	2
3	Diesel Generator -300 KVA	2
4	RO Plant	1
5	Water Treatment plant	1
6	Workshop Equipment	1
7	Platform Weighting Scal e	1
8	Hand trolley	1
9	Strapping Machine	5
10	Material Handling Systems	1
11	Miscellaneous/ Auxiliaries	1
	<b>C. Laboratory equipment</b>	
1	Thermostatic oven	1
2	Electronic top pan balance	1

3	Digital moisture meter	3
4	Standard test sieves	2
5	Sampling probe	2
6	Work benches and other fittings - set	3

#### **D. COMMON UTILITIES AND ACCESSORIES**

<b>Sl. No</b>	<b>Description</b>	<b>No. of units</b>
1.	Cold Room (01) and Walk in cooler (3) To maintain low RH (~500m <sup>3</sup> )	04
2.	Boiler System (IBR) with all necessary accessories Capacity:02 TPH (diesel fired)	02
3.	Generator Cap: 500 kVA	02
4.	RO plant Cap: 10 kl /hr	01
5.	Water treatment Plant (WTP)	01
6.	Effluent Treatment Plant (ETP) Cap: Approx. 100 k L	01
7.	Material Handling elevator, conveyor, Forklift, Hydraulic trolley, Electric transport vehicle, Hoist, Cranes, Weighing scales and Miscellaneous	01

### **DETAILED DESCRIPTION OF THE PLANT AND MACHINERY**

#### **A. DETAILED DESCRIPTION OF PRE-PROCESSING LINE**

<b>S.N</b>	<b>Description</b>
<b>1</b>	<p><b>Pre dry cleaner with Lump breaker</b></p> <p>Purpose: To break any lump of the flowers, to clean the dust and separate impurities like stone, mud balls, chaffs and dust etc.</p> <p>Capacity: 750 kg/h</p> <p>MOC: Material contact area made of SS 304</p> <p><b>Features and scope</b></p>

	<ul style="list-style-type: none"> <li>• The dried Mahua flowers collected in at different places are transported or stored in gunny bags make the lump formation.</li> <li>• The lumps are to be broken by very slow speed gentle beaters (Teflon coated) to facilitate the cleaning operation.</li> <li>• The pre-cleaner should have a suitable reciprocal motion of sieves in two decks to separate sand, mud balls and heavier materials.</li> <li>• An aspiration system with dust collector (cyclone separator) induced draught suction fan to remove the dust and other lighter impurities.</li> <li>• Cyclone separator aspiration arrangements should allow only dust free air to the atmosphere.</li> <li>• The unit should be supplied with Motor, Starter and Switches for Lumps breaker, Shaker, Suction fan and other accessories for the smooth operation of the unit.</li> </ul>
<b>2</b>	<p><b>Bubble /Rotary Drum Washer</b></p> <p>Purpose: To wash flower after pre-cleaning Capacity: 750 kg/h MOC: Material contact area made of SS 304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• Suitable for washing and cleaning the mahua flowers (like leafy vegetables washer) by bubbling the water for surface wash. This machine will be adequate to remove dirt, adhesive soil, small insects, formed fungus etc.</li> <li>• The movement of flowers in the washer tank is through water flow by bubbling and turbulence of water.</li> </ul> <p><b>Consisting of</b></p> <ul style="list-style-type: none"> <li>• Soaking tank SS304 with suitable water bubbling circulation pump, stainless steel supporting frame, SS interconnecting pipe lines, valves for drains, filter.</li> <li>• Suitable pick up conveyor to take up to second washing system.</li> <li>• Complete with motor, MCB switch, starter, conveyor drive and all other accessories for the smooth operation of the unit.</li> </ul>
<b>3</b>	<p><b>Rotary Drum Washer</b></p> <p>Purpose: To wash the flower with fresh water after first wash. Capacity: 400 kg/h MOC: Material contact area made of SS 304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>▪ The washer to be an inclined rotary drum type for continuous operation with low consumption of water.</li> <li>▪ The drum rpm will be very low to have sufficient residential time for thorough washing.</li> <li>▪ The drum must have round hole of 4mm diameter perforation.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ A gentle sprinkle of fresh water provision inside the drum should facilitate the surface wash of the flowers.</li> <li>▪ At the discharge end a chute and a collecting tray to collect the flowers to forward it to the vibration air dehydrator.</li> <li>▪ To be provided to circulate drained water to first washer.</li> <li>▪ The washer must range MS a solid square rod support with permanent foundation bolt system.</li> <li>▪ The unit should have electric motor, belt drive/gearbox with DOL starter and switches of reputed make and complete with all accessories for smooth operation.</li> </ul>
4	<p><b>Dehydrator with air blower</b></p> <p>Purpose: To remove the adhesive water with vibrator Capacity: 400 kg/h MOC: Material contact area made of SS 304</p> <p><b>Vibratory shaker / Water removing unit / Dewatering unit</b></p> <ul style="list-style-type: none"> <li>• Perforated vibrating screen action used for removing the excess surface water with shaking.</li> <li>• Excess water should be removed from the product with air blowers from the bottom</li> <li>• The unit shall be mounted on steady SS solid frame on both sides.</li> <li>• Complete unit may be mounted on springs with a counter shaft vibratory motor or vibrator unit alone may be on spring load.</li> <li>• The structure frame to be made of SS square tube.</li> <li>• The blower must have VFD for adjusting the speed suitable to remove water.</li> <li>▪ The unit should have electric motor, belt drive/gearbox with DOL starter and switches of reputed make and to be a complete unit in all respects.</li> </ul>
5	<p><b>Continuous drying system / Multi deck dryer.</b></p> <p>Purpose: To dry the washed flower Capacity: 200 kg/h MOC: Material contact area made of SS 304</p> <ul style="list-style-type: none"> <li>• The continuous dryer must have minimum of two decks.</li> <li>• The dehydrator utilizes hot air (range 60-80°C) generated through steam/electricity system.</li> <li>• A proper air distribution duct system to circulate the hot air for uniform drying.</li> <li>• The SS chain conveyor belt will have driven mechanism to dry and move material.</li> <li>• The design size (length &amp; width) should suit to accommodate the capacity of 200 kg/hr of flowers to get a final moisture content of 12-14 percent from the initial moisture content of 73 percent.</li> </ul>



	<ul style="list-style-type: none"><li>• Complete with panel board control, like main ON/OFF switch, MCB, Starters for motors, Conveyor drive, Blower and Electrical coils, temperature sensors coupled with contactors to ON/OFF the heating coils.</li><li>• Temperature and Relative Humidity sensors shall be used to adjust the inlet airflow rate for energy conservation.</li></ul>
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## B. DETAILED DESCRIPTION OF ENERGY BAR LINE

S.No.	Description
9.	<p><b>Rotary drum type continuous roaster with cooling drum</b></p> <p>Purpose: Continuous drum type roaster for oil seeds with electrical heating. Capacity: 150 kg/h MOC: SS 304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"><li>• For roasting of oil seeds like Groundnut, Chironjee and Sesame without any medium.</li><li>• Complete with heaters, temperature controller (Max 200°C), motor and drum of suitable size.</li><li>• All contact parts to be made of SS304.</li><li>• The drum must have support of strong solid square structure.</li><li>• Provision to use LPG heating also can be made to roast the seeds.</li><li>• Standard height of chimney to be provided along with the roaster.</li></ul>
10.	<p><b>Ribbon Blender</b></p> <p>Purpose: To mix the ingredients of free flow powder. Capacity: 100 kg /batch MOC: Contact parts made of SS304.</p> <p><b>Features:</b></p> <ul style="list-style-type: none"><li>• The unit to have mixing vessel, flat top cover, discharge valve, rotating shaft, agitator, control systems and drive mechanism.</li><li>• Suitable for mixing solids with solids and solids with liquids</li><li>• Flush plug valve at the bottom for discharging finished product at the Centre without dead zone</li><li>• Easy cleaning and hygienic operation.</li></ul>
11.	<p><b>Multi mill / Pulveriser</b></p> <p>Purpose: To grind the dry pre mix in to powder. Capacity: 500 kg/h MOC: Contact parts made of SS304.</p> <p><b>Features:</b></p> <ul style="list-style-type: none"><li>• The mill will be used for granulation/pulverization of dry pre mixes.</li><li>• Machine shall be suitable for continuous operation at a single speed.</li><li>• Necessary to have a dust free air filtration with suitable balloon.</li></ul>

	<ul style="list-style-type: none"> <li>• Unit should have SS 304 feed hopper of holding capacity of 50-75 kg material</li> <li>• Unit to have variable force swing beaters having both knife and impact edges.</li> <li>• Collecting chamber of matching capacity.</li> <li>• 2 sets of sieves of 05, 0.8 1.0 1.25 and 1.5mm round holes.</li> <li>• All parts shall be easily and quickly dismantled and cleaned.</li> <li>• Solid MS main pillar mounted on base plate, with anti-vibration rubber/foundation.</li> <li>• Motor assembly, MCB with starter and all other accessories for the smooth operation of the unit</li> </ul>
12.	<p><b>Steam Jacketed kettle with low speed Scraping stirrer</b></p> <p>Purpose: To pre heat the honey.</p> <p>Capacity: 100 liter</p> <p>MOC: SS 304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• Suitable for heating the honey up to a particular temperature using thermic fluid or hot water generator of matching capacity supplied with the system.</li> <li>• Main jacket should have circulation of thermic fluid /hot water mechanism.</li> <li>• The stirrer shall be with Teflon coated scraper for continuous scrapping of surface.</li> <li>• Specially designed spring-loaded scraper to ensure the product doesn't stick the surface.</li> <li>• Fitted with a geared motor to ensure very slow speed of the stirrer.</li> <li>• The drain valve shall discharge the product at the bottom after mixing/heating.</li> <li>• SS structure for mounting the drive and MS legs on which the kettle is mounted.</li> <li>• The kettles will be fitted with all the necessary fittings like hot water/thermic fluid circulation pump, flow valve, heating chamber, drain valve &amp; outlet connection.</li> </ul>
13.	<p><b>Sigma mixer with tilting mechanism for unloading</b></p> <p>Purpose: To mix the ingredients uniformly</p> <p>Capacity: 100 kg/batch</p> <p>MOC: SS 304</p> <p><b>Features</b></p>

	<ul style="list-style-type: none"> <li>• Standard thickness of housing shell (Min. 15mm)</li> <li>• Double arm kneader type with two sigma designed agitator blades of SS316/304.</li> <li>• The mixer shall be suitably mounted so as to tilt it in one side to discharge the homogeneous bar mix.</li> <li>• The discharge shall be by tilting the sigma mixer by a hydraulic cylinder/gear mechanism connected to the tilting frame.</li> <li>• Necessary limit switches, stopper, tilting /movement sensing and control shall be done preferably using non-contact type proximity switches.</li> <li>• The mixer shall have a hydraulically operated top cover, which shall be kept closed while carrying out mixing operation and shall get opened before tilting and discharge of material from the mixer.</li> <li>• A centralized control panel should be provided to operate all three mixers.</li> <li>• It shall consist of a distribution panel to all motors, solenoids for hydraulic cylinders and limit switches consisting of push buttons, indicators digital ammeter and emergency stop.</li> <li>• All foundation bolts, base plates are with anti-vibration mountings.</li> </ul>
14.	<p><b>Bar forming and cutting unit (as used in energy or protein bar)</b></p> <p>Purpose: Bar forming and cutting System with auto feeding of viscous material Capacity: 250 kg/h MOC: 304</p> <p><b>Features:</b></p> <p>Suitable for making energy bar which include feed hopper mechanism, extruder, bar cutting, (approx.7x3cm of 25-30g weight) and conveyor for cooling in continuous operation.</p> <ul style="list-style-type: none"> <li>• Hopper of matching capacity.</li> <li>• Provided with a feature to adjust cutter, depending on the product dimensions.</li> <li>• Can have more than one opening to extrude bars so as to match the production.</li> <li>• PLC control system.</li> <li>• A digital counter can help to record the production quantity.</li> <li>• Complete with all accessories for the smooth operation of the unit</li> </ul>
15.	<p><b>Continuous baking oven</b></p> <p>Purpose: To bake the bar in continuous mode Capacity: 250 kg/h MOC: Contact parts made of SS304.</p>

	<p><b>Description:</b></p> <ul style="list-style-type: none"> <li>• The oven shall have heating chambers, used for a baking energy bar and will also have cooling chamber before it goes for wrapping.</li> <li>• The oven shall be suitable for handling a volume of 250kg/h bars in continuous mode with conveyor line</li> <li>• Operating temperature range to be 120-180 °C.</li> <li>• The unit can use LPG/ electrical heating to heat the medium.</li> </ul> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• SS structural unit with all contact parts of SS304 grade.</li> <li>• Effective air distribution system.</li> <li>• Control systems for maintaining the temperature range with narrow accuracy.</li> <li>• VFD controller for circulating fan speeds.</li> <li>• Extended loading and unloading zones.</li> <li>• Special chain belt construction to convey the material on trays with VFD to control speed</li> <li>• Cooling zones with air blower fans to reduce temperature</li> <li>• Provided with chimney of standard height.</li> <li>• PL control panel for the unit.</li> <li>• Complete with all accessories for the smooth operation of the unit</li> </ul>
16.	<p><b>Horizontal flow wrap packing machine (double headed)</b></p> <p>Purpose: To wrap the bar with suitable packaging film Capacity:200 pieces/min MOC: Contact parts made of SS304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• Suitable for handling various packing materials</li> <li>• Touch-screen operation, convenient and quick parameter setting.</li> <li>• High sensitivity to make cutting and sealing accurate.</li> <li>• PID control for temperature.</li> <li>• All the controls to be achieved by software, convenient for function adjusting and upgrading.</li> <li>• Independent control of bar length, cutting and feeding continuous production.</li> <li>• All other control features for smooth operation of the unit</li> </ul>

### C. DETAILED DESCRIPTION OF LIQUID JAGGERY LINE

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8.	<p><b>Fruit mill</b>  Purpose: To crush the washed/soaked mahua flowers.  Capacity: 500 kg/h  MOC: Material contact area made of SS 304.</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• Mounted on solid steady MS stand body for grouting.</li> <li>• Crushing chamber made of thick plate of SS 304.</li> <li>• Direct coupled high speed rotor/chopper (made of SS316).</li> </ul> <p><b>Scope of supply</b></p> <ul style="list-style-type: none"> <li>• Additional set of beaters/chopper.</li> <li>• All contact parts can be easily and quickly dismantled and cleaned.</li> <li>• The unit should be supplied with motor, DOL starter and MCB switches of reputed make as given in the general terms and conditions.</li> <li>• The unit to be complete in all respects.</li> </ul>
9.	<p><b>Steam Jacketed kettle with low speed Surface scraping stirrer</b>  Purpose: Aqueous extraction.  Capacity: 250 liters.  MOC: Material contact area made of SS 304.</p> <p><b>Features</b></p> <ul style="list-style-type: none"> <li>• Hemispherical inner and outer wall made of SS 304 sheet to withstand 4-6kg/cm<sup>2</sup> of steam pressure.</li> <li>• The kettle shall be mounted on a MS channel frame for foundation.</li> <li>• Geared/VFD controlled motor on the top with Teflon coated scraper.</li> <li>• Complete necessary steam inlet valve, pressure gauge, pressure relief valve, steam trap, air vent etc.</li> <li>• The drain valve must be provided to remove the mass after heating/cleaning.</li> <li>• The unit should be supplied with motor, DOL starter and MCB switches of reputed make as given in the terms and conditions.</li> <li>• The unit must satisfy the pressure vessel safety standard laws of India/Factory/FSSAI.</li> <li>•</li> </ul>
10.	<p><b>Screw press/ Juice extractor/ Helicoidal Juice Extractor</b>  Purpose: To extract the juice from the soaked mahua flower.</p>

	<p>Capacity: 1 ton per hour (TPH) MOC: Material contact area made of SS 304.</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• The unit should have double extractor to get the extraction as a single unit.</li> <li>• The machine shall be suitable for continuous extraction of juice.</li> <li>• The first press shall remove by low pressing.</li> <li>• The second unit screw will have to develop pressure at the outlet end.</li> <li>• The solid/spiral design of the machine may ensure high yield juice recovery.</li> <li>• The screw and drum must be made with SS304.</li> <li>• The V belt drive and motor must have safety guard and protection from washing.</li> <li>• The unit should be supplied with motor, DOL starter and MCB switches of reputed make as given in the terms and conditions.</li> </ul> <p><b>Scope of supply:</b></p> <ul style="list-style-type: none"> <li>• Additional set of perforated sieves.</li> </ul>
11.	<p><b>Decanter</b></p> <p>Purpose: To separate the suspended solids Cap: 500 liters per hour (LPH) MOC: Material contact area made of SS 304</p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li>• The decanter centrifuge will be used to clarify mahua flower extract to separate liquid and solids.</li> <li>• It shall be suitable for continuous operation with continuous sludge removal.</li> <li>• Separation of solid and liquid will take place in a horizontal cylindrical bowl equipped with a screw conveyor.</li> <li>• The bowl material made of AISI 316 with a suitable diameter to give a max of 3200 G-value.</li> <li>• Separation shall take place throughout the total length of the cylindrical part of the bowl, and the clarified liquid should leave the bowl by flowing over adjustable plate dams into the casing.</li> <li>• The hydraulic pressure inside the bowl shall facilitate and improve scrolling through a narrow opening.</li> <li>• Only the driest fraction of the solids shall leave the bowl through the solids discharge openings into the casing.</li> <li>• The bowl shall be driven by an electric motor and a V-belt transmission drive.</li> <li>• The unit should have suitable motor, DOL/DELTA starter with MCB switch.</li> </ul>

12.	<p><b>Double effect forced circulation evaporator system with a pre heat exchanger.</b></p> <p>Purpose: To concentrate the juice from 27° Brix to 70° Brix. Capacity: 500 kg/h MOC: Material contact area made of SS 304</p> <p><b>Description of the equipment:</b></p> <ul style="list-style-type: none"> <li>• The double effect evaporation system in combination with falling type pre heat exchanger and double effect forced circulation to ensure least operating cost.</li> <li>• All parts should be manufactured as per international codes and quality standards to meet specific needs.</li> <li>• Complete plant comprising of Pre-heater, Calendria, TVR, Vapor-liquid, Separator and Surface condenser, Condensate collecting chamber connected to vacuum.</li> <li>• Supply of suitable TR of induced draught cooling tower with circulation pump, fan and pipe fittings to match the capacity.</li> <li>• The supply shall include pump, vacuum system, hardware fitting, piping, cabling, measuring, instruments like pressure, temperature and vacuum gauge etc.</li> <li>• The unit must be connected with electrical, instrumentation and mechanization with cables and earthing to fully automate the system.</li> <li>• The unit must satisfy the pressure vessel safety standard laws of India/ Factory/FSSAI.</li> <li>• Local Push Button Station (LPBS), Local Control Station (LCS), MCB, Power Distribution Boards (PDB), Instrumentation and control panels.</li> <li>• Fully automated and manual operation mode as per requirement.</li> <li>• Easy &amp; quick cleaning CIP facility for the unit.</li> </ul>
13.	<p><b>Bottling line with all accessories</b></p> <p>Purpose: to fill hot syrup in PET bottles. Capacity: 30 Bottles per minute MOC: Contact parts made of SS304</p> <p><b>Features of the unit:</b></p> <ul style="list-style-type: none"> <li>• Suitable to fill in PET bottles of 300 to 1000 ml capacity.</li> <li>• The unit shall be of Rotary type filling system with suitable number of washing nozzles with hot water rinsing, filling heads and capping heads.</li> <li>• The scope of supply includes feed conveyor &amp; discharge conveyor, cap feeder, run by separate geared motor with VFD controller.</li> <li>• Unit should have automatic level filling, no bottle - no filling mechanism.</li> </ul>



	<ul style="list-style-type: none"> <li>• The bottling unit shall have a flexibility of hot filling of mahua syrup in PET bottles followed by tunnel type chamber for cooling the filled bottles.</li> <li>• Should have CIP cleaning system.</li> <li>• Total operation should be able to control by a panel board having auto on off switches, MCB with necessary control unit and cables.</li> </ul>
14.	<p><b>Tray/Cabinet/Cross flow dryer</b></p> <p>Purpose: To dry the pomace of mahua flower after extraction of juice.</p> <p>Capacity: <b>96 trays</b></p> <p>MOC: Inner- wall &amp; trays made of SS 304, outer-wall MS.</p> <p><b>Description of equipment:</b></p> <ul style="list-style-type: none"> <li>• The heating source can be dual (electrical/steam heating)</li> <li>• The dryer construction shall be built on formed angles of 5mm thick (min) angles.</li> <li>• The inside wall thickness shall be of at least 1.6 mm thick quality sheets.</li> <li>• Minimum 50 mm thick glass wool insulation gladded with SS sheets.</li> <li>• Both the doors are of explosion proof and to be locked with the help of spring loaded ball latches.</li> <li>• Door lips should have heat resistant, preferably neoprene rubber gasket.</li> <li>• Electrical heating coil made of SS 304 shall be able to maintain the temperature range of 50 -100°C.</li> <li>• Must have ON/OFF control with digital temperature indicator over the range of heating temperature.</li> <li>• A heavy duty axial flow SS304/Aluminum blower, driven by motor and V belt for uniform air circulation.</li> <li>• The working of the motor must have indicator lamps in the control panel.</li> <li>• The standard size trays should be made of SS 304 sheets with rounded corners.</li> <li>• Both the racks should be provided with wheels to slide them in &amp; out of the dryer.</li> <li>• Control panel on the side of the dryer should be supplied with starters, contactors, temperature cut off relays, circuit breakers, indicating lamps, timer controllers, etc.</li> </ul> <p><b>Scope:</b></p> <ul style="list-style-type: none"> <li>• An additional two SS trolley for loading at outside and 96 trays.</li> </ul>

**General terms and conditions:**

- All the electrical motors supplied with the machines should be from reputed manufacturers like ABB, Bharat Bijlee, Crompton Greaves, ELGI, Kirloskar, Remi or Siemens.
- The individual motor should be supplied with DOL or Star Delta starter made of ABB, Crompton, Havells, L&T or Siemens.
- The unit should be supplied with panel board of reputed make with indicators, main on/off switch ammeter, voltmeter, Miniature Circuit Breaker (MCB), tripping arrangement OLR (overload Relay), MPR (Motor Protection Relay) and SFU (Switch Fuse Unit) of reputed make only. Electrical connections from individual panel board to equipment is in the scope of supplier.
- The supplier should use BIS standard mechanical components.
- The pressure vessel/ gauges/ valves/straps should obey the order of safety laws. All measuring instruments should be provided with Calibration Certificate.
- Individual motor and belt/chain drive should be provided with safety guards as per the norm of Factory Act of Central and State Government.
- The supply of chimney height and dimensions should follow the norms of Central/State pollution control board.
- The supplier shall follow at the time of erection & commissioning, all the statutory regulations of the Govt. of Chattisgarh, Govt. of India, Indian Factories Act, Indian Electricity Rules and FSSAI Rule.
- All supplies should have at least ONE YEAR Warranty.

## **VENDORS" NAME AND ADDSRESS**

<b>S No.</b>	<b>SUPPLIER ADDRESS</b>	<b>SPECIFIC EQUIPMENTS</b>
1	<b>BAJAJ PROCESSPACK LIMITED</b> Plot No. 7/20,27 Jai Laxmi Industrial Estate Site-IV, Sahibabad Industrial Area Ghaziabad, Uttar Pradesh 201010 <a href="mailto:sales@bajajmachines.com">sales@bajajmachines.com</a>	Washer Pre-cleaner Dryers Continuous dryer
2	<b>EXCEL PLANTS &amp; EQUIPMENT PVT LTD</b> Gat No. 611, Mouje Kuruli M I D C. Taluka Khed Chakan, Pune 410501 Maharashtra. <a href="mailto:uday@excelplants.com">uday@excelplants.com</a>	Washer Pre-cleaner
3	<b>UNIVERSAL ENGINEERS</b> 36/6, Gali No - 3 Rajendra Nagar Industrial Area Mohan Nagar, Ghaziabad - 201007 Uttar Pradesh.	Rotary washing machines Pre-cleaner Dryer
4	<b>SHIVA ENGINEERS</b> T Block, Plot No. S 33, Bhosari MIDC Pimpri-Chinchwad Pune - 411026, Maharashtra. <a href="mailto:shivaengineers1@gmail.com">shivaengineers1@gmail.com</a>	Rotary washers Pre-cleaner Dryer
5	<b>ANJOPLUS MACHINES</b> Unit 1 MIT Industrial Estate Chinchpada, Vasai East, Maharashtra 401208 <a href="mailto:anjoplusmachines@yahoo.co.in">anjoplusmachines@yahoo.co.in</a>	Rotary drum washer Pre-cleaner
6	<b>ACCELOR FOOD TECH PVT LTD</b> 22, RVL Nagar, Uppilipalayam Post Coimbatore - 641 015, Tamilnadu. <a href="mailto:info@accelorfoodtech.com">info@accelorfoodtech.com</a> <a href="mailto:sales@accelorfoodtech.com">sales@accelorfoodtech.com</a>	Lump breaker Dryer Double deck tunnel dryer
7	<b>VED ENGINEERING</b> B-38 Sector-60 Noida- 201301, U.P <a href="mailto:sagar@vedengineering.com">sagar@vedengineering.com</a> <a href="http://vedengineering.com">vedengineering.com</a>	Washer Pre-cleaner Dryer
8	<b>SUAN SCIENTIFIC INSTRUMENTS &amp; EQUIPMENTS PVT LTD</b> P-814, Ground Floor, Block-a, Lake Town, Kolkata, West Bengal 700089 <a href="mailto:info.suan1992@gmail.com">info.suan1992@gmail.com</a>	Rotary drum washer Dryer
9	<b>SUNTECH</b> Plot No.56, Phase-1 GIDC Estate, Naroda Ahmedabad-382330. <a href="mailto:info@suntecenergy.in">info@suntecenergy.in</a>	Dryer

<b>10</b>	<b>SAKAV OVENS, DRYERS &amp; FURNACES</b> Ground Floor, Shailesh Industrial Estate No 3. PCS Ltd. Navghar Vasai Road East Palghar Dist. 401210 Maharashtra. sales@sakav.com	Dryer
<b>11</b>	<b>CENTPRO ENGINEERING PVT. LTD</b> 306 , Vishal Ventilla Magarpatta Road, Hadapsar, Pune, Maharashtra 411013 sales@centpro.com   info@centpro.com	Evaporator
<b>12</b>	<b>CHEMSEPT ENGINEERING PVT LTD</b> Rama Equator, Office No 612, Near Finolex Chowk, Morwadi, Pimpri, Pune, India - 411 018. info@chemsept.in	Evaporator
<b>13</b>	<b>KINGS INDUSTRIES</b> 4/509-1A, Kalipalayam Road, Press Colony (PO), Coimbatore – 641019. www.kingsenvirotech.com www.kingsindustries.com	Evaporator
<b>14</b>	<b>SSP LIMITED</b> 19, DLF Industrial Area Phase-II, 13/4, Mathura Road, Faridabad, Haryana-121 003 Sspindia@vsnl.com info@sspindia.com	Evaporator
<b>15</b>	<b>KEP ENGINEERING SERVICES PVT LTD</b> 4th Floor, Merix Square, Survey no: 43, Pet Basheerabad Village, Quthbullapur (M), Medchal- Malkajgiri (Dist), Telangana-500067. info@kepengg.com www.kepengg.com	Evaporator
<b>16</b>	<b>PURE CENTRIFUGES</b> S. NO. 322 / 2 ,Waghere Industrial Estate Near Old Boat Club, Pimrigaon, Pune 411017. sales.purecentrifuges@gmail.com	Decanter
<b>17</b>	<b>PENNWALT LIMITED</b> D-221, MIDC T.T.C, Thane- Belapur Road Nerul, Navi Mumbai 400706 infopennwalt.com www.pennwalt.com	Decanters
<b>18</b>	<b>ALFA LAVAL (INDIA) LIMITED</b> Office No. 301/401 - Global Port Building S. No. 45/1-10 - Mumbai-Bangalore Highway, Baner, Pune 411 045 info@alfalaval.com www.alfalaval.com	Decanter Evaporator
<b>19</b>	<b>BAJAJ PROCESS PACK LTD</b> B-136,Noida, Sector -63,India vptechnical@bajajmachines.com	Bottling line

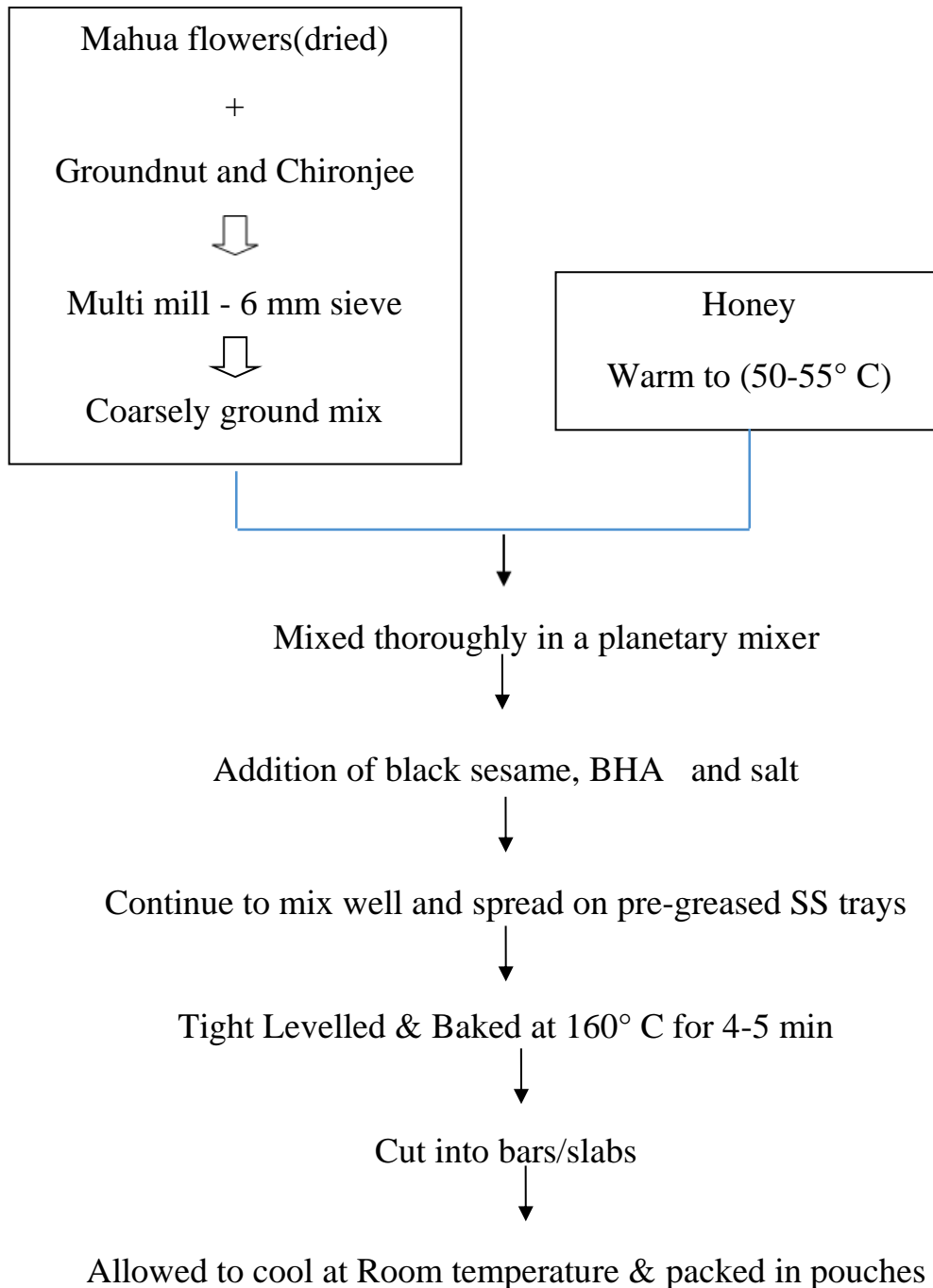
	www.bajajprocesspack.com	
20	<b>REPUTE ENGINEERS PRIVATE LIMITED</b> C - 3 & 4, Sanghvi Steel Compound, Mohan Nagar Chinchwad, Pune - 411 019. info@reputeindia.net www.reputeindia.com	Bottling line
21	<b>CENTPRO ENGINEERING PVT. LTD</b> 306 , Vishal Ventilla Magarpatta Road, Hadapsar, Pune, Maharashtra 411013 sales@centpro.com   info@centpro.com	Evaporator
22	<b>RIDDHI PHARMA MACHINERY LTD.</b> Om-Shivam Bldg.,2, Tarun Bharat, Sahar Rd, Andheri (E), Mumbai-400 099. Maharashtra hitenkshah@hotmail.com/ hitenks@vsnl.com www.riddhipharma.com	Tray dryer Multi mill
23	<b>PROCESS MASTERS EQUIPMENTS (I) PVT LTD</b> Plot No. 37/1, Block F-2 Pimpri MIDC, Pune - 411018, Maharashtra.	Washer Kettle Ribbon blender Pulveriser
24	<b>BOMBAY PHARMA</b> Gala No.2, P.V.K. Compound, Laxmi Narayan Mandir Marg, Kherani Road, Sakinaka, Mumbai - 400 072, Maharashtra, India enquiry@bombaypharma.com	Multi mill Hammer mill Tray dryer
25	<b>JAS ENETRPRISES</b> B-326, Sumel business park 7, Opposite Soni Ni Chawl BRTS Bus Stand, National Highway No 8, Near Rakhial Flyover, Rakhial Ahmedabad, Gujarat info@jasenterprise.com	Hammer mill/Pulveriser Ribbon blender Tray dryer Continuous dryer
26	<b>GANSONS</b> Sel157, Akbar Camp Road, Kolshet, Thane 400 607. Maharashtra sales@gansons.com <a href="http://www.gansons.com">www.gansons.com</a>	Multi mill
27	<b>SRINIDHI INDUSTRIES</b> Plot No. 173/2, Near Karnataka Bank, Essar Petrol Bunk Road Bommasandra Industrial Area, Bengaluru - 560099, Karnataka, India srinidhi1industries@gmail.com www.srinidhiindustries.com	Continuous roaster Ribbon blender Multi mill Hammer mill Tray dryer
28	<b>SUAN SCIENTIFIC INSTRUMENTS &amp; EQUIPMENTS</b> P-814, Block-A, Lake town, Kolkata –700089	Washer Fruit mill Tray dryer Hammer mill

	info.suan1992@gmail.com / suanscientific_call@yahoo.co.in www.suanequipments.com	Ribbon blender Bottling line
<b>29</b>	<b>KAPS ENGINEERS</b> A2831, GIDC, Maharpura Vadodara, Gujarat 390010	Pre cleaners Pulveriser Roasters
<b>30</b>	<b>SHAKTI ENGINEERING WORKS</b> 34, Karnavati Industrial Estate, Near Vatva GIDC, Ramol Chokdi Vinzol Road B/H HDFC Bank, Ahmedabad- 382445, Gujarat info@shaktieng.co.in mktg@shaktieng.co.in	Sigma mixer Ribbon mixer Hammer mill
<b>31</b>	<b>SOL EQUIPMENTS AND SERVICE</b> #9, Munusamy Street, Gandhinagar, Ekkattuthangal, Chennai 600032. sales@solequipments.com sol_equipments@yahoo.com	Deck oven Rotary oven Planetary mixer
<b>32</b>	<b>KERONE ENGINEERING SOLUTIONS</b> 4 & 5, Marudhar Indl. Estate, H.P. Gas Godown Lane, Goddev Fatak Road, Bhayander (E), Dist. Thane. - 401 105. info@kerone.com sales@kerone.com, unit2@kerone.com	Baking oven
<b>33</b>	<b>KALYAN MACHINES</b> F-8, Ground Floor, Sector - 11, Noida - 201301, Gautam Budh Nagar, Uttar Pradesh, India	Chikky forming machines Flow wrapping
<b>34</b>	<b>PATEL PACKAGING SOLUTION</b> Shed No.29, Shubham Industrial Estate, Spring Road, kathwada Gidc, Kathwada, Ahmedabad – 382430 www.patelpackagingsolution.in	Flow wrapping machine

## CHAPTER 8: PROCESS FLOW CHART

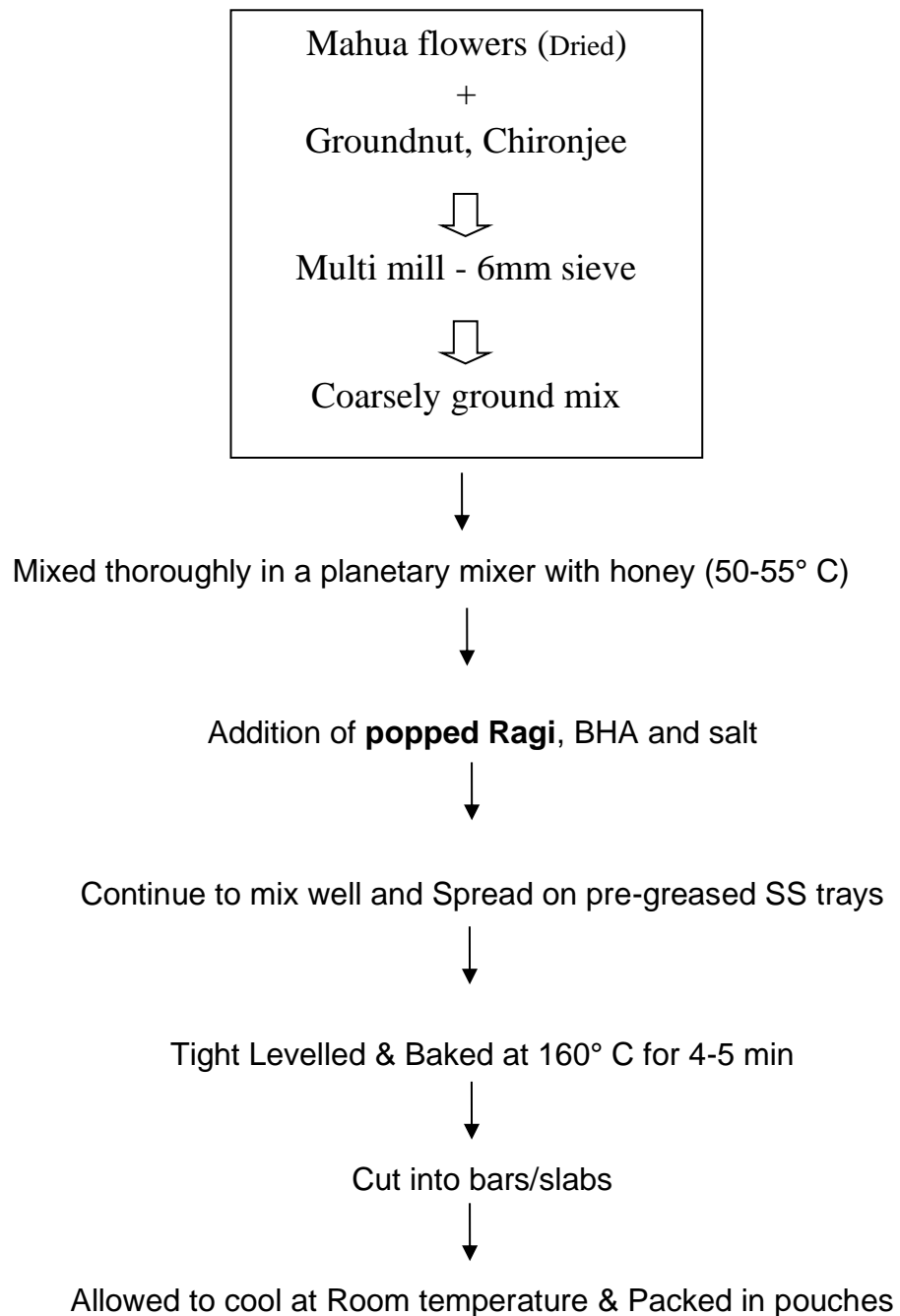
### **A. Mahua Energy Bars**

#### **I. Variant: Preparation of Mahua Sesame Bar**



**Flowchart for preparation of Mahua Sesame Bar**

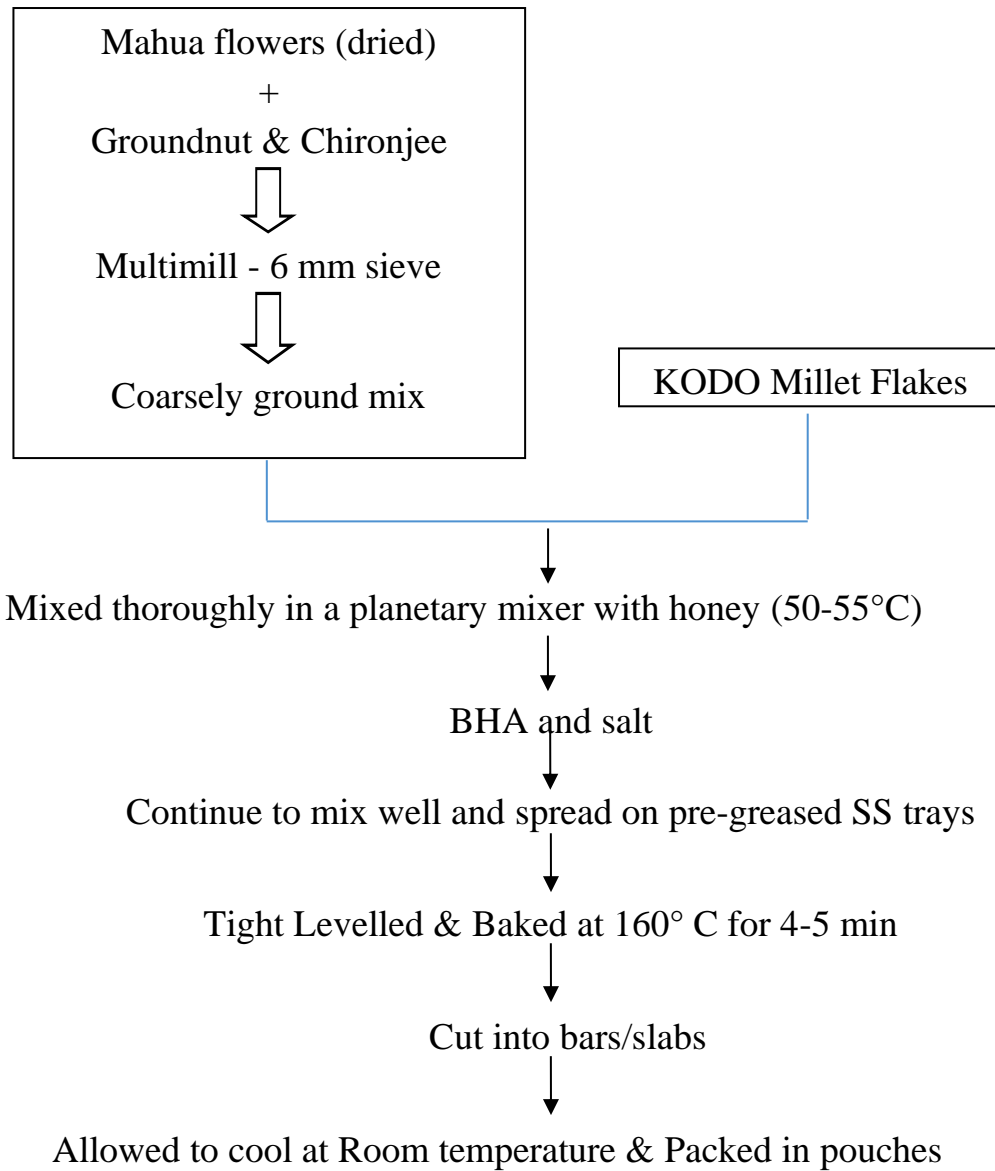
## II. Variant: Preparation of Mahua Ragi Bar



**Flowchart for preparation of Mahua Ragi Bar**

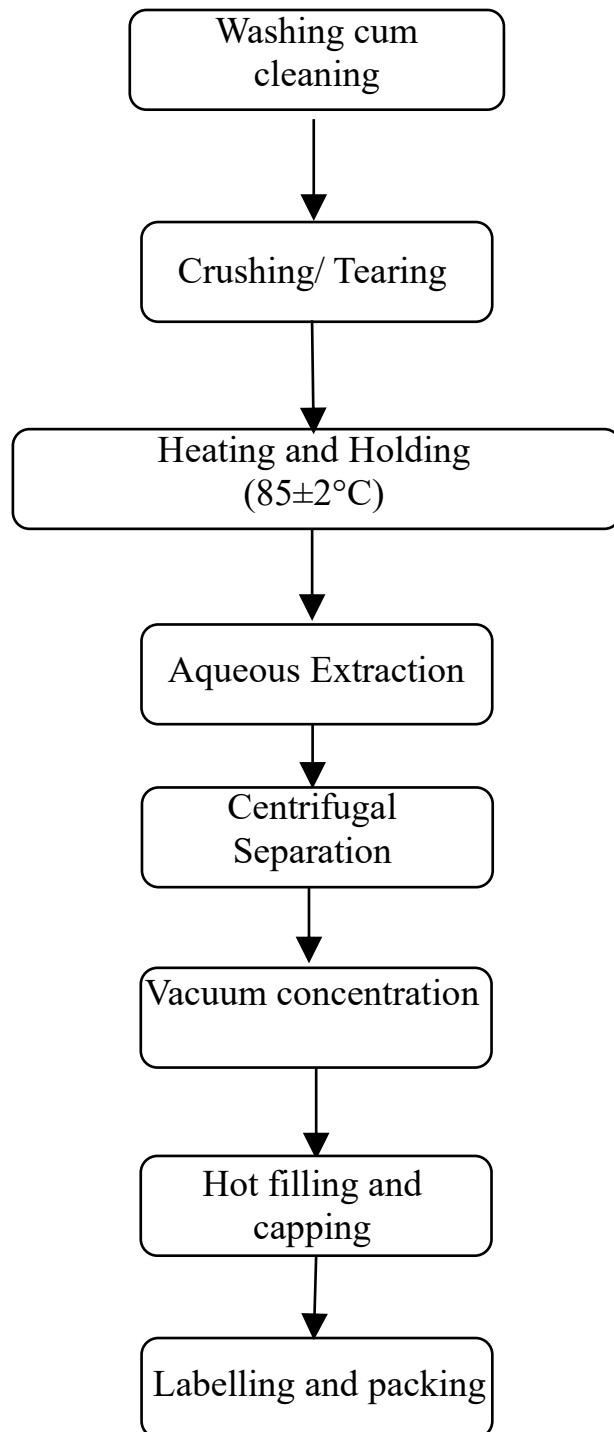


### III Variant: Preparation of Mahua Kodo Bar

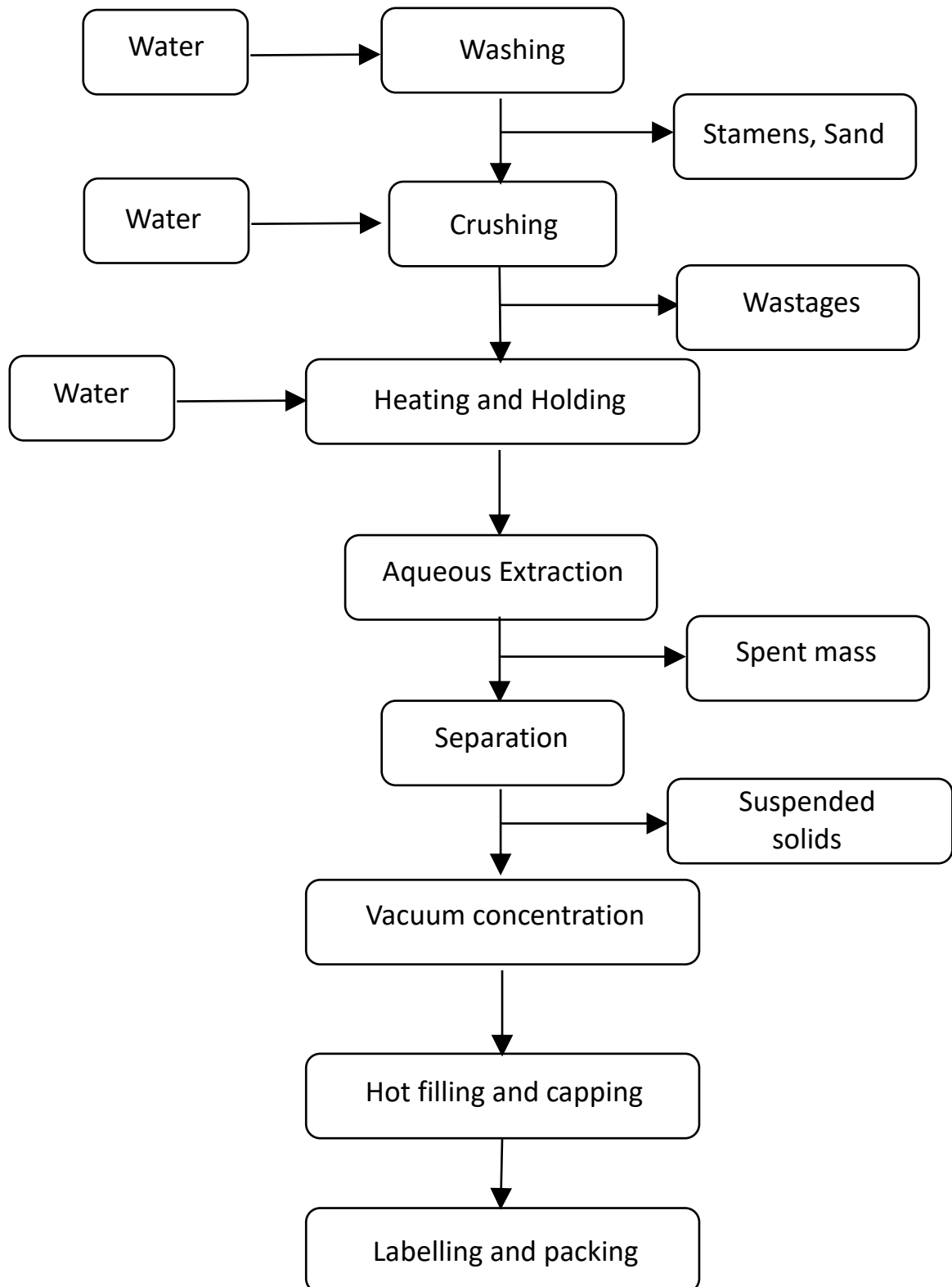


**Flowchart for preparation of Mahua Kodo Bar**

## B. Mahua Liquid Jaggery



**25kg of good quality dry flower yields 17 kg of Mahua liquid  
jaggery with 70°Brix of TSS**



## CHAPTER 9: PACKAGING

<b>Sr. No.</b>	<b>Product</b>	<b>Packaging Material</b>
1	Mahua-Sesame Energy Bar	Primary –PET/PE Pouch
		Secondary- 5 Ply Carton boxes
2	Mahua-Ragi Energy Bar	Primary – PET/PE Pouch
		Secondary - 5 Ply Carton boxes
3	Mahua- Kodo Energy Bar	Primary – PET/PE Pouch
		Secondary - 5 Ply Carton boxes
4	Mahua Jaggery	Primary -Glass Bottle with lid
		Secondary - 5 Ply Carton boxes

## CHAPTER 10: WORKING HOURS, CAPACITY UTILIZATION& HUMAN RESOURCE

### • Working Hours & Capacity Utilization

#### Working Hours/Days

Working hours per day	=	16.00 (2 Shifts)	Hours
No. of working days in a year	=	250.00	Days

#### Capacity Utilization from 2023-24 to 2032-33

YEAR ----- >	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33
CAPACITY UTILISATION	60.00%	75.00%	90.00 %	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%	90.00%

<b>Water Requirements</b>	<b>50,000 Kilo Litres/Year</b>
---------------------------	--------------------------------

#### Manpower

Sr. No.	Functional Designation	No.
<b>1</b>	<b>Administration</b>	
	a) Factory Manager	1
	b) Accounts/administration officer	2
	c) Clerk/Typist	3
	d) Cashier/Assistant	2
	e) Driver	2
	f) Attendant /watch & ward	3
	g) Sweeper, gardener, etc.	3
<b>2</b>	<b>Production</b>	
	a) Manager	1

	b) Shift Supervisors	16
	c) Chemist	4
	d) Laboratory assistant	4
	e) Mechanic/ Electrician	12
	f) Skilled workers	32
<b>3</b>	<b>Labour</b>	
	a) Men/Women	50
<b>4</b>	<b>Merchandising</b>	
	a) Sales Manager	2
	b) Sales Executive	4
	c) Sales assistant	6

## **CHAPTER 11: CONSTRUCTION AND BUILDING DESIGN**

### **A. DESCRIPTION OF DESIGN**

<b>S. No.</b>	<b>DESCRIPTION OF ITEMS</b>
1	Mahua liquid jaggery
2	Energy bar
3	Lobby
4	Pre-processing
5	Generator room
6	Water treatment plant
7	Boiler house and r.o. plant
8	A cold walking cooler and godown
9	Staff room and canteen
10	Administrative block
11	Security room
13	Electrification
14	External plumbing and drain line
15	Internal plumbing
16	Site development
17	Internal boundary wall
18	Internal road development
19	Transformer

### **B. AREA STATEMENT**

<b>S.NO.</b>	<b>ITEMS</b>	<b>FLOOR AREA</b>
1	PLOT AREA	14576.08 SQ.M.
2	PRE-PROCESSING	480.00 SQ.M.
3	MAHUA LIQUID JAGEERY	360.00 SQ.M.
4	LOBBY	480.00 SQ.M.
5	ENERGY BAR	557.00 SQ.M.
6	GENERATOR	78.03 SQ.M.

7	COLD ROOM	348.00 SQ.M.
8	BOILER HOUSE	278.01 SQ.M.
9	WATER TREATMENT PLANT	32.59 SQ.M.
10	SATFF ROOM	98.62 SQ.M.
11	ADMINISTRATIVE BLOCK	227.80 SQ.M.
12	SECURITY	16.40 SQ.M.
	<b>TOTAL FLOOR AREA</b>	<b>2956.45Q.M.</b>

### **C. REPORT AND SPECIFICATION**

<b>NAME OF WORK</b>	<b>CONSTRUCTION OF PROPOSED INTEGRATED MAHUA PROCESSING UNIT PATAN DIST. –DURG C.G.</b>
<b>AUTHORITY</b>	<b>CHHATTISGARH STATE MINOR FOREST PRODUCE</b>
<b>PROVISIONS</b>	The Following Provisions has been made in this Estimate :
<b>1.Foundation And Frame</b>	Column and Footing with R.C.C. M-20
<b>2.Plinth</b>	<p>Sand/crusher dust and hard moorum has been/used for filling under floors</p> <p>Ant termite treatment provision has been given below plinth.</p> <p>Brick work with FLY ASH lime bricks in C.M -1:6 has been provided</p> <p>R.C.C. Grade slab at plinth level with M-20 grade of concrete</p>
<b>3.Superstructure</b>	<p>Brick Work with Fly Ash Bricks of crushing strength not less than 25 kg/sq cm</p> <p>R.C.C Slab with M-20 Grade of concrete</p>



	Poly Carbonate and Profile Sheeting Work with steel structure as per approved make C.G. PWD
<b>4.Flooring &amp; wall tiling</b>	i. Terrazzo flooring with complete polishing and wall tiling up to 900 mm inside the processing area all around with adhesive of approved make as per C.G. PWD
<b>5. Doors</b>	All door frames and shutters of Teak wood frame  For main doors and entry in processing area will be of fire proof doors of approved make approved as per C.G. PWD
<b>6. Windows</b>	All windows and ventilators are Aluminum section windows shutters of A class aluminum sections approved in C.G. PWD
<b>7.Steel Work</b>	M.S grills in windows, ventilators and stainless steel railing has been provided in ramp and stair case
<b>8. Plastering</b>	12mm thick plaster for smooth side, 15 mm thick plaster for rough side, 6mm thick plaster for ceiling has been used in this building.
<b>9.Painting</b>	All wood work and steel work is painted with synthetic enamel paints and inner walls are painted with acrylic luxury emulsion (plastic) with putty of A class fire proof materials as per approved C.G. PWD
<b>10. false ceiling</b>	Armstrong false ceiling in all processing unit of approved make as per C.G. PWD

<b>11. Water Supply</b>	Specific item with ISI mark are used
<b>12 Landscape And Road</b>	As per C.G. PWD ROAD 2015

<b>13. Rate</b>	All rates are as per schedule of rates in C.G.P.W.D enforced from  01.01.2015 & Amendment up to 06.04.2016
<b>16.Specification</b>	Work will be executed as per C.P.W.D & National Building Code  specification

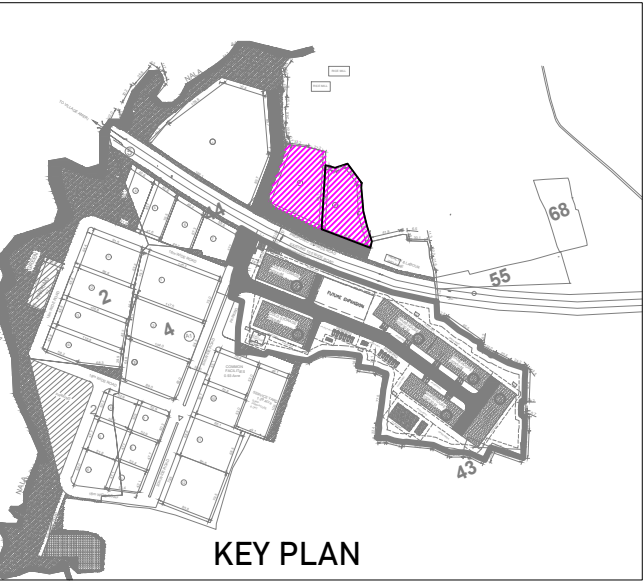
<b>PROVISIONS</b>	<b>Following provisions of Electrical Works have been made in this building :</b>
<b>Type Of Wiring</b>	Concealed type Wiring with Copper Conductor (FRLS) in PVC (Non Metallic) Conduit Separate wiring and Separate Meter System for each Department
<b>Type of Switch Socket</b>	Modular Type Socket Switch as approved by approved C.G. PWD SOR 2015
<b>Accessories</b>	Energy Saving Light Fittings  T/5 in wall case of false ceiling concealed type of CFL Fittings.  Double Door, Distribution Board.

#### **D. List of Drawing**

<b>S.No.</b>	<b>Drawing Title</b>	<b>Drawing Document</b>
1	Site Plan	Attached
2	Structural Drawing	Attached
3	Structural Drawing	Attached
4	Structural Drawing	Attached
5	Structural Drawing	Attached

6	Structural Drawing	Attached
7	Pre-Processing Column Layout and Foundation Plan	Attached
8	Pre-Processing Section, Elevation	Attached
9	Mahua Liquid Jaggery Line	Attached
10	Mahua Liquid Jaggery Line	Attached
11	Energy Bar Line	Attached
12	Energy Bar Line	Attached
13	Structural Drawing	Attached
14	Structural Drawing	Attached
15	Structural Drawing	Attached
16	Structural Drawing	Attached
17	Structural Drawing	Attached
18	Structural Drawing	Attached
19	Structural Drawing	Attached
20	Structural Drawing	Attached
21	Structural Drawing	Attached
22	Structural Drawing	Attached
23	Structural Drawing	Attached
24	3D Views	Attached
25	3D Views	Attached

PLOT NO. - 2 AREA - 1.63 acres  
PLOT NO. - 3 AREA - 1.96 acres  
TOTAL AREA - 3.59 acres



- UTILITIES :
- A. COLD ROOM, WALKING COOLER AND GODOWN
  - B. BOILER HOUSE AND RO PLANT
  - C. OVER HEAD TANK
  - D. WATER TREATMENT PLANT
  - E. GENERATOR
  - F. STAFF ROOM AND CANTEEN
  - G. ADMINISTRATIVE BLOCK AND QC LAB
  - H. SECURITY

DRAWING TITLE

**SITE PLAN**  
ADVANCE COPY

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR FOREST PRODUCE

STATUS OF DRAWING RELEASE

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<input type="checkbox"/>	FOR DISCUSSION
<input checked="" type="checkbox"/>	FOR TENDER
<input type="checkbox"/>	FOR CIVIL CONSTRUCTION

SR. NO.	REVISIONS	DATE

DRAWN BY:		
VERIFIED BY:	AR.ROHIT MUDALIAR	
SHEET :	SCALE	DATE
	N. T. S.	10/08/2022

MEP CONSULTANTS

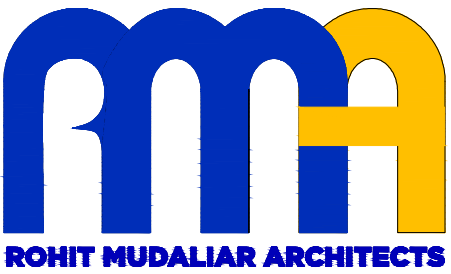
STUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

3D VISUALIZATION

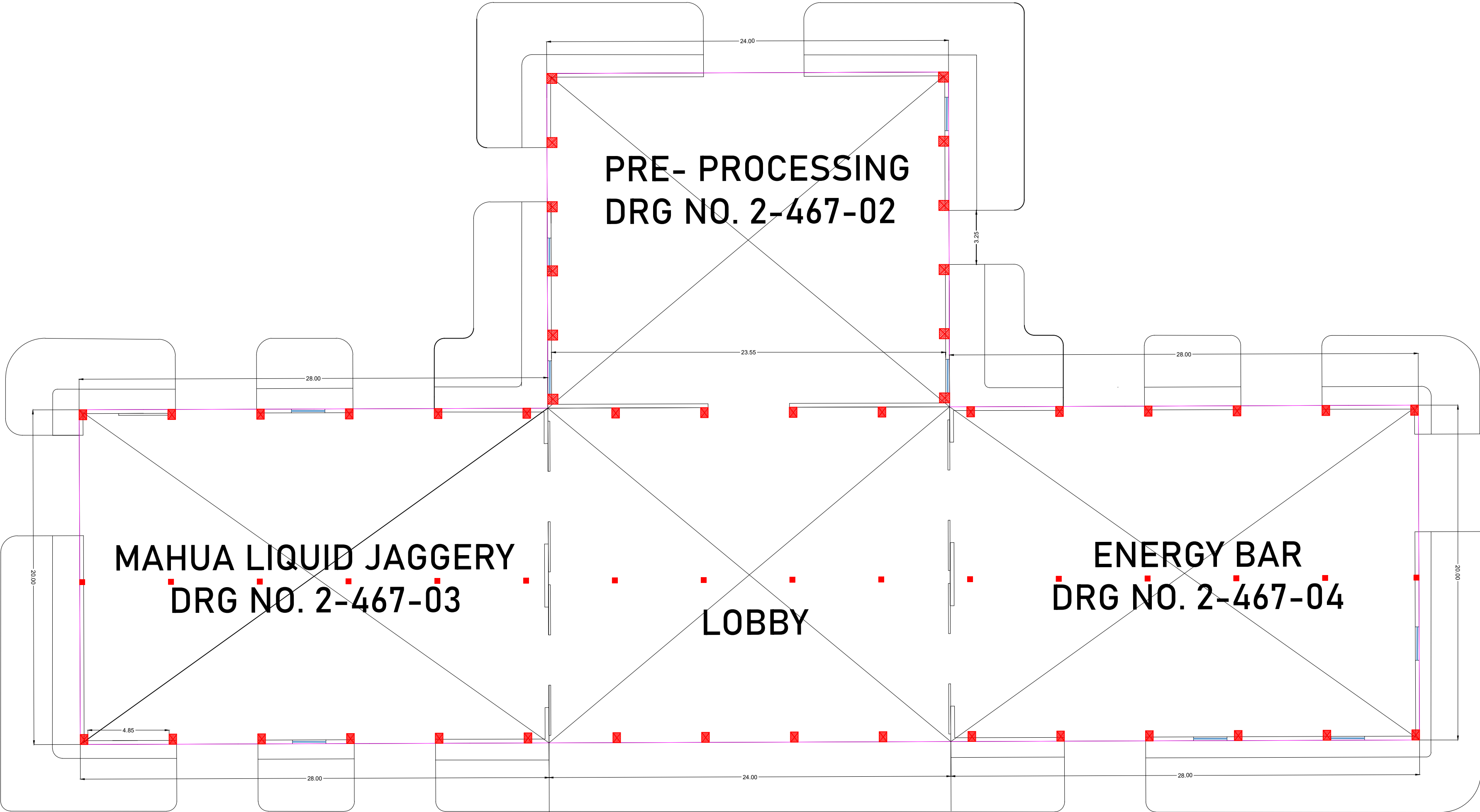
APPROVAL SIGN.	ORIENTATION
	N

ARCHITECTS AND CONSULTANTS



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Email Id:- architects@rohitmudaliar.com  
Website:- www.rohitmudaliar.com



## MAHUA PROCESSING PLANT

### SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	3200 x 3200	150	3000 x 3000	750	16 $\Phi$ @150	16 $\Phi$ @150	450x600	8x20 $\Phi$ +10x16 $\Phi$	8 $\Phi$ @100-150	
C2	3500 x 3500	150	3300 x 3300	750	16 $\Phi$ @150	16 $\Phi$ @150	600x600	10x20 $\Phi$ +12x16 $\Phi$	8 $\Phi$ @100-150	
NC	1700 x 1700	150	1500 x 1500	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	8x12 $\Phi$	8 $\Phi$ @100-150	

#### 1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UP TO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

#### 2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

#### 3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

#### 4. P.C.C.

PLAIN CEMENT CONCRETE M-10

#### 5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-  
(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

#### GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.3L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.
  - AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.
  - CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
  - RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
  - U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.
  - NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
(a) FOR FLOOR BEAMS/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS.  
(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
  - IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS
  - STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
  - REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.
  - USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
  - USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
  - BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
  - CURING :  
EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
  - CUTOUT/ OPENING :  
ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C. BEAMS AND COLUMNS DURING OR AFTER CASTING.
  - SLEEVE :  
FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
  - U.N.O. IN THE DWG. CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE.  
CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.
  - READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
  - DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
  - ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT. LEVELS ARE IN METER.
  - IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.
  - SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.
  - STRIPPING TIME TABLE AS PER IS 456-2000.
  - TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.
- U.N.O. :- UNLESS NOTED OTHERWISE

#### DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY -

#### PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

#### CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

#### DRAWN BY:

#### VERIFIED BY:

AR.ROHIT MUDALIAR

#### SHEET : 2

#### SCALE

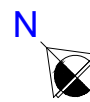
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19-08-2022

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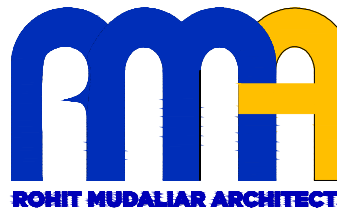
#### ORIENTATION



#### STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

#### ARCHITECTS AND CONSULTANTS



ARCHITECTS :: LANDSCAPERS :: INTERIORS

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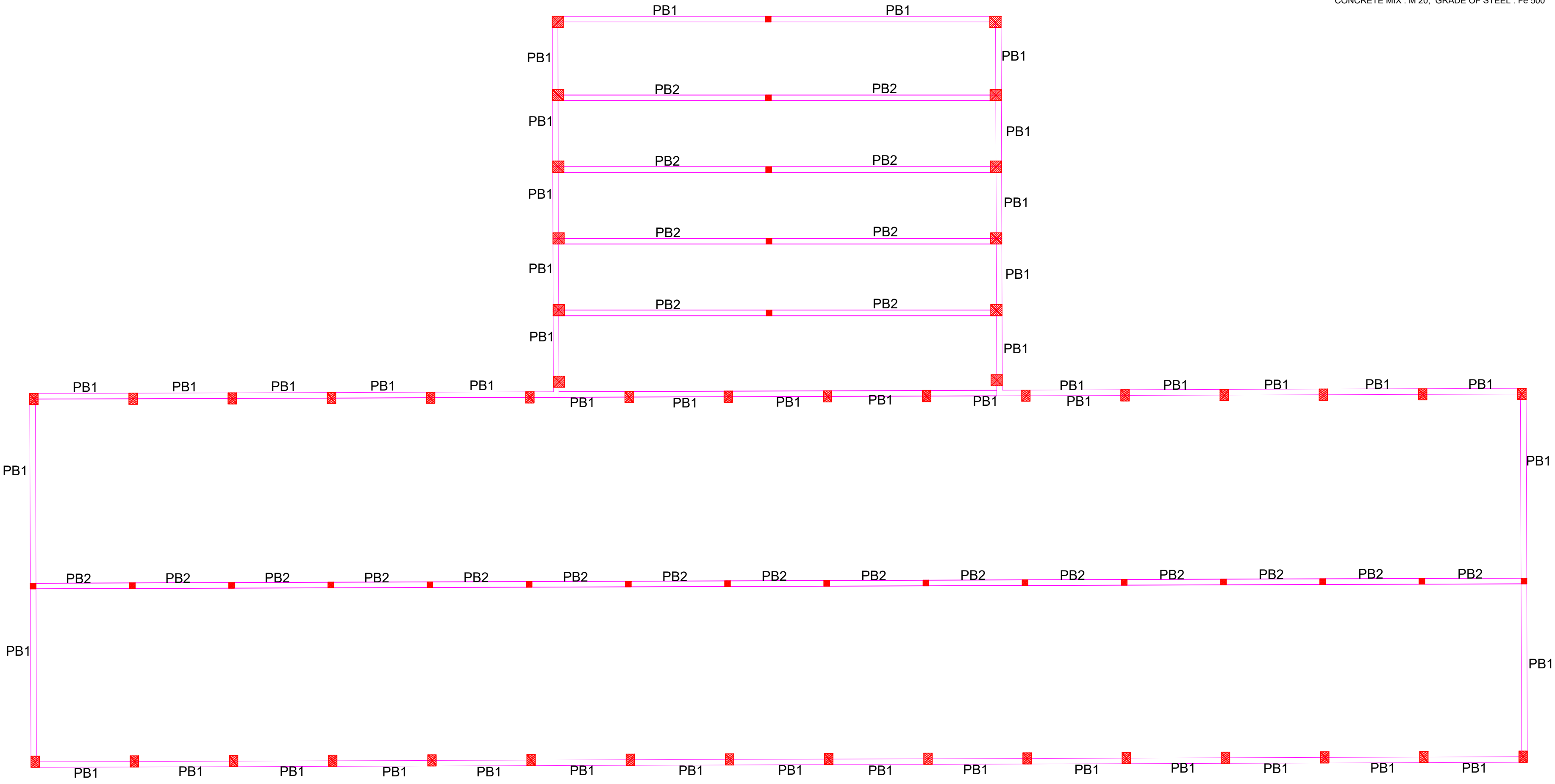
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Contact No:- +91-9423591252 / 0771-4916767

Email Id:- architects@rohitmudaliar.com

Website:- www.rohitmudaliar.com





SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	300	350	3x12 $\overline{\text{R}}$	2x10 $\overline{\text{R}}$	3x12 $\overline{\text{R}}$	2x10 $\overline{\text{R}}$	8 $\overline{\text{R}}$ @100	8 $\overline{\text{R}}$ @150		
PB2	300	300	3x12 $\overline{\text{R}}$	2x10 $\overline{\text{R}}$	3x12 $\overline{\text{R}}$	2x10 $\overline{\text{R}}$	8 $\overline{\text{R}}$ @100	8 $\overline{\text{R}}$ @150		

PROCESSING PLANT

DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING  
COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

DRAWN BY:

VERIFIED BY:

AR.ROHIT MUDALIAR

SHEET : 3

SCALE

N.T.S.

DATE

19-08-2022

APPROVAL SIGN.

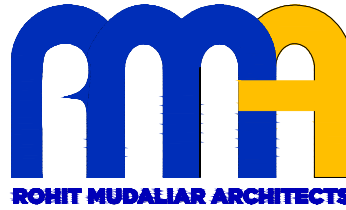
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ARCHITECTS :: LANDSCAPERS :: INTERIORS

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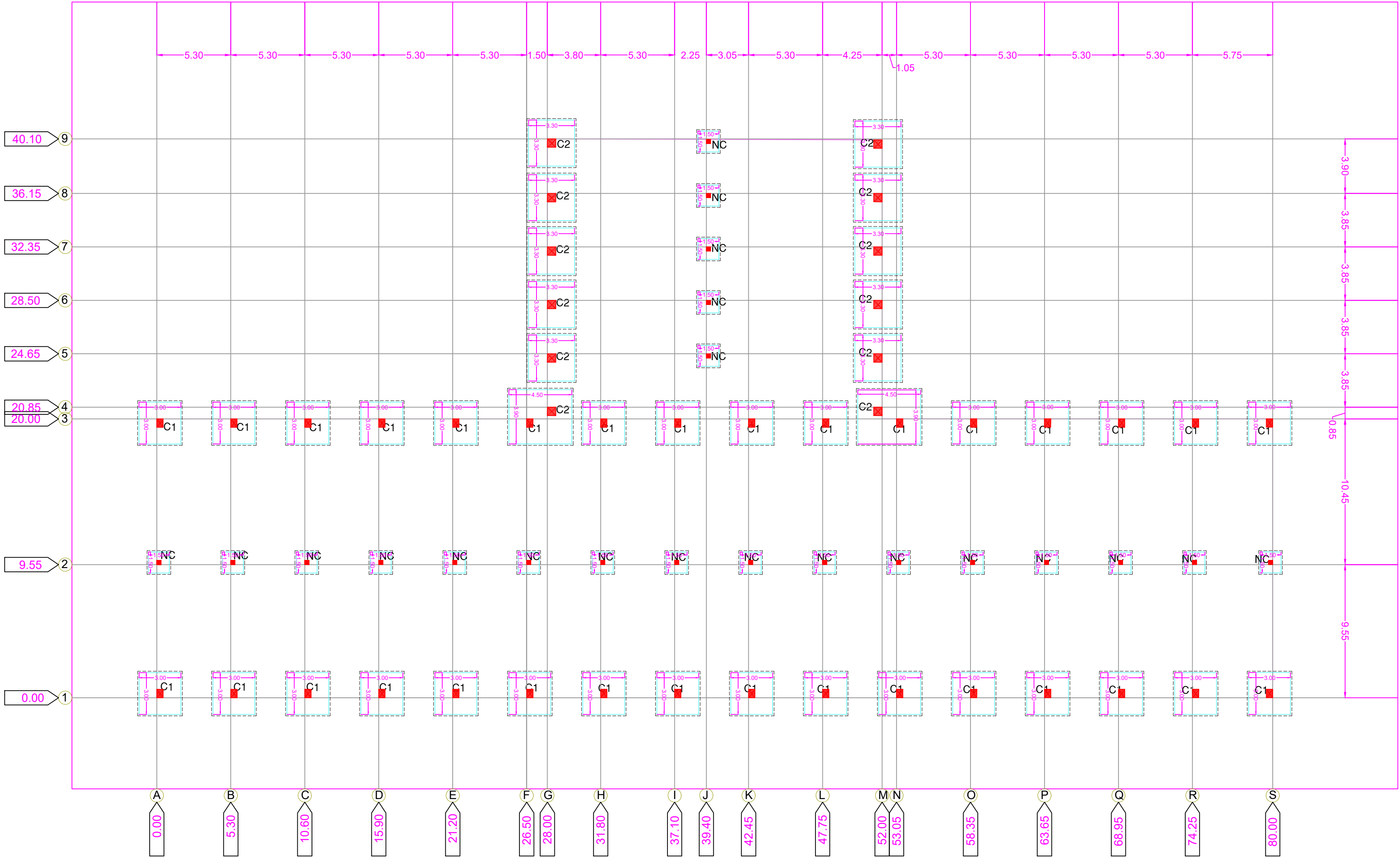
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VIP Road, Raipur (C.G.)

Contact No:- +91-9423591252 / 0771-4916767

Email Id:- architects@rohitmudaliar.com

Website:- www.rohitmudaliar.com

CONCRETE MIX : M 20, GRADE OF STEEL : Fe 500



## PROCESSING PLANT

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(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

### GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.3L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.
- AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.
- CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
- RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
- U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
(a) FOR FLOOR BEAM/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS.  
(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
- IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS.
- STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
- REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.
- USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
- USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
- BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
- CURING :  
EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
- CUTOUT/ OPENING :  
ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.
- SLEEVE :  
FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
- U.N.O. IN THE DWG. CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE.  
CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.
- READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
- DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
- ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT, LEVELS ARE IN METER.
- IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.
- SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.
- STRIPPING TIME TABLE AS PER IS 456-2000.
- TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.
- U.N.O. :- UNLESS NOTED OTHERWISE

### DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY -

### PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

### CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

### DRAWN BY:

### VERIFIED BY:

AR.ROHIT MUDALIAR

### SHEET : 4

### SCALE

N.T.S.

### DATE

19-08-2022

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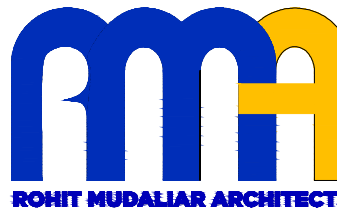
### ORIENTATION



### STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

### ARCHITECTS AND CONSULTANTS



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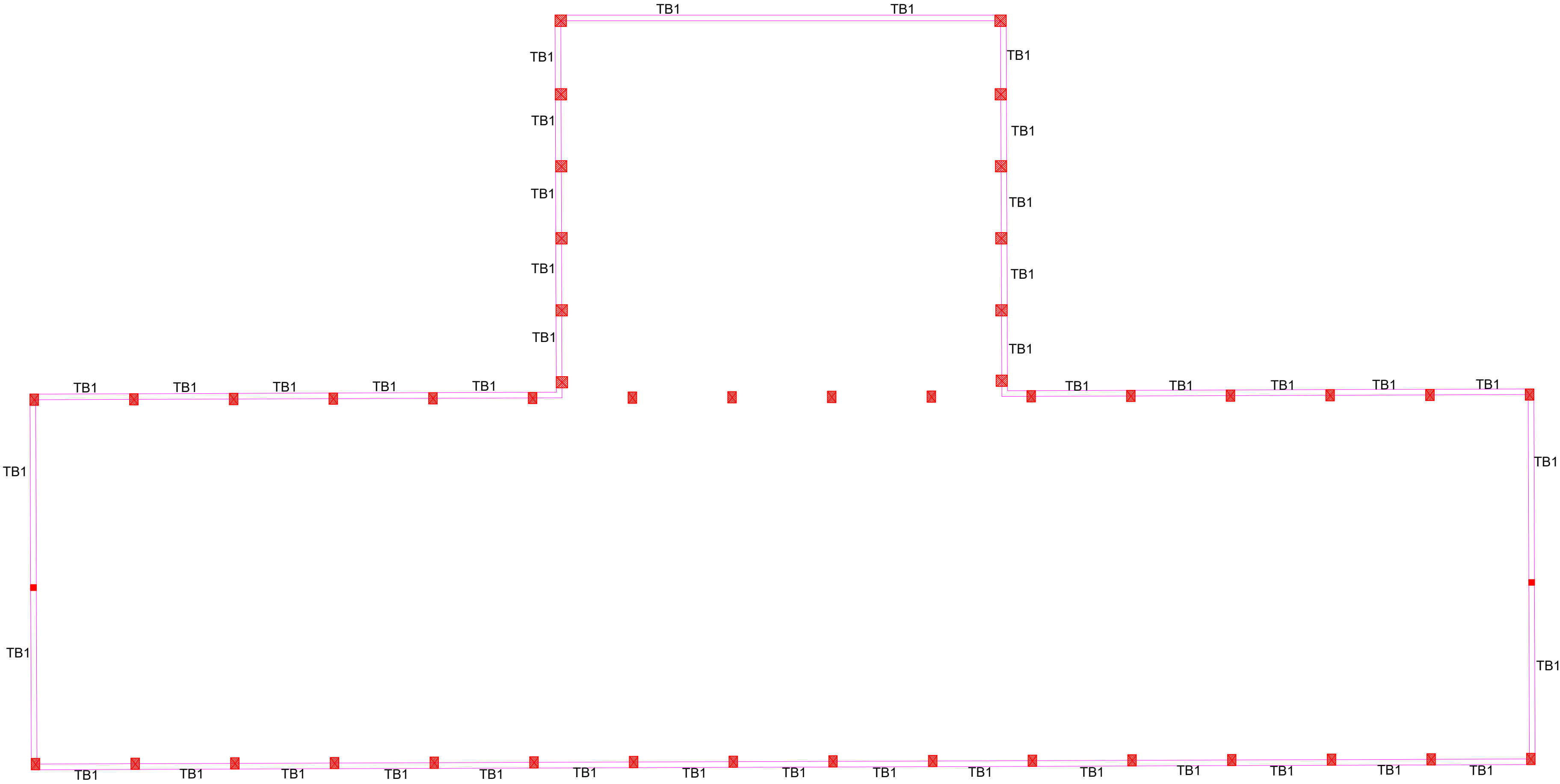
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VIP Road, Raipur (C.G.)

Contact No:- +91-9423591252 / 0771-4916767

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SCHEDULE OF TIE BEAMS @4MTR.HEIGHT

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
TB1	230	300	2x12 $\overline{\text{mm}}$ +1x10 $\overline{\text{mm}}$		2x12 $\overline{\text{mm}}$ +1x10 $\overline{\text{mm}}$		8 $\overline{\text{mm}}$ @100	8 $\overline{\text{mm}}$ @150		

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ADVANCE COPY

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COMPLEX

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FOREST PRODUCE

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VERIFIED BY:

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SHEET : 5

SCALE

N.T.S.

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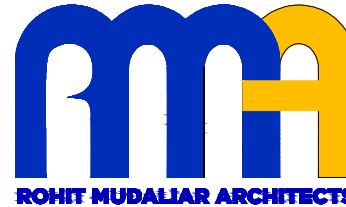
ORIENTATION



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4. ALL HOLES ARE 1.5mm MORE THAN DIA. OF BOLT UPTO 25mm.
5. ALL BOLTS ARE 100mm LG. UNLESS NOTED.
6. ALL ERECTION BOLTS ARE 75mm LG. UNLESS NOTED.
7. THE CENTER LINE DIMENSIONS SHOWN ON THE DRAWINGS HAVE BEEN DERIVED FROM THE AVAILABLE DRAWINGS AND SHALL BE CHECKED AT SITE BEFORE FABRICATION OF STRUCTURES. AT SITE BEFORE FABRICATION OF STRUCTURES.
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9. THE SUITABILITY AND CAPACITY OF ALL PLANT FOR ERECTION SHALL BE TO THE SATISFACTION OF THE ENGINEER-IN-CHARGE.
10. ALL MEMBERS ARE BOLTED AND WELDED AT SITE. AFTER WELDING THE BOLTS SHALL BE RETAINED.
11. ALL THE STRUCTURE SHALL BE ANTI-CORROSSIVE PAINT WITH APPROVED COLOUR AND QUALITY AS PER IS-SPECIFICATIONS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSITIONING AND LEVELLING OF ALL STEEL WORK AND ALSO FOR OVERALL SAFETY AND STABILITY OF THE STRUCTURE.
13. ALL STRUCTURAL STEEL SHOULD BE STORED

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PROJECT DETAILS

INTEGRATED MAHUA PROCESSING  
COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

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SHEET : 6

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ORIENTATION



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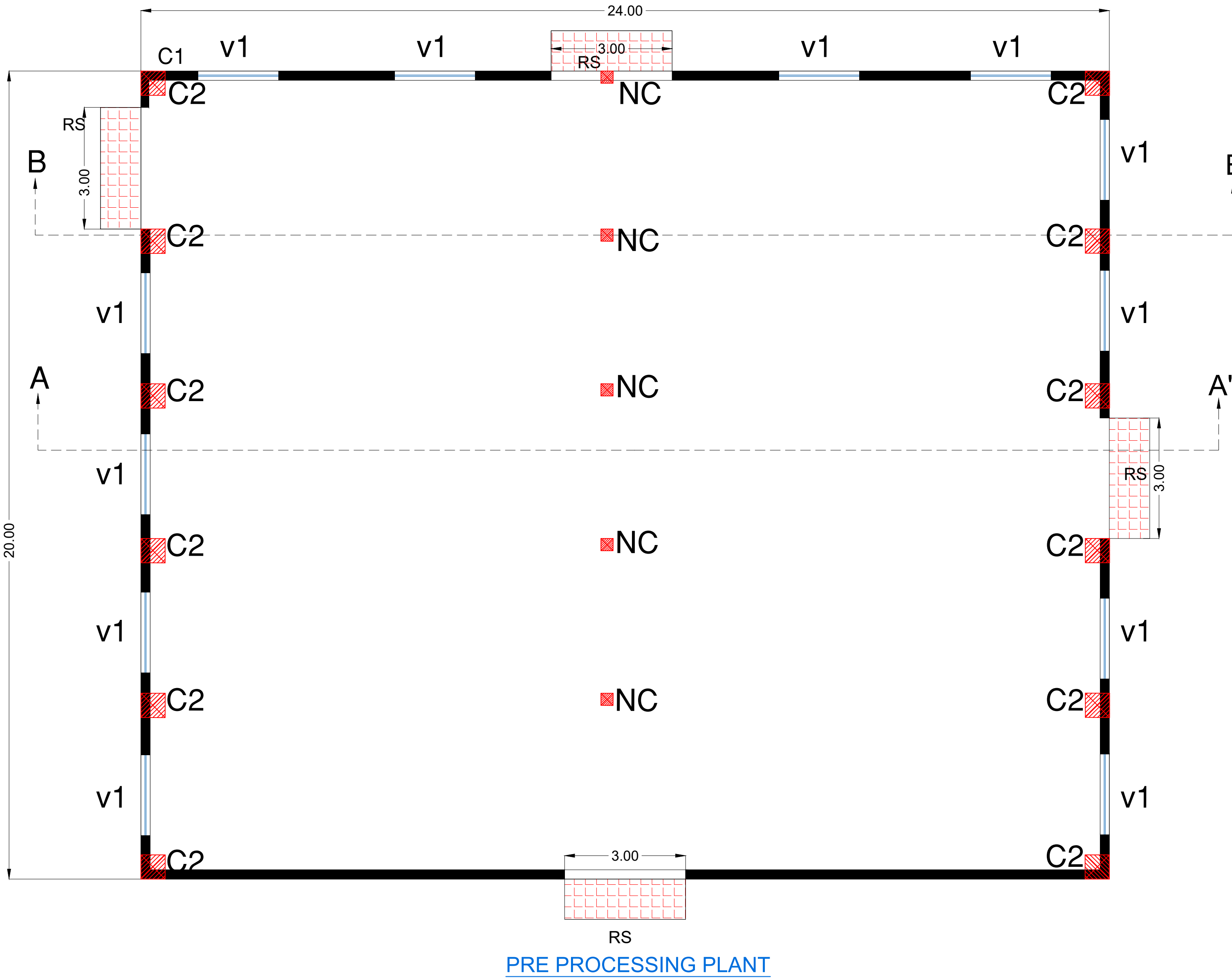
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TRUSS-2

TRUSS-1

20.00

PROCESSING PLANT



PRE PROCESSING PLANT

LEGEND :			
01	PRE CLEANER - DRY	01	NOS
02	ROTARY DRUM WASHER	02	NOS
03	ROTARY DRUM WASHER	02	NOS
04	DEHYDRATOR WITH AIR BLOWER	01	NOS
05	MULTI DECK DRYER	02	NOS
06	CONVEYOR/ELEVATOR	01	NO
07	COMBINED CONVEYOR	01	NO
A.	MATERIAL HANDLING EQUIPMENT STORE	4.0	X 3.0
B.	GRATE STACK AREA	4.0	X 3.0

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C2	3500 x 3500	150	3300 x 3300	750	16 $\Phi$ @150	16 $\Phi$ @150	600x600	10x20 $\Phi$ +12x16 $\Phi$	8 $\Phi$ @100-150	
NC	1700 x 1700	150	1500 x 1500	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	8x12 $\Phi$	8 $\Phi$ @100-150	

DRAWING TITLE  
PRE- PROCESSING COLUMN LAYOUT  
AND FOUNDATION PLAN  
ADVANCE COPY

PROJECT DETAILS

CLIENT DETAILS  
CHHATTISGARH STATE WOOD PROCESSING COMPLEX

STATUS OF DRAWING RELEASE  

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FOR TENDER

FOR CIVIL CONSTRUCTION

SR. NO.

REVISIONS

DATE

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VERIFIED BY:

SHEET :  
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N.T.S.

DATE  
19-08-2022

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STUCTURAL CONSULTANTS  
AURA DESIGNS AND CONSTRUCTION

3D VISUALIZATION

APPROVAL SIGN.

ORIENTATION  
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Website:- www.rohitmudaliar.com

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**PRE- PROCESSING SECTION , ELEVATION**  
ADVANCE COPY

## PROJECT DETAILS

## INTEGRATED MAHUA PROCESSING COMPLEX

## CLIENT DETAILS

## STATUS OF DRAWING RELEASE

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<input type="checkbox"/>	FOR DISCUSSION
<input checked="" type="checkbox"/>	FOR TENDER
<input type="checkbox"/>	FOR CIVIL CONSTRUCTION

SR. NO.	REVISIONS	DATE

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<b>VERIFIED BY:</b>	AR.ROHIT MUDALIAR	
<b>SHEET :</b>  <b>8</b>	<b>SCALE</b>	<b>DATE</b>
	N.T.S.	10/08/2022

**MEP CONSULTANTS**

## STRUCTURAL CONSULTANTS

**AURA DESIGNS AND CONSTRUCTION**

### 3D VISUALIZATION

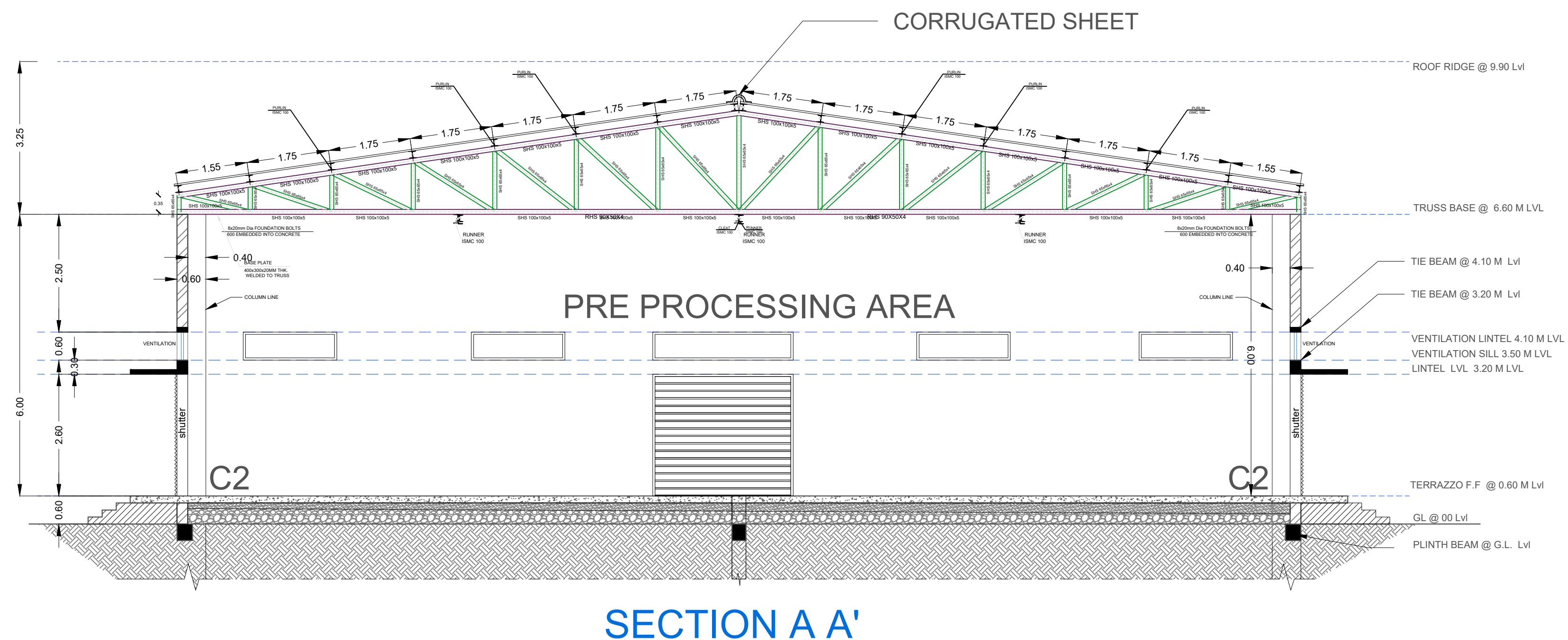
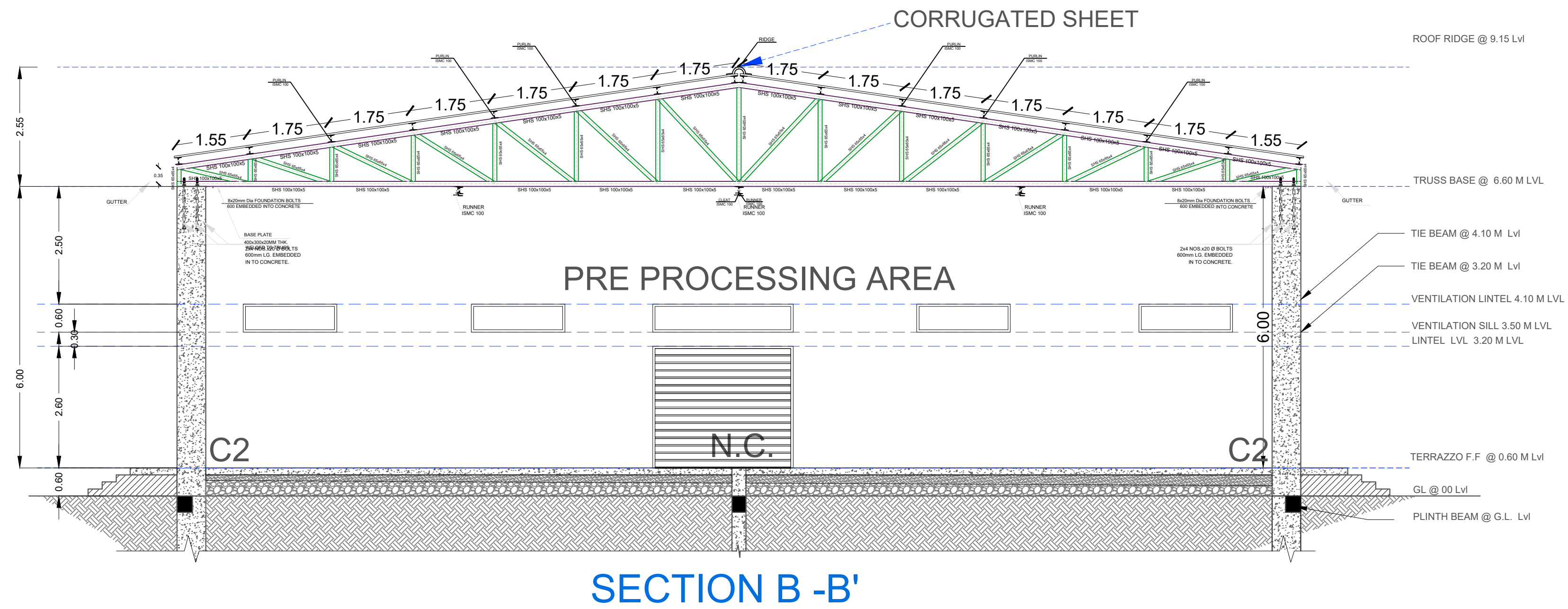
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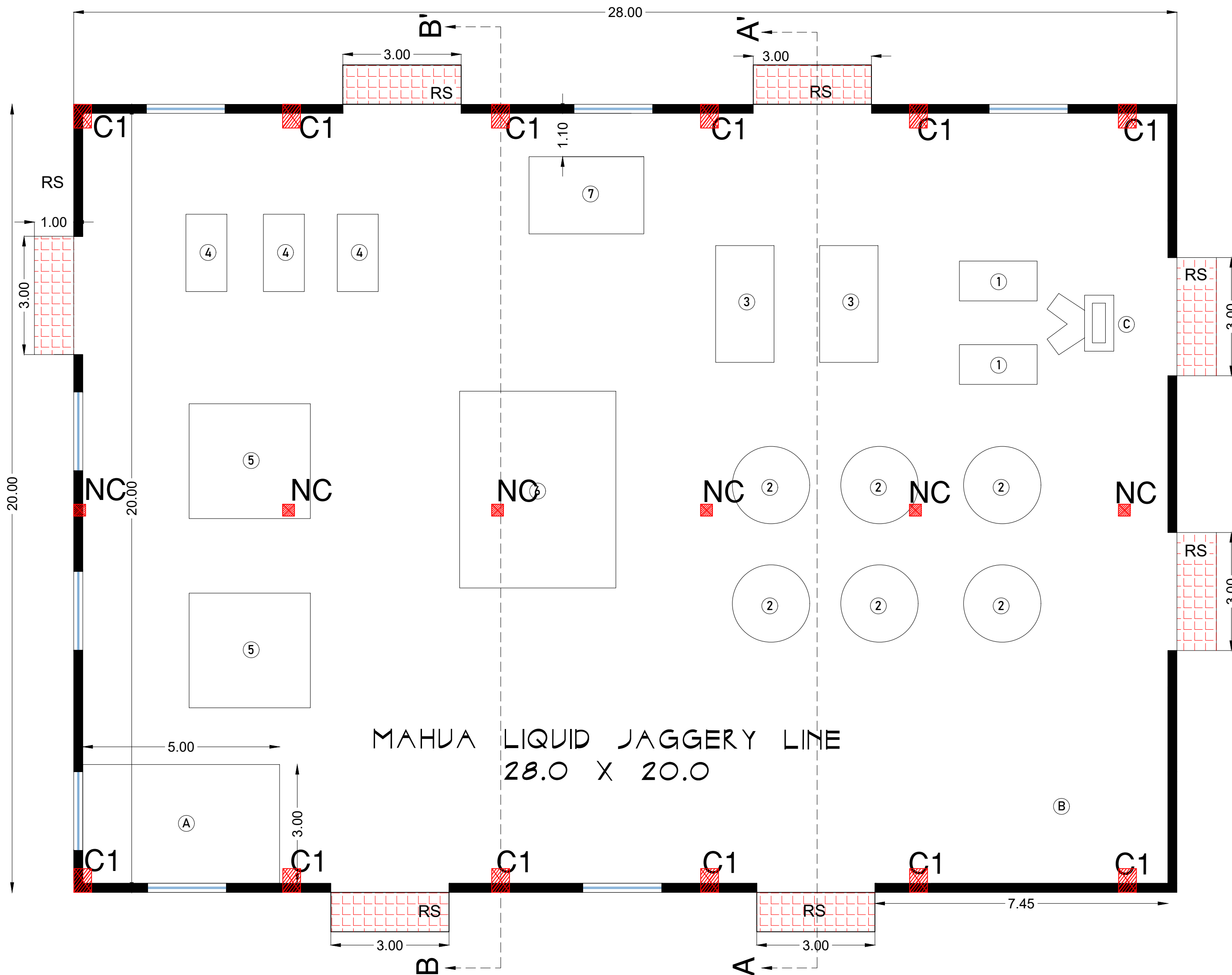
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SECTION A A'

PRE PROCESSING UNIT





MAHUA LIQUID JAGGERY LINE  
28.0 X 20.0

LEGEND:	
01 FRUIT MILL	02 NOS
02 STEAM JACKETED KETTLE	06 NOS
03 SCREW PRESS	02 NOS
04 CONTINUOUS DECANTER	03 NOS
05 DOUBLE EFFECT EVAPORATOR	02 NOS
06 BOTTLING LINE	01 NO
07 TRAY DRIER	01 NO
A. PACKING MATERIALS RESTORE	3.0 X 3.0
B. FINISHED PRODUCT STORE	6.0 X 3.0
C. CONVEYOR	01 NO

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	3200 x 3200	150	3000 x 3000	750	16 $\Phi$ @150	16 $\Phi$ @150	450x600	10x20 $\Phi$ +10x16 $\Phi$	8 $\Phi$ @100-150	
NC	1700 x 1700	150	1500 x 1500	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	8x12 $\Phi$	8 $\Phi$ @100-150	

DRAWING TITLE  
MAHUA LIQUID JAGGERY LINE  
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PROJECT DETAILS  
INTEGRATED MAHUA PROCESSING COMPLEX

CLIENT DETAILS  
CHHATTISGARH STATE MINOR FOREST PRODUCE

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FOR DISCUSSION

FOR TENDER

FOR CIVIL CONSTRUCTION

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		01.08.22

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N.T.S.

DATE  
19-08-2022

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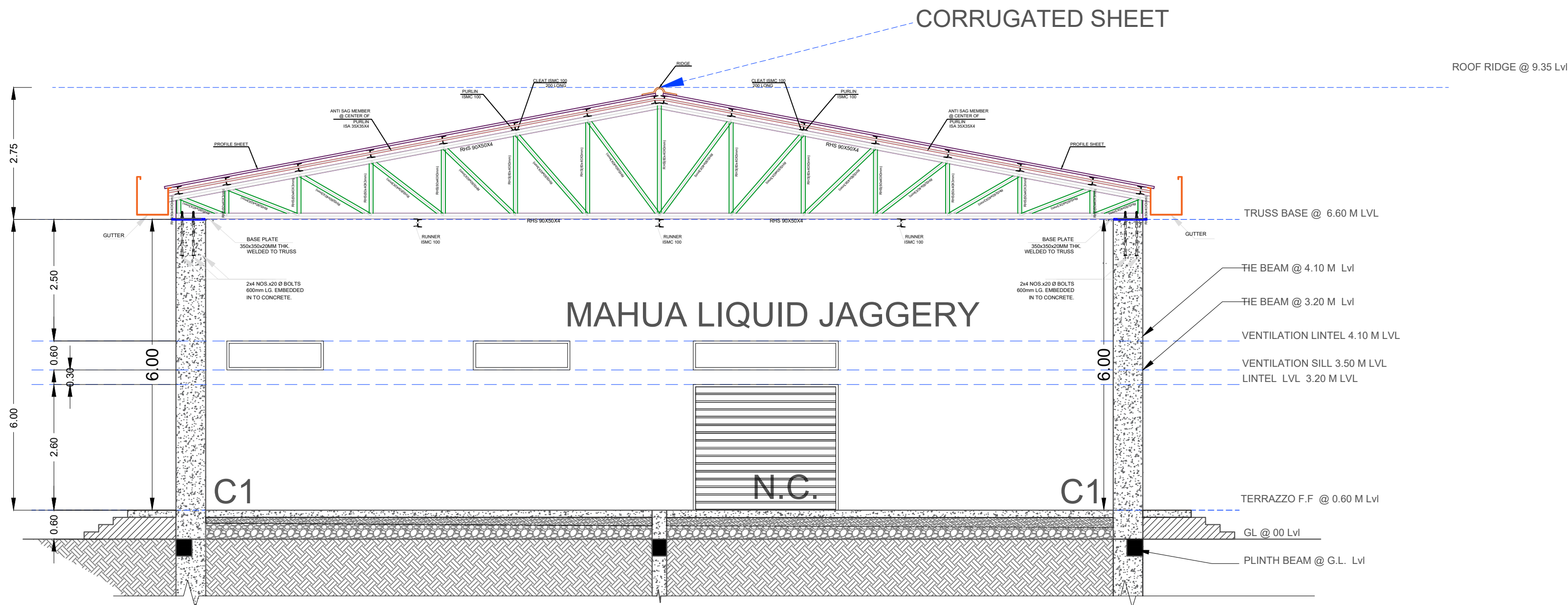
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AURA DESIGNS AND CONSTRUCTION

3D VISUALIZATION

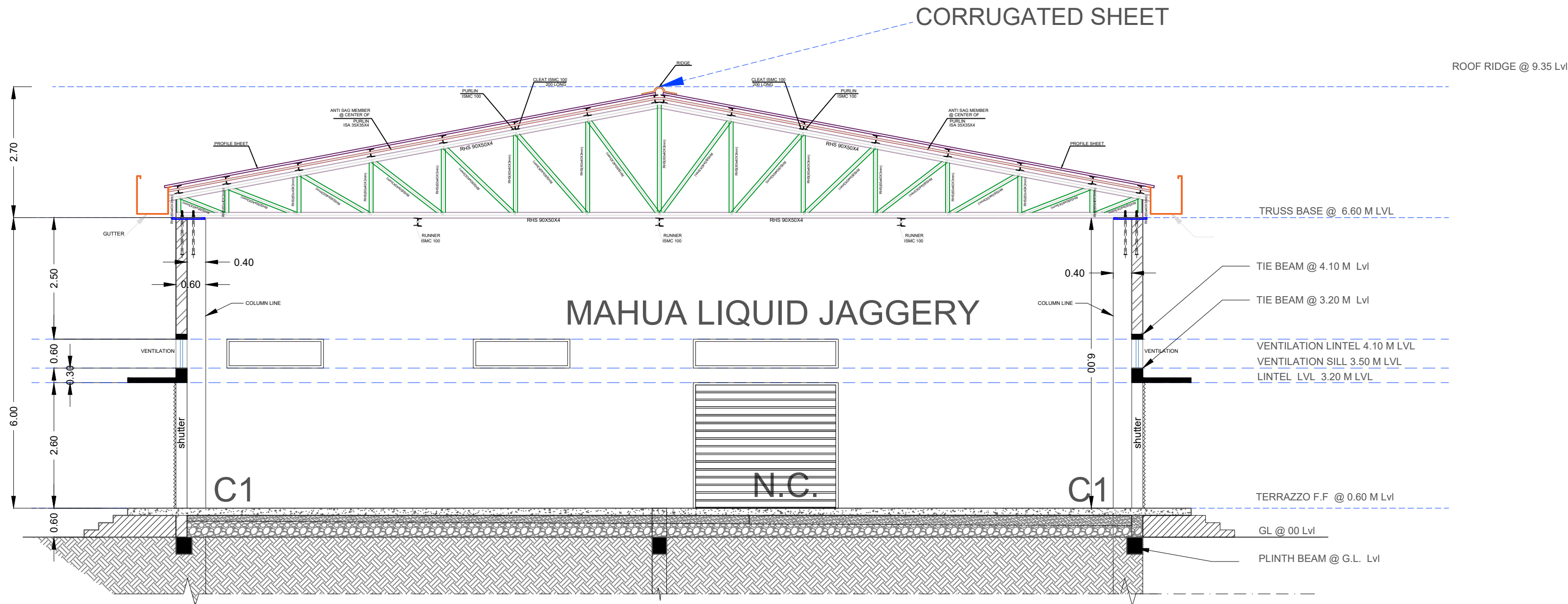
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Website:- www.rohitmudaliar.com



SECTION B-B'



SECTION A A'

MAHUA LIQUID JAGGERY

DRAWING TITLE  
MAHUA LIQUID JAGGERY LINE  
ADVANCE COPY

PROJECT DETAILS  
INTEGRATED MAHUA PROCESSING  
COMPLEX

CLIENT DETAILS  
CHHATTISGARH STATE MINOR  
FOREST PRODUCE

STATUS OF DRAWING RELEASE  
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FOR DISCUSSION  
FOR TENDER  
FOR CIVIL CONSTRUCTION

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VERIFIED BY:	AR.ROHIT MUDALIAR	
SHEET : 10	SCALE N.T.S.	DATE 10/08/2022

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AURA DESIGNS AND CONSTRUCTION

3D VISUALIZATION

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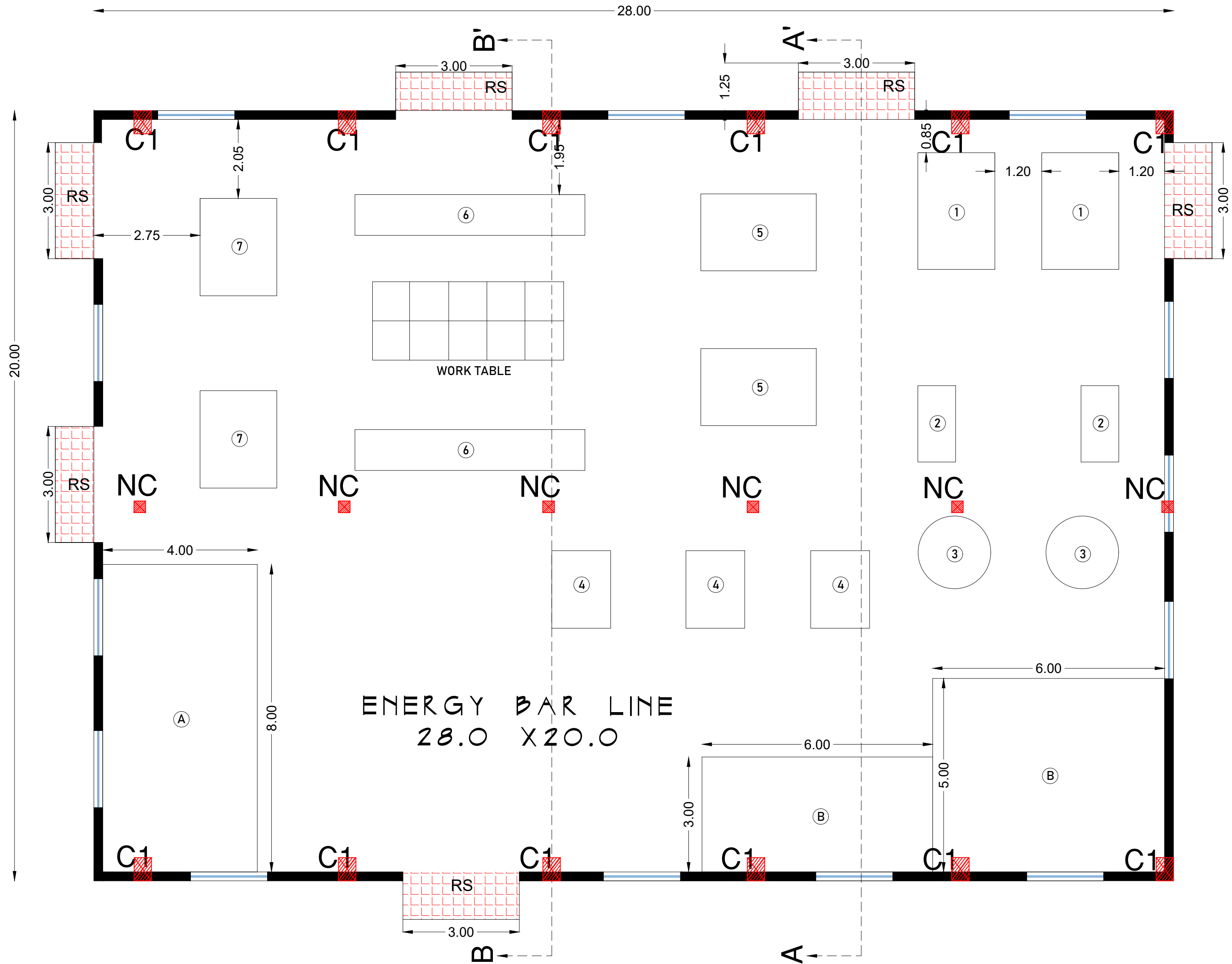
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LEGEND:			
O1	ROTARY DRUM ROASTER	O2	NOS
O2	RIBBON BLENDER	O2	NOS
O3	STEAM JACKETED KETTLE	O2	NOS
O4	SIGMA MIXER	O3	NOS
O5	BAR FORMING AND CUTTING UNIT	O2	NOS
O6	CONTINUOUS BAKING OVEN	O2	NO
O7	HORIZONTAL FLOW WRAP PACKING M/C	O2	NO
A.	DAILY STOCK STORE	8.0	X 4.0
B.	PACKING MATERIALS STORE	6.0	X 3.0
C.	FINISHED PRODUCT STORE	6.0	X 3.0

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
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DRAWING TITLE  
ENERGY BAR LINE  
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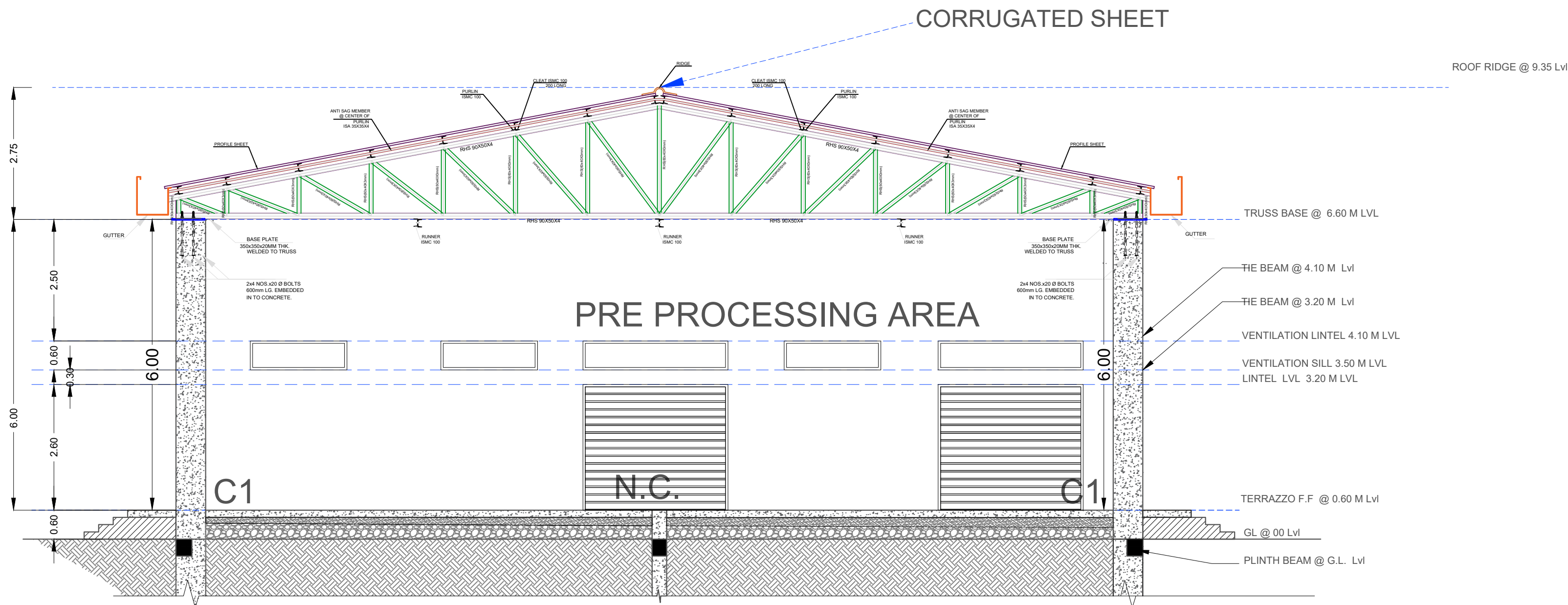
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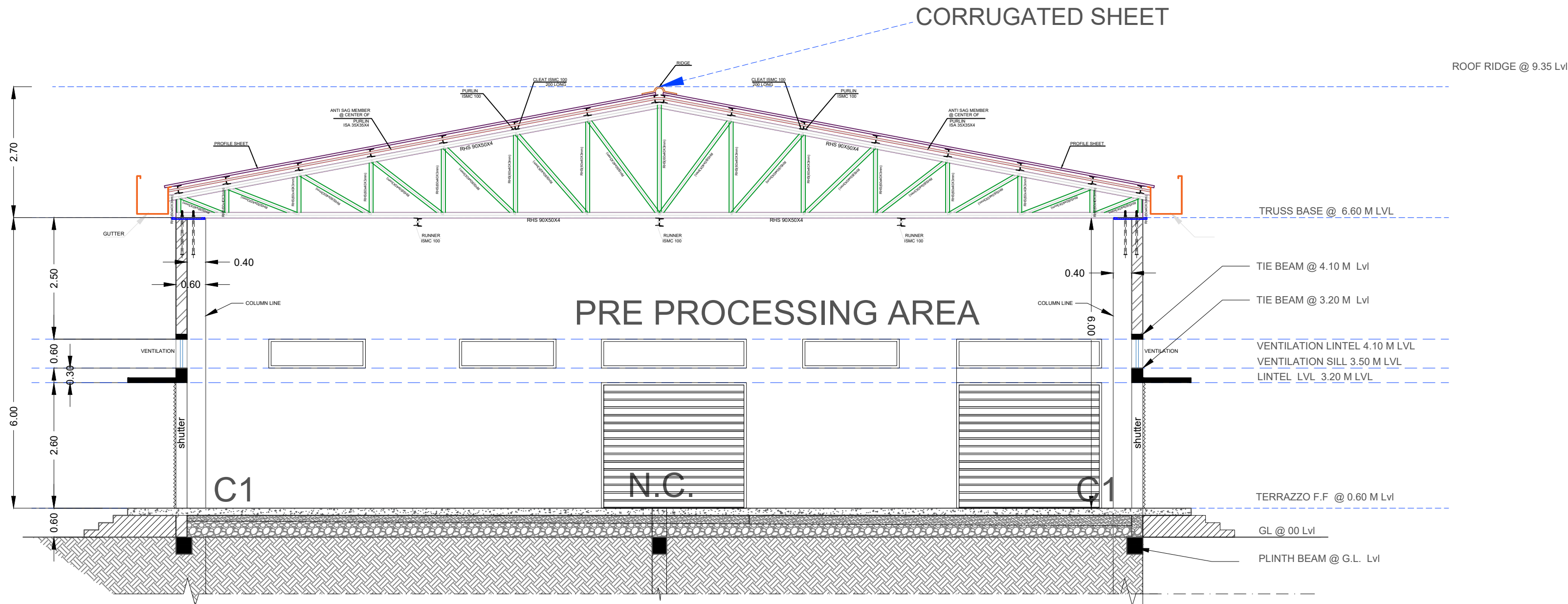
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SECTION B-B'



SECTION A A'

ENERGY BAR LINE

DRAWING TITLE  
ENERGY BAR LINE LINE  
ADVANCE COPY

PROJECT DETAILS  
INTEGRATED MAHUA PROCESSING  
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3D VISUALIZATION

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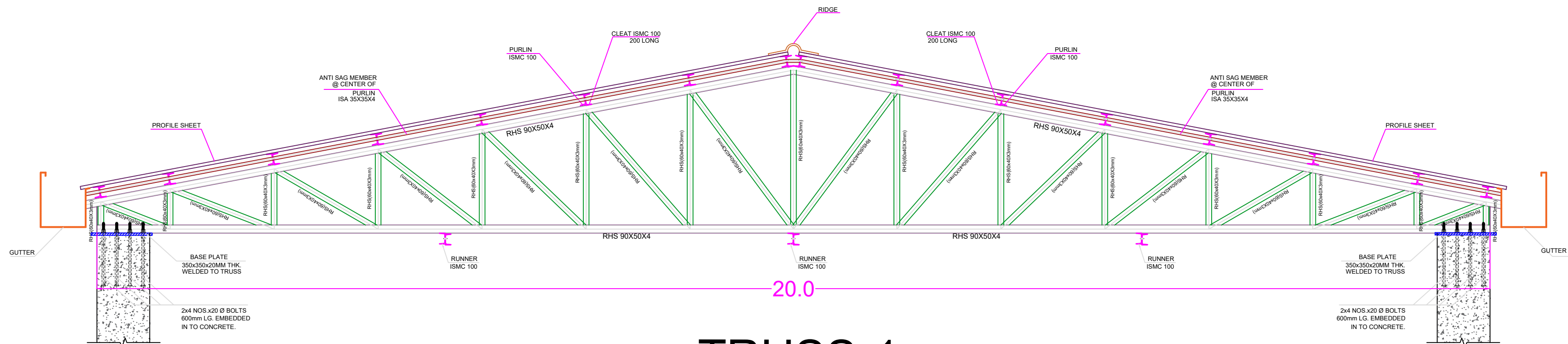
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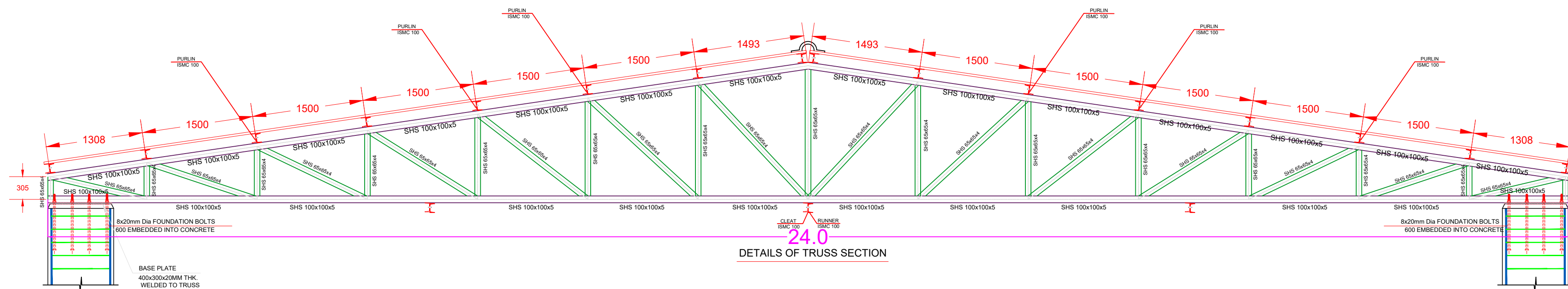


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# TRUSS-1



# TRUSS-2

**DRAWING TITLE**

**STRUCTURAL DRAWING**  
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## PROJECT DETAILS

## INTEGRATED MAHUA PROCESSING COMPLEX

## CLIENT DETAILS

**DRAWN BY:**

**VERIFIED BY:**

AR.ROHIT MUDALIAR

**SHEET : 13**

**SCALE**

DATE \_\_\_\_\_

N.T.S.

22-08-2022

**APPROVAL SIGN.**

## ORIENTATION



## STRUCTURAL CONSULTANTS

**AURA DESIGNS AND CONSTRUCTION**

## ARCHITECTS AND CONSULTANTS



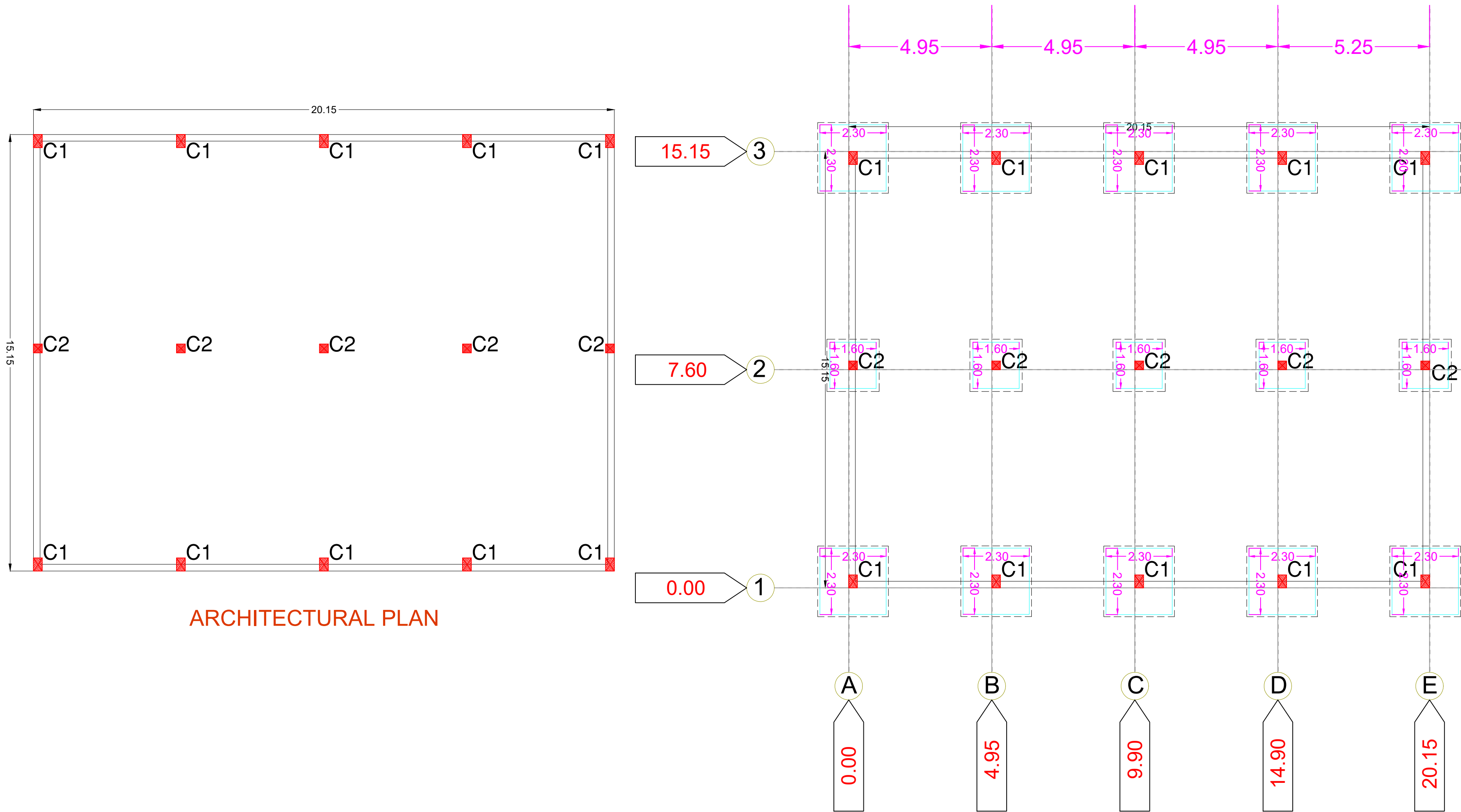
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Website:- [www.rohitmudaliar.com](http://www.rohitmudaliar.com)

PROCESSING PLANT, LOBBY, MAHUA LIQUID JAGGERY AND ENERGY BAR



CONCRETE MIX : M 20, GRADE OF STEEL : Fe 500



ARCHITECTURAL PLAN

LAYOUT PLAN

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	2000x2300	150	1800 x 2100	450	12 $\Phi$ @150	12 $\Phi$ @150	300x450	6x16 $\Phi$ +8x12 $\Phi$	8 $\Phi$ @100-150	
C2	1800x1800	150	1600 x 1600	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	4x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	

A. COLD ROOM, WALKING COOLER AND GODOWN

1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UP TO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

4. P.C.C.

PLAIN CEMENT CONCRETE M-10

5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-  
(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.3L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.
- AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMODATE BEAM BARS.
- CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
- RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
- U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
(a) FOR FLOOR BEAM/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS.  
(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
- IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS.
- STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
- REMARK "4 LEGGED" MEANS AT ALL LOCATIONS U.N.O.
- USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
- USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
- BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
- CURING :-  
EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
- CUTOUT/ OPENING :-  
ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.
- SLEEVE :-  
FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
- U.N.O. IN THE DWG. CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE.  
CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.
- READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
- DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
- ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT, LEVELS ARE IN METER.
- IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.
- SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.
- STRIPPING TIME TABLE AS PER IS 456-2000.
- TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.
- U.N.O. :- UNLESS NOTED OTHERWISE

DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY -

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

DRAWN BY:

VERIFIED BY:

AR.ROHIT MUDALIAR

SHEET : 14

SCALE

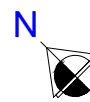
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DATE

19-08-2022

APPROVAL SIGN.

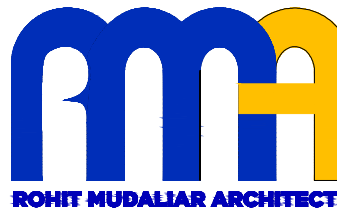
ORIENTATION



STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

ARCHITECTS AND CONSULTANTS



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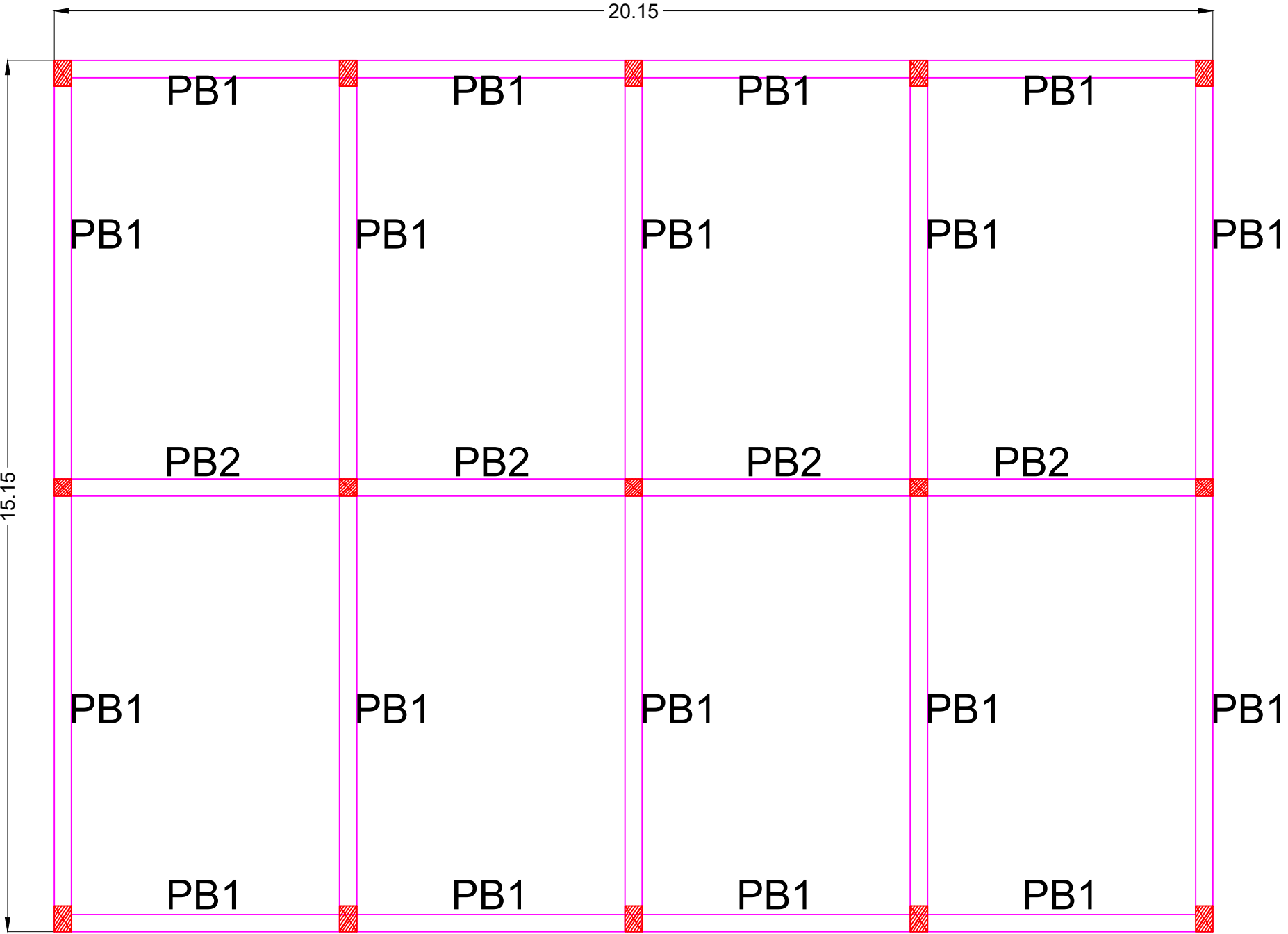
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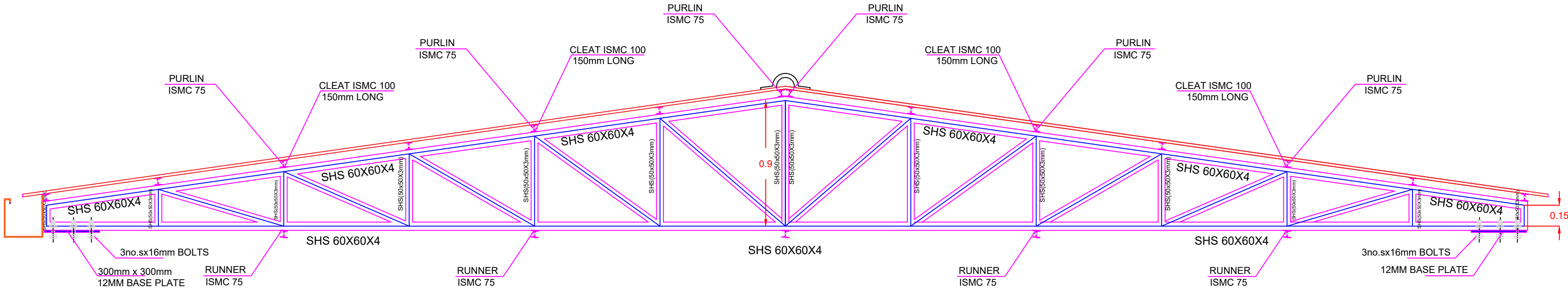
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Website:- www.rohitmudaliar.com



SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	300	450	3x12 $\Phi$	2x12 $\Phi$	3x12 $\Phi$	2x16 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		
PB2	300	350	3x12 $\Phi$	2x10 $\Phi$	3x12 $\Phi$	2x10 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		



TRUSS SECTION

A. COLD ROOM, WALKING COOLER AND GODOWN

DRAWING TITLE

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ADVANCE COPY

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING  
COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR FOREST  
PRODUCE

DRAWN BY:

VERIFIED BY:

AR.ROHIT MUDALIAR

SHEET : 15

SCALE

N.T.S.

DATE

25-08-2022

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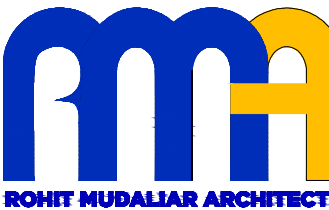
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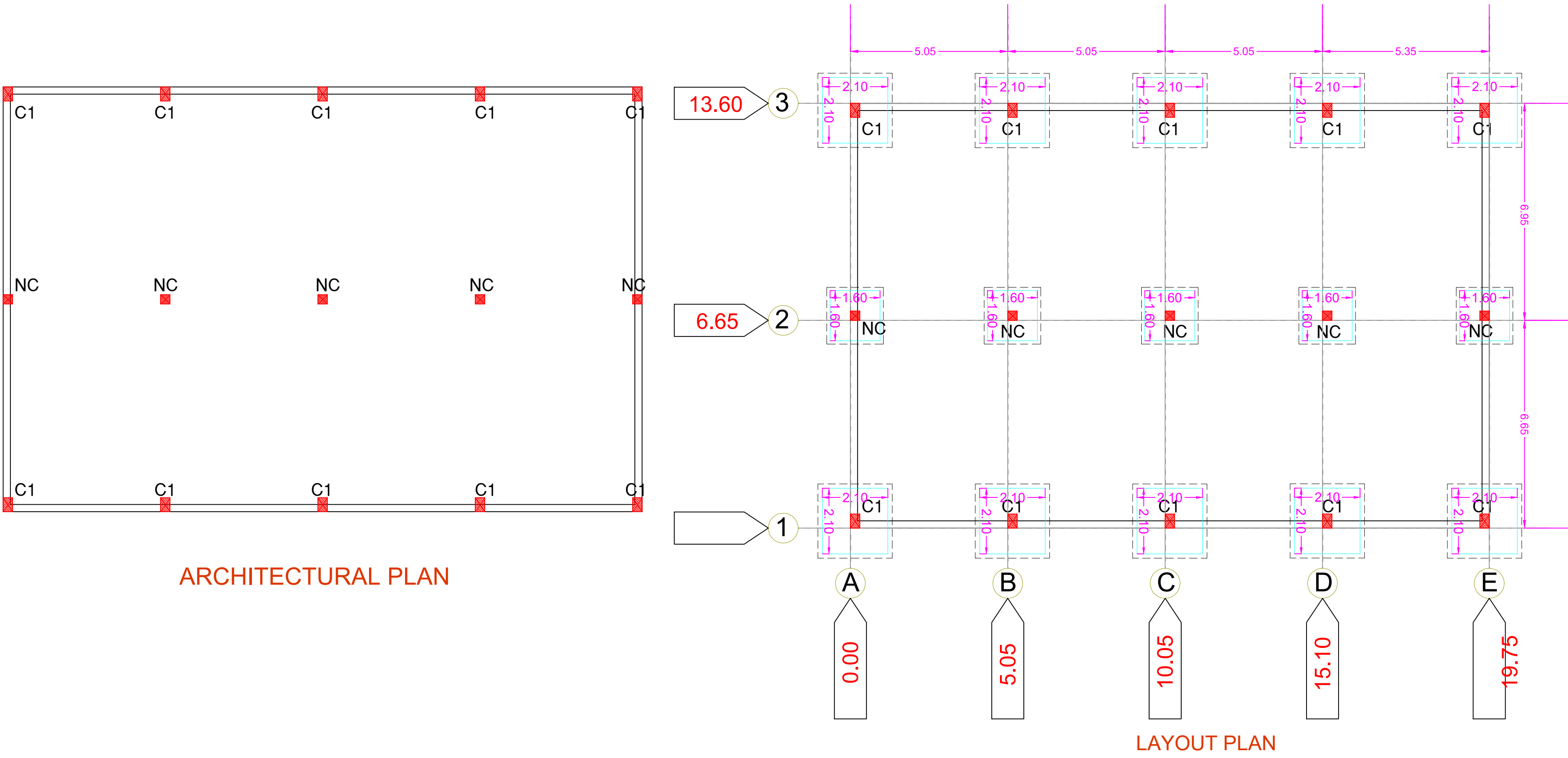
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SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	2300x2300	150	2100 x 2100	600	12 $\Phi$ @150	12 $\Phi$ @150	300x450	6x16 +8x12 $\Phi$	8 $\Phi$ @100-150	
NC	1800x1800	150	1600 x 1600	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	4x16 +4x12 $\Phi$	8 $\Phi$ @100-150	TILL PLINTH

B. BOILER HOUSE AND RO PLANT

1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

4. P.C.C.

PLAIN CEMENT CONCRETE M-10

5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-

(1) FOOTING (50 mm) (3) BEAM (25 mm)

(2) COLUMN (40 mm) (4) SLAB (20 mm)

OR DIA. OF BAR WHICHEVER IS GREATER.

GENERAL NOTES

1. EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.34L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.

2. AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.

3. CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.

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(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.

7. IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS

8. STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.

9. REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.

10. USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.

11. USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.

12. BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.

13. CURING : EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.

14. CUTOFF/ OPENING : ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.

15. SLEEVE : FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.

16. U.N.O. IN THE DWG., CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE. CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.

17. READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.

18. DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.

19. ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT, LEVELS ARE IN METER.

20. IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.

21. SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.

22. STRIPPING TIME TABLE AS PER IS 456-2000.

23. TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.

U.N.O. :- UNLESS NOTED OTHERWISE

DRAWING TITLE

STRUCTURAL DRAWING

ADVANCE COPY -

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR FOREST PRODUCE

DRAWN BY:

VERIFIED BY: AR.ROHIT MUDALIAR

SHEET : 16

SCALE N.T.S.

DATE 19-08-2022

APPROVAL SIGN.

ORIENTATION

STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

ARCHITECTS AND CONSULTANTS

ROHIT MUDALIAR ARCHITECTS

ARCHITECTS :: LANDSCAPERS :: INTERIORS

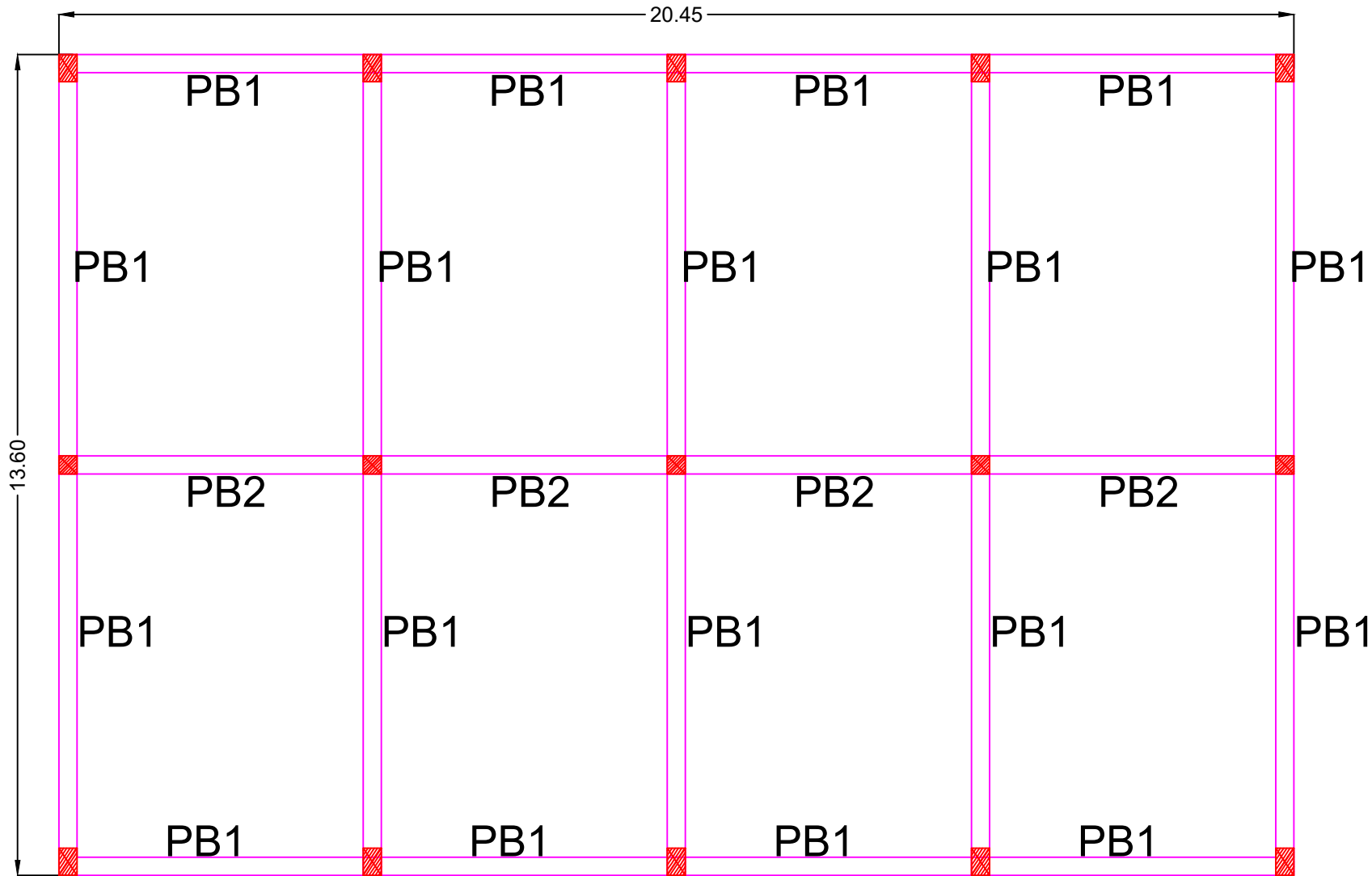
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PLINTH BEAMS

SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	300	350	2x12 $\Phi$	2x12 $\Phi$	3x12 $\Phi$	2x12 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		
PB2	300	350	2x12 $\Phi$	2x10 $\Phi$	3x12 $\Phi$	2x10 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		

B. BOILER HOUSE AND RO PLANT

DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY

PROJECT DETAILS

INTEGRATED MAHUA PROCESSING  
COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

DRAWN BY:

VERIFIED BY:

AR.ROHIT MUDALIAR

SHEET : 17

SCALE

DATE

N.T.S.

19-08-2022

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ORIENTATION

STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

ARCHITECTS AND CONSULTANTS

ROHIT MUDALIAR ARCHITECTS

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AR. ROHIT MUDALIAR

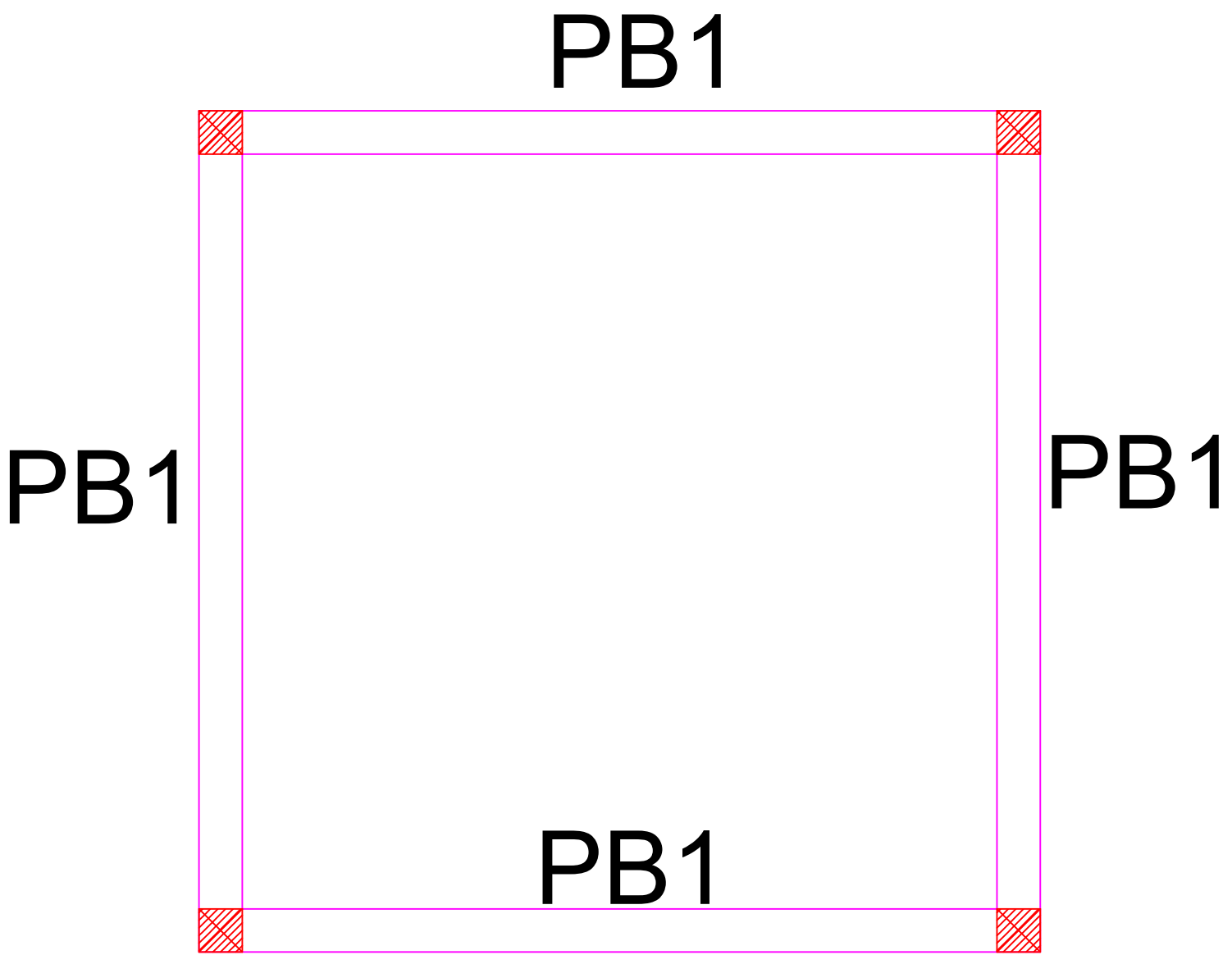
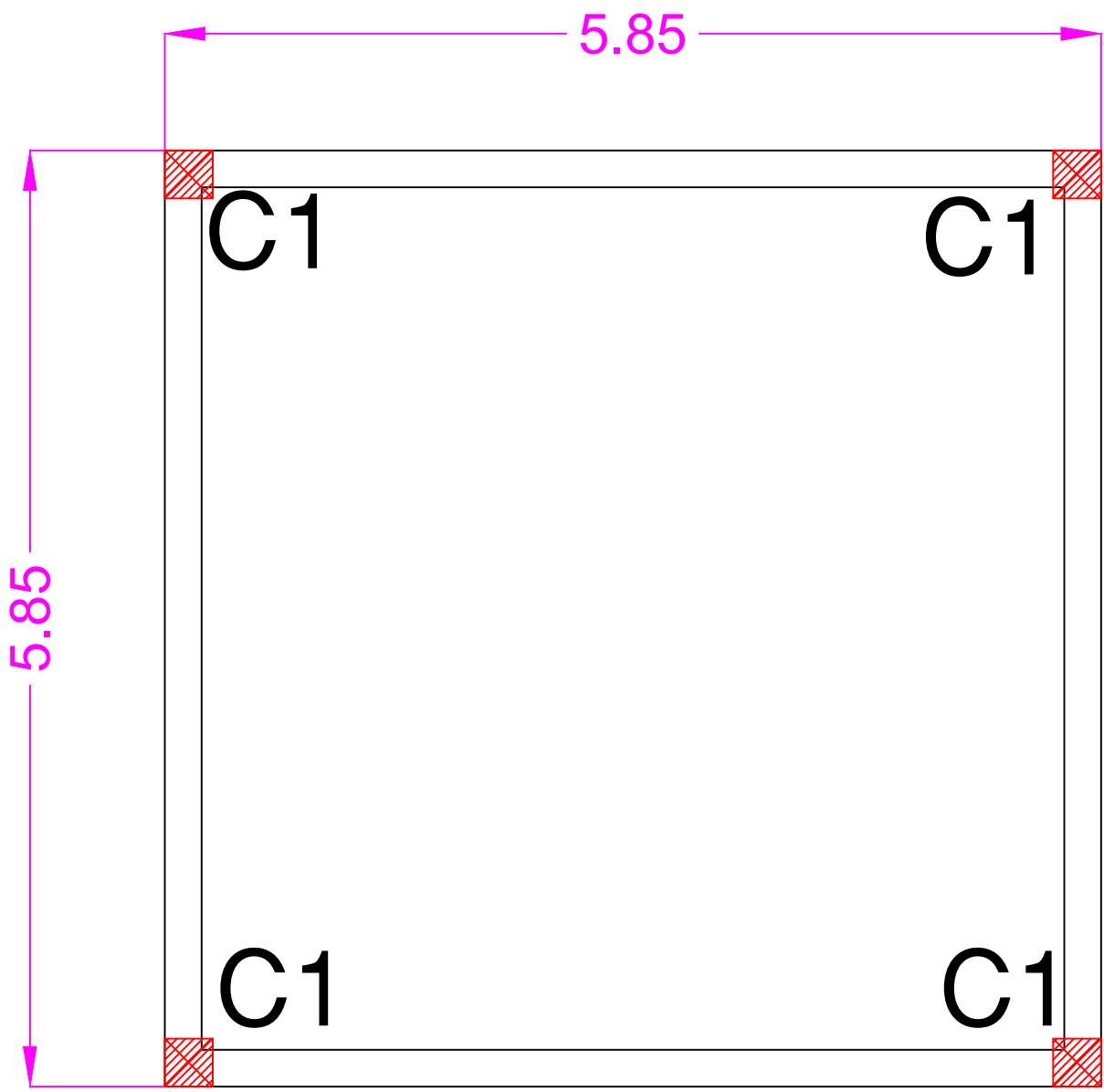
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SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	2000x2000	150	1800 x 1800	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	4x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	

SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	300	350	3x12 $\Phi$	2x10 $\Phi$	3x12 $\Phi$	2x10 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		

D. WATER TREATMENT PLANT

1. SAFE BEARING CAPACITY OF SOIL
S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.
2. REINFORCING STEEL
U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786 ALL REINFORCING STEEL TO BE OF TESTED QUALITY.
3. CONCRETE
U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.
4. P.C.C.
PLAIN CEMENT CONCRETE M-10
5. COVER
U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :- (1) FOOTING (50 mm) (3) BEAM (25 mm) (2) COLUMN (40 mm) (4) SLAB (20 mm) OR DIA. OF BAR WHICHEVER IS GREATER.
GENERAL NOTES
1. EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.34L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT. 2. AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS. 3. CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED, HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED. 4. RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L. 5. U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION. 6. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :- (a) FOR FLOOR BEAM/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS. (b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS. 7. IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS 8. STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.  9. REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O. 10. USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK. 11. USE DEMICURED COATED PLYWOOD FOR SHUTTERING & FORMWORK. 12. BURNIT OIL NOT PERMITTED FOR DE-SHUTTERING . 13. CURING : EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS. 14. C/CUTOUT/ OPENING : ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING. 15. SLEEVE : FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT. 16. U.N.O. IN THE DWG., CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE. CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT. 17. READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG. 18. DO NOT SCALE THE DWG., ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED. 19. ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT, LEVELS ARE IN METER. 20. IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK. 21. SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR. 22. STRIPPING TIME TABLE AS PER IS 456-2000. 23. TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO. U.N.O. :- UNLESS NOTED OTHERWISE

DRAWING TITLE

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
PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

DRAWN BY:		
VERIFIED BY:	AR.ROHIT MUDALIAR	
SHEET : 18	SCALE	DATE
	N.T.S.	19-08-2022

APPROVAL SIGN.	ORIENTATION
	

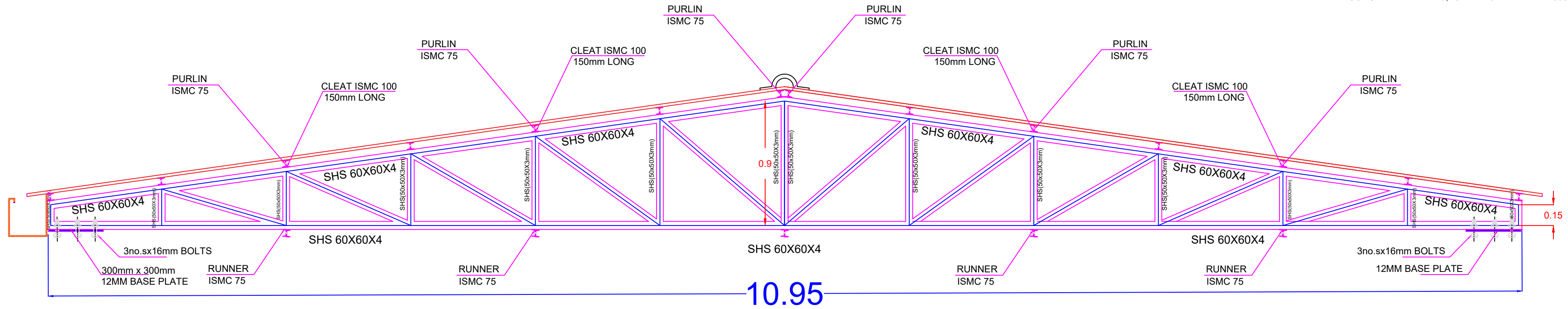
STRUCTURAL CONSULTANTS
AURA DESIGNS AND CONSTRUCTION

ARCHITECTS AND CONSULTANTS



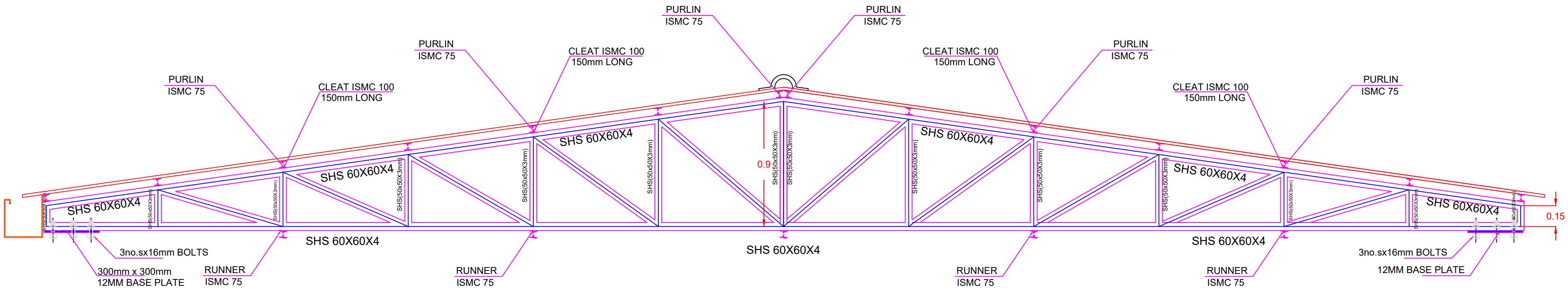
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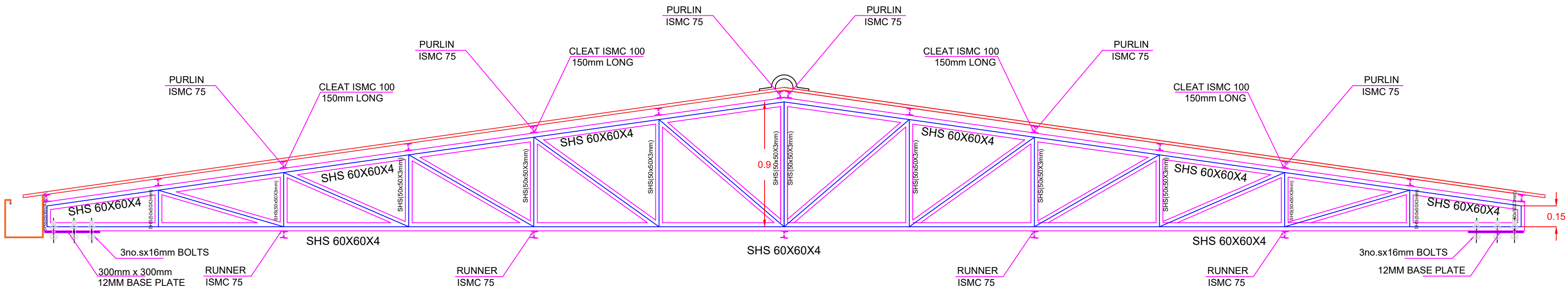
TRUSS SECTION

# GENERATOR ROOM TRUSS



TRUSS SECTION

# BOILER HOUSE AND RO PLANT TRUSS



TRUSS SECTION

# WATER TREATMENT PLANT TRUSS

## FABRICATION NOTES

1. THE STRUCTURAL STEEL TO BE USED IN THE WORK SHALL CONFIRM TO I.S. 2062.
2. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFIRM TO IS:800-2007.
3. WELDING SHALL BE IN ACCORDANCE WITH RELEVANT I.S. CODES . SUCH AS IS:816, IS-819, IS-1024, IS-1261 AS APPROPRIATE. THE MINIMUM SIZE OF FILLET WELDS SHALL BE 8mm
4. ALL HOLES ARE 1.5mm MORE THAN DIA. OF BOLT UPTO 25mm.
5. ALL BOLTS ARE 100mm LG. UNLESS NOTED.
6. ALL ERECTION BOLTS ARE 75mm LG. UNLESS NOTED.
7. THE CENTER LINE DIMENSIONS SHOWN ON THE DRAWINGS HAVE BEEN DERIVED FROM THE AVAILABLE DRAWINGS AND SHALL BE CHECKED AT SITE BEFORE FABRICATION OF STRUCTURES. AT SITE BEFORE FABRICATION OF STRUCTURES.
8. PERMANENT BOLTING OR WELDING SHOULD BE DONE UNTIL PROPER ALIGNMENT HAS BEEN OBTAINED.
9. THE SUITABILITY AND CAPACITY OF ALL PLANT FOR ERECTION SHALL BE TO THE SATISFACTION OF THE ENGINEER-IN-CHARGE.
10. ALL MEMBERS ARE BOLTED AND WELDED AT SITE. AFTER WELDING THE BOLTS SHALL BE RETAINED.
11. ALL THE STRUCTURE SHALL BE ANTI-CORROSSIVE PAINT WITH APPROVED COLOUR AND QUALITY AS PER IS-SPECIFICATIONS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSITIONING AND LEVELLING OF ALL STEEL WORK AND ALSO FOR OVERALL SAFETY AND STABILITY OF THE STRUCTURE.
13. ALL STRUCTURAL STEEL SHOULD BE STORED

## DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY

## PROJECT DETAILS

INTEGRATED MAHUA PROCESSING  
COMPLEX

## CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

## DRAWN BY:

## VERIFIED BY:

AR.ROHIT MUDALIAR

## SHEET : 19

## SCALE

N.T.S.

## DATE

25-08-2022

## APPROVAL SIGN.

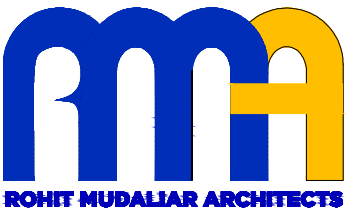
## ORIENTATION



## STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

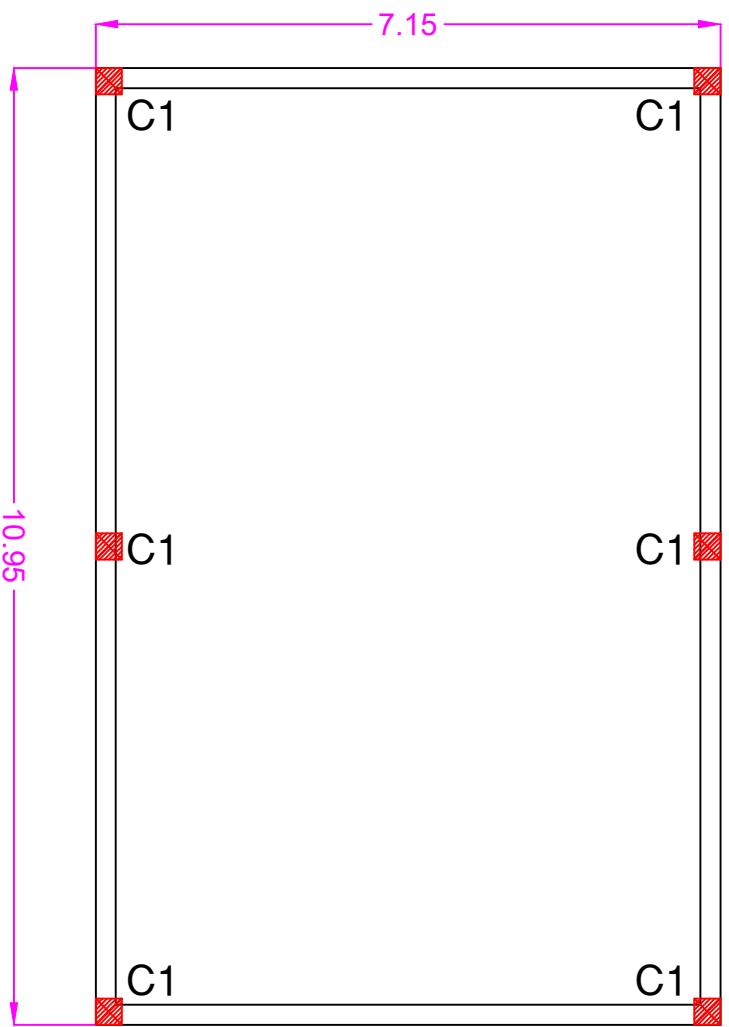
## ARCHITECTS AND CONSULTANTS



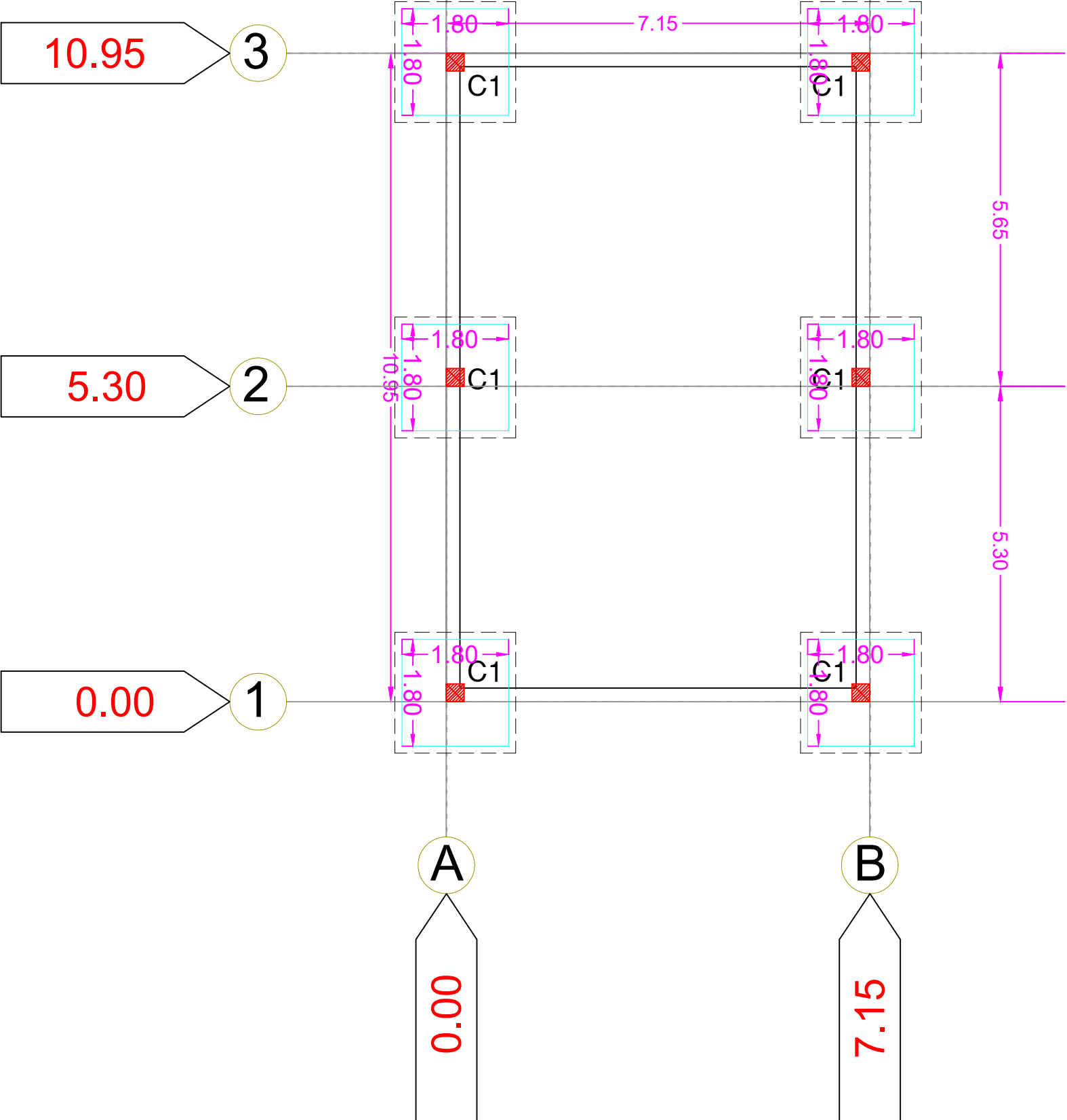
ARCHITECTS :: LANDSCAPERS :: INTERIORS

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Contact No:- +91-9423591252 / 0771-4916767  
Email Id:- architects@rohitmudaliar.com  
Website:- www.rohitmudaliar.com

CONCRETE MIX : M 20, GRADE OF STEEL : Fe 500



ARCHITECTURAL PLAN



LAYOUT PLAN

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	2000x2000	150	1800 x 1800	450	12 $\Phi$ @150	12 $\Phi$ @150	300x300	4x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	

SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	300	350	3x12 $\Phi$	2x10 $\Phi$	3x12 $\Phi$	2x10 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		

# GENERATOR ROOM

## 1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

## 2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

## 3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

## 4. P.C.C.

PLAIN CEMENT CONCRETE M-10

## 5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-  
(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

## GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.34L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.
- AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.
- CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
- RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
- U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
(a) FOR FLOOR BEAMS/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS.  
(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
- IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS.
- STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
- REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.
- USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
- USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
- BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
- CURING : EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
- CUTOUT/ OPENING : ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.
- SLEEVE : FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
- U.N.O. IN THE DWG., CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE. CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.
- READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
- DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
- ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT. LEVELS ARE IN METER.
- IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.
- SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.
- STRIPPING TIME TABLE AS PER IS 456-2000.
- TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.
- U.N.O. :- UNLESS NOTED OTHERWISE

## DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY -

## PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

## CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

## DRAWN BY:

## VERIFIED BY:

AR.ROHIT MUDALIAR

## SHEET : 20

## SCALE

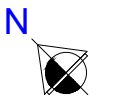
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## DATE

19-08-2022

## APPROVAL SIGN.

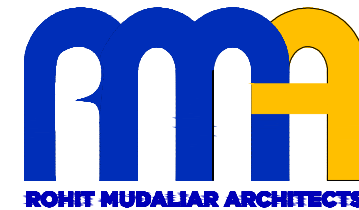
## ORIENTATION



## STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

## ARCHITECTS AND CONSULTANTS



ARCHITECTS :: LANDSCAPERS :: INTERIORS

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Email Id:- architects@rohitmudaliar.com  
Website:- www.rohitmudaliar.com





COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	2000x2000	150	1800 x 1800	450	12 $\Phi$ @150	12 $\Phi$ @150	230x350	4x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	230	450	3x12 $\Phi$	1x10 $\Phi$	3x12 $\Phi$	2x10 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		



# STAFF ROOM AND CANTEEN

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH  
DEFORMED BARS OF SPECIFIED GRADE CONFORMING TO IS:1786  
ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

PLAIN CEMENT CONCRETE M-10
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U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT

(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

1. EXTRACT TOP OR Bent-UP BARS SHALL BE EXTENDED UP TO 0.3L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT NEXT SUPPORT.

2. AT BEAM COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS, SHALL BE GRADUALLY BENT & PLACED CLEAR OF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.

3. CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS, STIRRUPS AT THE SPACING SHOWN SHOULD BE DOUBLED.

4. RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE 0.3L.

5. U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.

6. NOT MORE THAN 50% OF REINFORCEMENT BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS -

(a) FOR FLOOR BEAMS/LAP CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS

(b) FOR FOUNDATION BEAMS/LAP CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.

7. IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS.

8. STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.

9. REINFORCEMENT SHALL BE PLACED AT THE LOCATIONS U.N.O.

10. USE OF MEELE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.

11. USE DESIGNATED COLD PLYWOOD FOR SHUTTERING & FORMWORK.

12. BURNING NOT PERMITTED FOR DE-SHUTTERING.

13. CURING :-

(a) EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.

14. CUTOFF / OPENING :-

ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C. BEAMS AND COLUMNS DURING OR AFTER CASTING.

15. SLEEVE :-

FOR SLEEVES PROVIDE ADDL TWO RINGS SPACED @ 75MM C/C OVER THE SIZE OF IT.

16. U.N.O. IN THE DWG, CONSTRUCTION JONT SHALL BE APPROVED BY ENGINEER AT SITE.

CONSTRUCTION JONT SHOULD BE AT QUARTER SPAN OF BEAM AND SHOULD BE IN NO CONDICTION SHOWN IN THE DWG.

17. READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.

18. DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.

19. ALL DIMENSIONS ARE IN MM, EXCEPT IN U.N.O. LEVELS ARE IN METER.

20. IN CASE OF ANY AMBIGUITY OF THE DRAWING, REFER IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.

21. SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.

22. STRIPPING TIME TABLE AS PER IS 456-2000.

23. TOP BARS OF CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.

U.N.O. - UNLESS NOTED OTHERWISE

**STRUCTURAL DRAWING**  
ADVANCE COPY -

### INTEGRATED MAHUA PROCESSING COMPLEX

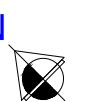
CHHATTISGARH STATE MINOR  
FOREST PRODUCE

<b>VERIFIED BY:</b>	AR.ROHIT MUDALIAR
---------------------	-------------------

SCALE	DATE
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N.T.S.	19-08-2022
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## ORIENTATION

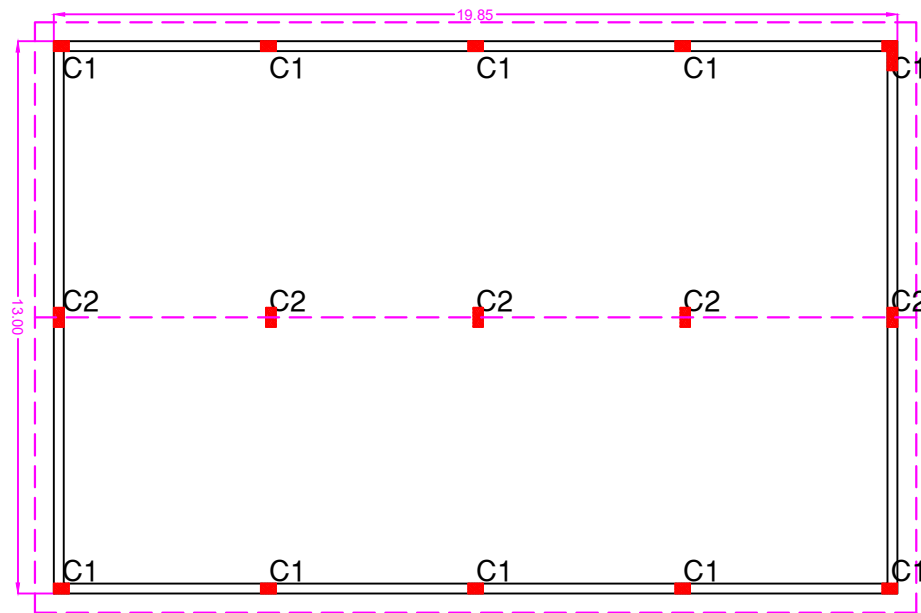


**AURA DESIGNS AND CONSTRUCTION**

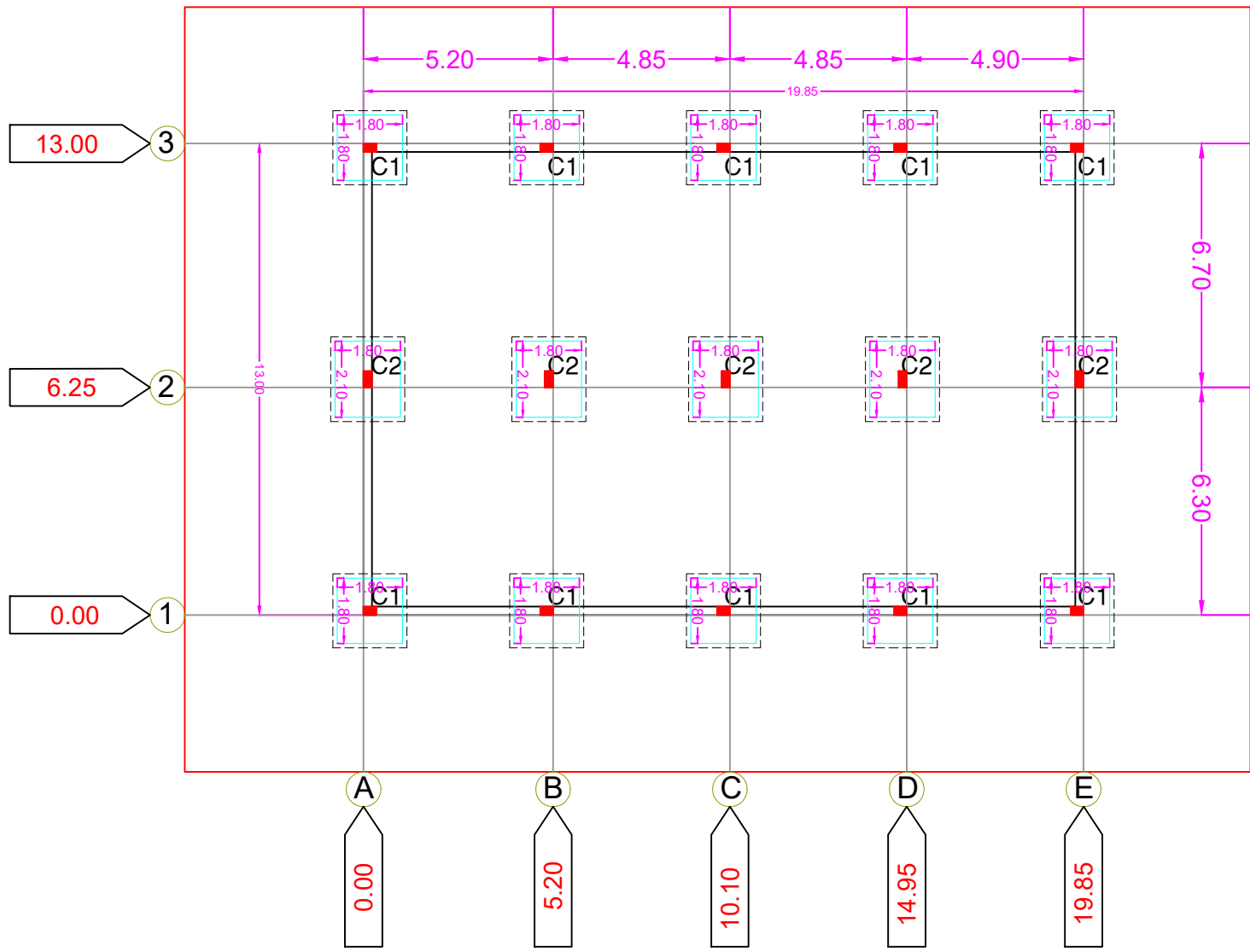
**AR. ROHIT MUDALIAR**  
H.NO. 2, Maulshree Vihar, Vishal Nagar,  
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Contact No:- +91-9423591252 / 0771-4916767  
Email Id:- architects@rohitmudaliar.com  
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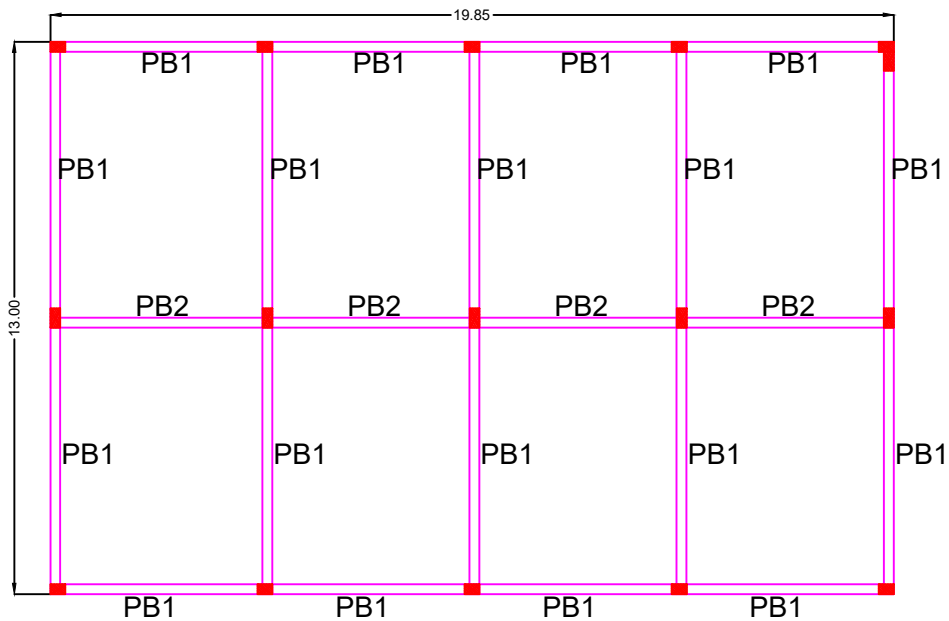
CONCRETE MIX : M 20, GRADE OF STEEL : Fe 500



ARCHITECTURAL PLAN



LAYOUT PLAN

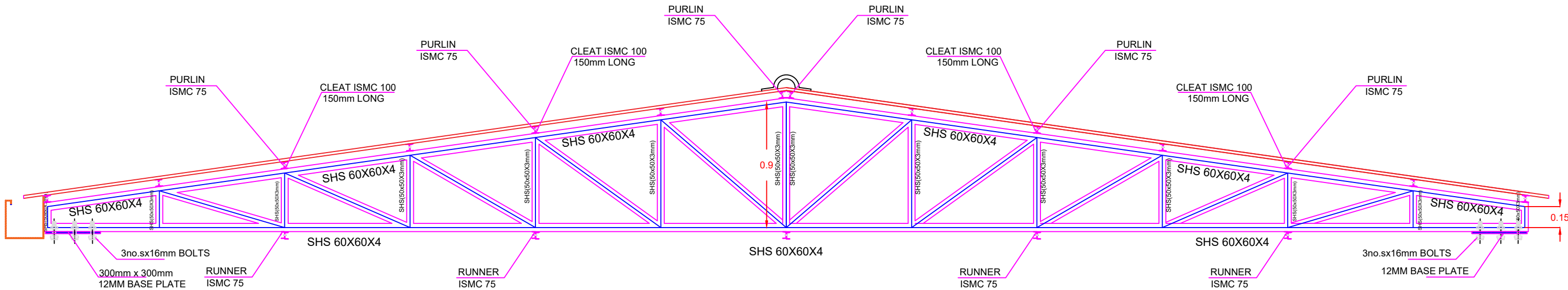


SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT. BARS	TIES	
C1	2000x2000	150	1800 x 1800	450	12 $\Phi$ @150	12 $\Phi$ @150	230x350	4x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	
C2	2000x2300	150	1800 x 2100	450	12 $\Phi$ @150	12 $\Phi$ @150	230x450	6x16 $\Phi$ +4x12 $\Phi$	8 $\Phi$ @100-150	

SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	230	450	3x12 $\Phi$	2x12 $\Phi$	3x12 $\Phi$	2x12 $\Phi$	8 $\Phi$ @100	8 $\Phi$ @150		
PB2	230	350	3x12 $\Phi$		3x12 $\Phi$		8 $\Phi$ @100	8 $\Phi$ @150		



TRUSS SECTION

# ADMINISTRATIVE BLOCK AND QC LAB

## 1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

## 2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE. CONFORMING TO IS: 1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

## 3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

## 4. P.C.C.

PLAIN CEMENT CONCRETE M-10

## 5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-  
(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

## GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.3L IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT. AND ANCHOR DOWN AT END SUPPORT.
- AT BEAM & COLUMN JUNCTION. BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.
- CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
- RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
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- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
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(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
- IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS
- STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
- REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.
- USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
- USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
- BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
- CURING :  
EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
- CUTOUT/ OPENING :  
ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.
- SLEEVE :  
FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
- U.N.O. IN THE DWG. CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE.  
CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB. IN NO CONDITION SHOULD BE AT THE SUPPORT.
- READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
- DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
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- STRIPPING TIME TABLE AS PER IS 456-2000.
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- U.N.O. :- UNLESS NOTED OTHERWISE

## DRAWING TITLE

STRUCTURAL DRAWING  
ADVANCE COPY -

## PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

## CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

## DRAWN BY:

## VERIFIED BY:

AR.ROHIT MUDALIAR

## SHEET : 22

## SCALE

N.T.S.

## DATE

19-08-2022

## APPROVAL SIGN.

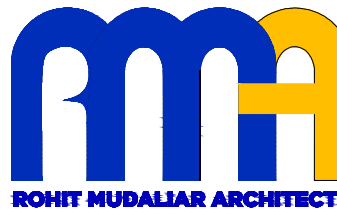
## ORIENTATION



## STRUCTURAL CONSULTANTS

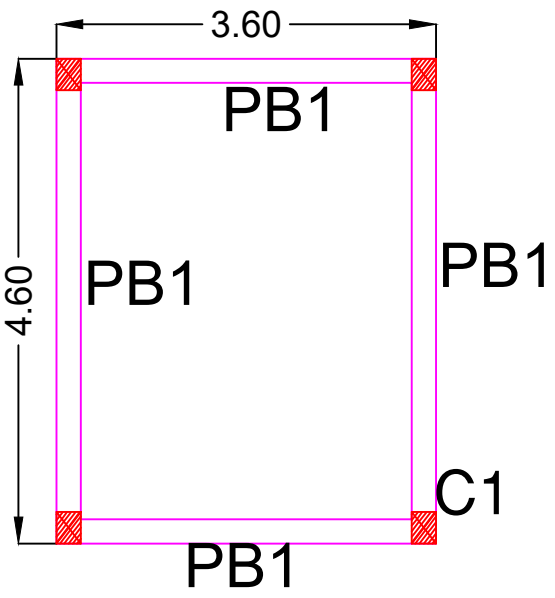
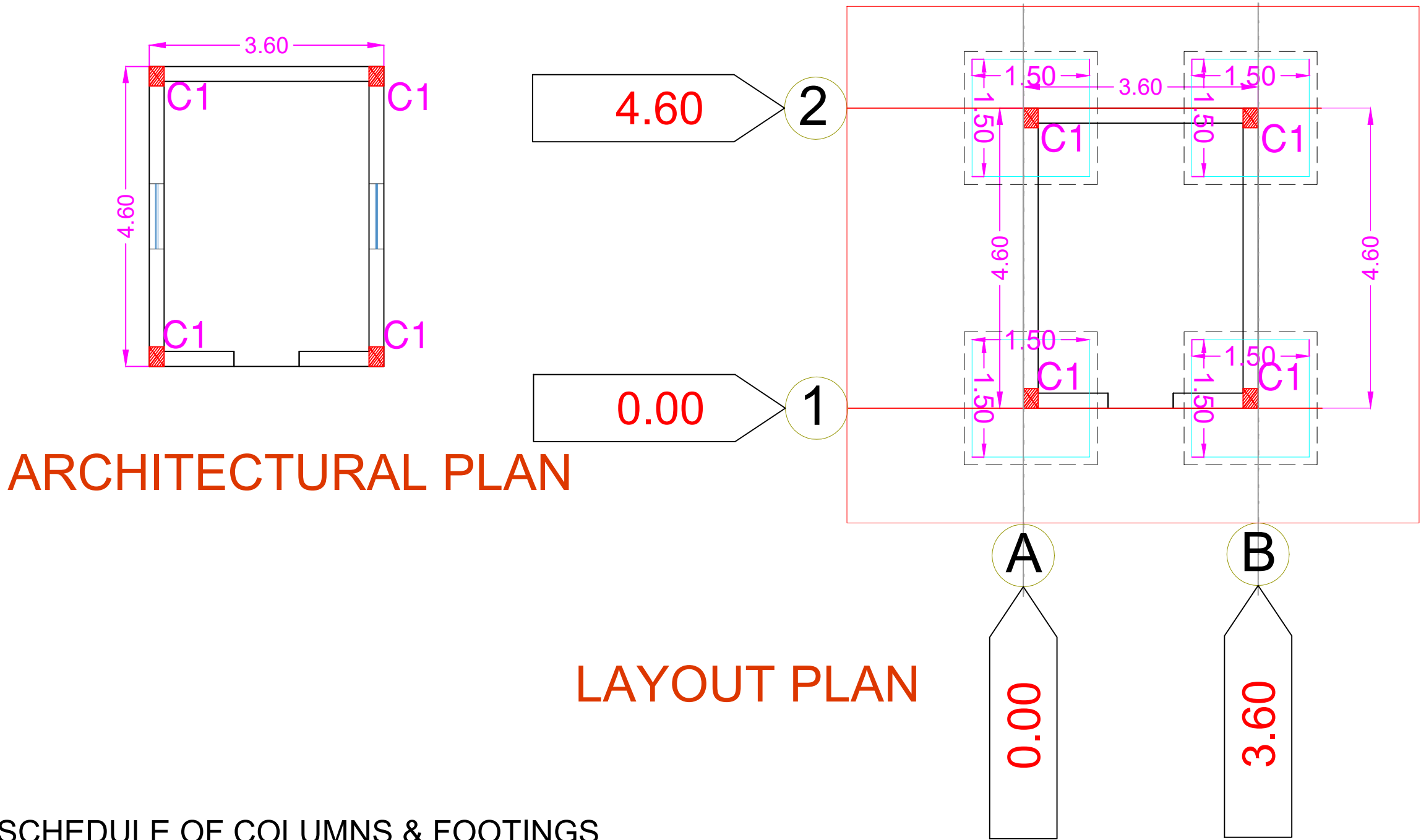
AURA DESIGNS AND CONSTRUCTION

## ARCHITECTS AND CONSULTANTS



ARCHITECTS :: LANDSCAPERS :: INTERIORS

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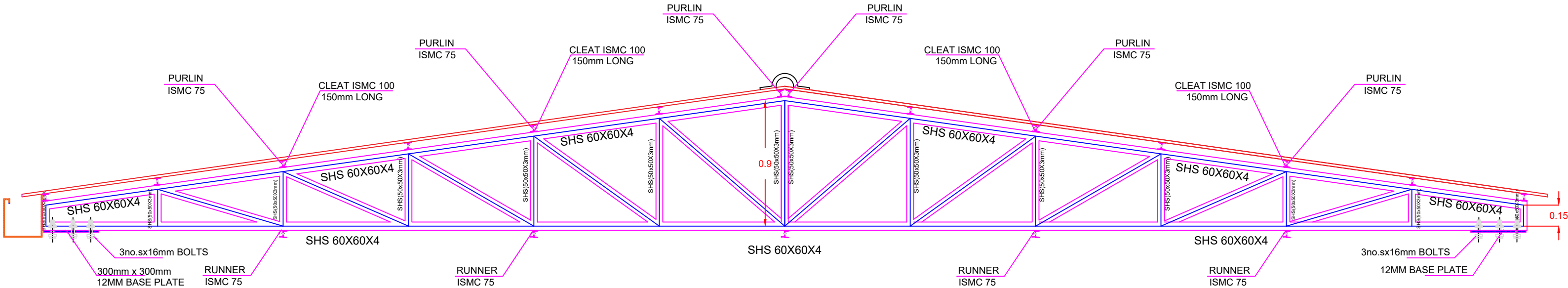
PLINTH BEAM PLAN

SCHEDULE OF COLUMNS & FOOTINGS

COLUMN NO.	EXCAVATION SIZE	PCC. THK.	FOUNDATION		REINFORCEMENT ALONG		COLUMN AT GROUND FLOOR			REMARKS
			FOOTING SIZE	FOOTING DEPTH	LONG LOWER TIER	SHORT UPPER TIER	SIZE	VERT.BARS	TIES	
C1	1700x1700	150	1500 x 1500	300	12 $\Phi$ @150	12 $\Phi$ @150	230x300	6x12 $\Phi$	8 $\Phi$ @100-150	

SCHEDULE OF PLINTH BEAMS

BEAM NO.	SIZE		BOTTOM REINFORCEMENT		TOP REINFORCEMENT		STIRRUPS		SIDE BARS	REMARK
	B	D	THROUGH OUT	MID SPAN 0.7xL	THROUGH OUT	EXTRA TOP 0.25xL FROM FACE OF COLUMN ON EACH SIDE	UPTO 2D FROM FACE OF COLUMN	AT MID SPAN		
PB1	230	350	3x12 $\Phi$		3x12 $\Phi$		8 $\Phi$ @100	8 $\Phi$ @150		



TRUSS SECTION

# SECURITY ROOM

## 1. SAFE BEARING CAPACITY OF SOIL

S.B.C. OF SOIL FOR DESIGN OF FOUNDATION HAS BEEN TAKEN AS SPECIFIED. MINIMUM DEPTH SHALL BE UPTO HARD STRATA. IN CASE OF ANY DOUBT REGARDING S.B.C. DURING EXCAVATION, THE MATTER SHALL BE REPORTED TO THE GEO-TECH. CONSULTANT.

## 2. REINFORCING STEEL

U.N.O. ALL REINFORCEMENT SHALL BE OF HIGH STRENGTH DEFORMED BARS OF SPECIFIED GRADE, CONFORMING TO IS:1786. ALL REINFORCING STEEL TO BE OF TESTED QUALITY.

## 3. CONCRETE

U.N.O. CONCRETE MIX FOR ALL ELEMENT SHALL BE OF SPECIFIED GRADE CONFORMING IS: 456-2000.

## 4. P.C.C.

PLAIN CEMENT CONCRETE M-10

## 5. COVER

U.N.O. IN THE DWG. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS :-  
(1) FOOTING (50 mm) (3) BEAM (25 mm)  
(2) COLUMN (40 mm) (4) SLAB (20 mm)  
OR DIA. OF BAR WHICHEVER IS GREATER.

## GENERAL NOTES

- EXTRA TOP OR BENT-UP BARS SHALL BE EXTENDED UPTO 0.3xL IN ADJACENT SPAN OVER A CONTINUOUS SUPPORT, AND ANCHOR DOWN AT END SUPPORT.
- AT BEAM & COLUMN JUNCTION, BEAM BARS IF IN CONFLICT WITH COLUMN BARS SHALL BE GRADUALLY BENT & PLACED CLEAR OFF COLUMN BARS. UNDER NO CIRCUMSTANCES COLUMN VERTICAL BARS SHALL BE BENT TO ACCOMMODATE BEAM BARS.
- CONFINING STIRRUPS IN BEAM COLUMN JUNCTION SHALL BE PROVIDED AT THE SPACING INDICATED. HOWEVER IF BEAMS ARE CONNECTED ON ALL THE FOUR DIRECTIONS OF COLUMN THE SPACING SHOULD BE DOUBLED.
- RINGS/STIRRUPS SIZE IN COLUMN IS SAME BELOW AND ABOVE G.L.
- U.N.O. MINIMUM LAP LENGTH SHALL BE 50 TIMES OF BAR DIAMETER OF SMALLER BAR AT ANY SECTION.
- NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT A SECTION. THE LOCATION OF LAPPING SHALL BE AVOIDED AS FOLLOWS :-  
(a) FOR FLOOR BEAMS/SLAB CLOSE TO MID SPAN IN BOTTOM BARS & CLOSE TO SUPPORT IN TOP BARS.  
(b) FOR FOUNDATION BEAM/RAFT LAPS CLOSE TO MID SPAN IN TOP BARS & CLOSE TO SUPPORT IN BOTTOM BARS.
- IN HANGERS LAPPING OF BARS IS NOT PERMITTED BET. FLOORS.
- STIRRUPS FOR CANTILEVER BEAMS TO HAVE HOOK AT BOTTOM.
- REMARK "A LEGGED" MEANS AT ALL LOCATIONS U.N.O.
- USE OF NEEDLE VIBRATOR AND PLASTISIZER RECOMMENDED FOR R.C.C. WORK.
- USE IDENTIFIED COATED PLYWOOD FOR SHUTTERING & FORMWORK.
- BURNT OIL NOT PERMITTED FOR DE-SHUTTERING.
- CURING :  
EXPOSED SURFACE OF CONCRETE SHALL BE KEPT CONTINUOUSLY IN WET CONDITION MINIMUM FOR 14 DAYS.
- CUTOUT/ OPENING :  
ANY TYPE OF OPENINGS FOR PLUMBING, DRAINAGE OR ELECTRICAL NOT PERMITTED IN R.C.C BEAMS AND COLUMNS DURING OR AFTER CASTING.
- SLEEVE :  
FOR SLEEVES PROVIDE ADD'L TWO RINGS SPACED @ 75MM C/C ON EITHER SIDE OF IT.
- U.N.O. IN THE DWG., CONSTRUCTION JOINT SHOULD BE APPROVED BY ENGINEER AT SITE.  
CONSTRUCTION JOINT SHOULD BE AT QUARTER SPAN OF BEAM AND SLAB, IN NO CONDITION SHOULD BE AT THE SUPPORT.
- READ THIS DWG. WITH RELEVANT ARCHITECTURAL & SERVICES DWG.
- DO NOT SCALE THE DWG. ONLY WRITTEN DIMENSION ARE TO BE FOLLOWED.
- ALL DIMENSIONS ARE IN MM, EXCEPT IN LAYOUT, LEVELS ARE IN METER.
- IN CASE OF ANY AMBIGUITY, PLEASE BRING IT TO THE NOTICE OF THIS OFFICE BEFORE EXECUTION OF WORK.
- SHUTTERING & SCAFFOLDING IS AT THE RESPONSIBILITY OF CONTRACTOR.
- STRIPPING TIME TABLE AS PER IS 456-2000.
- TOP BARS OF ALL CANTILEVER BEAM / SLAB SHOULD BE EXTENDED ON OPPOSITE SIDE UP TO 1.5 TIMES CANTILEVER PROJECTION UNO.
- U.N.O. :- UNLESS NOTED OTHERWISE

## DRAWING TITLE

## STRUCTURAL DRAWING ADVANCE COPY -

## PROJECT DETAILS

INTEGRATED MAHUA PROCESSING COMPLEX

## CLIENT DETAILS

CHHATTISGARH STATE MINOR  
FOREST PRODUCE

## DRAWN BY:

## VERIFIED BY:

AR.ROHIT MUDALIAR

## SHEET : 23

## SCALE

N.T.S.

## DATE

19-08-2022

## APPROVAL SIGN.

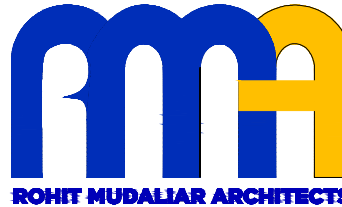
## ORIENTATION



## STRUCTURAL CONSULTANTS

AURA DESIGNS AND CONSTRUCTION

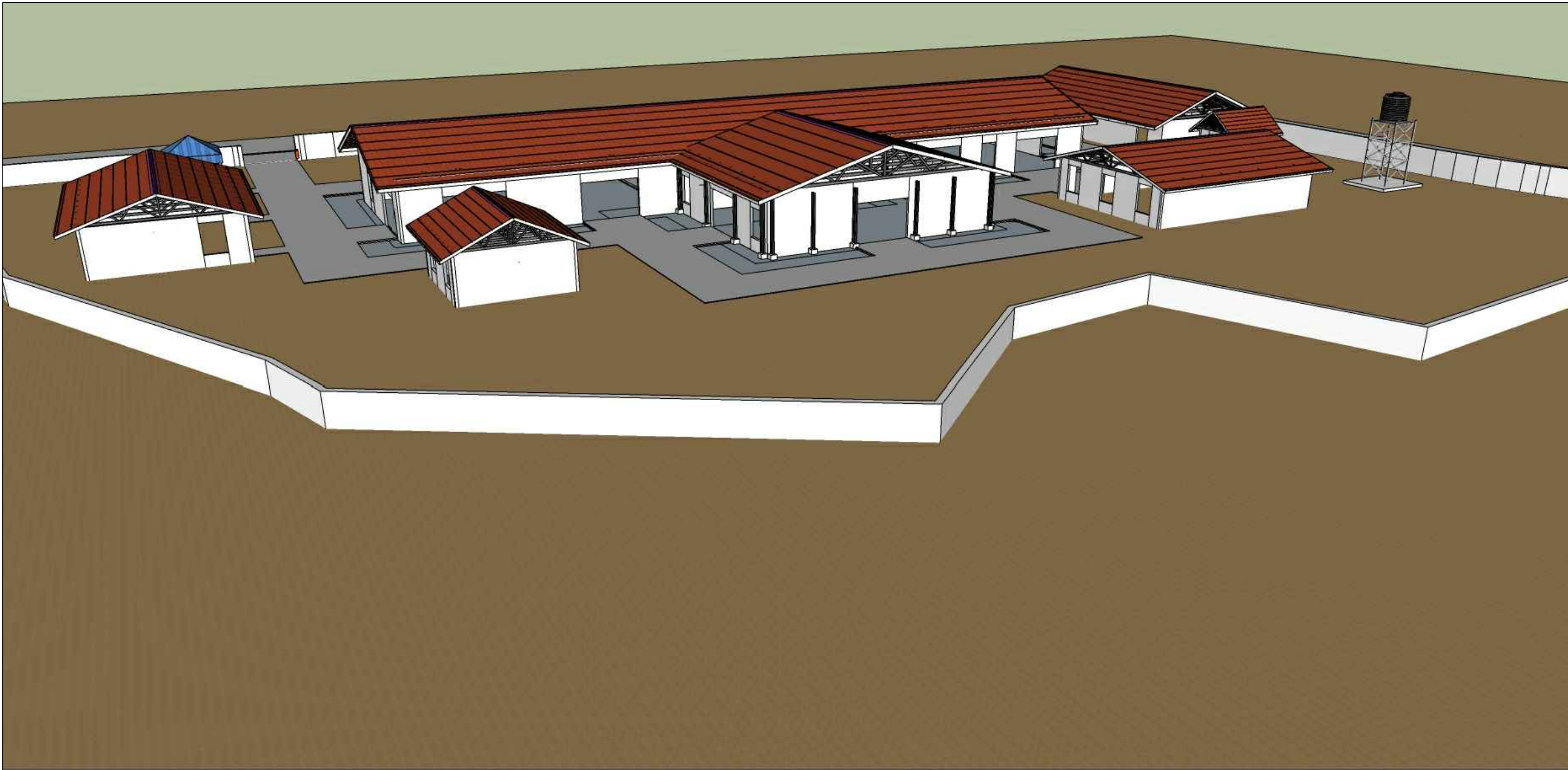
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**DRAWING TITLE**

**3D VIEWS**

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**CLIENT DETAILS**

**CHHATTISGARH STATE MINOR  
FOREST PRODUCE**

**DRAWN BY:**

**VERIFIED BY:**

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**SHEET : 24**

**SCALE**

N.T.S.

**DATE**

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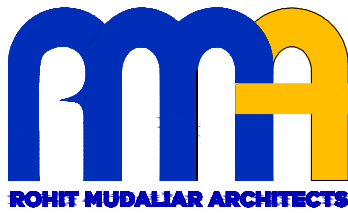
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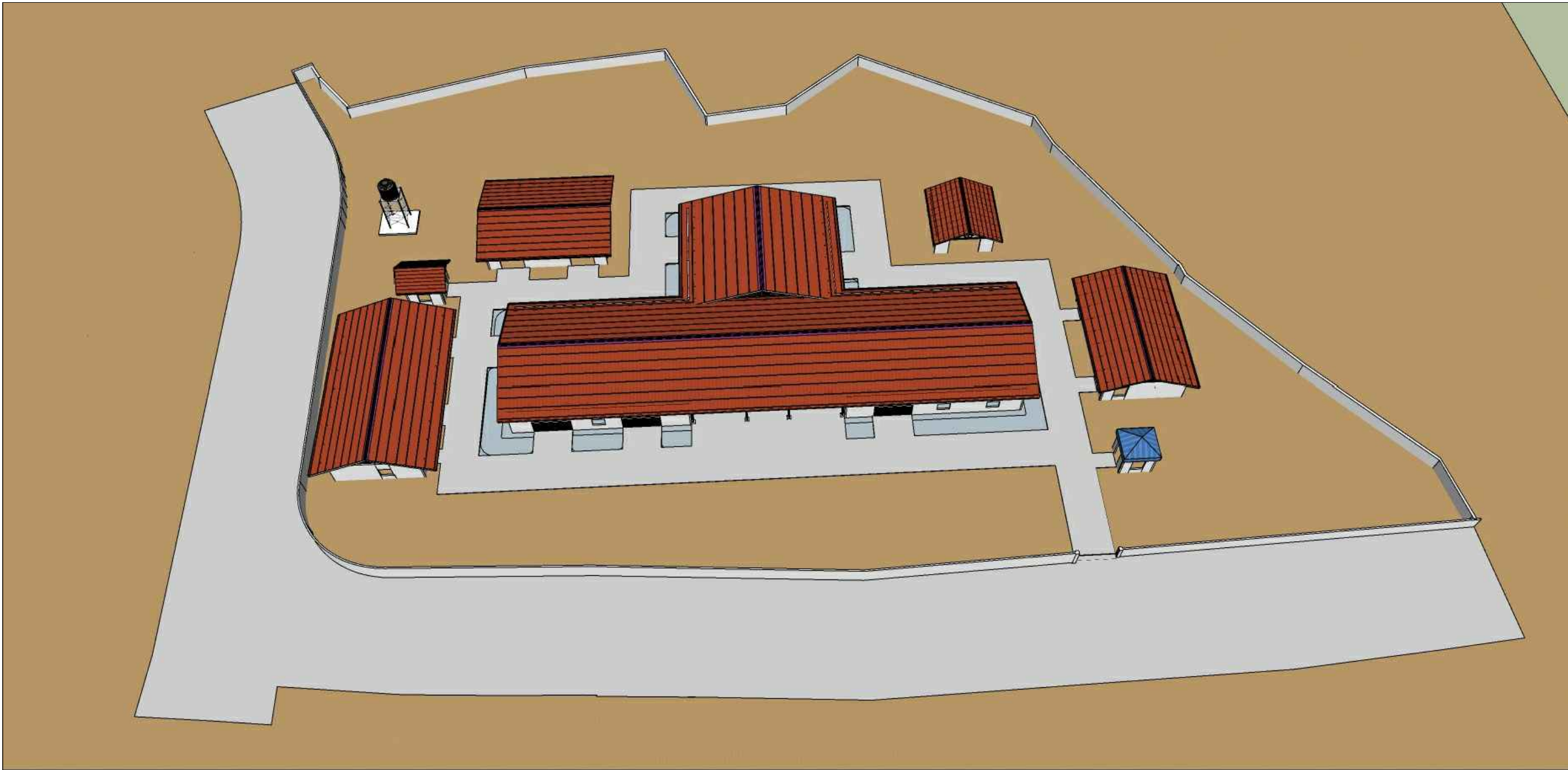
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**SHEET :**

**25**

**SCALE**

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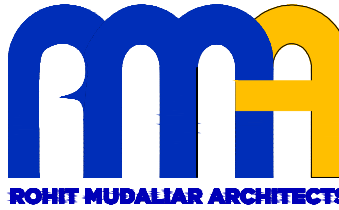
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