Package 2
20 TPD BIOGAS CIVIL WORKS

Funded By:

Bhutan Trust Fund for Environmental Conservation

SAARC Development Fund

Value Network Ventures

BHUTAN ECOLOGICAL SOCIETY

2026

PREFACE

This Bidding Documents (BD) is in accordance with the BES Procurement Rules 2023. The BD is applicable only for the procurement of works in BES for all types of Works Contracts.

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SECTION 1: INSTRUCTIONS TO BIDDER (ITB)

A. General

1. Scope of Tender

1.1. The Procuring agency, as indicated in the BDS issues this Bidding Document for the procurement of Works. The name, identification and identification of this Bidding are provided in the BDS.

1.2. The successful Bidder will be required to complete the Works within the Time for Completion stated in the Special Conditions of Contract (SCC).

1.3. Throughout this Bidding Documents;

(a) The term "in writing means communicated in written form with proof of receipt";

(b) If the context so requires, singular means plural and vice versa; and

(c) "day" means calendar day.

2. Corrupt, Fraudulent, Collusive or Coercive Practices

2.1. The Royal Government of Bhutan requires that Procuring Agency and the Bidders shall observe the highest standard of ethics during the implementation of procurement proceedings and the execution of Contracts under public money.

2.2. In pursuance of this requirement, the Procuring Agency shall

(a) exclude the Bidder from participation in the procurement proceeding concerned or reject a proposal for award; and

(b) declare a Bidder in eligible, either in definitely or for a stated period of time, from participation in procurement proceedings under public money; If it, at any time, determines that the Bidder has engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a Contract under the public money.

2.3. The Government defines, for the purposes of this provision, the terms set forth below as follows:

(a) "corrupt practice"[1] is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(b) "fraudulent practice"[2] is any intentional act or omission including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(c) "collusive practice"[3] is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(d) "Coercive practice"[4] is impairing or harming or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.

2.4. The Bidder shall be aware of the provisions on fraud and corruption stated in GCC Clause 3 and GCC Sub-Clause 36.2(d).

2.5. The RGoB requires that the Procuring Agency's personnel have an equal obligation not to solicit, ask for and/ or use coercive methods to obtain personal benefits in connection with the said proceedings.

3. Eligible Bidders

3.1. Bidders of the categories **specified in the BDS** are eligible to participate in this Bidding process.

4. Site Visit

4.1. The Bidders, at their own responsibility and risk, is encouraged to visit and examine the Site and obtain all information that may be necessary for preparing the Bid and entering into a Contract for performance of the Works**.** The costs of visiting the Site shall be at the Bidder's own expense.

B. Content of Bidding Document

1. Contents of Bidding Documents

5.1. The sections comprising the Bidding Document are listed below and should be read in conjunction with any amendment issued in accordance with ITB Clause 7:

PART 1 Bidding Procedures

- Section1: Instructions to Bidders (ITB)
- Section2: Bidding Data Sheet (BDS)
- Section3: Evaluation and Qualification Criteria
- Section4: Bidding forms
- Section5: General Conditions of Contract (GCC)
- Section6: Special Conditions of Contract (SCC)
- Section7: Contract Forms
- Section8: Bill of Quantities &Specifications
- Section9: Drawings

5.2. The Procuring Agency is not responsible for the completeness of the Bidding Document and any addendum, if they were not obtained directly from the source stated by the Procuring Agency in the Invitation for Bids.

5.3. The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents may result in the rejection of the Bid.

6. Clarification of Bidding Documents

6.1 A prospective Bidder requiring any clarification of the Bidding Document shall contact the Procuring Agency in writing at the Procuring Agency's address indicated in the BDS.

7. Amendment of Bidding Documents

7.1 At any time prior to the deadline for submission of Bid, the Procuring Agency may amend the Bidding Document by issuing addenda and extend the deadline for the submission of Bids at its discretion. Any amendment issued shall become an integral part of the Bidding Document and shall be communicated in writing to all those who have purchased the Bidding Document.

C. Preparation of Bids

8. One Bid per Bidder

8.1 A Bidder shall submit only one (1) Bid. A Bidder who submits or participates in more than one (1) Bid shall cause all the proposals with the Bidder's participation to be disqualified.

9. Bid Preparation Costs

9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bids, and the Procuring Agency shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

10. Language of Bid

10.1 All documents relating to the Bid shall be in the language specified in the BDS.

11. Documents comprising the Bid

11.1. The original and copy(ies) of Bid submitted by the Bidder shall comprise the following:

(a) The Bid form (in the format indicated in Section 4);

(b) License and certificate;

(c) Bid Securing Declaration in accordance with ITB 19;

(d) Priced Bill of Quantities;

(e) Qualifications: documentary evidence in accordance with ITB 17 establishing

the Bidder's qualifications to perform the Contract;

(f) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB sub-clause 20.2; and

(g) and any other materials required to be completed and submitted by Bidders, as specified in the BDS.

11.2. The Instruction to Bidders, Bidding Data Sheet, General Conditions of Contract, Special Conditions of Contract, Specifications and drawings are for the information of the Bidders and is not required to be submitted by the Bidder.

12. Form of Bid

12.1 The Form of Bid, Schedules, and all documents listed under Clause 11, shall be prepared using the relevant forms in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.

13. Alternative Bid

13.1 Alternative Bid shall not be considered in small works.

14. Bid Price and Discount

14.1. The prices and discounts quoted by the Bidder in the form of Bid and in the Schedules shall confirm to the requirements specified in ITB 14.2 and 14.3.

14.2. The Bidder shall submit a Bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section 4, Bidding Forms. In case of admeasurements contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid by the Procuring Agency when executed and shall be deemed to covered by the rates for other items and prices in the Bill of Quantities.

14.3. The Bid price shall take into account the cost of materials, transportation, labour, taxes, levies, overheads and profit and any other cost. The Bid price shall be applicable for the whole works described in the Drawings, Specifications and Schedule of Works.

15. Currencies of Bid and Payment

15.1 All prices shall be quoted in Bhutanese Ngultrum (BTN) and shall be paid in BTN.

16. Documents comprising the Technical Proposal

16.1 The Bidder shall furnish a work plan in simple bar chart and other information if provided in BDS, to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

17. Documents establishing the Qualification of the Bidder

17.1 To establish its qualification to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).

18. Bid Validity

18.1 Bids shall remain valid up to the date specified in the BDS. Any Bids which does not meet the validity requirement shall be rejected by the Procuring Agency as non-responsive.

19. Bid Security

19.1 The Bidder shall furnish, as part of the Bid, a Bid Security as specified in the BDS.

19.2 **The Bid Security shall be in fixed amount as specified in BDS and denominated in Ngultrum (Nu) or the currency of the Bid or in another freely convertible currency, and shall:**

(a) at the Bidder's option, be in any of the following forms:

(i) a demand unconditional bank guarantee; or

(ii) a account payee demand draft; or

(iii) a account payee cash warrant.

(b) be issued by financial institution in Bhutan acceptable to the Employer selected by the Bidder and located in any eligible country. If the institution issuing the Bid Security is located outside Bhutan, it shall have a correspondent financial institution located in Bhutan to make it enforceable.

(c) in the case of a bank guarantee, be substantially in accordance with the form of Bid Security included in Section X, Security Forms, or other form approved by the Employer prior to Bid submission;

(d) be payable promptly upon written demand by the Employer in case the conditions listed in ITB Sub-Clause 19.5 are invoked;

(e) be submitted in its original form; copies shall not be accepted;

(f) remain valid for a period of 30 days beyond the validity period of the Bids, as extended, if applicable, in accordance with ITB Sub-Clause 15.2.

19.3 Any Bid not accompanied by a responsive Bid Security shall be Rejected by the Employer as non-responsive.

19.4 The Bid Securities of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder furnishing the Performance Security and in any event not later than 30 days after the expiration of the validity of the unsuccessful Bidder's Bid.

19.5 The Bid Security may be forfeited

(a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Bid Submission Sheet, except as provided for in ITB Sub-Clause 15.2; or

(b) if the Bidder that submitted the lowest evaluated Bid does not accept the correction of the Bid price pursuant to Clause 27; or

(c) if the successful Bidder fails within the specified time limit to

(i) sign the Contract; or

20. Format and Signing of Bid

20.1 The Bidder shall prepare one (1) original of the documents comprising the Bid as described in ITB Clause 11 and clearly mark it "ORIGINAL." In addition, the Bidder shall prepare the number of copies of the Bid, as specified in the BDS and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and each copy of the Bid shall be typed or written in indelible ink and shall be signed by the person duly authorized to sign on behalf of the Bidder.

20.3 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person(s) signing the Bid.

D. Submission and Opening of Bids

21. Sealing and Marking of Bids

21.1 Envelope 1 Should be Marked "Technical" and should contain separate inner envelope for "Original" and "Copy", containing the following:

a) Bid Security
b) Tax Clearance for relevant tax authority
c) Valid Trade license
d) Supporting documents mentioned in the evaluation criteria and ITB 31.1 (etools system generated report on work in hand, APD Score and or Work Completion certificate for last 5 FY)
e) Signed Bidding Document
f) Any other technical document

21.2. Envelope 2 Should be marked "Financial" and contain the following:

a) Form of Bid
b) Bill of Quantities

21.3 The inner envelopes shall:

(a) Be signed across the seals by the person authorized to sign the Bid on behalf of
the Bidder;
(b) Be marked “ORIGINAL” and “COPY”; and
(c) Bear the name and address of the Bidder.

21.4 The outer envelope shall;

(a) Be sealed with adhesive or other sealant to prevent reopening;
(b) be addressed to the Procuring agency at the address specified in the BDS; bear a statement “DO NOT OPEN BEFORE. ..... ” the time and date for Bid opening as specified in the BDS.

21.5 If all or any envelopes are not sealed and marked as required by ITB Sub-Clause 21, the Procuring Agency shall not reject the Bids but assume no responsibility for the misplacement or premature opening of the Bid

22. Bid Submission Deadline

22.1. Bids must be received by the Procuring Agency at the address and no later than the date and time specified in the BDS.

22.2. Bids may be hand delivered, posted by registered mail or sent by courier.

22.3. The Procuring Agency may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Document in accordance with ITB Clause 7, in which case all rights and obligations of the Procuring agency and Bidders previously subject to the deadline shall thereafter be subject to the new deadline as extended.

23. Late Bids

23.1 Late Bids shall not be considered and shall be returned unopened.

24. Modification, Substitution or Withdrawal of Bids

24.1 A Bidder may modify, substitute or withdraw their Bids after it has been submitted by sending a written notice before the deadline for submission of Bids.

25. Bid Opening

25.1 The Procuring Agency shall open the Bids in the presence of the Bidders attending the Bid opening, including modifications or substitutions made pursuant to ITB Clause 24. Bidders or their representatives shall be allowed to attend and witness the Bid opening and shall sign a register evidencing their attendance.

25.2 The name of the Bidder, Bid modifications, substitutions or withdrawals, total amount

of each Bid, number of corrections, discounts, and the presence or absence of Bid Securing Declaration, and such other details as the Procuring Agency, at its discretion, may consider appropriate, shall be read out aloud and recorded.

25.3 The Procuring Agency shall prepare minutes of the Bid opening. The minutes shall include, as a minimum, the name of the Bidders and whether there has been a withdrawal, substitution or modification; the Bid Price including any discounts and the presence or absence of a Bid Securing Declaration, if required.

E. Tender Opening and Evaluation

26. Confidentiality

26.1 After the opening of Bids, information relating to the examination, clarification, and evaluation of Bids and recommendations for award shall not be disclosed to Bidders or other persons not officially concerned with the evaluation process until after the issuance of Letter of Intent to award the Contract.

27. Clarification

27.1 The Procuring Agency may ask Bidders for clarification of their Bids in order to facilitate the examination and evaluation of Bids. The request for clarification and the response shall be in writing, and any changes in the prices or substance of the Bid shall not be sought, offered or permitted, except to confirm the correction of arithmetical errors discovered by the Procuring Agency in the evaluation of the Bids, in accordance with ITB Clause 30.

28. Bidder Contacting the Procuring Agency

28.1 Following the opening of Bids and until the letter of Intent to award the Contract is issued no Bidder shall make any unsolicited communication to the Procuring Agency or try in any way to influence the Procuring Agency's examination and evaluation of Bids which may result in the rejection of Bids. If any Bidder wishes to contact the Procuring Agency on any matter related to the Bidding process, it should do so in writing.

29. Determination of Responsiveness

29.1 Prior to detailed evaluation of Bids, the Procuring Agency shall determine whether each Bid (a) meets the eligibility criteria defined in ITB clause 3; (b) has been properly signed; (c) is accompanied by the Bid Securing Declaration; and (d) is substantially responsive to the requirements of the Bidding Documents.

29.2 A substantially responsive Bid is one that conforms in all respects to the requirements of the Bidding Document without material deviation, reservation or omission. A material deviation, reservation or omission is one that:

a) affects in any substantial way the scope, quality, or performance of the Works specified in the Contract;

b) limits in any substantial way, or is inconsistent with the Bid Document, the Procuring Agency's rights or the Bidder's obligations under the Contract; or

c) if rectified would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

29.3 If a Bid is not substantially responsive to the Bidding Document it shall be rejected by the Procuring Agency and shall not subsequently be made responsive by the Bidder by correction of the material deviation, reservation or omission.

30. Non-Conformities, Errors and Omissions

30.1. The Procuring Agency may regard a Bid as responsive even if it contains minor deviations that do not materially alter or depart from the characteristics, terms, conditions and other requirement set forth in the Bidding Document or if it contains errors or oversights that are capable of being corrected without affecting the substance of the Bid.

30.2. Where there is a discrepancy between the amounts in figures and words, the amount in words will govern. If a Bidder refuses to accept the correction, its Bids shall be rejected. The Procuring Agency shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the line item total, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Procuring Agency there is an obvious misplacement of the decimal point in the unit price, in which case the total price, as quoted, shall govern and the unit price shall be corrected.

31. Evaluation of Bids

31.1. The Procuring Agency shall evaluate and compare only those Bids determined to be substantially responsive to the requirements of the Bidding Document.

31.2. To evaluate a Bid, the Procuring Agency shall consider the following:

(a) making appropriate adjustments to reflect discounts if any;

(b) Correction of arithmetic errors; and

(c) Where applicable, using the evaluation factors specified in Section 3, Evaluation and Qualification Criteria.

31.3. An affirmative determination of qualification shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event the Procuring Agency may proceed to the next substantially responsive Bid which offers the best evaluated Bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

32. Abnormally Low Bids

32.1 An Abnormally Low Bid is one where the Bid price, in combination with other constituent elements of the Bid, appears unreasonably low to the extent that the Bid price raises material concerns as to the capability of the Bidder to perform the Contract for the offered Bid price. Before proceeding to further analysis, the Procuring Agency shall revisit their departmental estimate to ensure its realistic compared to the prevailing market rates.

32.2 After revisiting the departmental estimate as provided in clause 32.1, if the Procuring Agency determines that the Bid offered by the Bidder is 20% below or above the agency estimate, the Procuring Agency shall eliminate the Bid(s) before proceeding towards Bid evaluation.

33. Seriously unbalanced Bids or Front Loaded

33.1. If the Bid that is evaluated as the lowest evaluated cost is, in the Procuring Agency's opinion, seriously unbalanced or front loaded the Procuring Agency may require the Bidder to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the Bid prices with the scope of works, proposed methodology, schedule and any other requirements of the Bidding Document.

33.2. After the evaluation of the information and detailed price analyses presented by the Bidder, the Procuring Agency may as appropriate:

(a) accept the Bid and increase the performance security from ten percent (10%) up to maximum of 30% of the initial contract price/ Alternatively, the Procuring Agency may ask the successful Bidder to deposit the difference between departmental estimate and contract amount in the form of cash warrant in addition to 10% performance security. However, the total performance security amount shall be limited to maximum of 30% of initial contract price; or

(b) reject the Bid.

34. Procuring Agency's Right to Accept or Reject any or all Bids

34.1 The Procuring Agency reserves the right to accept any Bid, to annual the Bid proceedings, or to reject any or all Bids, at any time prior to Contract award, without thereby incurring any liability to Bidders but the Bidder(s) should be informed with the justified reason(s) for cancellation.

F. Contract Award

35. Award Criteria

35.1 The Procuring Agency shall award the Contract to the Bidders whose offer is substantially responsive to the Bidding Document and that has been determined to be the best evaluated Bid, provided that the Bidder is determined to be qualified to perform the Contract and upon fulfilment of works in hand ceiling prescribed by the Bhutan Construction and Transport Authority or any other competent authority.

36. Letter of Intent to Award the Contract/ Letter of Acceptance

36.1. The Procuring Agency shall notify the concerned Bidder whose Bid has been selected in accordance with ITB 35.1 in writing (in the format in Section 4- hereafter called the "Letter of Intent to Award) that the Procuring Agency has intention to accept its Bid and the copy of the Letter of Intent shall be given to all other Bidders who submitted the Bid. Such notification should be communicated in writing, including by cable, facsimile, telex or electronic mail to all the Bidders on the same day of dispatch. The Procuring Agency shall ensure that the same information is uploaded on their website on the same day of dispatch.

36.2. If no Bidder submits an application pursuant to ITB 38 within a period of five (5) days of the notice provided under ITB 36.1, prior to the expiration of Bid validity, the Procuring Agency shall notify the successful Bidder, in writing that its Bid has been accepted. Until a formal contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

36.3. Within fifteen (15) days of the receipt of the Letter of Acceptance from the Procuring Agency, the successful Bidder shall furnish the Performance Security, in the amount specified in the BDS.

36.4. The Performance Security provided by the successful Bidder in the form of a Bank Guarantee shall be issued, at the Bidder's option, by a financial institution registered within Bhutan.

36.5. Within fifteen (15) days of receipt to the Letter of Acceptance, the successful Bidder shall sign the contract, date and return it to the Procuring Agency.

37. Debriefing by Procuring Agency

37.1. On receipt of the Procuring Agency's Notification of Intention to Award referred to in ITB 36.1, an unsuccessful Bidder has three (3) working Days to make a written request to the Procuring Agency for a debriefing. The Procuring Agency shall provide a debriefing to all unsuccessful Bidders whose request is received within this deadline.

(a) point-by-point comparisons with another Bid; and

(b) information that is confidential or commercially sensitive to other Bidders.

37.2. Where a request for debriefing is received within the deadline, the Procuring Agency

shall provide a debriefing within five (5) working days.

37.3. The Procuring Agency shall discuss only such Bid and not the Bids of other competitors. The debriefing shall not include:

37.4. The Purpose of debriefing is to inform the aggrieved Bidder of the reasons for lack of success, pointing out the specific shortcomings in its Bid without disclosing contents of other Bids.

38. Complaints

38.1 The Bidder shall submit the complaint in writing within five (5) days from the date of Letter of Intent to award the contract pursuant to ITB 36.1 to the Procuring Agency.

38.2. The Head of Agency shall, within seven (7) days after the submission of the complaint, issue a written decision.

38.3. The Bidder may appeal to the Independent Review Body within five (5) days of the decision of the Head of the Procuring Agency or, where no such decision has been taken, within 15 days of the original complaint and the copy of the appeal shall be given to Procuring Agency on the same day.

38.4. Once the appeal copy is received by the Procuring agency, it shall not proceed further with the procurement process until receipt of notification from the Independent Review Body Secretariat.

SECTION 2 - BIDDING DATA SHEET	
Instructions for completing the Bidding Data Sheet are provided, as needed, in the notes in italics mentioned for the relevant ITB Clauses	
A. General	
ITB Clause	Amendment of, and Supplements to, Clauses in the Instructions to Bidders
ITB 1.1	The Procuring Agency is Bhutan Ecological Society The Name and Identification of the Contract is/are Construction of **Name: Package 1 – 20 TDP Biogas Plant, Ref no.311** ***Construction of Plant Shed and Site Development***
ITB 3.1	The category of contractor is: **Registered Contractor in Bhutan as per Bhutanese Law.**
B. Bidding Documents	
ITB 6.1	For clarification of Tenders purposes only, the Procuring Agency's Address is: Attention: **Damber Ghemiray** Address: **Bhutan Ecological Society** **Thori Lam, Lower Changangkha** Mobile/Telephone: **+975 17848978** Electronic mail address: procurement**@bes.org.bt**
C. Preparation of Bids	
ITB 14.3	The Bid price shall or shall not be adjustable: **Shall not be Adjusted**
ITB 16.1	**Detailed Work Plan for Construction**
ITB 18.1	The Bid shall be valid up to: **180 days**
ITB 19.5	The Bid Security Amount is Nu. BTN 700,000.00
ITB 20.1	In addition to the original, **One copy is required when submitted in hard copy.**
D. Submission and Opening of Bids	
ITB 21.3	The outer envelopes shall be addressed to: **Bhutan Ecological Society**
ITB 21.3(b)	The Bid opening shall take place on the same day as the closing day of the Bid submission at: Procurement Section Bhutan Ecological society Thori Lam, Lower Changangkha Thimphu

	Date: as per the Tender Notification.

ITB 22.1	For Bid submission purposes only, the Procuring Agency's Address is: Attention: Chief of Programs Address: Bhutan Ecological society Thori Lam, Lower Changangkha Thimphu The deadline for the submission of Tenders is: Date:20th November 2025 ; Time: 2:30 PM BST
E. Tender Opening and Award	
ITB 31.13	**The work will be registered to CiNET under the successful bidder.** **For the purpose of evaluation this bidder must submit the following.** **1. Average performance score obtained till date on etools, system printout is acceptable for evaluation purpose, will be verified at the time of award.** **2. Work in Hand details, system printout is acceptable for evaluation purpose, will be verified at the time of award.** **3. Work completed in the last 5 financial year, system printout is acceptable for evaluation purpose, will be verified at the time of award, or work completion certificate to be submitted.** **Evaluation criteria as per section 3 Evaluation of Bids, Minimum technical score required to qualify for financial opening and evaluation is 70%**

SECTION 3 – EVALUATION AND QUALIFICATION CRITERIA

1. Margin of Preference

If BDS specifies, the Procuring Agency will grant a margin of preference of twenty percent (20%) to domestic contractors, in accordance with, and subject to the following provisions:

1. Contractors applying for such preference shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Bhutan Construction and Transport Authority (BCTA) and accepted by the Procuring Agency, a particular contractor or group of contractors qualifies for a domestic preference. The Bidding Document shall clearly indicate the preference and the method that will be followed in the evaluation and comparison of Bids to give effect to such preference.
2. After Bids have been received and reviewed by the Procuring Agency, responsive Bids shall be classified into the following groups:
   (a) Group A: Bids offered by domestic contractors eligible for the preference.
   (b) Group B: Bids offered by other contractors.
3. All evaluated bids in each group shall, as a first evaluation step, be compared to determine the Bid with lowest evaluated cost, and the Bid with the lowest evaluated cost in each group shall be further compared with each other. If as a result of this comparison, a Bid from Group A is the lowest, it shall be selected for the award as the Best Evaluated Bid, if the Bidder is qualified. If a Bid from Group B is the lowest, as a second evaluation step, all Bids from Group B shall then be further compared with the lowest evaluated cost from Group A.
4. For the purpose of this further comparison only, an amount equal to twenty percent (20) of the respective Bid price corrected for arithmetical errors, but excluding provisional sums and the cost of day works, if any, shall be added to the evaluated cost offered in each Bid from Group B. If the Bid from Group A is the lowest, it shall be selected for award. If not, the lowest evaluated cost from Group B based on the first evaluation step shall be selected.
5. The Procuring Agency shall use the criteria and methodologies listed in this Section to evaluate Bids. By applying these criteria and methodologies, the Procuring Agency shall determine the Best Evaluated Bid. This is the Bid that has been determined to be:
   (a) substantially responsive to the Bidding Document; and
   (b) the lowest evaluated cost.

2. Evaluation Criteria

In addition to the criteria listed in ITB 28, the following criteria shall apply:

Assess the eligibility as per the ITB clause 3 requirements

1. **Capability (65 points)**

(a) **Similar Work Experience (10 points):**

The Procuring Agency shall consider the aggregate size of similar works (maximum three) or size of the largest similar work in the last five (5) calendar years (including the year in which the work is being tendered). The evaluation score for this parameter shall be auto-generated from e-tool based on the following scoring criteria and similar work experience information updated in the e-Tool/ CiNET.

Parameter	**Levels of Achievement**	**Score**
Aggregate size of similar contracts (max 3) in the last 5 calendar years	• > 175% of current project size • 125-175% of the current project size • 75-125% of the current project size • <75% of the current project size	• 10 • 8 • 4 • 0
Size of the largest similar contract executed in the last 5 calendar years	• > 100% of current project size • 70-100% of the current project size • 50-70% of the current project size • <50% of the current project size	• 10 • 8 • 4 • 0

The Bidder shall be responsible for updating the similar work experience information in the e-Tool/ CiNET to secure an accurate score on this parameter.

(b) **Access to adequate equipment (20 points):**

The Bidder should demonstrate that it will have access to the key Contractor's equipment listed below. The Procuring Agency to specify requirements for each Tier as applicable. The 100 points shall be allocated as follows and Total marks out of 100 will be scaled down to 20 points:

- Tier I importance: 50 points
- Tier II importance: 30 points
- Tier III importance: 20 points

Tier	**Equipment**	**Number Required**	**Maximum Mark**
I	*Excavator*	*One*	*50*
II	*Tripper Truck*	*One*	*30*
III	*Self-Loading Concrete Mixer 4cum*	*One*	*20*
			100

The Bidder shall be bound by the following conditions and required to provide following details of proposed items of equipment using the relevant Form in Section IV:

1. If any equipment is found to be engaged during the evaluation process, the particular equipment will be allotted zero (0) points.
2. In case the equipment is owned, not required to submit Registration Certificate and insurance copies, just provide the type of equipment and registration number.
3. In case of hiring of equipment, copy of the lease agreement with details of owner and registration number specific to the Tender; and
4. In case of equipment that does not require registration with BCTA, verification letter issued by Construction Association of Bhutan (CAB) valid for a period of 2 years until submission of tender.

(c) **Access to skilled manpower (20 points):**

The skilled and experienced manpower required for the timely and quality execution of the work to be made available for the Contract by the Bidder. The 100 points shall be allocated as follows and Total marks out of 100 will be scaled down to 20 points:

- Tier I importance: 50 points
- Tier II importance: 30 points
- Tier III importance: 20 points

Tier	Position	Qualification and Experience	Score
I	*Project Engineer*	*Diploma in civil engineering with 8 years/BE Civil with 3 years of experience in construction*	*50*
		Diploma in civil engineering with 5 to7 years/BE Civil with 2 years of experience in construction	*40*
		Diploma in civil engineering with 3 to 5 years/ BE Civil with 1 years of experience in construction	*30*
		Diploma in civil engineering with 1 to 2 years / Fresh BE Civil	*20*
II	*Electrical Engineer*	*Diploma in Electrical engineering with 5 years/BE Electrical with 3 years of experience in construction*	*30*
		Diploma in Electrical engineering with below 5 years/BE Electrical with below 3 years of experience in construction	*20*
		Diploma in civil engineering with 1 year/ VTI Civil with 3 years of experience in construction	*10*
III	*Site Supervisor*	*Diploma in civil engineering with 1 year/ VTI Civil with 3 years of experience in construction*	*20*
		Fresh diploma in civil/ VTI Civil with 1 to 2 years of experience in construction	15
		Fresh VTI in Civil	10
			100

The Bidder shall be bound by the following conditions and required to provide following details of proposed skilled manpower and their experience records using the relevant Form in Section IV:

1. If any HR found to be engaged during the evaluation process, the proposed skilled manpower will be allotted zero (0) points.
2. The Key personnel may also act as the Safety Supervisor provided the key personnel shall be permitted to handle only one project.
3. Copies of signed CV of technical manpower using the standard CV format (Annexure 1) committed along with Academic transcripts. The year of experience shall be based on the past experience specified in the CV. Provisional certificate shall be accepted up to one year from date of graduation.
4. Copies of Citizenship ID Cards or work permit/ Passport/ Election/ Voter ID cards (for foreign workers) of all manpower committed.
5. Copies of contract agreements with all personnel if they have been hired on contract by the contractor endorsed from CAB.
6. Copies of Provident Fund Account Documents for all personnel or payrolls or Copies of monthly remittance schedule of Health Contribution and Tax Deducted at Source for all personnel committed for with monthly gross income of Nu. 25,000 and more.
7.

(d) **Average performance score from previous works (15 points):**

The Procuring Agency shall consider the performance of the contractor in the last 5 calendar years (last being the current year in which the work is being tendered). The evaluation score for this parameter is auto-generated from e-tool based on the following scoring criteria and performance score information updated with e-Tool/CiNET.

Parameter	**Level of Achievement**	**Score**
Average performance score from previous works (past 5 calendar years)	• 100% • 1 mark lesser for every 5%-point decrease in score rounded off to lower 5% • <50%	• 15 • 0

The Bidder shall be responsible to update the performance score information in e-tool/ CiNET.

2. **Capacity (35 points):**

(a) Bid Capacity (0-30 points):

The Bidder shall be awarded a maximum of 30 points based on following criteria. The score for this parameter shall be auto-generated from e-Tool based on the information updated by Bidder with eTool/CiNET:

Parameter	**Levels of achievement**	**Score**
Bid Capacity	• Bid Capacity>quoted Bid • Bid Capacity is between 80-100% quoted Bid	• 30 • 20

	• Bid Capacity is between 60-80% quoted Bid • Bid Capacity is between 50-60% quoted Bid • Bid Capacity< 50% quoted Bid	• 15 • 10 • 0

The Bid Capacity is calculated using the following formula = 2.5*A*N-B Where A = Average turnover of the contractor over the last 3 calendar years
(last being the current year in which the work is being tendered) N = Estimated duration of the project to be tendered
B= Portion of other ongoing works to be completed in the period that overlaps with the current project's duration (that is, N)
The Bidder shall be responsible for updating the above information in e-Tool/CiNET.

(b) Unconditional Credit Line available (unused) (5 points):

The Bidder shall demonstrate that it has access to lines of credit sufficient to meet the construction cash flow requirements estimated as Nu. (Procuring Agency to specify the exact amount including decimal point. The credit line available shall be for 3 months) for the contract. *[Insert the amount for three months project cash flows. Monthly project cash flow is calculated by dividing the project cost by the project duration. This gives the cash flow per month. The ideal credit line amount of credit available is 3 months or more]*

The Procuring Agency shall award points based on following criteria:

Parameter	**Level of achievement**	**Score**
Credit Line Available (unused)	• > 100% of estimated 3 months project cash flow • 80-100% of estimated 3 months project cash flow • 60-80% of estimated 3 months project cash flow • <60% off estimated 3 months project cash flow	• 5 • 3 • 2 • 0

The Bidder shall provide following details in the relevant Forms included in Section V, Bidding Forms:
1. The Bidder shall submit from the bank or financial institutions in Bhutan showing evidence of access to or availability of credit line for the project using relevant form.

3. **Minimum Technical Score**

A Bidder should obtain a score of at least 70 points out of 100 on these parameters (Capability & Capacity combined) in order to qualify for the award stage.

4. **Award of Work:**

The work will be awarded to lowest bidder

Annexure 1:
Curriculum Vitae (CV) for Key Personnel

1. **Personal Information**

a. Full Name	
b. CID no./Work permit no./Special permit no.	
c. Date of Birth	
d. Nationality	
e. Email Address	
f. Phone Number	
g. Residential Address	
h. Languages Spoken (and Proficiency)	

2. **Proposed Position**

a. Position Title in the Assignment:	
b. Name of Contractor (Firm Proposing the Staff):	

3. **Current Employment**

a. Employers Name:	
b. Job Title:	
c. Years with Present Employer:	

4. **Academic Qualifications *(List highest degree first)***

Institution (School/College/University)	Degree/Certificate	Date Obtained

5. **Professional Certifications / Memberships / Relevant Training**

Certification or Membership	Issuing Organization	Date Obtained

6. **Work Experience *(List in reverse chronological order)***

Total Years of Professional Experience: _

From	To	Employer	Position	Project Title & Description	Key Responsibilities & Relevant Experience	Reference (Name, Designation, Email/ Phone)

7. **Declaration of Exclusivity and Availability**

I, the undersigned, certify to the best of my knowledge and belief that this CV correctly describes my qualifications, experience, and competencies. I also understand that any misstatement or misrepresentation herein may lead to disqualification or removal from the team.

_____Date: _

[Signature] Day/Month/Year

SECTION 4: BIDDING FORMS

Table of Standard Forms

Form of Bid

Notes on Form of Bid:
The Bidder shall fill in and submit this bid form with the Bid. If Bidders do not fill in the Contract Price and does not sign this Bid form, the Bids will be rejected.

[date]

To_____

Address_____

_____

_____

We offer to execute the contract for construction of "_____" in accordance with the Conditions of Contract accompanying this Bid for the Contract Price of
_____[amount in figures] (_____) [amount in words]_____ [name of currency].

The contract shall be paid in Ngultrum (Nu.)

This Bid and your written acceptance of it shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Bid you receive. We here by confirm that this Bid complies with the Bid validity and Bid Securing Declaration required by the Bidding Documents and specified in the Bidding Data Sheet.

Authorized Signature:

(Affix Legal Stamp)

Name and Title of Signatory:_____
Name of Bidder:_____
Address:_____

Qualification Information

Notes on Form of Qualification Information: The following information is to be filled in by Bidders
which will be used for purposes of evaluation

1. Individual Bidders

1.1. Constitution of legal status of Bidder: [attach copy]

Place of registration:

Principal place of business:

1.2. Power of attorney of signatory of Bid [attach copy]

Forms for Key Personnel
Form – 1A: Proposed Key Personnel

Bidders should provide the names of suitably qualified key personnel to meet the specified requirements for each of the positions listed in Section 3 (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

1.	Title of position
	Name
2.	Title of position
	Name
3.	Title of position
	Name

Form -1B: CV of Proposed Manpower

The Bidder shall provide all the information requested below. Fields with asterisk (*) shall be used for evaluation.

Position*		
Personnel information	Name *	Date of birth
	Qualifications:	
Present employment	Name of Procuring Agency:	
	Address of Procuring Agency:	

Experience		
From	To	Company, Project, Position, and Relevant Technical and Management Experience

Summarize experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Documents Required:
The Bidder shall provide following supporting documents for the above the proposed manpower:

1. Original signed CVs of technical manpower committed.

2. Copies of Citizenship ID Cards or work permit/ Passport/ Election/Voter ID cards (for foreign workers) of all manpower committed.

3. Copies of contract agreements with all personnel if they have been hired on contract by the contractor.

1.3. Forms for Equipment
The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section 3 (Evaluation and Qualification Criteria).

Sl.No	Equipment Name & Type	Total No. committed
1.		
2.		

Documents Required:

The Bidder shall provide following supporting documents for the above proposed equipment:

1. Copy of the registration certificate of each equipment committed.

2. Copy of Insurance policy for each equipment where applicable.

3. In case of hiring, copy of the lease agreement in addition to 1 & 2 above.
4. In case of equipment that do not require registration with BCTA, copy of cash memos/invoice stamped by RRCO if newly imported (within 1 year from the date of purchase) or verification letter issued by a Government Engineer or Competent institution.

Letter of Intent

(Letterhead of the Procuring Agency)

Notes on standard form of letter of Intent This issuance of Letter of Intent (always before letter of acceptance) is the information of the selection of the Bid of the successful Bidder by the Procuring Agency and for providing information to other unsuccessful Bidders who participated in the Bid as regards the outcome of the procurement process. The Procuring agency shall allow five (5) days as described in ITB 36 between this Letter of Intent and Letter of Acceptance to allow aggrieved Bidders to challenge your decision if they feel they have treated unfairly.

(Insert date)

To---[Name and address of the Contractor]

This is to notify you that, it is our intention to award the contract for your Bid dated----------------------- [Insert date] for execution of the--- --- -------------- [Insert name of the contract and identification number, as given in the BDS/ SCC] for the Contract Price of--- --- ------------- [Insert amount in figure and words and name of currency] as corrected and modified [if any corrections] in accordance with the Instructions to Bidders.

Authorized Signature: --

Name and Title of Signatory:--

Name of Agency:--

CC:
[Insert name and address of all other Bidders who submitted the Bid]

SECTION 5. GENERAL CONDITIONS OF CONTRACT

1. Definitions

3.1. The following words and expressions shall have the meaning hereby assigned to them. Boldface type is used to identify the defined terms:

(a) Completion Certificate means the Certificate issued by the Project Manager as evidence that the Contractor has executed the Works in all respects as per drawing, specifications, and Conditions of Contract.

(b) The Completion Date is the date of completion of the Works as certified by the Procuring agency, in accordance with GCC Clause 18.

(c) Contract means the Agreement entered into between the Procuring Agency and the Contractor to execute, complete and maintain the Works.

(d) Contractor means the person or corporate body who's Tender to carry out the Works has been accepted by the Procuring Agency and is named as such in the SCC.

(e) Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

(f) The Contractor's Bid is the completed Bid Document including the priced offer submitted by the Contractor to the Procuring Agency.

(g) Days mean calendar days.

(h) A Defect is any part of the Works not completed in accordance with the Contract.

(i) The Intended Completion Date is the date specified in the SCC on which the Contractor shall complete the Works and may be revised if extension of time or an acceleration order is issued by the Project Manager.

(j) The Procuring Agency is the party named in the SCC who employs the Contractor to carry out the Works.

(k) The Project Manager is the person named in the SCC (or any other competent person appointed by the Procuring Agency and notified to the Contractor, to act in replacement of the Procuring Agency) who is responsible for supervising the execution of the Works and administering the Contract.

(l) The Site is the area defined as such in the SCC.

(m) A Variation is an instruction given by the Project Manager which varies the Works.

(n) The Works are what the Contract requires the Contractor to construct, install, and hand over to the Procuring Agency, as defined in the SCC.

2. Interpretation & Documents forming the Contract

2.1 In interpreting the GCC, singular also means plural, male also means female or neuter, and the other way around. Headings in the GCC shall not be deemed part thereof or be taken into consideration in the interpretation of the Contract. Words have their normal meaning under the language of the Contract unless specifically defined.

2.2. The following documents forming the Contract shall be interpreted in the following order of priority:

(a) The signed Contract Agreement;

(b) The Letter of Acceptance;

(c) The completed Bid form as submitted by the Bidder;

(d) The Special Conditions of Contract;

(e) The General Conditions of Contract;

(f) Specification;

(g) The Drawings; and

(h) Any other document listed in the SCC as forming part of the Contract.

3. Corrupt, Fraudulent, Collusive or Coercive Practices

3.1. The Government requires that Procuring Agency, as well as Contractors shall observe the highest standard of ethics during the implementation of procurement proceedings and the execution of Contracts under public money.

3.2. In pursuance of this requirement, the Procuring Agency shall

(a) exclude the Contractor from participation in the procurement proceedings concerned or reject a proposal for award; and

(b) declare a Contract or ineligible, either in definitely or for a stated period of time, from participation in procurement proceedings under public money;

If at any time, determines that the bidder has engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a Contract under the public money.

3.3. The Government defines, for the purposes of this provision, the terms set forth below as follows:

a) Corrupt practice"[5] is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value[6] to influence improperly the actions of another party;

b) "fraudulent practice"[7] is any intentional act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

c) "collusive practice"[8] is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; and

d) "Coercive practice"[9] is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.

3.4. The Government requires that the Client's personnel have an equal obligation not to solicit, ask for and/or use coercive methods to obtain personal benefits in connection with the said proceedings.

4. Governing Language and Law

4.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Contractor and the Procuring Agency, shall be written in English unless otherwise stated in the SCC. The Contract shall be governed by and interpreted in accordance with the laws of the Kingdom of Bhutan.

5. Project Manager's Decision

5.1 Except where otherwise specifically stated in the SCC, the Project Manager will decide Contractual matters between the Procuring Agency and the Contractor in the role as representative of the Procuring Agency.

6. Delegation

6.1 The Project Manager may delegate any of his duties and responsibilities to his representative, after notifying the Contractor, and may cancel any delegation, without retroactivity, after notifying the Contractor.

7. Communications and Notices

7.1 Communications between Parties pursuant to the Contract shall be in writing to the address specified in the SCC. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

8. Sub-Contracting

8.1 The Procuring Agency may define the mechanism for Sub-Contracting of parts of works to Specialized firms registered with Bhutan Construction and Transport Authority or any other competent authority for specialized categories of works provided in the guidelines for registration of such firms.

8.2 Payments shall be made directly to the principal contractor, not to the Specialized firms unless explicitly agreed otherwise between the Procuring Agency and the principal contractor with the specific mechanism to do so.

8.3 The principal contractor shall execute a contract with the Specialized firm which shall bind the parties throughout the contract including the defect liability period.

9. Contractor's Personnel & Equipment

9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred in the SCC, to carry out the functions stated in the Schedule, or other personnel approved by the Project Manager. Similarly, the contractor shall deploy all committed equipment at site as and when required by the Procuring Agency.

10. Welfare of Labourers & Child Labour

10.1 The Contractor shall provide proper accommodation to his labourers and arrange proper water supply, conservancy and sanitation arrangements at the site in accordance with relevant regulations, rules and orders of the government.

10.2 The Contractor shall comply with the applicable minimum age, labour laws and requirements of (including applicable treaties which have been ratified by) the Government of Bhutan regarding hazardous forms of child labour.

11. Safety Security and Protection of the Environment

11.1 The Contractor and the procuring agency shall comply with Occupational Health and Safety related regulations for the safety of all activities on the Site.

11.2 The Contractor shall comply with all applicable safety regulations for the adequacy and safety of site operations and methods of construction and he shall adopt measures to prevent injuries to persons or damage to properties or utilities. He shall avoid undue interference with private business, public travel, or with the work of other contractors. He shall take steps to protect the environment and to minimize noise, pollution or other undesirable effects resulting from his method of operation.

12. Access to the Site

12.1 The Contractor shall allow the Engineer and any person authorised by the Project manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

13. Documents & Information

13.1 The Contractor shall furnish to the Project manager all information, schedules, calculations and supporting documents that may be requested.

14. Property

14.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Procuring Agency if the contract is terminated because of a Contractor's default:

(a) Plants and equipment will be released after due payment of compensations prescribed in GCC clause 37.1.

15. Insurance

15.1 The Contractor shall provide, in the joint names of the Procuring Agency and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC for the following events which are due to the Contractor's risks:

(a) loss of or damage to the Works, Plant and Materials to be built into the works.

15.2 The Contractor shall deliver policies and certificates of insurance to the Project Manager, for the Engineer's approval, before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred. Payments received from insurers shall be used for the rectification of loss or damage.

15.3 If the Contractor does not provide any of the policies and certificates required, the Procuring Agency may affect the insurance which the Contractor should have provided and recover the premiums the Procuring Agency had paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

16. Possession of the Site

16.1 The Procuring Agency shall give possession of the Site, or parts of the Site, to the Contractor on the date(s) specified in the SCC.

17. Commencement of Works

17.1 The Contractor may commence execution of the Works on the Start Date, or other such date as specified in the SCC, and shall carry out the Works in an expeditious manner.

17.2 If the Contractor fails to commence the works within the above stated period, the Procuring Agency may, at his sole discretion, terminate the Contract and may use the proceeds of the Performance Security to compensate for any losses thereof, if any.

18. Completion of Works

18.1 The Contractor shall complete the Works within the number of days stated in the SCC from the date of commencing the Works on the Site.

19. Programme of Works

19.1 Within the time stated in the SCC, which shall not be more than fifteen (15) days, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval of a Work Plan showing the general methods, arrangements, order and timing for all the activities in the Works. Contractor shall submit to the Project Manager for approval an updated Programme at intervals no longer than the period stated in the SCC.

20. Early Warning

20.1 Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work result in increase to the Contract Price or delay in the execution of the Works.

21. Compensation Events

21.1 The following shall be Compensation Events:

(a) the Procuring Agency does not give access to the Site or part of the Site by the Site Possession Date stated in the SCC clause 15; and

(b) if the payment is delayed pursuant to Clause 24.1.

21.2 If a Compensation Event would prevent the work being completed before the Intended Completion Date, the Intended Completion Date shall be extended, as appropriate, by the Engineer.

22. Non-Scheduled Items of Works

22.1 The Contractor shall be paid for non-scheduled items of works only when the Project Manager approves such works at the rates and in the manner stated in the SCC.

23. Schedule of Works

23.1 The Schedule of Works will contain rates for all items for the construction including temporary works, installation, testing, and commissioning work to be done by the Contractor.

23.2 The Contractor shall be paid for the quantity of the work done at the rate in the Contract Agreement for each item.

23.3. The Contractor shall be entirely responsible for all taxes, duties, license fees, and other such levies imposed outside and inside Bhutan.

24. Payment Certificates

24.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously. The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor latest by twenty five (25) days from the date of receipt of contractor's monthly statement in correct and complete form.

24.2 The value of work executed shall be determined by the Project Manager.

24.3 The value of work executed shall comprise the value of the quantities of the items in the Schedule of Works completed.

24.4 The value of work executed shall include the valuation of Variations, Certified Day works and Compensation Events.

24.5 The Project Manager may exclude any item certified in previous certificates or reduce the proportion of any item previously certified in any certificate in the light of later information.

25. Payments

25.1 The Procuring Agency shall pay the Contractor the amounts certified by the Project Manager within ten (10) days of the date of each payment certificate issued by the Project Manager.

25.2 The Procuring Agency shall make Advance Payment (mobilization and secured advance) to the Contractor of the amounts and by the dates stated in the SCC. The mobilization advance shall be backed up by equivalent amount of unconditional Bank Guarantee (Form 4).

25.3 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilisation expenses required specifically for the execution of the Contract. The Contractor shall demonstrate that the advance payment has been used in this way by submitting copies of invoices or other documents to the Procuring Agency.

25.4 The advance payment shall be recovered by deducting proportionate amounts from payments due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, variations, claims or any amount payable due to failure to complete the works.

26. Changes in Quantities[10]

26.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than twenty percent (20%), provided the cost of variation beyond twenty percent (20%) limit exceeds one percent (1%) of the Initial Contract Value the Procuring Agency shall adjust the quoted rate up or down to allow for the change. Only when both conditions are met then the quoted rate shall be changed:

(a) If the quantity of work executed exceeds the quantity of the item in BOQ beyond the higher specified limit the Procuring Agency shall fix the market rate (which may be lower or higher than the quoted rate) to be applied for the additional quantity of the work executed; and

(b) If the quantity of work executed is less than the quantity of the item in BOQ lesser than the lower specified limit, the Procuring Agency shall fix the market rate based on the submission of the contractor (which may be lower/higher than the quoted rate) to be applied for whole of the quantity of the work so executed for that particular item.

26.2 The rates shall not be adjusted from changes in quantities if thereby the Initial Contract Price is exceeded by more than five percent (5%), except with the prior approval of the Procuring Agency in consultation with the Tender Committee.

26.3 For works up to Nu. 50 M, when quantity deviation exceeds twenty percent (20%) from the quantity in BOQ and the total cost of such deviations exceeds twenty percent (20%) of the initial contract price, the Procuring Agency shall seek prior approval of the Competent Authority (Finance Committee constituted in their respective Agency).

26.4 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost break down of any rate in the Bill of Quantities.

27. Variations

27.1 The Project Manager shall order any variation of the form, quality Or quantity of the Works or any part thereof that may, in his opinion, be necessary. Each variation may include, but is not limited to, any of the following:

(a) increase or decrease in the quantity of any work included in the Contract;

(b) omission of any item of work;

(c) change in the character or quality or kind of any such work;

(d) change in the levels, lines, position and dimensions of any part of the works;

(e) additional work of any kind (not exceeding twenty percent (20%) of the original contract amount, or the maximum threshold value for the use of Limited Tender whichever is lower); or

(f) change in any specified sequence or timing of construction activities.

27.2 All Variations shall be included in updated Programs produced by the Contractor.

27.3 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

27.4 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.

27.5 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

27.6 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

27.7 If the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in Sub-Clause 25.1 or the timing of its execution do not cause the cost per unit of the quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

27.8 For works up to Nu. 50 Million, if the value of additional work exceeds twenty percent (20%) of the initial contract price, the Procuring Agency shall seek prior approval of the Competent Authority (Finance Committee Constituted in respective Agencies).

28. Retention

28.1 The Procuring Agency shall retain from each payment due to the Contractor the proportion stated in the SCC until the completion of the whole of the Works.

28.2 The Retention Money shall be returned to the contractor on completion of Defect Liability Period.

28.3 Withstanding GCC 27.2, in case of contracts of duration more than 12 months, fifty percent (50%) of the Retention Money may be returned to the contractor upon completion of work against the submission of an unconditional guarantee issued by a reputed financial institution and acceptable to the Procuring Agency. Such a guarantee shall be valid until the issue of a No Defects Liability Certificate.

28.4 If the contractor fails to remedy any reported defect within the Defects Liability Period, the Procuring Agency shall withhold the payment or realize claims from the guarantee, of an amount, which in the opinion of the Procuring Agency, represent the cost of the defects to be remedied.

28.5 Subject to GCC 27.4, the Retention Money or the balance of it shall be discharged and returned to the contractor within 14 days of the issue of the No Defects Liability Certificate.

28.6 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defect liability period shall be remedied by the Contractor at the Contractor's cost, if the loss or damage arises from the Contractor's act or omission.

29. Liquidated Damages

29.1 The Contractor shall pay liquidated damages to the Procuring Agency at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion date for the works or for any part thereof.

30. Performance Security

30.1 Upon receipt to Letter of Acceptance, a Performance Security shall be provided to the Procuring Agency in the amount and form stated in the Contract Forms (Form 3). The Performance Security shall be valid until a date thirty (30) days from the date of issue of the Certificate of Completion.

30.2 The proceeds of the Performance Security shall be payable to the Procuring Agency unconditionally upon first written demand as compensation for any loss resulting from the Contractor's failure to complete its obligations under the Contract.

31. Price Adjustment

31.1 The price adjustments shall be mandatorily applicable for contract duration of more than twelve (12) months. No price adjustments shall be allowed within first twelve (12) months of any contract.

31.2 The adjustment shall be based on the cost of materials as Reflected by the Material Index Numbers published by the National Statistical Bureau[11] (NSB), calculated for every successive period of 3 months after the 12th month of the Contract using the following formulae.

V = Wx0.80x0.75 x (M-M0)/M0

Where:

V = amount of variation for materials payable to/recoverable from the contractor for the period under review;

W = value of the work done during the period under review minus (amount of secured advance recovered in the same period + value of works executed under variations for which the variations are paid in the new rate);

M0 = Material Index for the month in which the tender was submitted;

M = the average value of the above Index Number for the 3 months period under review; Price adjustment formula for Labour shall be calculated as follows:

VL=W*0.80*0.25*(L-L0)/ 5*L0

V= amount of variation for labour payable to/recoverable from the contractor for the period under review;

W = value of the work done during the period under review minus (amount of secured advance recovered in the same period + value of works executed under variations for which the variations are paid in the new rate);
L0= Nu. 275.83 (Average labour rate in latest BSR);
L= Nu. 544.54 (Average labour rate in latest BSR).

31.3 Price Adjustment shall apply only for work carried out within the stipulated time or extensions granted by the Procuring Agency and shall not apply to work carried out beyond the stipulated time for reasons attributable to the Contractor.

32. Completion

32.1 The Contractor shall request the Project Manager to issue a Certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed. After completion certificate is issued by the Project Manager, the contract will formally end and the work shall be updated as completed in relevant systems.

33. Correction of Defects

33.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the SCC. The Defects Liability Period shall be extended for as long as the Defects remain to be corrected.

33.2 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

34. Taking Over

34.1 The Procuring Agency shall take over the Site and the Works within seven (7) days of the Engineer issuing a Certificate of Completion.

35. Final Account

35.1 The Contractor shall supply the Project Manager a detailed account of the total amount that the Contractor considers payable under the Contract. The Project Manager shall certify any final payment that is due to the Contractor within fifteen (15) days of receiving the Contractor's account if it is correct and complete.

35.2 The Procuring Agency shall effect payment of the final account within ten (10) days from the date of certification by the Project Manager.

36. Termination

36.1 The Procuring Agency or the Contractor by giving thirty (30) days written notice of default to the other party may terminate the Contract in whole or in part if the other party causes a fundamental breach of Contract.

36.2 Fundamental breaches of the Contract shall include, but shall not be limited to, the following:

(a) The Contractor stops work for more than thirty (30) days when no stoppage of work is shown on the current Programme and the stoppage has not been authorised by the Project Manager;

(b) the Project Manager gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;

(c) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of Liquidated Damages can be paid;

(d) the Contractor, in the judgment of the Procuring Agency, has engaged in corrupt or fraudulent practices, as defined in GCC Clause 3, in competing for or in executing the Contract; and

(e) a payment certified by the Project Manager is not paid to the Contractor by the Procuring agency within sixty (60) days of the date of the Project Manager's certificate.

36.3 The Procuring Agency and the Contractor may at any time terminate the Contract by giving notice to the other party if either of the parties becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to any party provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue to the other party.

36.4 Notwithstanding the above, the Procuring Agency may terminate the Contract for convenience.

36.5 If the Contract is terminated, the Contractor is to stop work immediately, make the Site safe and secure and hand over the Site to the Procuring Agency as soon as reasonably possible.

36.6 Following the termination of contract, the Procuring Agency may retender or execute the works departmentally.

37. Payment upon Termination

37.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done and Plant and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the SCC. If the total amount due to the Procuring Agency exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Agency.

37.2 If the Contract is terminated for the Procuring Agency's convenience or because of a fundamental breach of Contract by the Procuring Agency, the Contractor shall be entitled to payments for completed works and the materials that have been brought to the site for the purpose of the works, but not used as certified by the Engineer after adjusting any payments received by the Contractor.

38. Release from Performance

38.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Procuring Agency or the Contractor, the Project manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible, after receiving this certificate. The Contractor shall be paid for all works carried out before stoppage of work and any work carried out afterwards to which a commitment was made.

39. Force Majeure

39.1 For the purpose of this Contract, "Force Majeure" means an exceptional event or circumstance:

(a) which is beyond a Party's control;

(b) which such Party could not reasonably have provided against before entering into the Contract

(c) which, having arisen, such Party could not reasonably have avoided or overcome; and

(d) which is not substantially attributable to the other Party.

39.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war;

(c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel;

(d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity; and

(e) natural catastrophes such as earthquake, Glacial Lake Outburst Floods, hurricane, typhoon or volcanic activity.

39.3 However, force majeure shall not include the following unless determined as exceptional event or circumstances;

(a) rainfall;

(b) snowfall;

(c) strikes in other countries;

(d) non-availability of labourer and materials such as timbers, boulders, sand, and other material; and/or

(e) difficulty and risky terrain and remoteness of site.

39.4 The exceptional event or circumstances provided in GCC clause 39.1 which do not come within purview of Force Majeure requires approval of the Tender committee with justification for the approval of compensation.

40. Settlement of Disputes

40.1 The Procuring Agency and the Contractor shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

40.2 Any dispute between the parties to the Contract that may not be settled amicably will be referred to Arbitration at the initiative of either of the parties.

40.3 The Arbitration shall be conducted in accordance with the prevailing Alternative Dispute Resolution Act of the Kingdom of Bhutan and its implementing rules and regulations in force or any other law of arbitration specified in the contract.

40.4 The dispute resolution shall not prohibit continuation of execution of the work unless injunction order is issued by the court of law.

41. Other Contractors

41.1 The Contractor shall cooperate and share the Site with other contractors, sub-contractors, public authorities, utilities and the Procuring Agency between the dates given in the Schedule of Other Contractors, as referred to in the SCC. The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Agency may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

SECTION 6. SPECIAL CONDITIONS OF CONTRACT	
Instructions for completing the Special Conditions of Contract are provided, as needed, in the notes in italics mentioned for the relevant GCC Clauses.3	
Clause Ref	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
GCC 1.1(d) GCC 1.1(i) GCC 1.1(j) GCC 1.1(k) GCC 1.1(l) GCC 1.1(m)	The Contractor is **Winning Bidder**
	The Procuring Agency is **Bhutan Ecological Society** **Thori Lam, Lower Changangkha** Mobile/Telephone: **+975 17848918** Electronic mail address: **procurement@bes.org.bt**
	The Project Manager is **Namey Samey Studios (PMC)**
	The Intended Completion Date for the whole of the Works shall be **6 Months**
	The Site is located at **Memelhaka, Thimphu**
	The Works is Civil Works for 20 TDP Bio Gas Plant. Site Development and Plant Shde.
GCC 2.2(h)	The additional documents forming part of this Contract are: **none**
GCC 5.1	The Project Manager shall obtain specific approval of the Procuring Agency before taking any of the following actions:
GCC 7.1	The addresses for Communications shall be: **Bhutan Ecological Society** **Thori Lam, Lower Changangkha** Mobile/Telephone: **+975 77205398** Electronic mail address: **procurement@bes.org.bt** For the Contractor: **As Mentioned in the Form of Bid of the Winning Bidder**
GCC 9.1	The Key Personnel of the Contractor are: As mentioned in the evaluation criteria
GCC 15.1	For insurance purposes the type of cover required shall be: The contractor shall be responsible for the insurance
GCC 16.1	Possession of the site shall be within **7 days** from the date of signing of the Contract.
GCC 17.1	Commencement of work shall be within **7 days** from the date of handing over possession of the Site.
GCC 18.1	Completion of works shall be within **6 Months** from the date of commencing the works on the site.

GCC 19.1	The Contractor shall submit the Updated work plan **7 days** after signing the Contract, and shall update the work plan every **two** weeks during the period of the Contract.
GCC 22.1	None

GCC 25.2	The mobilization advance payment is **10%** of the contract price. The secured advance shall be upto **75%** of the value of materials brought at site.
GCC 28.1	The Retention shall be **10%** of the Contract Price.
GCC 29.1	The liquidated damages for the whole of the Works are **0.10%** per day. The maximum amount of liquidated damages for the whole of the Works is **10%** of the initial Contract Price.
GCC 33.1	The Defects Liability Period shall be 12 months
GCC 37.1	The percentage to apply to the value of the work not completed, representing the Procuring Agency's additional cost for completing the Works, is 20% of the value of work not completed up to a maximum of 10% of the initial contract price.
GCC 41.1	The contractor should align the work plan considering the schedule of Bio Gas plant vendor.

SECTION 7. CONTRACT FORMS

This section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after Contract award.

Contract Forms

Form - 1 Letter of Acceptance
Form - 2 Contract Agreements
Form - 3 Bank Guarantee for Performance Security
Form - 4 Bank Guarantee for Advance Payment

Letter of Acceptance

Contract No: Date:

To:

[name and address of Contractor]

This is to notify you that your Bid dated [insert date] for the execution of the Works for [name of project / Contract] for the Contract Price of Nu [amount in figures and in words], as corrected and modified in accordance with the Instructions to Bidder is hereby accepted by [name of the Procuring Agency].

You are requested to proceed with the execution of the Works on the basis that this letter of acceptance shall constitute the formation of a Contract, which shall become binding upon furnishing a Performance Security and signing the Contract Agreement within fifteen (15) working days, in accordance with ITB Clause36.

We attach the Contract Agreement and Special Conditions of Contract for your perusal and signature.

Signed

Duly authorised to sign for and on behalf of

[name of Procuring Entity]

Date:

Contract Agreement

THIS AGREEMENT, made the [day] of [month] [year] between [name and address of Procuring Agency] (hereinafter called "the Procuring Agency") of the one part and [name and address of Contractor] (hereinafter called "the Contractor") of the other part.

WHEREAS, the Procuring Agency invited Tenders for certain Works, viz, [brief description of the Works] and has accepted a Tender by the Contractor for the execution of those works in the sum of Ngultrum [insert amount in figures and words], hereinafter called "the Contract Price.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as respectively assigned to them in the General Conditions of Contract hereinafter referred to.
2. The documents forming the Contract shall be interpreted in the following order of priority:
   (a) The signed Contract Agreement;
   (b) The letter of Acceptance;
   (c) The completed Bid form as submitted by the Bidder;
   (d) The Special Conditions of Contract;
   (e) The General Conditions of Contract;
   (f) Specifications
   (g) The Drawings; and
   (h) Any other document listed in the SCC as forming part of the Contract.
3. In consideration of the payments to be made by the Procuring Agency to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procuring Agency to execute and complete the Works and to remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring Agency hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS where of the Parties thereto have caused this Agreement to be executed in accordance with the laws of Bhutan on the day month and year first before written.

For the Procuring Agency

Signature
Print Name
Title
In the presence of (Name)
Address

For the Contractor

Performance Demand Bank Guarantee
(Unconditional)

[The bank/successful Bidder providing the Guarantee shall fill in this form in accordance with the instructions indicated in brackets.]

[Bank's name, and address of issuing branch or office]

Beneficiary: [name and address of Procuring Agency]

Date: [date]

PERFORMANCE GUARANTEE No.: [Performance Guarantee number]

We have been informed that [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the Contract] dated [date of Contract] with you, for the execution of [name of Contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a Performance Guarantee is required.

At the request of the Contractor, we [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in figures] ([amount in words]),[12] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without you needing to prove or to show grounds for your demand or the sum specified therein.

This Guarantee shall expire no later than 30 days from the date of issuance of the Certificate of Completion, calculated based on a copy of such Certificate which shall be provided to us, or on the [number] day of [month], [year][13], whichever occurs first. Consequently, any demand for payment under this Guarantee must be received by us at this office on or before that date. The Guarantor agrees to a one-time extension of this Guarantee for a period as required by the Procuring agency, in response to the Procuring Agency's written request for such extension, such request to be presented to the Guarantor before the expiry of the Guarantee.

[signature(s) of an authorized representative(s) of the bank]

Bank Guarantee for Advance Payment

*The **bank/successful Bidder** providing the Guarantee shall fill in this form in accordance with the instructions indicated in brackets.*

[bank's name, and address of issuing branch or office] **Beneficiary:**

[name and address of Procuring Agency] Date: [date] **ADVANCE**

PAYMENT GUARANTEE No.: [number]

We have been informed that [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the contract] dated [date of Contract] with you, for the execution of [name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment is to be made against an advance payment guarantee in the sum or sums indicated below.

At the request of the Contractor, we [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in figures] ([amount in words][14]) upon receipt by us for your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract.
It is a condition for any claim and payment under this guarantee to be made that the Advance Payment referred to above must have been received by the Contractor in its account number [account number] at [name and address of Bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the Advance Payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This Guarantee shall expire, at the latest, upon our receipt of a copy of the Interim Payment Certificate indicating that eighty percent (80%) of the Contract Price has been certified for payment, or on the [number] day of [month], [year],[15] whichever is earlier. Consequently, any demand for payment under this Guarantee must be received by us at this office on or before that date. We agree to a one-time extension of this Guarantee as required by the Procuring agency, in response to the Procuring Agency's written request for such extension, such request to be presented to us before the expiry of the Guarantee.

[insert signature(s) of authorized representative(s) of bank]

Section 8. Bill Of Quantities – Attached

Section 9. Drawings – Attached

Abstract of Cost PACKAGE 2
20 TDP BIOGAS PLANT
Bhutan Ecological Society
Thimphu

BSR 2025 TH

Sl. No.	Description	Amount in Nu.
BQ.	A. CIVIL WORKS BUILDING STRUCTURE	
BQ.	B. CIVIL WORKS SITE DEVELOPMENT AND ROAD	
BQ.	C. INT EX PLUMBING	
BQ.	D. ELECTRICAL	
BQ.	E. FIRE EXTINGUISHER	
BQ	OHS	
BQ	Temporary Accomocdation	
	GRAND TOTAL	

Abstract of Cost
20 TDP BIOGAS PLANT
Bhutan Ecological Society
Thimphu

BSR 2025 CIVIL STRUCTURE TH

Sl. No.	Description	Amount in Nu.
1	1. CLEARING & DEMOLITION	
2	2. EARTHWORK	
3	3. PLAIN CONCRETE	
4	4. DAMP-PROOFING	
5	5. REINFORCED CONCRETE	
6	6.BRICKWORK	
7	7.STONE MASONRY	
8	8.STEEL	
9	9.FLOOR FINISH	
10	10.WALL FINISH	
11	11.FALSE CEILING	
12	12.PAINT	
13	13.DOOR AND WINDOWS	
14	14 EX PLUMBING CIVIL PART	
	TOTAL FOR CIVIL WORKS	

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.1	**SECTION**	**1. CLEARING & DEMOLITION**			**Sec. Total**	
A 2.1	CG0002	Clearing jungle including uprooting of vegetation & trees of girth < 600mm, disposal within 50m of the site	SQM	5,730.00		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.02	**SECTION**	**2. EARTHWORK**			**Amount in Nu.**	
A 2.1	EW0046	Earth work in excavation over areas using Excavator, exceeding 300mm in depth, 1.5m in width as well as 10 sq.m in area on plan, including dressing, levelling and disposal of excavated earth, lead up to 50m and lift up to 1.5m	CUM	10,718.00		
A 2.2	EW0106	Excavation in foundation trenches or drains not exceeding 1.5m in width or area 10 sq.m on plan, including dressing & ramming, disposal of surplus soil within 50m lead & 1.5m lift. All types of Soil	CUM	881.58		
A 2.3	EW0107	Excavation in foundation trenches or drains not exceeding 1.5m in width or area 10 sq.m on plan, including dressing & ramming, disposal of surplus soil within 50m lead & 1.5m lift. All types of rock with or without blasting	CUM	97.95		
A 2.4	EW0195	Filling of trenches, sides of foundations etc. in layers <200mm using selected excavated earth, ramming etc. within lead 50 m & lift 1.5m	CUM	420.90		
A 2.5	EW0196	Providing &laying sand bedding, including watering, ramming, dressing	CUM	39.91		
A 2.6	EW0197	Providing &laying dry earth bedding, including consolidating each deposited layer by watering, ramming and dressing	CUM	375.98		
A 2.7	RW0019	Transport of loose spoil materials in designated locations including loading/unloading ,dressing of dump sites and plantation of vegetation after completion of dumping. Per cum, per KM. Quantity payable is 80% of the dumper carriage volume. For rate calculation asume that the transporation is approxmately 1KM	cum/km	11,276.63		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.03	**SECTION**	**3. PLAIN CONCRETE**			**Amount in Nu.**	
A 3.1	CW0003	Providing and laying in position plain cement concrete excluding the cost of centering and shuttering - All work upto plinth level. 1:2:4 (1 cement : 2 sand : 4 graded crushed rock 20 mm nominal size)	CUM	31.31		
A 3.2	CW0005	Providing and laying in position plain cement concrete excluding the cost of centering and shuttering - All work upto plinth level. 1:3:6 (1 cement : 3 sand : 6 graded crushed rock 20 mm nominal size)	CUM	26.86		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.04	**SECTION**	**4. DAMP-PROOFING**			**Amount in Nu.**	
A 4.1	DP0002	Providing and laying damp-proof course with cement concrete 1:2:4, 20mm aggregate 50mm thick below external	SQM	20.63		
A 4.2	DP0020	Providing and laying moisture barrier using plastic sheeting underlay 200 micro-meter	SQM	783.89		
A 4.3	NS.DP04	Providing and applying two coats of waterproofing compound equivalent to Pedifin 2K over the prepared surface, including thorough surface preparation, mixing, and curing in accordance with the manufacturer's specifications. Waterproofing shall be applied to the Inner face of tank. The treated surface shall be tested for water tightness by 24-hour ponding test. All works shall be carried out as per the instructions of the Engineer-in-Charge (EIC) and include all labour, materials, and tools required to complete the job in all respects.	SQM	451.92		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.05	**SECTION**	**5. REINFORCED CONCRETE**			**Amount in Nu.**	
A 5.1	RC0002	Providing & laying in position reinforced cement concrete excluding the cost of centering, shuttering and reinforcement - all work upto plinth level. 1:1.5:3 (1 cement : 1.5 sand : 3 graded crushed rock 20 mm nominal size)	CUM	219.29		
A 5.2	NS.DP02	Extra to Item RCC, PCC Providing and mixing liquid polymer modified waterproofing admixture in required proportion as per manufacturer specification during mixing of concrete wherever require as per the instruction of EIC. (Dr. Fixit Pidiproof LW+ @ 200ml per 50kg bag cement or equivalent) in All concrete work in basement and parking beam, slab on ground floor lvl	LTR	264.47		
A 5.3	RC0005	Providing & laying in position reinforced cement concrete work in walls (any thickness) including attached pilasters buttresses, piers, abutments etc. upto floor five level excluding the cost of centering, shuttering and reinforcement. 1:1.5:3 (1 cement : 1.5 sand : 3 graded crushed rock 20 mm nominal size)	CUM	110.20		
A 5.4	RC0014	Providing & laying in position reinforced cement concrete work in suspended floor, roofs having slope upto 15 Degree, landings, balconies, shelves and chajjas upto floor five level excluding the cost of centering, shuttering and reinforcement. 1:1.5:3 (1 cement : 1.5 sand : 3 graded crushed rock 20 mm nominal size)	CUM	1.63		
A 5.5	RC0083	Providing & fixing Thermo-Mechanically Treated reinforcement bar (Yield Strength 500 MPa) for R.C.C work including cutting, bending, binding and placing in position complete	KGS	31,105.68		
A 5.6	RC0108	Providing & fixing centering and shuttering (formwork) using Shuttering Plywood, including Timber frame and timber strutting, propping with complete form tie system etc. and removal of formwork -. Foundation	SQM	700.38		

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
A 5.7	RC0113	Providing & fixing centering and shuttering (formwork) using Shuttering Plywood, including Timber frame and timber strutting, propping with complete form tie system etc. and removal of formwork - Suspended floor, roof, landing, shelves and their supports, balconies, chajjas, etc.	SQM	49.81		
A 5.8	RC0109	Providing & fixing centering and shuttering (formwork) using Shuttering Plywood, including Timber frame and timber strutting, propping with complete form tie system etc. and removal of formwork - Walls (any thickness), pilasters, buttresses, string	SQM	723.26		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.06	**SECTION**	**6.BRICKWORK**			**Amount in Nu.**	
A 6.1	BW0021	Providing & laying Second-Class Half-brick Masonry (125 mm) in superstructure below floor 2 level CM 1:4	SQM	205.97		
A 6.2	BW0002	Providing & laying Second-Class Brick work in Foundation & Plinth In cement mortar 1:4	CUM	9.50		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.07	**SECTION**	**7.STONE MASONRY**			**Amount in Nu.**	
A 7.1	SM0005	Providing & laying Random Rubble Masonry with hard stone in foundation & plinth. In cement mortar 1:4	CUM	115.88		
A 7.2	SM0072	Providing and laying Hand packed stone filling or soling with stones	CUM	154.57		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.08	**SECTION**	**8.STEEL**			**Amount in Nu.**	
A 8.1	RF0003	Providing & fixing Pre - Painted Galvanized Iron (PPGI) sheets, including bolts, hooks and nuts 8mm dia. with bitumen and G.I limpet washers filled with white lead for connection, excluding the cost of purlins, rafter and trusses.	SQM	1,247.09		
A 8.2	RF0007	Providing & fixing 600 mm ridges or hips in Pre - Painted Galvanized Iron (PPGI) sheets, including bolts, hooks and nuts 8mm Dia G.I limpet and bitumen washers for connection.	MTR	67.50		
A 8.3	SW0090-C	Providing, making and fixing M.S. 3mm x 300mm Eaves Board Including priming coat of red lead paint, and 2 coat of synthetic paint	KGS	1,591.11		
A 8.4	SW0090	Providing, making and fixing M.S. straps, flats, sole plates etc.	KGS	2,965.11		
A 8.5	SW0080-C	Providing & fixing Galvanized hold down anchor including 2 bolt per anchor as per drawing	KGS	596.40		
A 8.6	RF0011	Providing & fixing 600 mm overall width Pre - Painted Galvanised Iron (PPGI) gutter, including brackets, bolts, nuts, washers & rain water pipes connections, excluding the cost of pipes - 25 g sheet	MTR	193.95		
A 8.7	RF0191	Providing and fixing on wall face single socketed rigid PVC (Working Pressure 4kgf per sq.cm) rain water pipes including jointing with seal ring leaving 10 mm gap for thermal expansion- complete	MTR	90.00		
A 8.8	SW0020	Steel work welded, in built up sections, trusses, frame-works including cutting, hoisting, fixing and appl. priming coat of red lead paint In R.S. joists	KGS	12,820.45		
A 8.9	SW0021	Steel work welded, in built up sections, trusses, frame-works including cutting, hoisting, fixing and appl. priming coat of red lead paint In In Tees, angles, flats and channels	KGS	2,106.44		
A 8.1	SW0022	Steel work welded, in built up sections, trusses, frame-works including cutting, hoisting, fixing and appl. priming coat of red lead paint In Tubular sections	KGS	15,406.66		

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
A 8.11	RF0150	P&f 2mm UV Resistant Polycarbonate transparent sheet including 8mm G.I J or L hooks, bitumen & G.I limpet washers etc complete, excluding cost of frame	SQM	51.84		

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.09	**SECTION**	**9.FLOOR FINISH**			**Amount in Nu.**	
A 9.1	FL0052	Providing & laying cement concrete flooring 1:2:4, finished with floating coat of neat cement 20mm aggregates, 50mm thick	SQM	643.77		
A 9.2	GL0002	Providing and laying vitrified tiles in flooring, treads of steps and landings in different sizes600x600x8mm in all colours and shade, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) finished with tiles grout flush pointing	SQM	10.13		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.10	**SECTION**	**10.WALL FINISH**			**Amount in Nu.**	
A 10.1	PL0031	Providing & laying 15mm cement plaster on rough side of single or half-brick wall. C.M 1:4	SQM	639.31		
A 10.2	GL0001	Providing and fixing vitrified tiles in skirting, step risers, dado and wall in different sizes 600x600x8mm in all colours and shade, on 12 mm thick cement mortar 1:3 (1 cement:3 sand) finished with Tiles grout flush-pointing	SQM	35.64		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
11	**SECTION**	**11.FALSE CEILING**			**Amount in Nu.**	
A 11.1	WW0132	Providing & fixing Plywood lining with necessary nails etc. including beading complete, Including MS frame, screw etc.	SQM	63.15		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.12	**SECTION**	**12.PAINT**			**Amount in Nu.**	
A 12.1	PT0042	Acrylic washable distemper, two coats on new work, including cement primer coat	SQM	639.31		
A 12.2	PT0047	Providing and applying finishing coats. Synthetic enamel, for steel & wood work, two coats on new work	SQM	663.11		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
BQ.A13	**SECTION**	**13.DOOR AND WINDOW**			**Amount in Nu.**	
A 13.1	NS.GL01	Providing and Fixing Door D1 1200x2100. Which includes timber frame, composit shutter ply 35mm thick, stainless steel hinges, fittings and leve and lock set of approved brand.	Nos	7.00		
A 13.2	SW0035	Providing & fixing in position with vertical channels 20x10x2mm and braced with flat iron, diagonals 20x5mm with top and bottom rails of T-iron 40x40x6mm with 38mm dia steel pulleys complete with bolts, nuts, locking arrangement, stoppers handles including applying a priming coat of red lead paint. Providing & fixing in position Aluminium Rolling shutters of 0.57mm thickness, including all accessories complete	SQM	28.25		
A 13.3	SW0045-C	Providing & fixing anodised Aluminium section for Sliding windows, of standard specified sections including all accessories such as U-rubber gasket for fixing glass panes, weather strips or weather seals, roller, springs, etc complete and 5mm clear glass.	SQM	10.56		
13.4	MR001	Supply, installation, and testing of factory-made mechanical turbo roof ventilator unit of stainless steel construction with double ball bearing system, designed for continuous, wind-driven operation without electricity, suitable for mounting on factory roof sheeting. The ventilator shall include FRP, polycarbonate or aluminium base plate matching the roof profile, weatherproof flashing, fasteners, sealants, and all necessary accessories for a leak-proof installation.	NOS	12.00		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
16	**SECTION**	**14.PLUMBING EXTERNAL**			**Sec. Total**	
16.1		Providing and laying drain pit of internal size 300mmx300mmx300mm, in PCC 1:2:4 base, brick masonry 125mm thick with plaster in CM 1:4, and floating coat of neat cement in the inside face of the pit, with grated MS Cover Including all necessary work such as excavation, formwork etc. complete.	NOS	2.00		
16.2		Providing and laying drain pit of internal size 600mmx300mmx300mm, in PCC 1:2:4 base, brick masonry 125mm thick with plaster in CM 1:4, and floating coat of neat cement in the inside face of the pit, with grated MS cover, Including all necessary work such as excavation, formwork etc. complete.	NOS	1.00		
16.3		Providing and laying drain chamber of internal size 300mmx300mm upto 750mm depth, in PCC 1:2:4 base, brick masonry 250mm thick with plaster in CM 1:4, and floating coat of neat cement in the inside face of the pit, with grated MS Cover Including all necessary work such as excavation, formwork etc. complete.	NOS	10.00		
16.4		Providing and laying drain chamber of internal size 300mmx300mm upto 1500mm depth, in PCC 1:2:4 base, brick masonry 250mm thick with plaster in CM 1:4, and floating coat of neat cement in the inside face of the pit, with grated MS Cover Including all necessary work such as excavation, formwork etc. complete.	NOS	5.00		
16.5		Providing and layinggylly trap of internal size 300mmx300mmx400mm, in PCC 1:2:4 base, brick masonry 125mm thick with plaster in CM 1:4, and floating coat of neat cement in the inside face of the pit, with grated MS Cover Including all necessary work such as excavation, formwork etc. complete.	NOS	1.00		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
16.6		Constructing second class brick masonry open surface drain in cement mortar 1:4 including earth work in excavation 100 mm thick concrete bed 1:5:10, 40mm aggregate and 25mm thick cement concrete 1:2:4,12 mm aggregate for filling haunches including 12mm cement plastering 1:4 with a floating coat of neat cement and disposal of surplus earth etc. complete 300mm wide and average depth of 750mm	MTR	115.00		
16.7		Constructing second class brick masonry open surface drain in cement mortar 1:4 including earth work in excavation 100 mm thick concrete bed 1:5:10, 40mm aggregate and 25mm thick cement concrete 1:2:4,12 mm aggregate for filling haunches including 12mm cement plastering 1:4 with a floating coat of neat cement and disposal of surplus earth etc. complete 400mm wide and average depth of 750mm	MTR	210.00		
16.8		Constructing Septic Tanks, in R.R Masonry in cement mortar 1:6, including fittings, C.I cover with frame, 40mm thick concrete flooring (40mm aggregates) cement plaster concrete base in C.C 1:4:8 etc. complete as per standard design. 15 User	NOS	1.00		
16.9		Constructing Soak Pit Size 1200x1200x1200mm, filled with brick bats including 110 dia H.D.P.E (PN 4) drain pipe X 1200mm long	NOS	1.00		
16.10		Providing and Laying concrete 1:1.5:3 precast drain cover of width same as drain and thickness of 75mm, with nominal reinforcement and perforation including reinforcement and formwork etc complete	CUM	11.33		
16.11		Hand excavation and refilling in layers < 200mm, of trenches for pipes & sockets, cables, including dressing of sides/ ramming of bottom, depth upto 1.5m, disposal of surplus material within lead of 50m: All types of soil. Pipes, cables etc. 80mm < dia < 300mm	MTR	156.56		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
16.12		Constructing second class brick masonry open surface drain (to be used as electrical cable trench) in cement mortar 1:4 including earth work in excavation 100 mm thick concrete bed 1:5:10, 40mm aggregate and 25mm thick cement concrete 1:2:4,12 mm aggregate for filling haunches including 12mm cement plastering 1:4 with a floating coat of neat cement and disposal of surplus earth etc. complete 600mm wide and average depth of 1000m	MTR	8.00		
16.13		Constructing second class brick masonry open surface drain in cement mortar 1:4 including earth work in excavation 100 mm thick concrete bed 1:5:10, 40mm aggregate and 25mm thick cement concrete 1:2:4,12 mm aggregate for filling haunches including 12mm cement plastering 1:4 with a floating coat of neat cement and disposal of surplus earth etc. complete 150mm wide x 200mm average depth	MTR	222.31		
16.14		Providing and laying Plinth Protection and grouted with fine sand mix including well rammed, finishing the top smooth. With 50mm thick cement concrete 1:3:6, 20mm aggregates, laid over 75mm thick layer of compacted gravel (40mm)	SQM	226.38		

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BQ.A01	**SECTION**	**B.1 ROAD AND SITE DEVELOPMENT**			**Sec. Total**	
A 1.1	RW0013	Excavation of road formation/trace/box cutting, with excavator including separate deposition of soil, rocks and stones within 50m for reuse - all kinds of soil	cu.m	22.68		
A 1.2	RW0030	Construction of embankment by laying dry earth in horizontal layers not exceeding 200mm in depth(compacted), including watering,power rolling,dressing and preparation of site with selected excavated earth within 50mm lead	cu.m	1,421.22		
A 1.3	RW0121	Preparation of sub grade with proper camber by excavating earth to depth equal to pavement thickness, consolidation with roller, disposal of surplus earth up to 50m - All kinds of soil	cu.m	895.36		
A 1.4	RW0123	Consolidation of sub-grade with roller, and making good the undulation with earth and re-rolling the sub grade	sq.m	1,989.69		
A 1.5	RW0130	Providing and laying Granular sub-base course (GSB) to required degree of compaction with proper formation of cross fall using motor grader for laying and compacted to required density as per material gradation and aggregate quality specified	cu.m	497.42		
A 1.9	DR0220	Providing and laying Non Pressure NP-3 class (Medium duty) R.C.C. pipes including spigot and socket with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete	m	7.50		
A 1.1	SM0005	P&L Random Rubble Masonry with hard stone in foundation & plinth - In cement mortar 1:4	cu.m	1,813.62		
A 1.11	EW0106	Excavation in foundation trenches or drains, not exceeding 1.5m in width or area 10 sq.m on plan, and depth > 300 mm including dressing & ramming, disposal of surplus soil within 50m lead & 1.5m lift - All type of Soil	cu.m	493.00		
A 1.12	CW0003	Providing and laying in position plain cement concrete 1:2:4 (1 cement : 2 sand : 4 crushed rock 20 mm nominal size) excluding the cost of centering and shuttering - All work upto plinth level.	cu.m	237.70		
A 1.13	SM0070	Providing and laying Hammer dressed dry stone soling	cu.m	123.02		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
A 1.14	RC0092	Providing & fixing centering and shuttering (formwork), including strutting, propping etc. and removal of formwork - Lintels, beams, girders, bresummers, cantilevers etc.	sq.m	863.00		

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BQ.A01	**SECTION**	**C INT EXT PHE**			**Sec. Total**	
		SECTION-A				
1		SANITARY FIXTURES				
A 1.1	BSR	Providing & fixing white vitreous china wash basin, including C.I brackets, 15mm C.P. brass pillar taps, c.p. chain & rubber plug, 32mm pvc waste, 32mm dia. trap & union, repair walls				
	PI0086	Flat back wash basin 630x450mm with single 15mm c.p. brass pillar taps	Nos	2.00		
A 1.2	BSR	Providing & fixing European-type vitreous china w.c pedestal including seat and lid with c.p brass hinges, 15 lit white vitreous china low level cistern, fittings, brackets and repairing walls complete				
	PI0050	white, with plastic seat & lid	Nos	2.00		
1. 3	MR	Supplying, Installing, testing and commissioning of 8 mm dia CP health faucet of approved make with necessary CP flexible hose 1200 mm long, wall hook all of approved make etc.complete in all respect.	Nos	2.00		
1. 4	PI0260	Providing & fixing of toilet paper holder of C.P. brass.	Nos	2.00		
1. 5	PI0285	Providing & fixing c.p coat hook	Nos	2.00		
1. 6	PI0251	Providing & fixing 450x120mm glass shelf, including c.p brass brackets fixed to wooden cleats	Nos	2.00		
1. 7	PI0065	Providing & fixing of white vitreous china flat back, lipped front urinal basin 430x260x350mm, including all fittings, painting, and repairing walls complete.	Nos	1.00		
1. 8	MR	Providing & fixing of Urinal valve auto closing system with built - in control cock & wall flange, including neccesary fixing materials etc, complete in all respect.	Nos	1.00		
1. 9	PI0151	Providing & fixing of 32mm c.p. brass waste coupling .	Nos	1.00		
1. 10	PI0270	Providing & fixing soap dish including brackets, wooden cleats, c.p. brass screws	Nos	3.00		
1. 11	PI0189	Providing & fixing c.p. brass stop cock, 15mm, angle, c.p knob	Nos	8.00		
1. 12	PO0547	Providing & fixing P.V.C Floor Trap	Nos	4.00		
1. 13	MR	Supplying,Installing, testing and commissioning of SS Jali, frame & cover (125 mm x 125 mm square / 100mm round) complete in all respect.	Nos	4.00		
1. 14	BSR	Providing & fixing Electric water heater including necessary fittings				
	PI0162	25 litres	Nos	1.00		
1. 15	PI0175	Providing & fixing C.P. Brass shower fittings - Shower with revolving joint, 15mm	Nos	1.00		
1. 16	PI0241	Providing & fixing Wall Spouts - With diverter, for use with single lever mixers	Nos	1.00		

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1. 17	PI0253	Providing & fixing c.p. towel rail 600 x 20mm with c.p brass brackets fixed to wooden cleats	Nos	1.00		
		T O T A L OF SECTION -A				
		SECTION-B				
2		SOIL, WASTE, AND RAIN WATER PIPES INTERNAL				
2. 1	BSR	Providing & fixing P.V.C soil waste and vent pipes, single or double socketed, including pipe clip complete (excluding the cost of PVC fittings)ect.				
	PO0371	50mm dia	Rmt	7.00		
	PO0370	75mm dia	Rmt	7.00		
	PO0372	110 mm dia	Rmt	250.00		
2. 2	BSR	Providing & fixing P.V.C Coupler				
	PO0385	50mm dia	each	6.00		
	PO0386	75mm dia	each	6.00		
	PO0387	110 mm dia	each	50.00		
2.3	BSR	Providing & fixing P.V.C Reducer				
	PO0396	110x75mm	each	6.00		
2.4	BSR	Providing & fixing P.V.C plain bend				
	PO0405	75mm dia	each	7.00		
	PO0406	50mm dia	each	6.00		
	PO0407	110 mm dia	each	2.00		
2.5	BSR	Providing & fixing P.V.C door bend				
	PO0415	75mm dia	each	1.00		
	PO0417	110mm dia	each	1.00		
2.6	BSR	Providing & fixing P.V.C Single Y, plain				
	PO0475	75mm dia	each	2.00		
	PO0477	110mm dia	each	3.00		
2.7	BSR	Hand excavation and refilling in layers < 200mm, of trenches for pipes & sockets, cables, including dressing of sides/ ramming of bottom, depth upto 1.5m, disposal of surplus material within lead of 50m: All types of soil				
	EW0135	Pipes, cables etc. 80mm < dia < 300mm	RO	0.00		
		T O T A L OF SECTION -B				
		SECTION -C				
3		INTERNAL WATER SUPPLY SYSTEM				

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3.1	BSR	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes - class 1 (SDR11), having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge. Concealed work, including cutting chases and making the good walls etc				
	PI0301	20 mm nominal outer dia Pipes	Rmt	10.00		
	PI0302	25 mm nominal outer dia Pipes	Rmt	10.00		
3.2	MR	Supplying Installing, testing and commissioning approved make full way lever operated CPVC ball valves conforming to ASTM D 2846 with unions etc.Complete in all respect.				
	a	25 mm nominal outer dia Pipes	Nos	1.00		
		TOTAL OF SECTION-C				
		SECTION-D				
4		EXTERNAL WATER SUPPLY				
4.1	BSR	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes - class 1 (SDR11), having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer in Charge.				
	PI0304	40 mm nominal outer dia Pipes	Rmt	35.00		
	PI0305	50 mm nominal outer dia Pipes	Rmt	25.00		
4.2	MR	Providing & fixing thermal insulation on hot water pipes, a flexible elastomeric foam of closed cells structure having thermal conductivity of 0.038 W/M.K at 40o C, water vapour permeability fire propagation including all accessories complete as per specification. All joints shall be sealed with adhesive & cotton tape, shall be applied to give uniform appearance & finished with polished protective coating.				
	a	40 mm dia	Rmt	35.00		

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	b	50 mm dia	Rmt	25.00		
4.3	MR	Supplying Installing, testing and commissioning approved make full way lever operated CPVC ball valves conforming to ASTM D 2846 with unions etc.Complete in all respect.				
	a	40 mm nominal outer dia Pipes	Nos	4.00		
	b	50 mm nominal outer dia Pipes	Nos	4.00		
4.4	BSR	Providing & laying G.I. pipes including G.I. fittings (excluding trenching, refilling & thrust block)				
	PO0002	20 mm	Rmt	40.00		
	PO0003	25 mm	Rmt	200.00		
	PO0005	40 mm	Rmt	70.00		
	PO0006	50 mm	Rmt	80.00		
	BSR	Hand excavation and refilling in layers < 200mm, of trenches for pipes & sockets, cables, including dressing of sides/ ramming of bottom, depth upto 1.5m, disposal of surplus material within lead of 50m: All types of soil				
	EW0134	Pipes, cables etc. dia < 80mm	RO	0.00		
4.6	BSR	Providing & fixing brass full way valve with wheel				
	PO0101	20 mm	Nos	7.00		
	PO0105	25 mm	Nos	4.00		
	PO0106	40 mm	Nos	6.00		
	PO0107	50 mm	Nos	4.00		
		TOTAL OF SECTION-D				

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BQ.A01	**SECTION**	**D.ELECTRICAL**			**Sec. Total**	
		SECTION: A				
A		DISTRIBUTION BOARDS Supply, installation, testing & commissioning of 500 V Distribution Boards,MCCB/MCB/RCBO/SPD & Junction Box as specified in the technical specification and drawing with the following: a) Distribution boards shall be double door with lock, surface/recessed mounted IP 43 Grade, made of 18 SWG sheet steel rust proof with chemical treatment and powder coated with approved colour and with knock-outs on top and bottom for wires/cable entry. b) Copper bus brs shall be of edecuate rating and suitable for a temperature rise of 30 deg. C over the ambient. c) Copper earth strip with tapping for EEC d) Bus bar mounting mcb's Individually Lockable in off position. e) Interconnections and earthing. f) Phase to phase barriers in case of 3Ph boards. g) Necessary support frame, junction box & painting, Labeling, phase indicating Lamps with Fuses etc. complete h) PPI Kit shal be applicable in case of distribution boards having RCCB/ RCBO in incomers. i) Selection of all distribution boxes will be govern by the capacity and type of incomer only.				
A 1		DISTRIBUTION BOARDS				
A.1.1		Supply & fixing of SPN distribution board (DIN type) with metal door, 230 volt A.C complete with all accessories without MCB/isolator/RCCB out going or incoming etc. as required				
A 1	GB0524	12 WAY DB	Each	1.00		
A.1.2		Supply & fixing of TPN distribution board (DIN type, horizontal/Vertical) with metal door, 415 volt A.C complete with all accessories without MCB/isolator/RCCB out going or incoming etc. as required				
1	MR	06 WAY VTPN DB	Each	1.00		
A 2	MR	08 WAY VTPN DB	Each	2.00		
3	MR	08 WAY VTPN DB 160A	Each	1.00		
2		MCCB/MCB/RCBO				

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2.1		Supply & Installation, testing & commissioning of miniature circuit breaker (MCB) single pole, 230 volt A.C complete with all accessories suitable to fix on a din-bar etc. as required				
1	GB0271	10A	Each	17.00		
2	GB0272	16 A	Each	25.00		
3	GB0275	32 A	Each	9.00		
2.2		Supply & Installation, testing & commissioning of miniature circuit breaker (MCB) double pole, 230 volt A.C complete with all accessories suitable to fix on a din-bar etc. as required				
1	GB0312	16 A	Each	1.00		
2.3		Supply & Installation, testing & commissioning of miniature circuit breaker (MCB) triple pole , 415 volt A.C complete with all accessories suitable to to fix on a din-bar etc. as required				
1	GB0335	32 A	Each	14.00		
2	GB0336	40 A	Each	2.00		
3	GB0339	80 A	Each	2.00		
2.4		Supply & Installation, testing & commissioning of miniature circuit breaker (MCB) triple pole & neutral, 415 volt A.C complete with all accessories suitable to to fix on a din-bar etc. as required				
1	GB0355	63 A	Each	3.00		
2.5		Supply & Installation, testing & commissioning of residual current circuit breaker (MCB) double pole, sensitivity 100mA, 230 volt A.C complete with all accessories suitable to fix on a din-bar etc. as required				
1	GB0440	16 A	Each	1.00		
2.6		Supply & Installation, testing & commissioning of panel moduled case circuit breaker (MCCB) with electronic release ,breaaking capacity 36kA ,4 pole 415volt A.C complete with all accessories etc. as required				
2	GB0211	160 A	Each	1.00		
		TOTAL OF SECTION: A				
		SECTION; B				
B		WIRING FOR POWER / LIGHT POINTS :				
		Supply, installation, connection, testing & commissioning of following outlet points as per Specification & IS. Sub mains wiring for rooms including corridors. Conduit wiring for lights fans and 6 Amps sockets consisting of the following:				

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		a) Conduit fittings such as bends, elbows, reducers, chase nipples, split couplings, plugs etc. shall be heavy duty specifically designed and manufactured for their particular application and in accordance with relevant I.S.S. Wherever galvanised conduits. b) Conduits run on surfaces shall be supported on metal 12 mm thick saddles which in turn are properly screwed to the wall or ceiling. c) Suitable galvanized steel fish wires of not less than 0.63 mm dia shall be drawn in all conduits before they are embedded. d) Inspection boxes shall be provided for periodical inspection to facilitate withdrawal and removal of wires. Such inspection boxes shall be flush with the wall or ceiling in the case of concealed conduits. e) Flexible cords for connection to appliances, fans and pendants shall be 660/1000V grade (three or four cores i.e. with insulated neutral wire of same size) with tinned stranded copper wires, insulated, twisted and sheathed with strengthening cord. f) Wiring in 25/32/40/50 mm Dia HMS PVC conduit using multiple circuits as per specification. g) 1100V grade PVC insulated Cu multi-stranded FRLS wires. h) Insulated or base protective earth as Specified and earthing of switch boxes i) Cost for MCB shall be excluded. j) Earthing of metal fittings. k) Electrical connection to the fixtures from the outlet point / ceiling rose. l) The unit rate for the point shall consist of the circuit wiring from LDB to switch board/outlet point through MCB as required & including the outlet points				

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		Primary 6/16 A socket point will be wired by 3x2.5 mm sq cu wire and there after secondary socket point will be wired by 3x2.5 mm sq cu wire when 2 nos of 6/16A socket will be wired in group in one circuit or as shown in the SLD / Circuits . There should not be more than 2 socket in one group/ circuits for Power socket. Single 16/20 A socket in one circuit can be wired by 3x4 mm sq wire. All common area lights will be wired with 3x1.5 mm sq cu wires from switch board to light points. All points to the light within rooms wired with 3x1.5 mm sq wires from switch boards. All circuits to the switch board from juntion box within rooms wired with 3x1.5 mm sq wires. All circuits to 16/20 A socket from juntion box within rooms wired with 2x4 mm sq wires. Indepedent Circuits and power points will be wired with 3x4 mm sq cu wire controlled by MCB or as detailed in the drawings. Common area Switch boards will be wired with 3x2.5 mm sq wires from MCB and corresponding loop.				
1		CONDUIT WIRING Circuit mains/ sub mains shall be drawn through MS conduit from LDB / power socket DB to the switch board or between switch boards by loop in , loop out method. Supplying and fixing of MS pipe on surface including all accessories such as screws, bends,elbows, Tees, corners, etc. complete as required				
1.1	CD0265	19/20mm dia. MS Conduit	Mtrs	10.00		
1.2	CD0266	25mm dia. MS Conduit	Mtrs	395.00		
1.3	MR	Extra for chase cutting for recessed conduit upto 60 mm wide (without conduit rate)	Mtrs	220.00		
2		POINT / CIRCUIT WIRING CIRCUIT MAINS / SUB- MAINS WIRING AND DIRECT POINT WIRING CONTROLLED FROM SWITCHBOARD				
2.1		Wiring for light, fans, call bell and 2 pin light socket outlet with 1.5 sq.mm 1.1kV grade,PVC insulated copper conductor cable in surface MS conduit including connections,painting,testing and commissioning etc. as required				
2.1.1	WM0105	Short Point	Points	4.00		
2.1.2	WM0106	Medium Point	Points	13.00		
2.1.3	WM0107	long Point	Points	21.00		

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2.2		Wiring for 3/5 pin, 6 ampere plug point with 2.5 sq.mm 1.1kV grade, PVC insulated copper conductor cable in surface MS conduit with providing & fixing 3/5 pin, 6 ampere socket outlet and switch including earthing the third pin, connections,painting,testing & commissioning etc. as required				
2.2.1	WM0125	Short Point	Points	6.00		
2.2.2	WM0126	Medium Point	Points	2.00		
2.2.3	WM0127	long Point	Points	2.00		
2.3		Wiring for 5/6 pin, 16 ampere plug point with 4 sq.mm 1.1kV grade, PVC insulated copper conductor cable in surface MS conduit with providing & fixing 5/6 pin, 16 ampere socket outlet and switch including earthing the third pin, connections, painting, testing and commissioning etc. as required				
2.3.1	WM0145	Short Point	Points	2.00		
2.3.2	WM0146	Medium Point	Points	1.00		
2.3.3	WM0147	long Point	Points	11.00		
2.4		Wiring for points in excess length above long points with 1.1kV grade, PVC insulated copper conductor cable in surface MS conduit including connections, painting,testing &commissioning etc. as required				
2.4.1	WM0186	2x1.5 sq.mm	Mtrs	216.00		
2.4.2	WM0187	2x4 sq.mm	Mtrs	133.00		
2.4.3	WI0001	1x1.5 sq.mm	Mtrs	495.00		
2.4.4	WI0005	1x4 sq.mm	Mtrs	244.00		
2.5		Wiring for lighting circuit with 1.1kV grade, PVC insulated copper conductor cable in surface MS conduit including connections, painting, testing and commissioning etc. as required				
2.5.1	WM0196	2x2.5 sq.mm	Mtrs	169.00		
2.5.2	WI0003	1x2.5 sq.mm	Mtrs	217.00		
2.6		Provide and draw high density polythene insulated & sheathed copper conductor 0.5mm dia telephone wire in existing surface/ recessed conduit wiring system complete as required				
2.6.1	TC0002	2 pair telephone wire	Mtrs	13.00		
3	MR	Supply & Laying of UTP CAT6 Cable	Mtrs	526.00		
4	MR	Supply & Laying of 6 core armoured single mode om2 optical fiber cable .	Mtrs	150.00		
		TOTAL OF SECTION; B				
		SECTION; C				
C		RECEPTACLES				

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
1		Supplying & fixing of metal boxes for switch/socket outlet/switch socket combined/ gang switches, recessed in walls including painting etc as required				
1.1	BX0051	2 Module box	Nos.	3.00		
1.2	BX0052	3 Module box	Nos.	2.00		
2		Supplying & fixing of plates & frame for switch/socket outlet/switch socket combined/ gang switches, etc as required	Nos.			
2.1	PF0012	Plate 2-module with frame	Nos.	3.00		
2.1	PF0013	Plate 3-module with frame	Nos.	2.00		
3		Supplying & fixing of socket/regulator on existing PVC surface box including necessary cutting, connection testing etc. as required.				
3.1	SS0076	RJ 11 telephone socket	Nos.	1.00		
3.2	SS0075	Dimmer/regulator	Nos.	1.00		
3.3	MR	RJ 45 Compter socket	Nos.	2.00		
3.4	MR	HDMI Port (1Module)	Nos.	2.00		
3.5	MR	2 module Plexo Box	Nos.	3.00		
3.6	MR	3 module Plexo Box	Nos.	10.00		
		TOTAL OF SECTION; C				
		SECTION; D				
D		LIGHT FITTING & ACCESSORIES.				
1	IL0382	Supplying & fixing of prewired indoor surface/ceiling mounted 20 watts LED Tube light luminiares of 3000/4000/6000k, complete with all accessories with necessary testing & commissioning.	Each	4.00		
2	IL0454	Supplying & fixing of prewired indoor surface/ceiling mounted 20 watts down light LED Tube light with all accessories with necessary testing & commissioning.	Set	4.00		
3	IL0451	Supplying & fixing of prewired indoor surface/ceiling mounted 9 watts down light LED Tube light with all accessories with necessary testing & commissioning.	Set	3.00		
4	IL0493	Supplying & fixing of prewired indoor surface wall mounted Decorative mirror light 8 watt LED luminiares of 3000/4000/6000k, complete with all accessories with necessary testing & commissioning.	Set	2.00		
5	OL0352	Supplying, fixing, testing & commissioning of prewired 100 watt Flood light LED based luminiaire with die cast housing and toughened glass cover for out door application IP not less than 45	Set	12.00		
6	MR	Supplying & fixing of energy saving,high efficiency, enviroment frendly and robust highhay 55 watt LED liminaire. IP66 etc. complete as required	Set	20.00		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
7	MR	Supplying & fixing of 2X10 watt LED emergency exit light with 1 hour runtime etc. complete as required	Set	4.00		
8	FN0002	Supplying, installation, testing & commissioning of 1200mm sweep ceiling fan 240 volt A.C 1400 rpm with all accessories such as down rod, sweep 3 Nos.,canopy 2 Nos., condenser and fan body etc. complete as required	Set	1.00		
9	Findoor	Supplying, installation, testing & commissioning of 300mm sweep exhaust fan 240 volt A.C 900 rpm with all accessories such as frame with arm 3 Nos., sweep 3 Nos., condenser and fan body etc. complete as required	Set	3.00		
10	FN0032	Supplying, installation, testing & commissioning of 450mm sweep exhaust fan 240 volt A.C 1400 rpm with all accessories such as frame with arm 3 Nos., sweep 3 Nos., condenser and fan body etc. complete as required	Set	3.00		
11	FN0030	Supplying, installation, testing & commissioning of 300mm sweep exhaust fan 240 volt A.C 1400 rpm with all accessories such as frame with arm 3 Nos., sweep 3 Nos., condenser and fan body etc. complete as required	Set	4.00		
12	OL0410	Supplying, fixing, testing & commissioning of prewired outdoor 70 watt LED street light luminiares with 3000/4000/6000K, complete with all accessories.	Set	10.00		
13		Supplying of Swaged type Street Light Steel Tubular Pole (410 MPa) with base plate 250x250x5.4mm, entry hole of 40mm dia 1.1m from bottom and strude bolt as earth terminal complete as required				
13.1	OL0421	8.5m, 141 kg	Nos	11.00		
14		Supplying & fixing of pole cap with arm 1.1m long having inner pole & outer tightened bolt etc. complete as required for the top section of street light pole				
14.1	OL0430	Single arm	Nos	10.00		
15		Erection of swaged type street light steel tubular pole 5.5/8.5/9/11 m length with 40mm dia MS sleeve as inlet of power cable in cement concrete 1:3:6, 40mm stone aggregate foundation with cement concrete base 7mx0.47mx75mm thick 1:4:8 including excavation, centering & shuttering, and refilling,providing props for pole etc. complete as required				
15.1	OL0440	At dead end , At middle , Junction of three way	Nos	11.00		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
16		Supplying & fixing of junction box fabricated with 14SWG MS sheet, removal cover plate with gasket for dust and vermine proof, 2 earthing terminals with nut, bolts and spring washer, 2 entry holes 16mm dia at bottom, 32mm dia for cable entry at back , including 4 way terminal block & HRC fuse unit with fuse of 6A with locking arrangement and finish coat painting complete with all accessories as required as per standard drawing				
16.1	OL0435	MS junction box out door duty	Nos	11.00		
		TOTAL OF SECTION; D				
		SECTION: E				
E		EARTHING & LIGHTNING CONDUCTOR.				
1	MR	Supply, Installation, Testing and Commissioning of Copper bonded rod with a diameter of 17.2 mm, 2 meters in length, and a 250-micron copper coating. It includes a 17.2 mm diameter stainless steel multiple earthing connection clamp, an earth enhancement compound, 1 nos 25 kg paper bag, and an under-floor earth inspection pit. (Eqv Specification) Performance guarantee required from OEM.	Set	12.00		
2	ET0002	Providing and fixing of earthing including all accessories, machinery enclosure, C.I cover plate having locking arrangement, watering pipe with excavation and refilling work including charcoal or coke and salt complete as required as per standard earthing drawing	Set	2.00		
3	LG0002	Providing and fixing of 25mm dia 900mm long copper tube four prong at top with 85mm dia 3mm thick copper base plate lightning conductor including holes etc. complete as required	Set	10.00		
4	LG0030	Providing and fixing metal strip 25x4mm G.I strip on parapet or surface of wall/roof for lightning conductor as required	Mtrs.	387.00		
5		Supply & laying of Copper / GI / Aluminium earthing strips for connecting the earthing electrodes with the electrical installations / systems / distribution boxes etc, with all fixing accessorieson and placing walls / trenches / ceiling / directly burried in earth as per specification and requirement. All earth strips burried in eatrh will be provided with protective non bio degradable PVC sleevesaccording to the size of conductor. Test certificate of all kind of strips shall be produced by the vendor during supply.				

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
5.1	MR	25 x 3 mm 99% electrolytic grade copper strip	Mtrs.	13.00		
5.2	MR	40 x 6 mm GI hot deep galvanised strip 80-100 microne	Mtrs.	151.00		
5.3	MR	32 x 6 mm GI hot deep galvanised strip 80-100 microne	Mtrs.	42.00		
5.4	MR	25 x 3 mm GI hot deep galvanised strip 80-100 microne	Mtrs.	130.00		
5.5	MR	12 SWG Copper Wire	Mtrs.	20.00		
6		EARTH PIT COVER				
6.1	MR	Earth pit cover (High grade PVC, Circular, high compressive strength, impact resistant and high heat resistant)	Set	14.00		
		TOTAL OF SECTION: E				
		SECTION: F				
F		MEDIUM VOLTAGE CABLE WORK				
		MEDIUM VOLTAGE CABLE AND CABLE END TERMINATION Supply, laying, connection, testing and commissioning of heavy duty, medium voltage, XLPE (IS 7098 - PART-II) insulated, stranded AL / Cu conductor Armoured cables as per specification & IS. The cable shall be Fire Retarded Low Smoke (FRLS) cables The cable shall have outer sheeth of XLPE and inner sheath of PVC with stranded AL conductor wherever specified. The cable shall be laid underground in excavated trench / prepared trench / hume pipes when laid outside the building. Cable shall be laid throught preapred trench / cable tray / duct / hume pipe / channel / floor trunks etc when laid inside the building. The scope shall include: Supply of Cables. Delivery of the cables at site. Unloading at site store. Shifting of cable from site store to place of installation. Excavation in hard or soft murrem / rocky area upto required depth, supply and laying of protection bricks, supply and backfilling with fine sand, leveling the ground to match with the existing condition. Laying of cable in the excavated trenhc / prepared trench / cable tray / duct / hume pipe / channel / floor trunks when laid inside or outside the building. Connection of cable. Supply & fixing of cable clamps, brackets, supports, route markers etc. where ever required to fix the cables safely.				

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		Earthing the glands and armouring with earthing clamp and jumper and also connecting to common earth bar. Testing of insulation and continuity of cable and submission of reports to the client's representative. To prepare submission drawing and to take approval of consultant at each stage. To prepare & submit as-built drawing and handing over document to end user.				
1		Alumunium XLPE Cables (Al Ar)				
1.1	MR	3.5C x 185 sqmm	Mtrs	R.O		
1.2	MR	3.5C x 150 sqmm	Mtrs	R.O		
1.3	MR	3.5C x 95 sqmm	Mtrs	108.00		
1.4	MR	3.5C x 25 sqmm	Mtrs	13.00		
1.5	MR	4C x 16 sqmm	Mtrs	350.00		
2		Laying of one number PVC insulated and sheathed power cable copper/aluminium,armoured/un-armoured 1.1KV single core to four core direct in the ground including excavation, sand cushing, protective covering and refilling the trenches etc. as required				
2.1	CL0005	Above 150sq.mm to 300sq.mm	Mtrs	R.O		
2.2	CL0004	Above 70sq.mm to 150sq.mm	Mtrs	108.00		
2.3	CL0003	Above 25sq.mm to 70sq.mm	Mtrs	13.00		
2.4	CL0002	Above 6sq.mm to 25sq.mm	Mtrs	350.00		
3		Copper XLPE cable (Cu UnAr)				
3.1	MR	4C x 04 sqmm	Mtrs	303.00		
4		Copper PVC cable				
4.1	PC0350	3C x 2.5 sqmm	Mtrs	105.00		
5		CABLE END TERMINATION Supply, fixing, connection, testing & commissioning of double compression brass cable glands and crimping type Bimetalic lugs / sockets with necessary tools and equipments as specified in specifications and IS.				
5.1		Alumunium XLPE Cables (Al Ar)				
5.1.2	MR	3.5C x 185 sqmm	Sets	R.O		
5.1.3	MR	3.5C x 150 sqmm	Sets	R.O		
5.1.5	MR	3.5C x 95 sqmm	Sets	2.00		
5.1.8	MR	3.5C x 25 sqmm	Sets	2.00		
5.1.9	MR	4C x 16 sqmm	Sets	6.00		
5.2		Copper XLPE cable (Cu UnAr)				
5.2.1	MR	4C x 04 sqmm	Sets	1.00		
		TOTAL OF SECTION: F				
		SECTION: G				
G		PIPE LAYING				

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		Supplying and fixing of HDPE pipe on recessed including all accessories such as screws, bends,elbows, Tees, corners, etc. complete as required				
1	CD0221	25 mm	Mtrs	250.00		
		TOTAL OF SECTION: G				
		SECTION: H				
H		INVERTERS SYSTEM				
		Supply, installaton, testing & commissioning of following ratings UPS / Inverters as per Specification, Technical Data sheet & IS. The rate shall include the following : Supply of Equipment Testing of Equipment as per IS and specifications, at manufacturer's workshop prior to dispatch dully witnessed by clinet and consultant, if required. Delivery of the equipment at site. Unloading of equipment at site. Shifting of equipment with all tools, equipment & accessories from site store to the site & placing it on the plinth at site. Installation and assemble of equipment at site. Earthing of equipment neutral & body. Testing of equipment as per IS before commissioning. Charging of equipment gradually as per IS. Battery shall be fully charged at the time of handing over of equipment				
1	MR	Supply, Installation, Testing & Commissioning of 1 KVA, 1-Ph Inverter with 3 hrs Battery Back-Up with external tubular batteries of 12 volt 150 AH, Input voltage : 230 V AC,1 phase +/- 5%, Output voltage : 230 V,1 phase +/- 2%, 95% effeciency, 0.9 output power factor Battery charger Auto / Manual float cum Boost, along with connecting wires, battery racks etc complete in all respect.	Set	1.00		
		TOTAL OFSECTION: H				
		SECTION: I				
I		ELV/ICT				
1		NETWORK COMPONENTS (Active)				

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1.1		L2 POE Switch: Supply, Installation, Testing & Commissioning of Gigabit fixed chassis in 1RU size. Includes 24× 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 4× Gigabit SFP Slots.100-240V AC, 50/60Hz power supply,Standard: 802.3at/af compliant PoE+ Ports: 24 Ports,PoE Power : 250 W.Switching Capacity 56 Gbps,Packet Forwarding Rate 41.7 Mpps	Nos	1.00		
1.2		L2 POE Switch: Supply, Installation, Testing & Commissioning of Gigabit fixed chassis in 1RU size. Includes 08× 10/100/1000 Mbps RJ45 Ports (Auto Negotiation/Auto MDI/MDIX), 4× Gigabit SFP Slots.100-240V AC, 50/60Hz power supply,Standard: 802.3at/af compliant PoE+ Ports: 08 Ports,PoE Power : 250 W.Switching Capacity 56 Gbps,Packet Forwarding Rate 41.7 Mpps	Nos	1.00		
		NETWORK COMPONENTS (Passive)				
		Supply, Installation, Testing & Commissioning of Loaded LIU 6 port	Nos	2.00		
		Supply, installation, testing & commissioning of SFP 1GE Single mode SFP module (1310nm,10Km,LC)	Nos	4.00		
		Supply , Installation ,Testing & Commissioning 3 mtr SC-LC Fiber Patch Cord	Nos	4.00		
		Supply, installation, testing & commissioning of of outdoor type 9U Rack IP-66/67: Frame/400x600 / FM / Casters T2/Glass/Metal Door, Shelf/500, PDU 1Ph, 230V, 8A, IRP Fuse - 1.8KVA, ITE /Rack Air Circulation module/Door Mount/ 180CFM, Horz Cable Organiser/1U/Loop, Mounting Hardware-CR	Nos	2.00		
		IP SURVEILLAINCE				
		Bullet Camera: Supply, Installation, Testing & Commissioning of 4MP H.265 NW IR Bullet Camera, 0.04Lux (Color), 0Lux (B/W, IR LED on), 4mm fixed lens, ONVIFS,G,T, WDR 120dB, 30fps@5MP all resolutions (H.265/H.264), H.265, H.264, MJPEG codec supported, triple streaming with full configuration, defocus detection, Directional detection, Motion detection, Tampering, crossing line, alarm in & out , Micro SD/SDHC/SDXC memory slot (Max. 128GB), IR viewable length 30m or better, PoE, CE, FCC, UL , NDAA, BIS, ROHS .	Nos	12.00		

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Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
		Supply, Installation, Testing & Commissioning of 32CH NVR, support 12megapixel camera supported, recording bandwidth 256 Mbps , 4K video out on HDMI monitor support, Dual monitor video out support, H.265, H.264, MJPEG compression support, 4 internal HDDs , ARB & Failover (N+1) support, P2P service (QR code connect) support, CE, FCC,ROHS, UL and BIS.	Nos	1.00		
		Supply, Installation, Testing & Commissioning of 8 TB HDD with 7200RPM	Nos	1.00		
		Supply & Installation of Waterproof PVC Square Junction Box for CCTV Cameras and wifi IP65 5x5	Nos	12.00		
		Supply, Installation, Testing & Commissioning of 50" 4K Ultra HD Display	Nos	1.00		
		Supply, Installation, Testing & Commissioning of Wireless Mouse with Mouse Pad	Nos	1.00		
		POWER BACKUP				
		1 KVA Online ups with mininum 15 min inbuilt/separate battary (rack mountable) UPS provides reliable single-phase power with a rating of 1 kVA or 0.9 kW. It accepts an input voltage of 200*/208*/220/230/240 Vac within a range of 175 – 280 Vac at full load (and 80 – 175 Vac for 50 – 100% load), with a frequency of 50/60 Hz ± 10 Hz and a power factor greater than 0.99. Current harmonic distortion is less than 3%. The output maintains a 0.9 power factor with voltage regulation within ±1% and frequency accuracy of ±0.05 Hz. Voltage harmonic distortion is under 3% for linear loads. The UPS can sustain loads continuously below 105%, for 1 minute between 105–125%, and for 30 seconds between 125–150%. It features four IEC C13 receptacles. Efficiency is 91% in AC-AC mode and 95% in ECO mode. The unit operates on a 24 V DC battery with a 4 A charging current (expandable to 8 A with an optional inbuilt charger). Audible noise is below 40 dB. It includes an LCD display with LED indicators and communication via a Mini Slot, RS-232, and USB ports. Certified under CE and BIS standards, the R-1K measures 440 × 335 × 88 mm and weighs 5.3 kg. It operates within a temperature range of 0 – 50 °C and 5 – 95% relative humidity	Set	2.00		
		TOTAL OF SECTION: I				
		SECTION: J				
J		MV SWITCHGEAR & POWER PANELS				

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		Supply, installation, assembling, connection, testing and commissioning of cubicle type panels for 440 V, 3 phase, 50 Hz Panels as per Specification, Technical Data sheet, IS & relevant drawings. All panels shall be fabricated out of 2 mm thick CRCA sheet steel and CPRI approved (for 50kA/70kA in last two years. Panel manufacturer having 7-tank process painting facility. All Aluminium busbars are insulated with heat shrinkable PVC sleeves and all connections are with bar type feeder connections. Brass glands and crimping lugs for sending and receiving ends.All gland plates shall be 3mm thick CRCA sheet Steel. All Indoor panels shall confirm IP52 & Outdoor Panel IP65 level of protection. . All meters shall be with RS-485 port All Panels Shall Be of EMS Compatible. The unit rate for each item shall include : Testing of panels as per specifications at manufacturer's works in presence of client's representative and/or consultant. Delivery of the panels / DB's to site. Shifting of the panels from site store to the suitable location. Assembly and wiring of component supplied separately. Installation of panels as per Location arranged by site Engineer in charge including removing packing. Earthing all components, frame etc. to a common internal earth bar. Touching of body with powder coating for demaged parts. All the nuts bolts & joints exposed to the air shall be covered with suitable anti - oxtidant material or as directed by the Engineer incharge. Supply and fixing all accessories and supporting structure. Checking of Internal connection & wiring, operation of switches, MCCB, MCB etc.. Supply of necessary tools, hardware, testing hardware, testing equipment during testing at site. Supply & fixing of 100 mm main steel [No rolling mill material shall be allowed] MS channels for fixing the panel, alongwith all the required civil materials required to complete the job as per the instruction of Engineer Incharge./Consultant				

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		To carry out the insulation test at site and all the readings shall be submitted in duplicate to the consultant or engineer-in-charge. To co-ordinate with other agencies working at site To prepare submission drawing and to take approval of consultant at each stage. To prepare & submit as-built drawing and handing over document to end user.				
1		Main LT Panel Doudle Door (Outdoor Type-IP 65) : 400A 4 Pole 36kA MCCB with Microprocessor Based with O/C, S/C, E/F (LSIG Protectection) --- 1No. …. From existing power source Led Based R/Y/B Phase Indication lamps-- 3Nos. Led Based On/Off/Trip Indication Lamp-- 3Nos. CT, ratio : 400/5A, Class - 1, VA-15 ---- 1Set CT, ratio : 400/5A, Class - 5P10, VA-15 ---- 1Set MFM Meter with maximum demand feature & RS485 Port -- 1No. Over Current & Earth Fault Relay - 1 No. Phase Sequence Relay - 1 No. Over Voltage Relay - 1 No. Push Button - 1 Lot 6A FP Miniature Circuit Breaker, 10kA --- 2 Nos. 6A DP Miniature Circuit Breaker, 10kA --- 2Lot. 6 Window Annunciator ….. 1 No. SPD 50kA (Type1 + 2) with Protection MCB ….. 1 No. 250A 4 Pole 36kA MCCB with Microprocessor Based with O/C, S/C, E/F (LSIG Protectection) --- 1No. …. DG Incomer Led Based R/Y/B Phase Indication lamps-- 3Nos. Led Based On/Off/Trip Indication Lamp-- 6Nos. CT, ratio : 250/5A, Class - 1, VA-15 ---- 1Set CT, ratio : 250/5A, Class - 5P10, VA-15 ---- 1Set MFM Meter with maximum demand feature & RS485 Port -- 1No. Over Current & Earth Fault Relay - 1No. DC Voltmeter -1no, DC Ammeter- 1no. Battery Charger for DG Battery - 1no. SPD 50kA (Type1 + 2) with Protection MCB ….. 1No.	Set	1.00		

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Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
		400A 4 Pole manual changover switch --- 1No. …. Between Main incomer & DG Incomer Outgoing Feeder : MCCB Each MCCB Feeder consist of On, Off, Trip Lamp, Spreader, Extended Rotary Handle, Aux. & Trip Contact, Control MCB with KWH meter & CT 160A FP 25kA Thermal based O/C & S/C MCCB ---- 2 nos. 100A FP 18kA Thermal based O/C & S/C MCCB ---- 1nos. MCB Each MCB Feeder consist of On Lamp, Control MCB with KWH meter & CT 63A 10kA FP MCB : 5Nos. 16A 10kA DP MCB : 2No. Without KWH meter External Lighting Section with Astronomical Timer 25A FP MCB 10kA : 1No. 25A 4Pole Power Contactor ….. 1 No. Push Button … 2Nos Auto-Manual Selector Switch : 1No. Astronomical Timer : 1No. Outgoing Feeder : i) 16A FP MCB 10kA : 2Nos. ii) 16A DP MCB 10kA : 2Nos. 40kVAr APFC Panel inbuilt in main panel (Outdoor Type-IP 65) : 80A TP 18kA Thermal based O/C & S/C MCCB, Spreader, Extended Rotary Handle, Aux. & Trip Contact ----- 1No.. … Incomer Led Based R/Y/B Phase Indication lamps-- 3Nos. Led Based On/Off/Trip Indication Lamp-- 3Nos. CT, ratio : 80/5A, Class - 1, VA-15 ---- 1Set Digital Ammeter & Voltmeter ---- 1Set 6A FP Miniature Circuit Breaker, 10kA --- 1No. 6A DP Miniature Circuit Breaker, 10kA --- 2 Nos. 6 Step APFC Controller -1 no Auxiliary Contactor 230V AC - 1Lot Auto-Manual Selector Switch - 1No. Louvers & Fan - 1Lot 10kVAr Capacitor Feeder : 2nos. Consist of : 32A 3Pole 10kA MCB - 3nos. Capacitor, 480V, Gas Field Heavy duty : 3nos.(suitable rating of company recommended Chart) 10kVAr 7% Detuned Reactor, 440V - 3nos.				

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

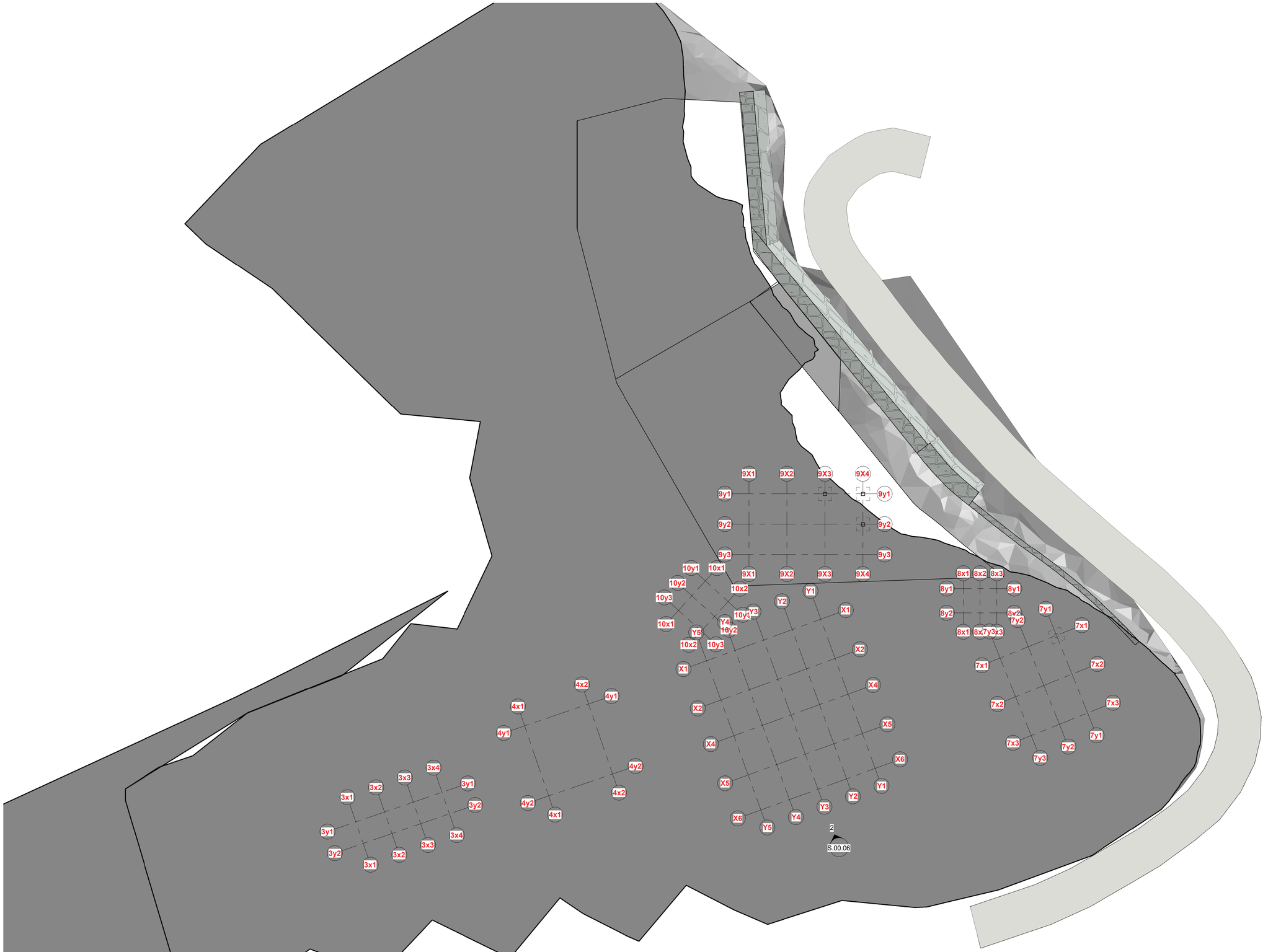
Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
		Capacitor duty contactor -3nos. Indicating Lamp : 6nos. Push Button : 6nos. 5kVAr Capacitor Feeder : 4no. Consist of : 16A 3Pole 10kA MCB - 4no. Capacitor, 480V, Gas Field Heavy duty : 4no.(suitable rating of company recommended Chart) 5kVAr 7% Detuned Reactor, 440V - 4no. Capacitor duty contactor - 4no. Indicating Lamp : 8nos. Push Button : 8nos. General Specification required for ALL LT Panels Aluminium Busbar (Phase) Aluminium Busbar (Earth) Sheet Steel Enclosure (2mm for Load Bearing , 1.6mm Non-Load Bearing, 3mm Gland Plate) Enclosure Construction Type: FORM 3B FRP Support for Busbar Powder Coated Painting Space Heaters With Thermostats Eye Bolts All panel incommer will have SPD as indicated with proper terminal connection to ground CPRI Certification required (50kA / 70kA for 1Sec 4000A)	As detaied in the respective drawings. Testing at works will be done by clients representative before powder coating (7 tank process) MV Panel 50kA, Sub-main 40kA			
		TOTAL OF SECTION: J				
		SECTION: K				
L		DIESEL GENERTAOR				
1		160kVA DG Set	No.	R.O		
1.1	MR	Diesel generator set 160 KVA prime rating radiator cooled with alternator of 160 kVA a totally enclosed liquid cooled multi- cylinder (6/12) in-line 4 stroke, radiator cooled diesel engine developing suitable BHP at 1500 rpm, along with standard accessories, Brushless type, Screen protected, Revolving field, Self excited alternator with static excitation system running at 1500 RPM. Exposed parts and radiators shall be coated with corrosion resistant compound. Detailed specification and GTP shall be attached along with the offer. DG Set shall comply latest and non emitionised amended CPCB II norms.				
		TOTAL OF SECTION: K				

Name of Work : 20 TDP BIOGAS PLANT
Project Location : Thimphu
Estimate Ref. : BSR 2025
Base Town : TH
Sub. : Make List

SL.NO.	ELECTRICAL WORKS		
	MATERIALS		MAKE
1	CONTROL UNIT & RELAYS	:	WOODWARD / SEGC / ENERCON
2	L.T. CABLES	:	POLYCAB / HAVELL'S / GEMSCAB / FINOLEX
3	MCBS	:	SCHNEIDER / ABB /LEGRAND / L&K
4	MOULDED CASE CIRCUIT BREAKER	:	SCHNEIDER / ABB /LEGRAND / L&K
5	AIR CIRCUIT BREAKER	:	SCHNEIDER / ABB /LEGRAND / L&K
6	DISTRIBUTION BOARDS	:	SCHNEIDER / ABB /LEGRAND / L&K
7	SWITCHES, RECEPTACLES, TELEPHONE OUTLETS ETC	:	ABB / CRABTREE / LEGRAND / L&K
8	FRLS PVC INSULATED CABLES	:	FINOLEX / POLYCAB / RR KABLE / HAVELLS
9	MS JUNCTION BOXES	:	GB / BHARATH/HENSEL
10	END TERMINATION	:	DOWELLS / JAINSON / HMI
11	TERMINAL BOX	:	C & S / HENSEL
12	ANCHOR BOLTS	:	GEC / KHAITHAN / CROMPTON
13	METERS	:	AE / SCHNEIDER / SECURE / ELMEASURE / L&K
14	ELCBS / ELMCBS	:	SCHNEIDER /ABB / LEGRAND / L&K
15	PVC CONDUITS	:	AKG/ VIP / AVON PLAST / UNIVERSAL/PRICISION
16	LIGHT FITTINGS	:	PHILIPS/WIPRO/BAJAJ/JAQUAR/HAVELLS
17	LAMPS	:	PHILIPS/WIPRO/BAJAJ/JAQUAR/HAVELLS
18	PANEL	:	REPUTED PANEL FABRICATOR WITH 65KA CPRI CERTIFICATE
19	INDICATING LAMPS	:	TECHNIC / VAISHNOV / SEIMENS/SUMO
20	ISOLATORS	:	SCHNEIDER /ABB / LEGRAND / L&K
21	CHANGEOVER SWITCHES	:	SOCOMEC
22	CAPACITORS	:	SCHNEIDER / ABB /LEGRAND / L&K
23	CONTACTORS	:	SCHNEIDER / ABB /LEGRAND / L&K
24	ELRS, CBCTS & CTS	:	DATTAR / VOLTAMP / KAPPA / KALPA / PROKDVS /AE
25	0/C & E/F RELAYS	:	GE / JVS / SEIMENS / SEGC/SCHNEIDER
26	CABLE TRAYS GI PERFORATED	:	OBO/MAA INDUSTRIES MUMBAI / PROFAB/INDIANA
27	ELECTRIC TIMER	:	SELEC / L&T
28	ROTARY SWITCH	:	SIEMENS / KEYCEE / SALZER
29	PUSH BUTTON AND PUSH BUTTON SET	:	SIEMENS / SCHNEIDER / L & T
30	SELECTOR SWITCH	:	KEYCEE / SALZER
31	FLEXIBLE WIRE	:	RR / POLYCAB
32	TRANSFORMER	:	KIRLOSKAR / RPG / VOLTAMP
33	DG SET		KIRLOSKAR / JAKSON / JCB
34	HT PANEL	:	SCHNEIDER / L&T / PASCAL / ABB / KIRLOSKAR
35	UPS	:	NUMERIC / SOCOMEC / VERTIVE / DELTA
36	INVERTER		LUMINOUS / EXIDE / MICROTEK / V-GUARD
37	SOLAR SYSTEM	:	TATA POWER / WAREE / LUMINOUS / EQV.
38	EARTHING	:	OBO / ABB / DRUK CARE / TRUE POWER
39	L2 POE Switch	:	TPLINK/NETGEAR/D-LINK
40	SFP MODULE	:	SYROTECH/D-LINK
41	LIU	:	MOLEX/DERWISER/COMSCOPE/LEGRAND
42	FIBER PATCH CORD	:	MOLEX/DERWISER/COMSCOPE/LEGRAND
43	RACK	:	NETRACK/LEGRAND
44	CAT6 CABLE	:	MOLEX/DERWISER/COMSCOPE
45	OPTICAL FIBER CABLE	:	MOLEX/DERWISER/COMSCOPE/LEGRAND
46	CAMERA	:	HIKVISION/DAHUA
47	NVR	:	HIKVISION/DAHUA
48	HDD	:	WD/TOSHIBA

Name of Work	20 TDP BIOGAS PLANT
Project Location	Thimphu
Estimate Ref.	BSR 2025
Base Town	TH
Sub.	Priced Bill of Quantity

Sl. No.	Item Code	Description	Unit	Quantity	Rate in Word and Figure	Amount in Nu.
4	4	**FIRE EXTINGUISHERS**				
4.1	4.1	Providing & Fixing of fire extinguishers with necessary accessories, stand, trolley, etc.				
4.1.1	4.1.1	Supply, erection, testing & commissioning of 4 Kg ABC (Powder Type) Fire Extinguisher. In HP Mild Steel Cylinders ISI marked fitted with pressure indicating gauge, internal discharge tube, squeeze lever type valve, discharged nozzle, suspension bracket, conforming to IS: 15683 duly charged with ABC powder (Mono Ammonium Phosphate) conforming to IS: 14609 and pressured by Nitrogen suitable for operating .on 30ºC to + 55ºC. (4 years maintenance free) complete in all respect.	Each	13.00		
4.1.2	4.1.2	Supply, erection, testing & commissioning of 4.5 Kg. Cap. CO2 type Fire Extinguisher (ISI marked) complete with tube horn etc.(ISI marked), handle , fixing bracket & other accessories.	Each	4.00		
4.1.3	4.1.3	Supplying and installing at approved location approved make fire buckets (3 nos./set) of 24 gauge galvanized steel sheet, standard 9 litre capacity and of round bottom shape, painted white inside and black on the bottom, inscribed with letters " FIRE" in black and gold with dry clean fire sand. The scope shall also include the stand for mounting the sand bucket.	Each	5.00		



PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

DRAWN BY :

Name : NAMGAY DORJEE

Signature

CHECKED BY :

Name

Signature

MEPF Consultant:

Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:

Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :

BHUTAN ECOLOGICAL SOCIETY

SHEET NAME :

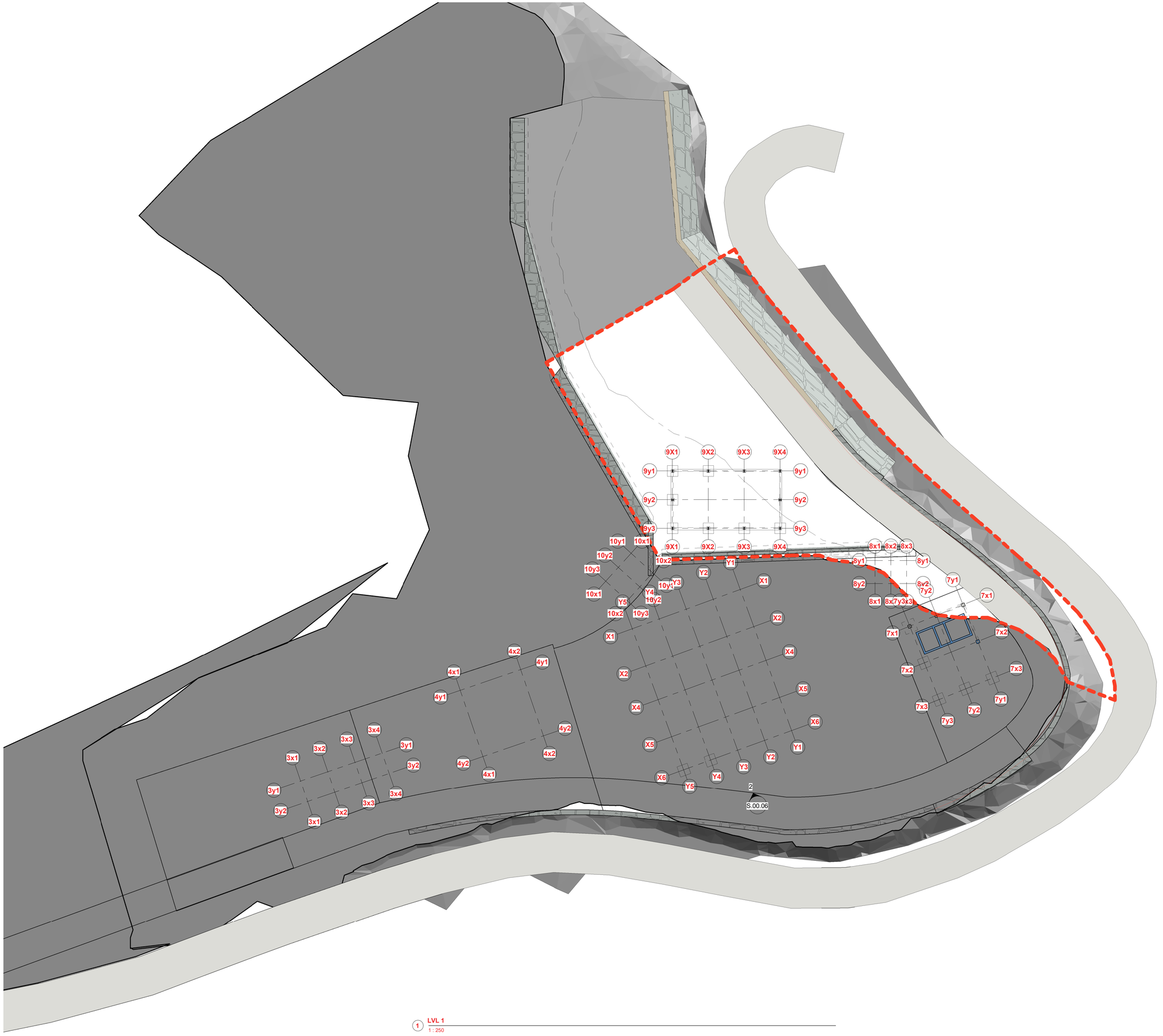
Lower Level

Scale: 1 : 250
Date: 10-10-25
Sheet Size A1
Work No.: P25/15

North

Namey
SAMEY STUDIOS

S.00.01



1 LVL 1
1 : 250

PROJECT NAME :
BIO GAS PLANT

DRAWN BY :
Name : NAMGAY DORJEE
Signature

CHECKED BY :
Name
Signature

MEPF Consultant:
Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:
Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

SHEET NAME :
Level 1

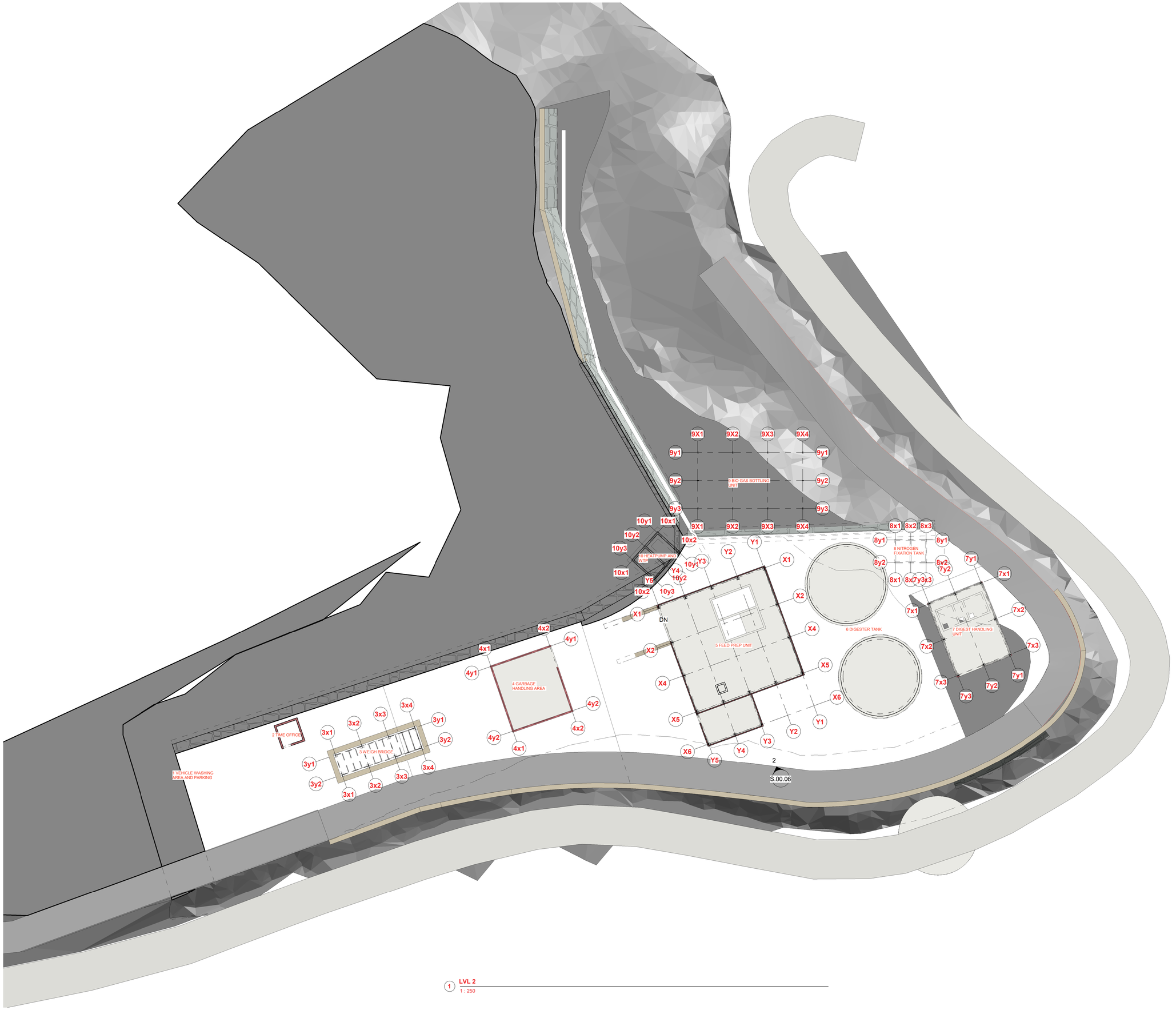
Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

Scale: 1 : 250
Date: 10-10-25
Sheet Size A1
Work No.: P25/15

North

Namey
SAMEY STUDIOS

S.00.02



1 LVL 2
1 : 250

PROJECT NAME :
BIO GAS PLANT

DRAWN BY :
Name : NAMGAY DORJEE
Signature

CHECKED BY :
Name
Signature

MEPF Consultant:
Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:
Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

Thram 1812, Plot CHG-2884
Memelakha, Thimphu

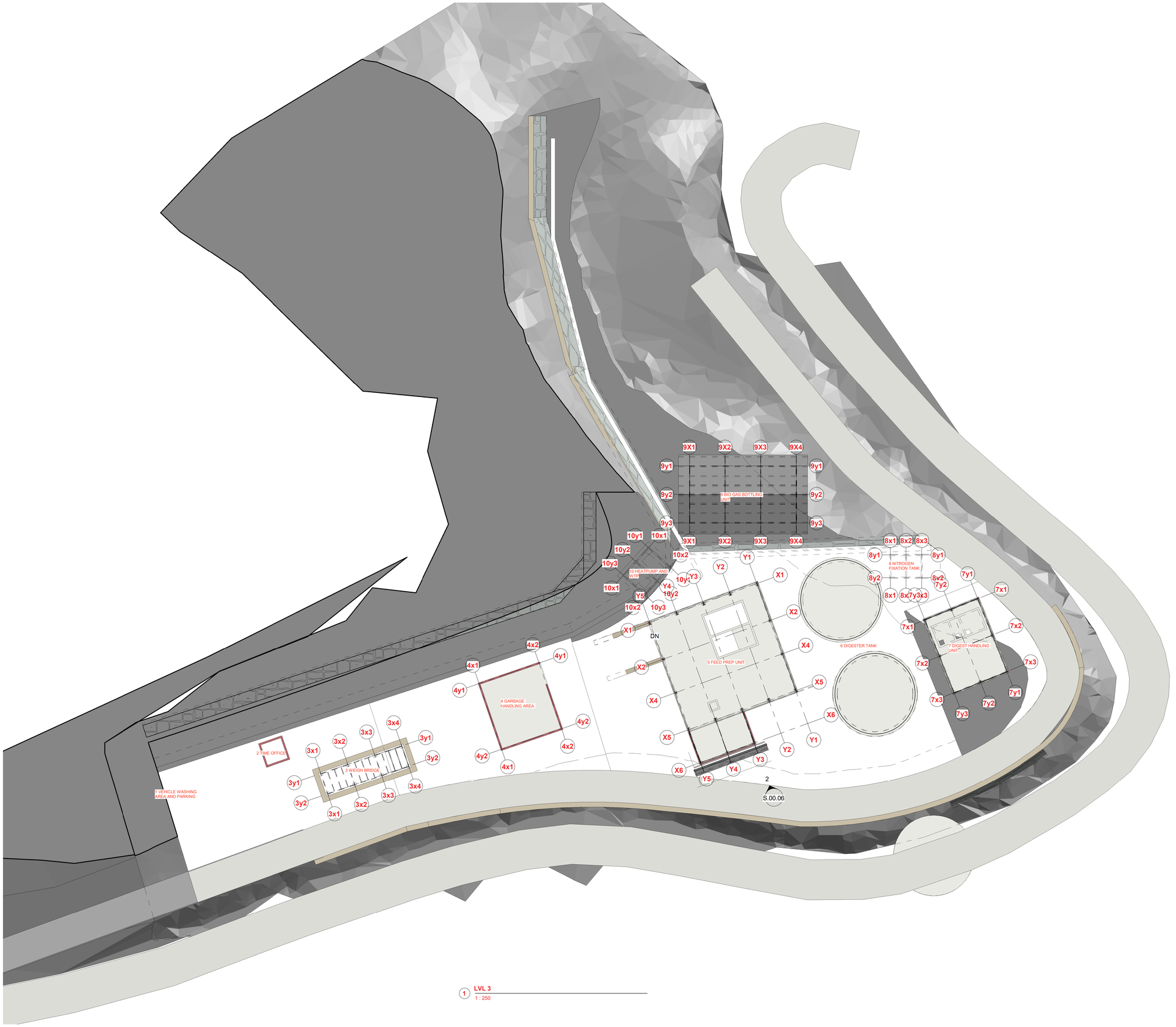
SHEET NAME :
Level 2

Scale: 1 : 250
Date: 10-10-25
Sheet Size A1
Work No.: P25/15

North

Namey
SAMEY STUDIOS

S.00.03



1 LVL 3
1 : 250

PROJECT NAME :
BIO GAS PLANT

DRAWN BY :
Name : NAMGAY DORJEE
Signature

CHECKED BY :
Name
Signature

MEPF Consultant:
Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:
Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

SHEET NAME :
Level 3

Scale: 1 : 250
Date: 10-10-25
Sheet Size A1
Work No.: P25/15

North

Namey
SAMEY STUDIOS

S.00.04

1 BIO GAS BOTTLING UNIT

8 NITROGEN FIXATION TANK

10 HEATPUMP AND WTP

6 DIGESTER TANK

5 FEED PREP UNIT

7 DIGEST HANDLING UNIT

4 GARBAGE HANDLING AREA

3 WEIGH BRIDGE

2 TIME OFFICE

1 VEHICLE WASHING AREA AND PARKING

2
S.00.06

PROJECT NAME :

BIO GAS PLANT

DRAWN BY :

Name : NAMGAY DORJEE

Signature

CHECKED BY :

Name

Signature

MEPF Consultant:

Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:

Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :

BHUTAN ECOLOGICAL SOCIETY

SHEET NAME :

Upper Lvl

Thram 1812, Plot CHG-2884
Memelakha, Thimphu

Namey

SAMEY STUDIOS

Scale: 1 : 250

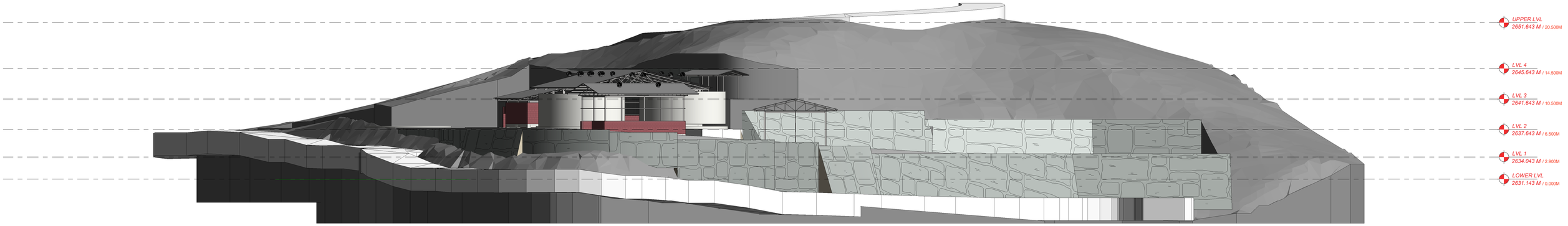
Date: 10-10-25

Sheet Size A1

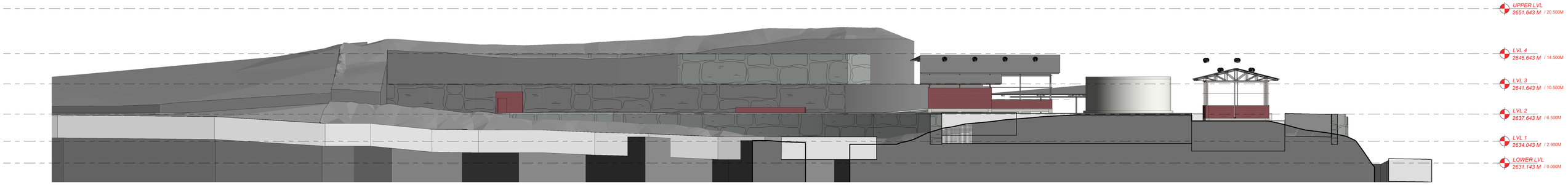
Work No.: P25/15

North

S.00.05



1 **Elevation East**
1 : 250



2 **Elevation South**
1 : 250

PROJECT NAME :
BIO GAS PLANT

DRAWN BY :
Name : NAMGAY DORJEE
Signature

CHECKED BY :
Name
Signature

MEPF Consultant:
Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:
Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

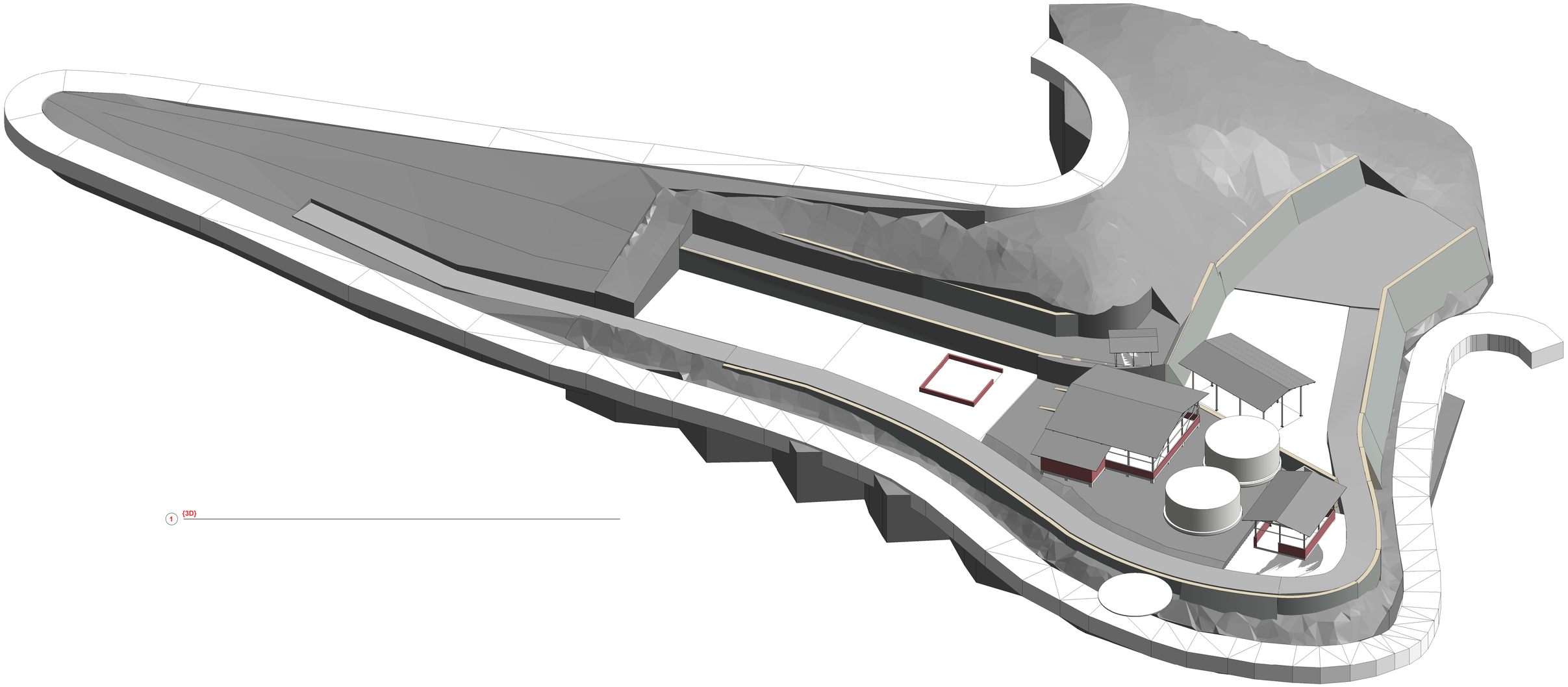
SHEET NAME :
Elevation

Scale: 1 : 250
Date: 10-10-25
Sheet Size A1
North

Work No.: P25/15

Namey
SAMEY STUDIOS

S.00.06



1 {3D}

PROJECT NAME :

BIO GAS PLANT

DRAWN BY :

Name : NAMGAY DORJEE

Signature

CHECKED BY :

Name

Signature

MEPF Consultant:

Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:

Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :

BHUTAN ECOLOGICAL SOCIETY

Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

SHEET NAME :

View

Scale:

Date: 10-10-25

Sheet Size A1

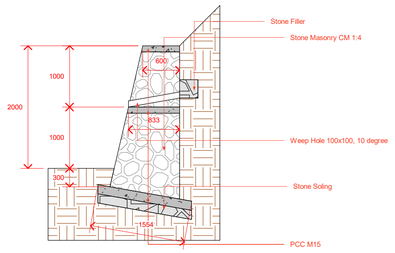
North

Work No.: P25/15

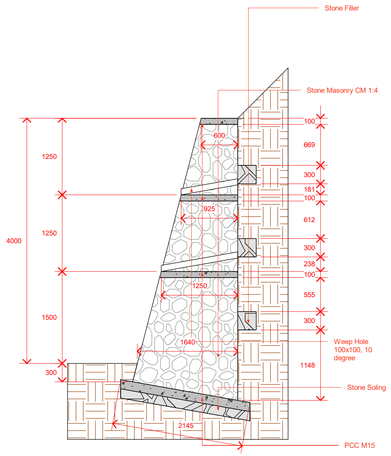
Namey

SAMEY STUDIOS

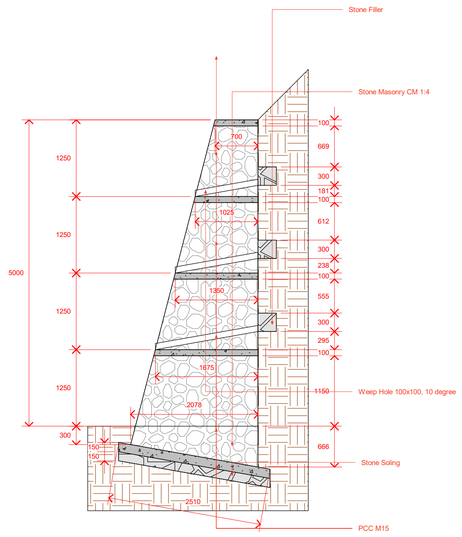
S.00.07



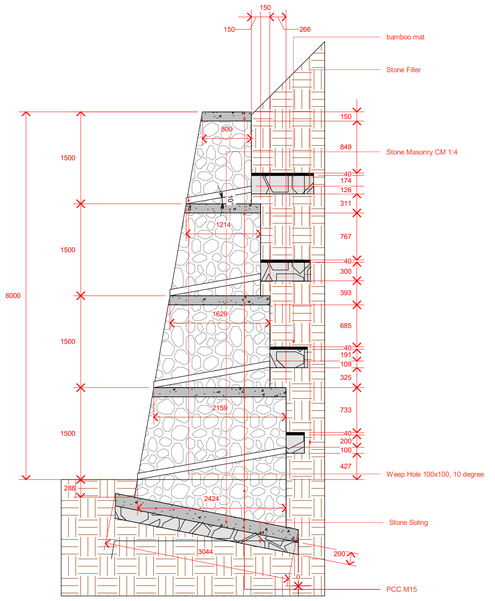
2 **Retaining Wall 2M**
1 : 50



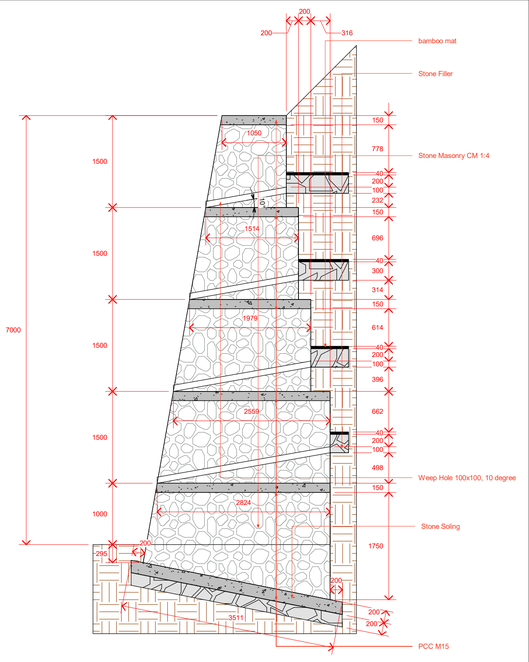
3 **Retaining Wall 4M**
1 : 50



4 **Retaining Wall 5M**
1 : 50

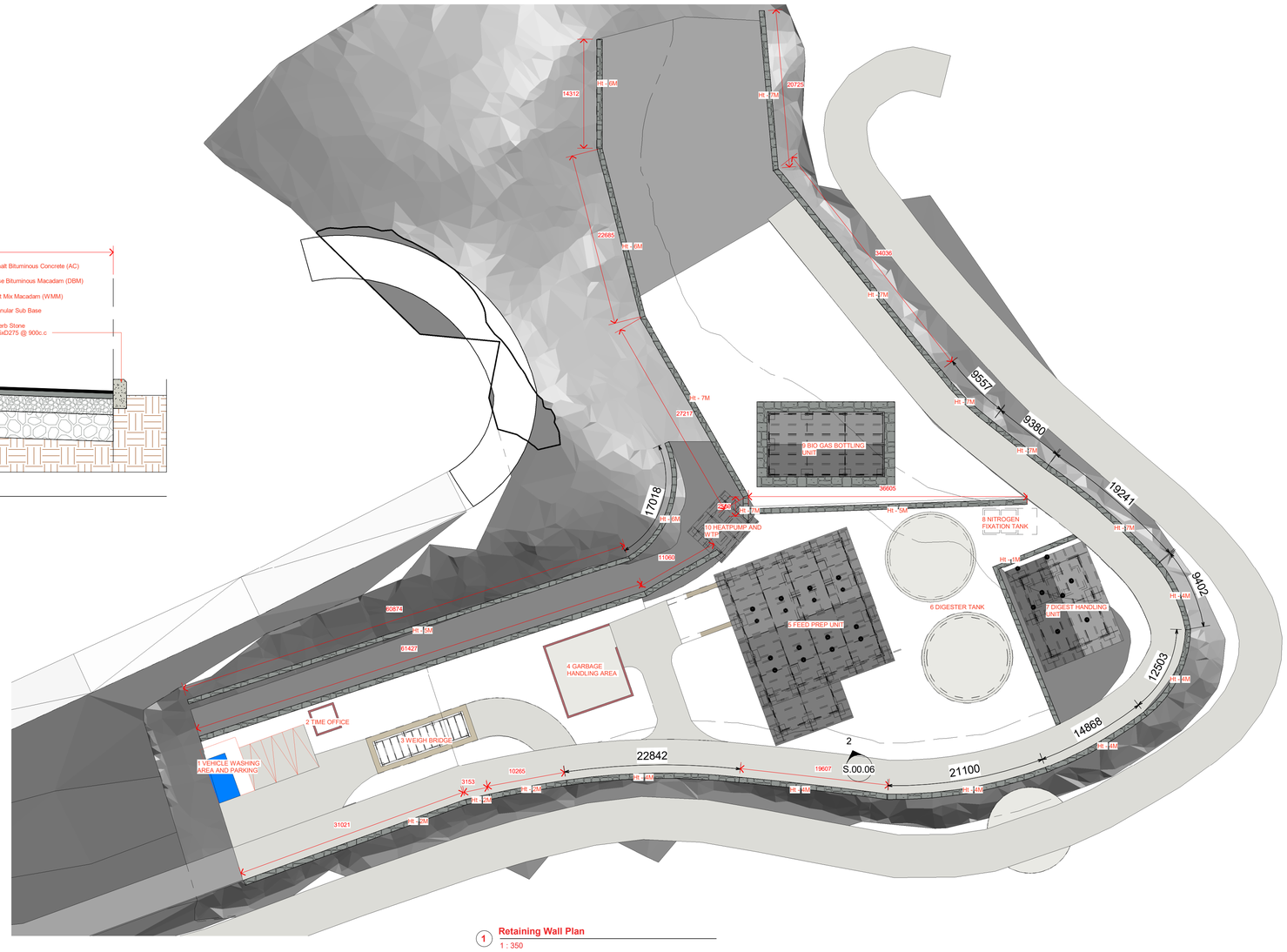


5 **Retaining Wall 6M**
1 : 50



6 **Retaining Wall 7M**
1 : 50

7 **Pavement Section**
1 : 25



1 **Retaining Wall Plan**
1 : 350

PROJECT NAME :
BIO GAS PLANT

DRAWN BY :
Name : NAMGAY DORJEE
Signature

CHECKED BY :
Name
Signature

MEPF Consultant:
Integrated Engineering Solutions, Siliguri, WB

APPROVED BY :

PRINCIPAL Architect:
Namey Samey Studios

REVISION

No.	Date	Description

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

SHEET NAME :
Retaining Wall Plan

Thram 1812, Plot
CHG-2884
Memelakha, Thimphu

Scale: As indicated
Date: 10-10-25
Sheet Size A1
Work No.: P25/15

Namey
SAMEY STUDIOS

North

S.00.08

3 WEIGH BRIDGE

Namey

SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :

BIO GAS PLANT

Thimphu

CLIENT NAME :

BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

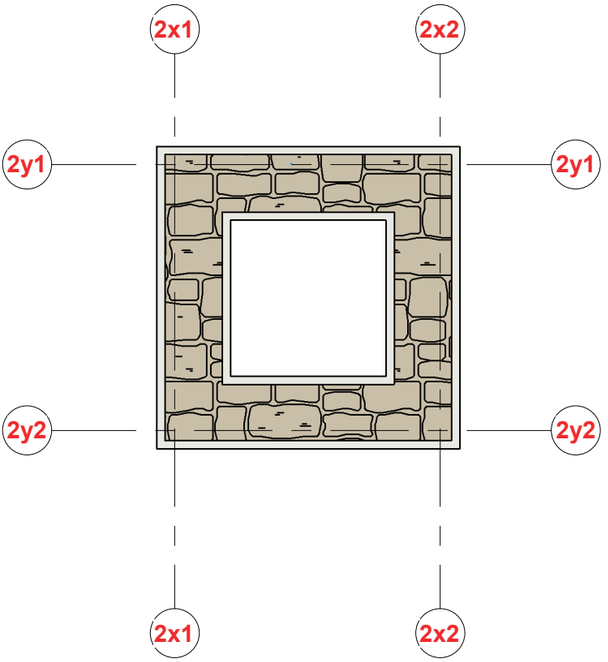
NAMGAY DORJEE

Civil Engineer

Date:10 October 2025

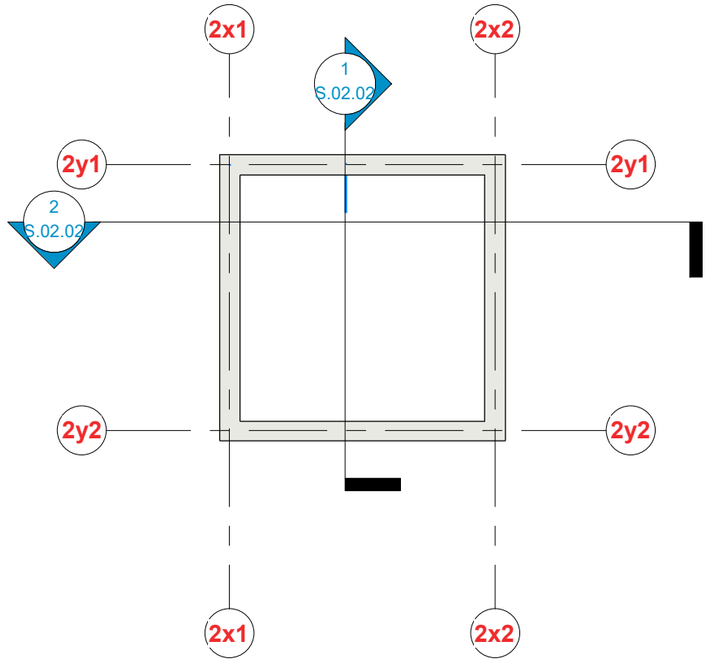
Work No.:NSS-25/15

Sheet Size A3



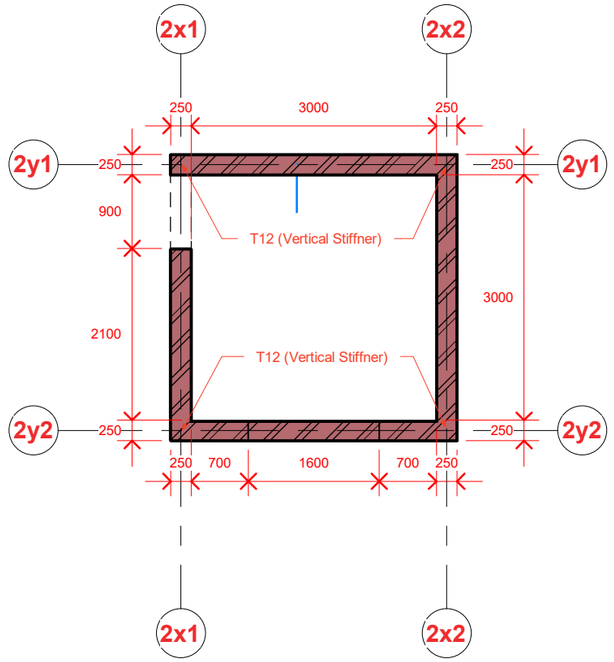
1 **TIme Office Foundation Lvl**

1 : 75



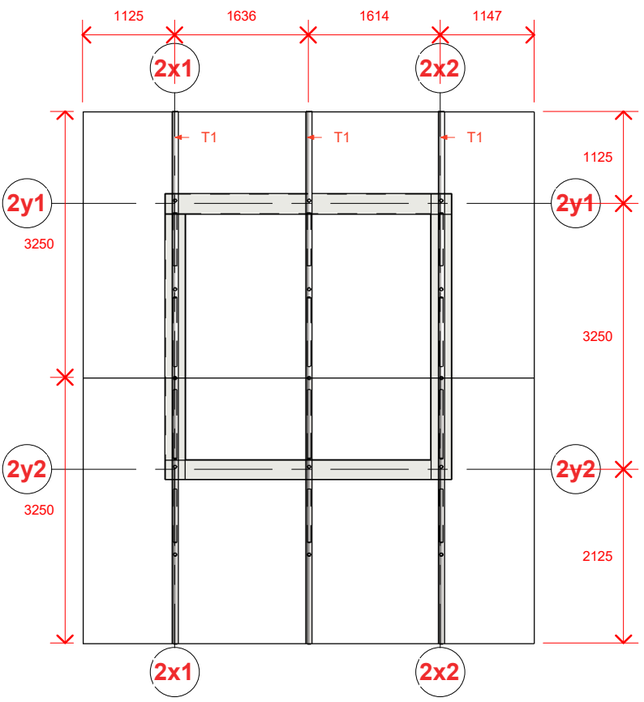
2 **Plinth/Lintle/Roof Band**

1 : 75



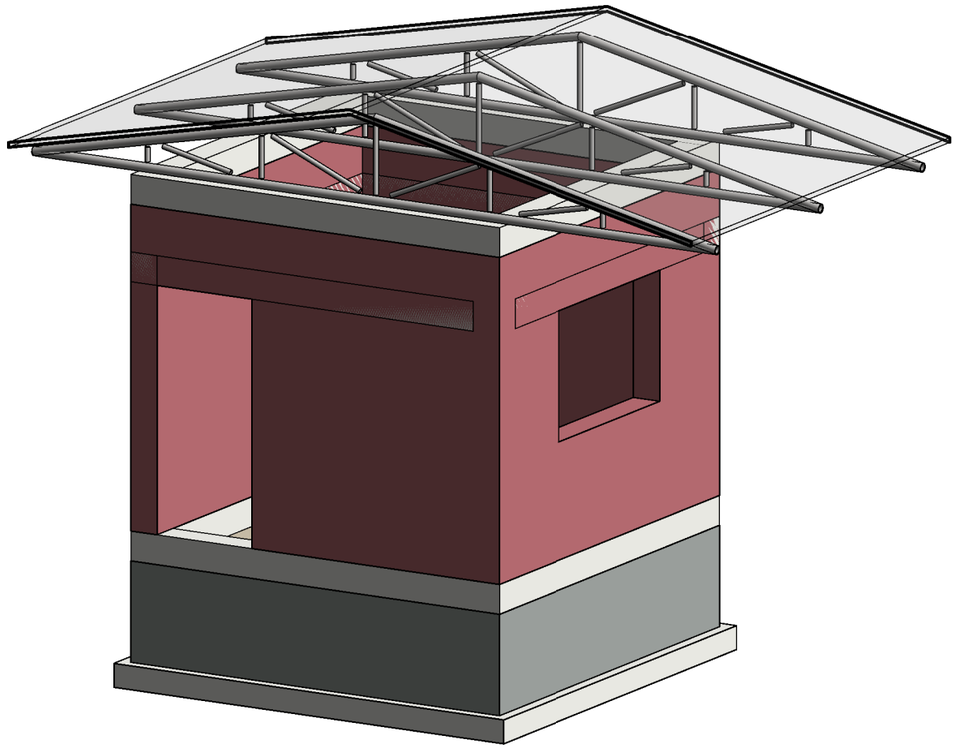
4 **Load Bearing Wall Plan**

1 : 75



5 **Roof**

1 : 75



3 **{3D}**

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Time Office Plan

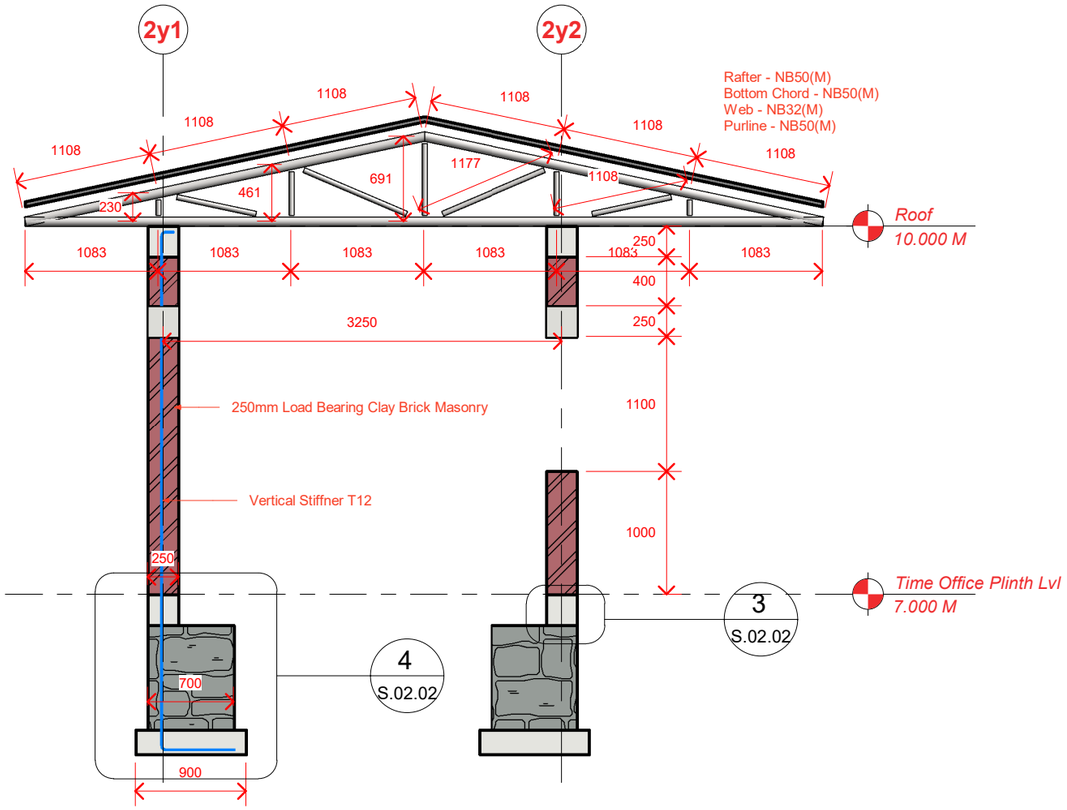
Scale: 1 : 75

Date: 10 October 2025

Work No.: NSS-25/15

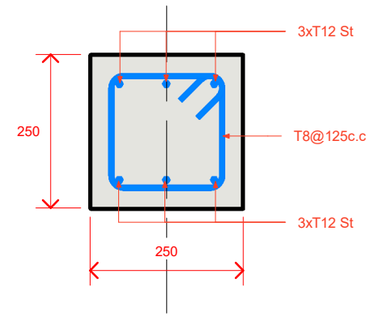
S.02.01

SHEET SIZE: A3



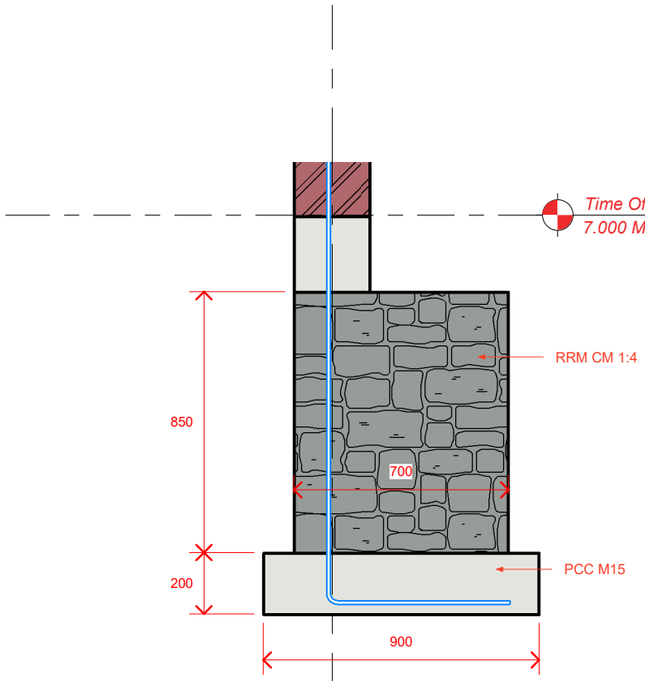
1 **Section 11**

1 : 50



3 **Plinth/Lintel/Roof Band Section**

1 : 10



4 **Footing Section**

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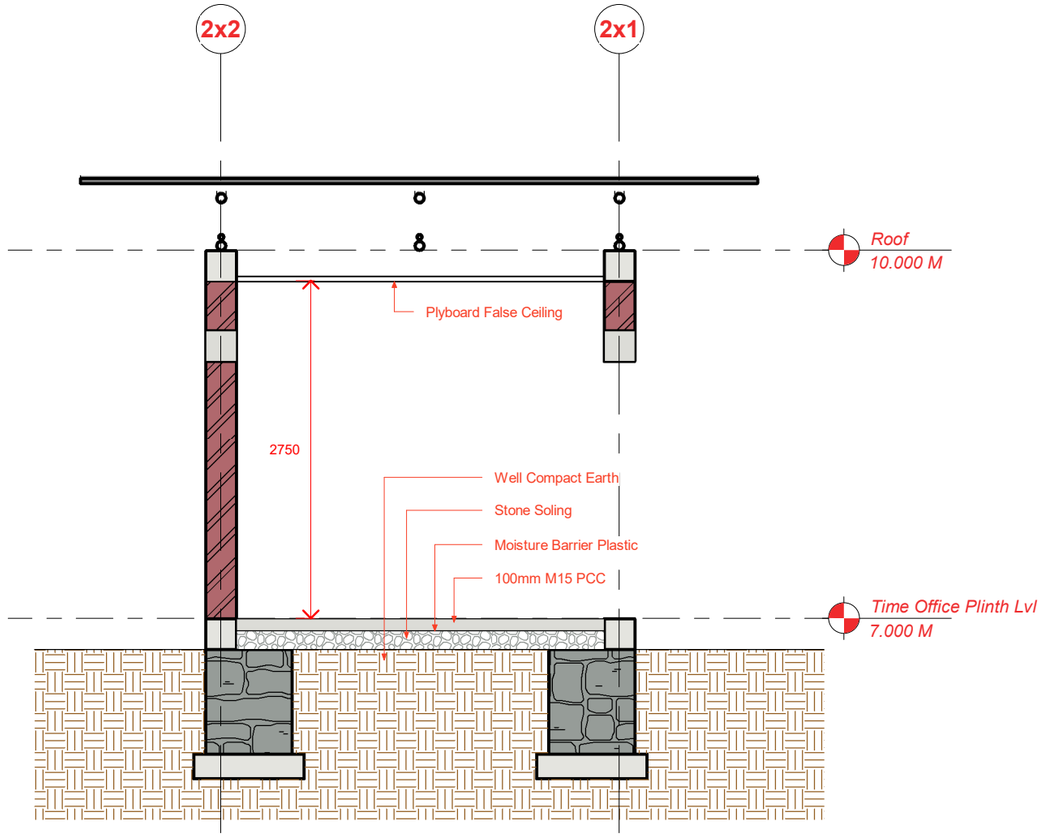


2 **Section 10**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Time Office Section

Scale: As indicated

Date: 10 October 2025

Work No.: NSS-25/15

S.02.02

SHEET SIZE: A3

3 WEIGH BRIDGE

Namey

SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :

BIO GAS PLANT

Thimphu

CLIENT NAME :

BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

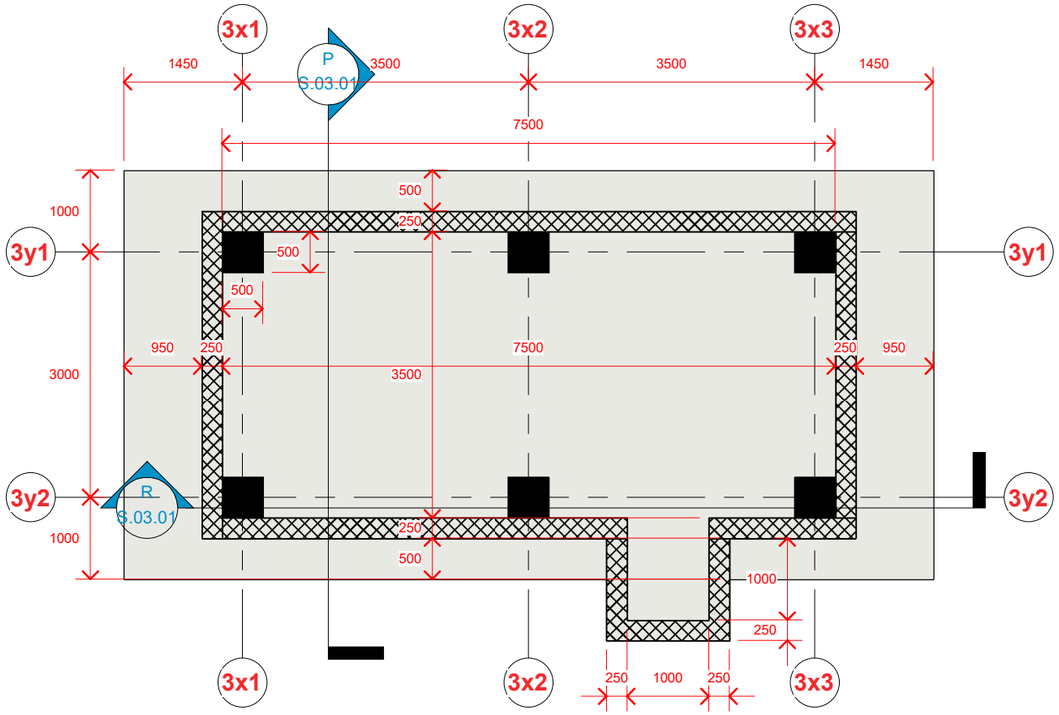
NAMGAY DORJEE

Civil Engineer

Date:10 October 2025

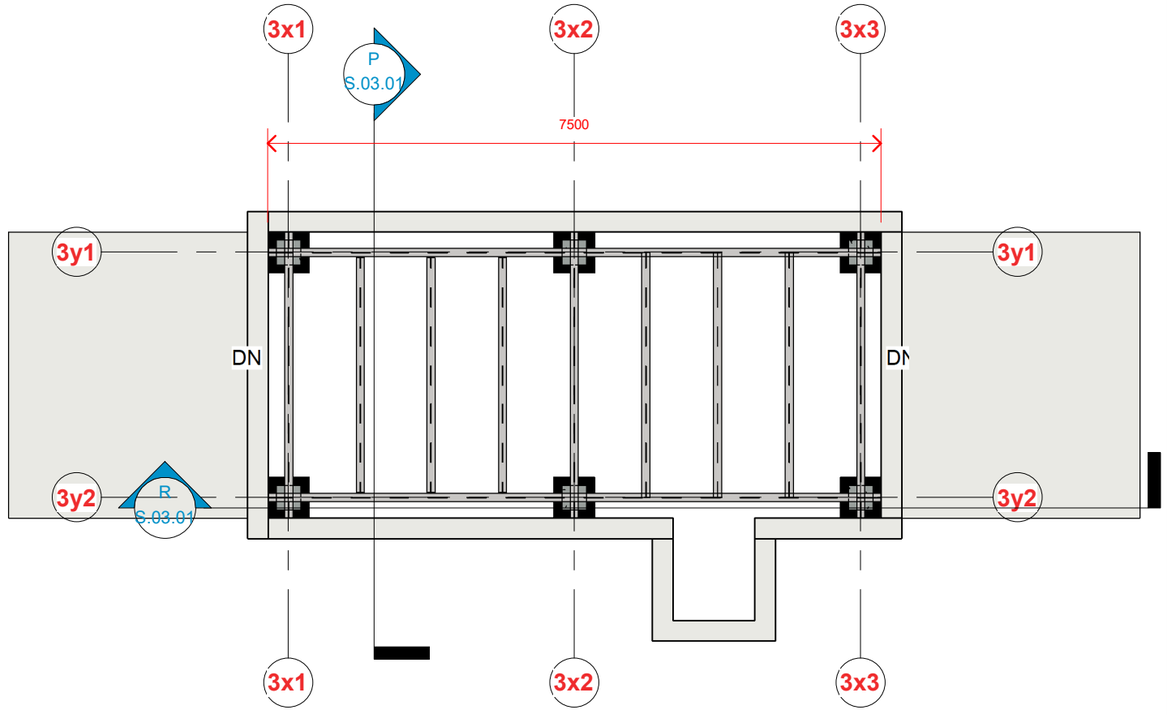
Work No.:NSS-25/15

Sheet Size A3



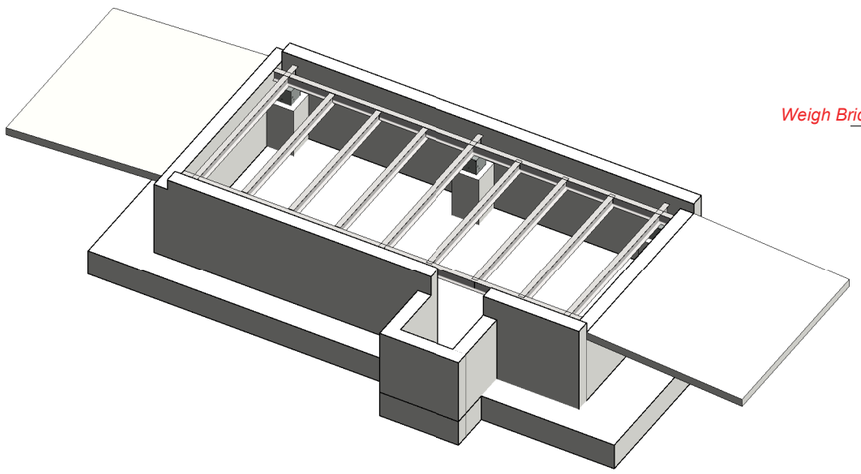
1 **Weight Bridge Foundation Lvl**

1 : 75

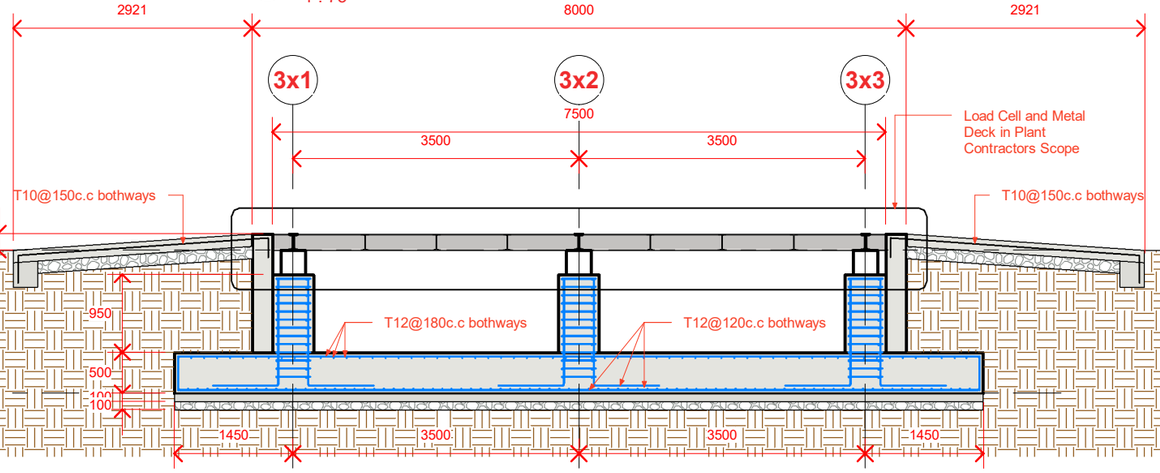


2 **Weigh Bridge Deck Lvl**

1 : 75

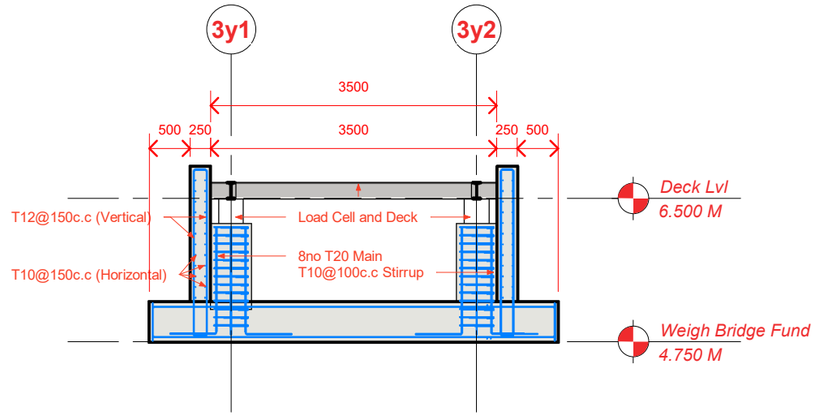


3 **{3D}**



R **Section R-R**

1 : 75



P **Section P-P**

1 : 75

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Weigh Bridge

Scale: 1 : 75

Date: 10 October 2025

Work No.: NSS-25/15

S.03.01

SHEET SIZE: A3

4 GARBAGE HANDLING AREA

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

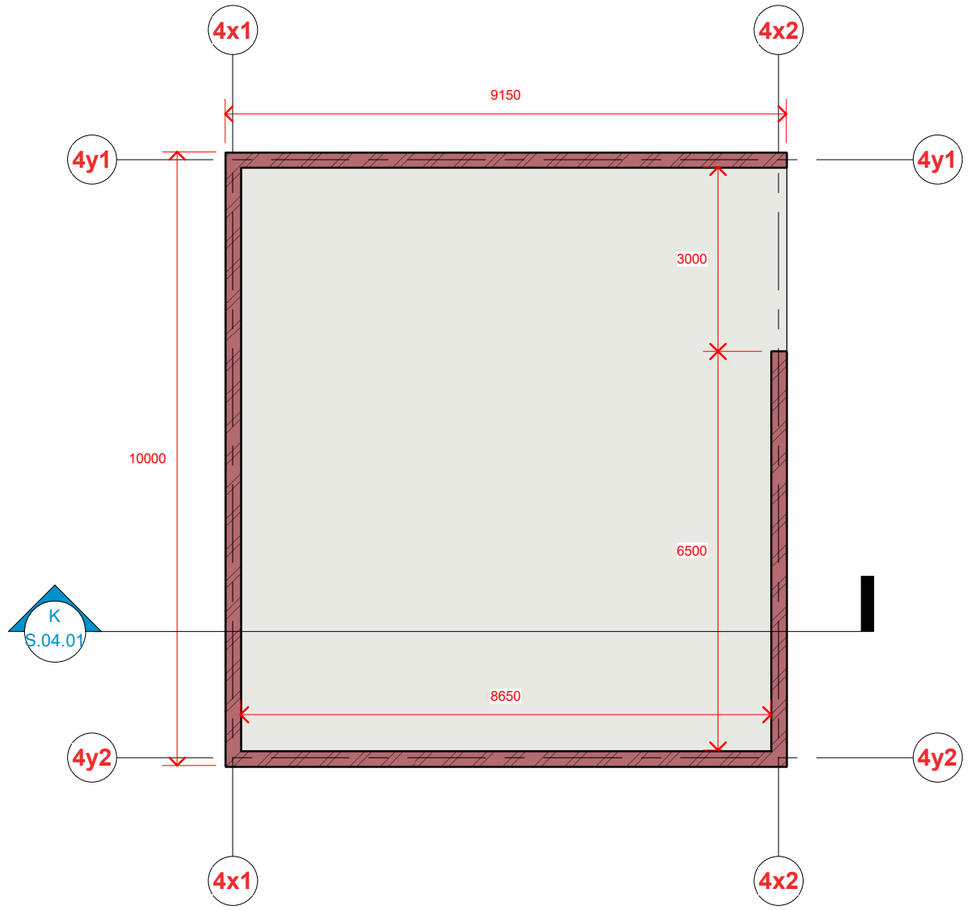
Memelakha, Thimphu

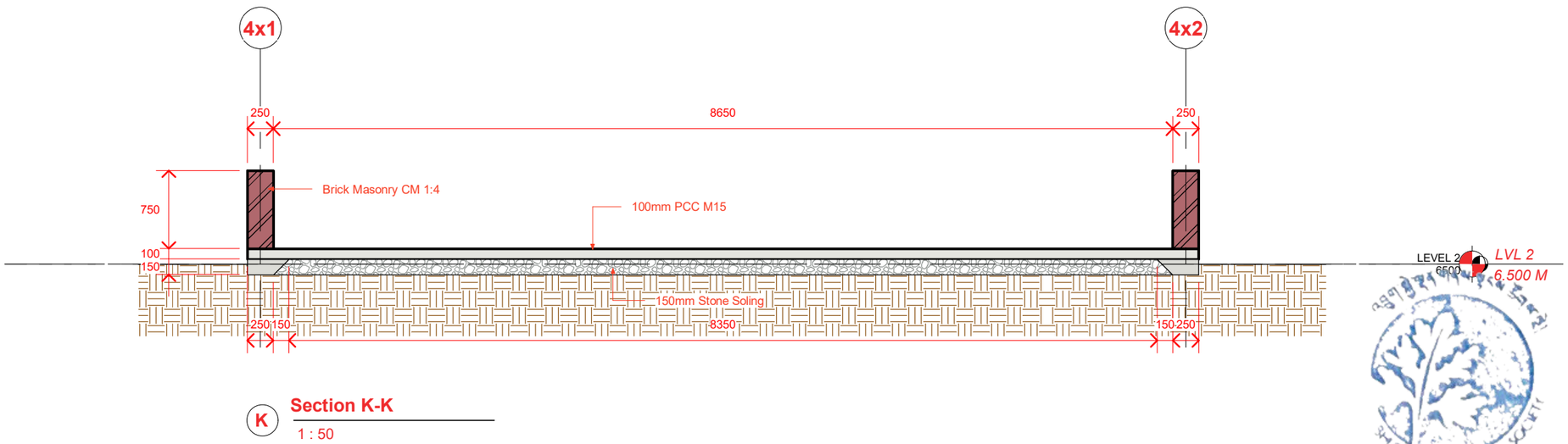
CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

NAMGAY DORJEE
Civil Engineer

Date:10 October 2025
Work No.:NSS-25/15
Sheet Size A3





K **Section K-K**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Garbage Handlining Area

Scale: As indicated

Date: 10 October 2025

Work No.: NSS-25/15

S.04.01

SHEET SIZE: A3

5. FEED PREP UNIT

Sheet List

SL. No.	Sheet Number	Sheet Name
15	S.05.0	Cover
1	S.05.01	Foundation Plan
2	S.05.02	Foundation Details
3	S.05.03	Column Plan
4	S.05.04	Column Details
5	S.05.05	Tie Beam Plan
6	S.05.06	Eaves Beal Plan
7	S.05.07	Truss Plan
8	S.05.08	Purline Plan
9	S.05.09	Frame Along Grid Y1
10	S.05.10	Frame Along Grid Y4 and Y5
11	S.05.11	Frame Along Grid Y3
12	S.05.12	Truss T1 and Details
13	S.05.13	View
14	S.05.14	Feed Tank

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

Memelakha, Thimphu

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN AND DRAWN BY :

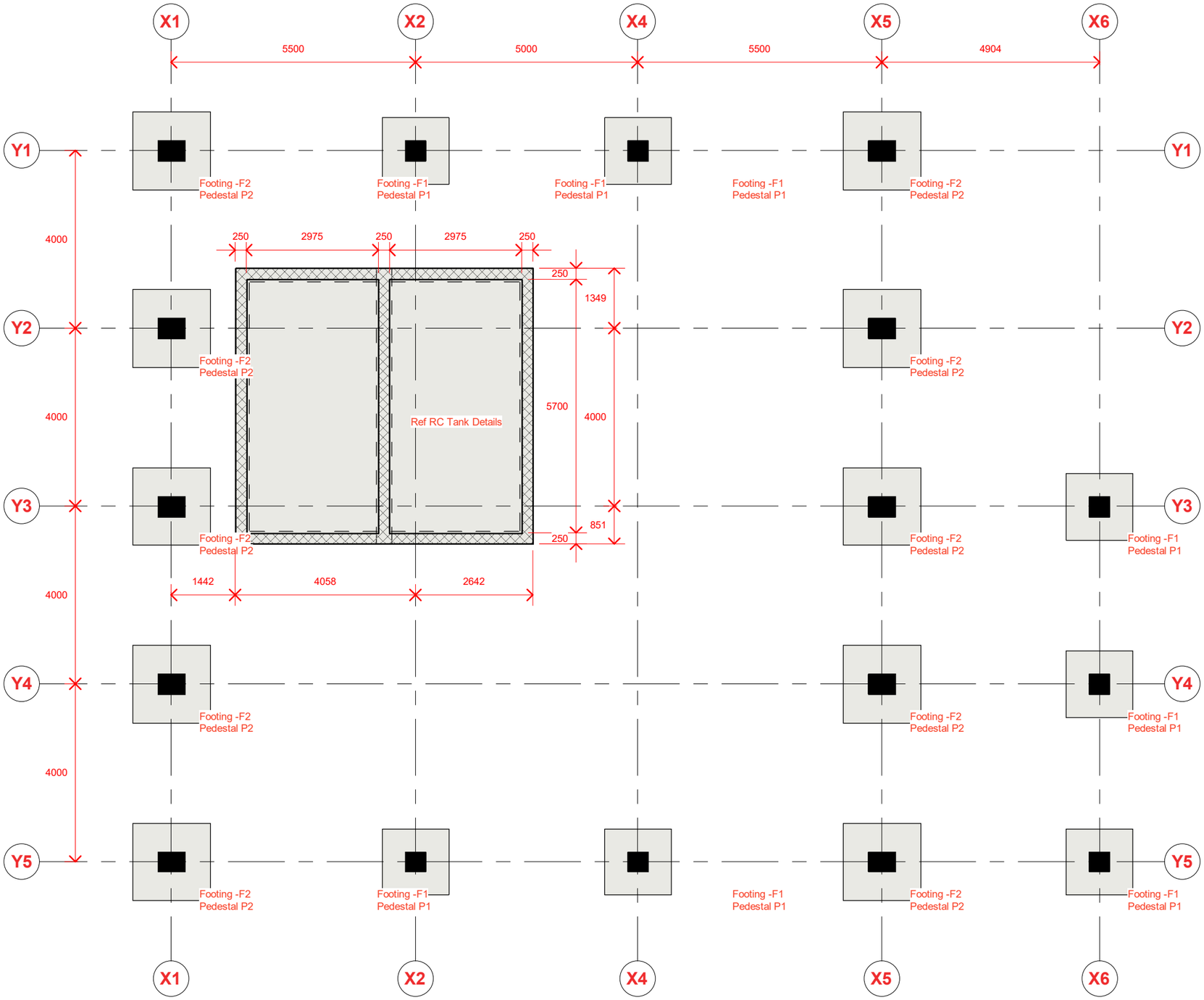
NAMGAY DORJEE

Civil Engineer

Date:10 October 2025

Work No.:NSS-25/15

Sheet Size A3



1 **Feed Prep Tank Bot LVL**

1 : 100

Foundation Notes:

1.Proper Shuttering shall be provided for foundation slab.

2.All materials used for RCC works shall confirm to IS-456-2000.

3. Design **SBC=150kN/sq.m.**

4.Footing shall be placed at **1500mm** (minimum)below the original ground level.

5.Concrete-**M20** as per IS:456

6.Rebar- **Fe500** as per IS:456

7. Clear Cover of **50mm** shall be provided.

Column Note:

1. The section sizes provided/drawn here refers to unfinished surfaces/does not include applied finishes

2. The length of column vertical rebar shall be adjusted to different lengths while erecting to ensure proper lapping in different floor slabs except in ground/basement floor slab, where lapping is not allowed.

3. Special confining ties of 10O@100 c/c shall be provided over length of 'lo' from the beam face, where 'lo' is larger of hc/6 or 450mm or larger of column section dimensions

4. Special confining ties of 10O@100 c/c shall be provided over the full lap length of longitudinal column rebars

5. Special confining ties of 10O@75 c/c shall be continued into the footing pad by minimum of 300mm from the top pad surface

6. Columns supporting staircase shall be provided special confining ties of 10O@ 100 c/c throughout the height of the column

7. One fourth(1/4) of column height of external columns shall be cast with beams/slab after necessary anchorage arrangement of beam rebar in the connecting column

8. Special attention must be given for reinforcement details in footing-column joints, beam-column joints, staircase-beam joints & slabs

9. The column longitudinal rebars shall not be bent/cranked without engineers prior Approval.

10. Do not make any unspecified holes or chisels or place conduits, pipes etc. through the structural members(column, beam, etc.) without engineers prior approval.

11. Splicing should not be provided at the basement. For other floor slabs splicing should not be provided within hc/4 from the beam and column junction and ties of 10O@100c/c should be provided for the spliced region.

12. All splicing are to be provided near the middle portion of column.

13. Not more than 50% of the column rebar shall be spliced at one section.

14. Concrete - **M20**

15. Rebar - **Fe500**

16. Clear cover - **40mm**

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Foundation Plan

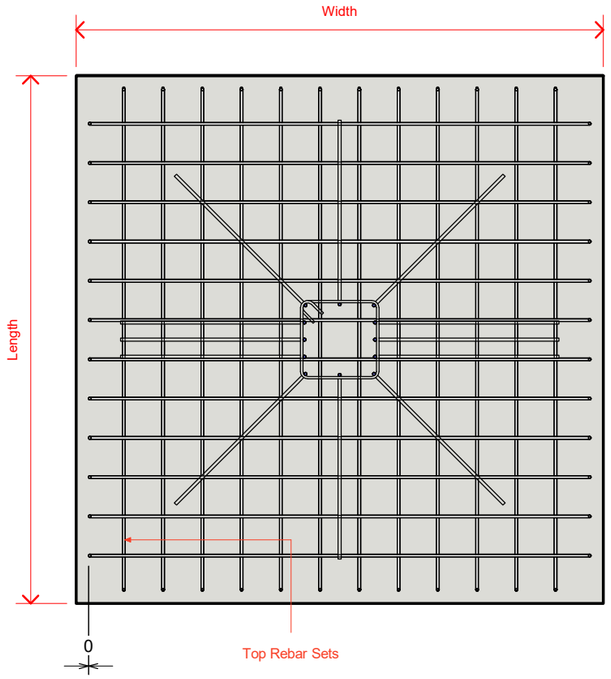
Scale: As indicated

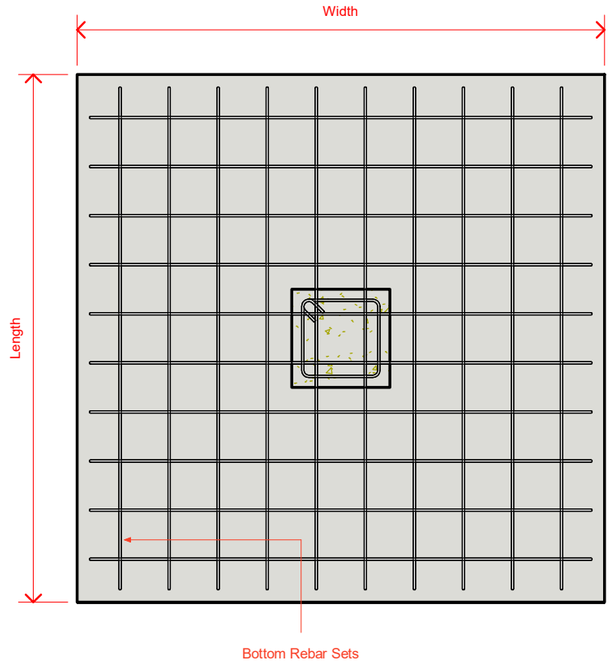
Date: 6 October 2025

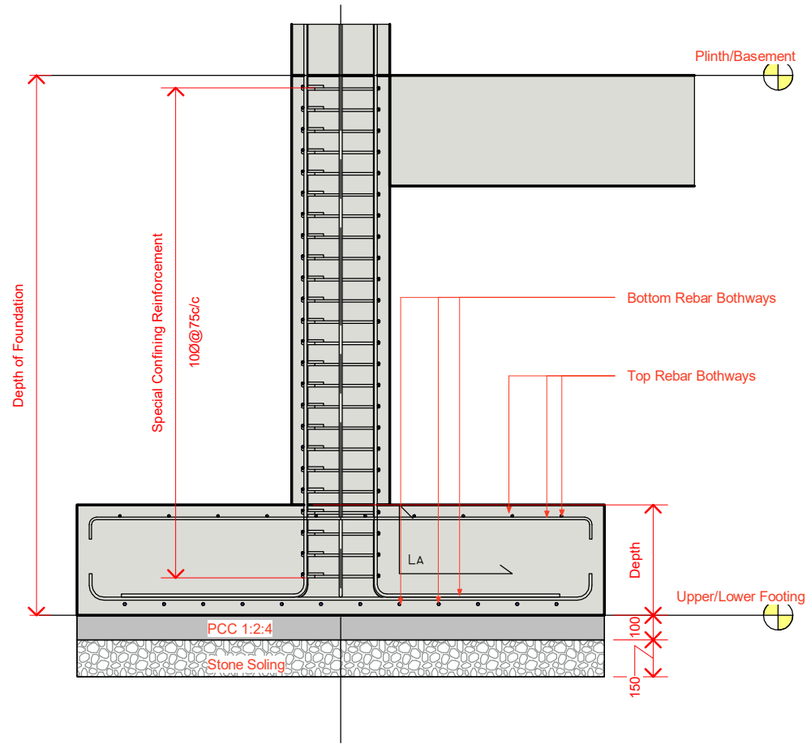
Work No.: NSS-25/11

S.05.01

SHEET SIZE: A3







1 Isolated Footing Details

1 : 25

Sl. No.	Member	Depth in mm	Length in mm	Width in mm	Bot rebar Bothways	Top rebar Bothways
1.	RC PAD F1	350	1500	1500	T10 @ 160 c/c	T10 @ 160 c/c
2.	RC PAD F2	400	2000	1500	T12 @ 200 c/c	T12 @ 200 c/c

Foundation Notes:

1.Proper Shuttering shall be provided for foundation slab.

2.All materials used for RCC works shall confirm to IS-456-2000.

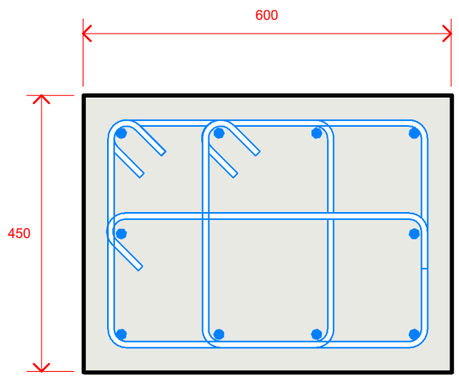
3. Design **SBC=150kN/sq.m.**

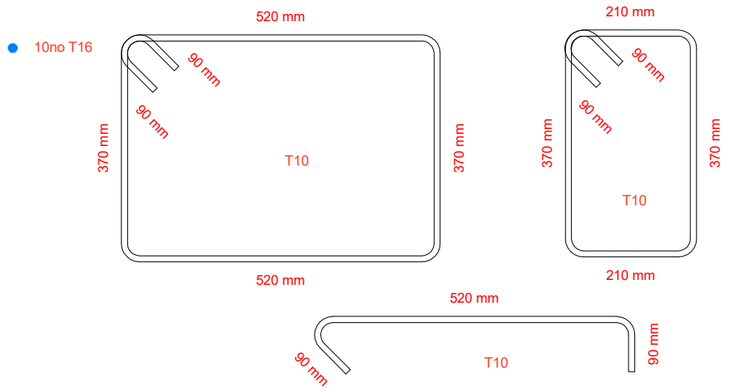
4.Footing shall be placed at **1500mm** (minimum)below the original ground level.

5.Concrete-**M20** as per IS:456

6.Rebar- **Fe500** as per IS:456

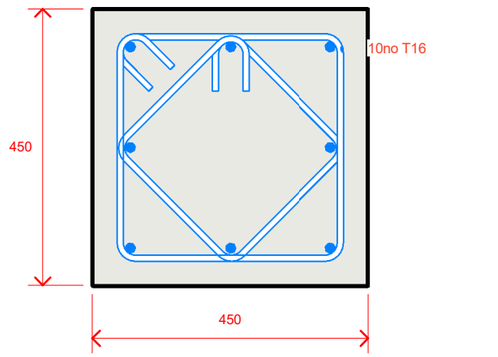
7. Clear Cover of **50mm** shall be provided.

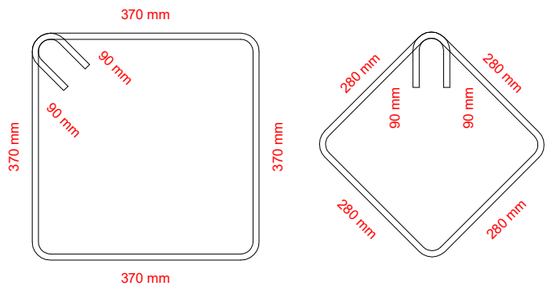




3 Pedestal P2

1 : 10





4 Pedestal P1

1 : 10

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Foundation Details

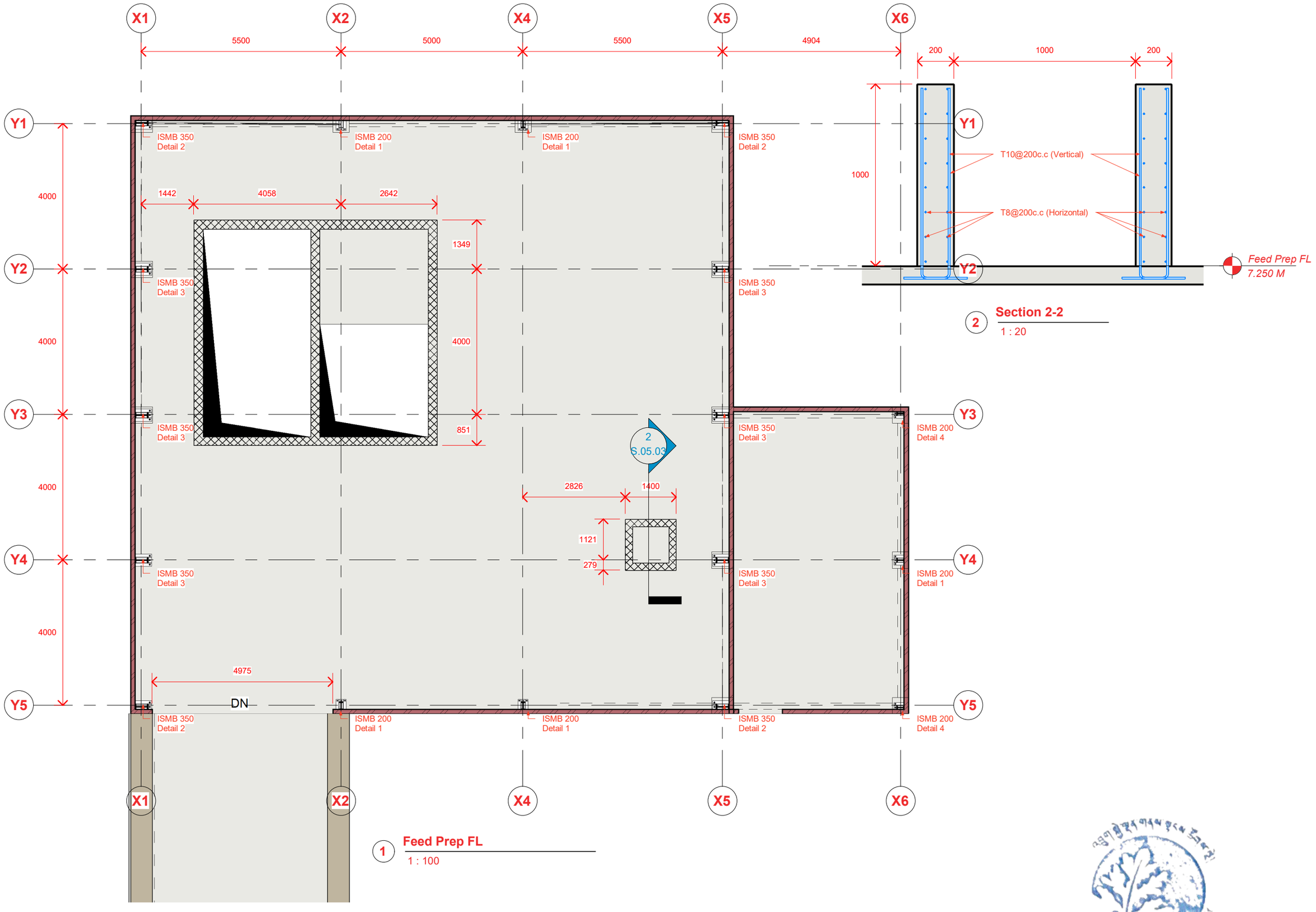
Scale: As indicated

Date: 6 October 2025

Work No.: NSS-25/11

S.05.02

SHEET SIZE: A3



2 **Section 2-2**
1 : 20

1 **Feed Prep FL**
1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Column Plan

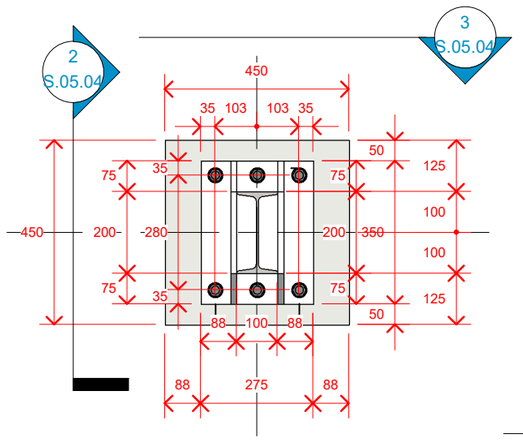
Scale: As indicated

Date: 6 October 2025

Work No.: NSS-25/11

S.05.03

SHEET SIZE: A3



1 **ISMB200 Detail1**

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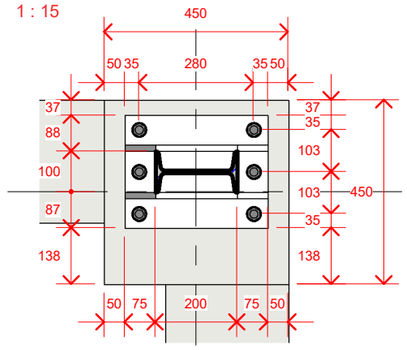

8 **ISMB200 Detail 4**

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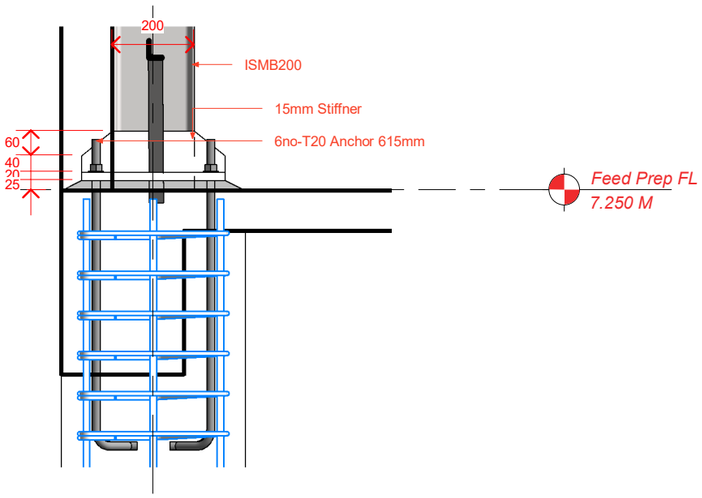

2 **Section 9**

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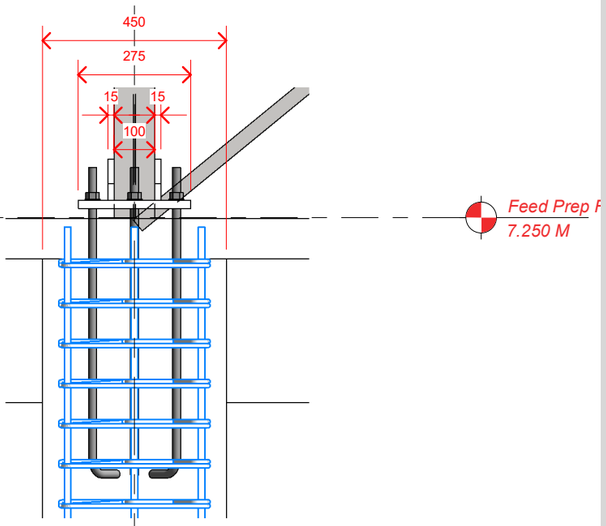

3 **Section 10**

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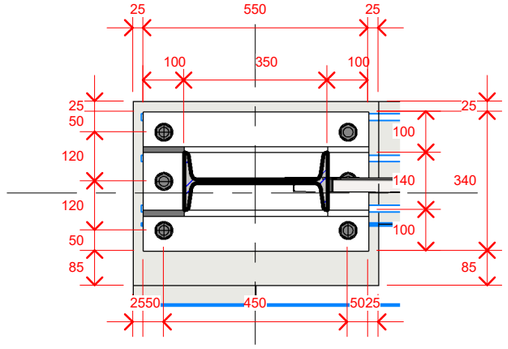

7 **ISMB 350 Detail 1**

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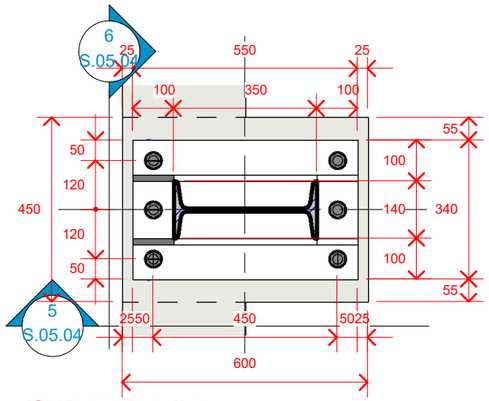

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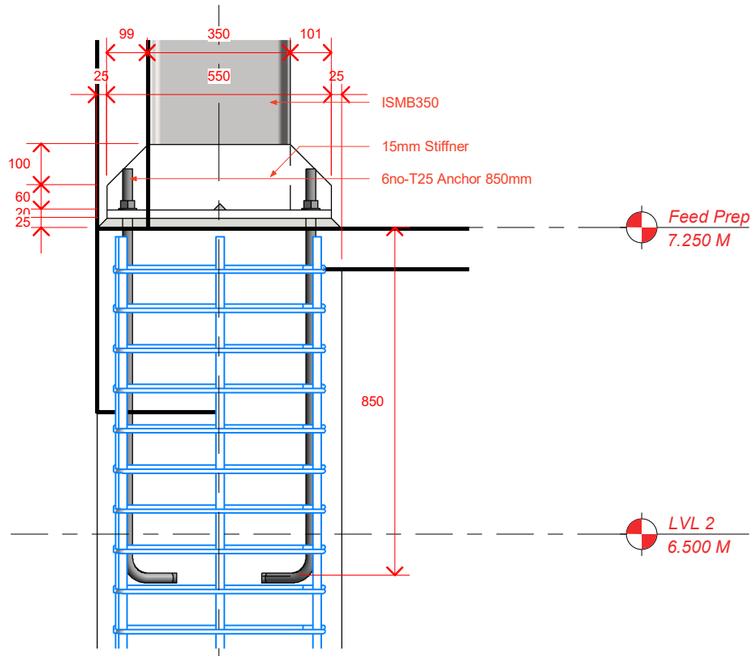

5 **Section 11**

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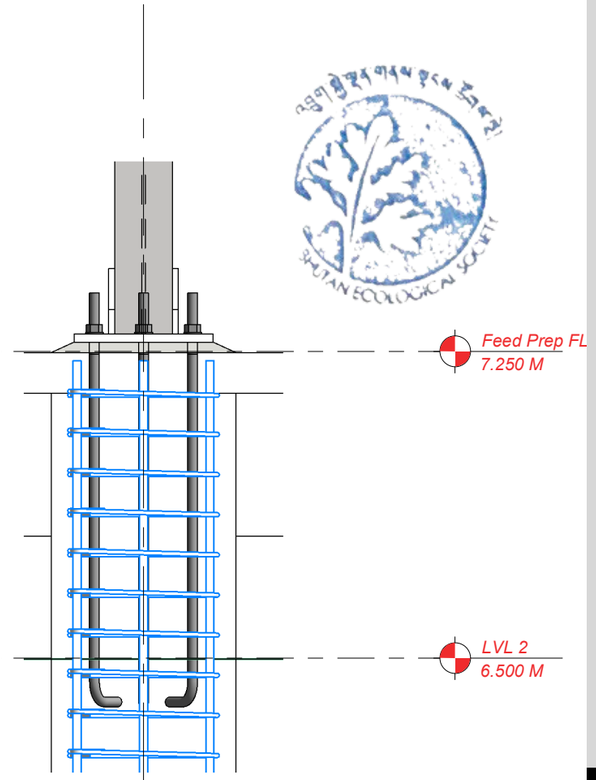


6 **Section 12**

1 : 15

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Column Details

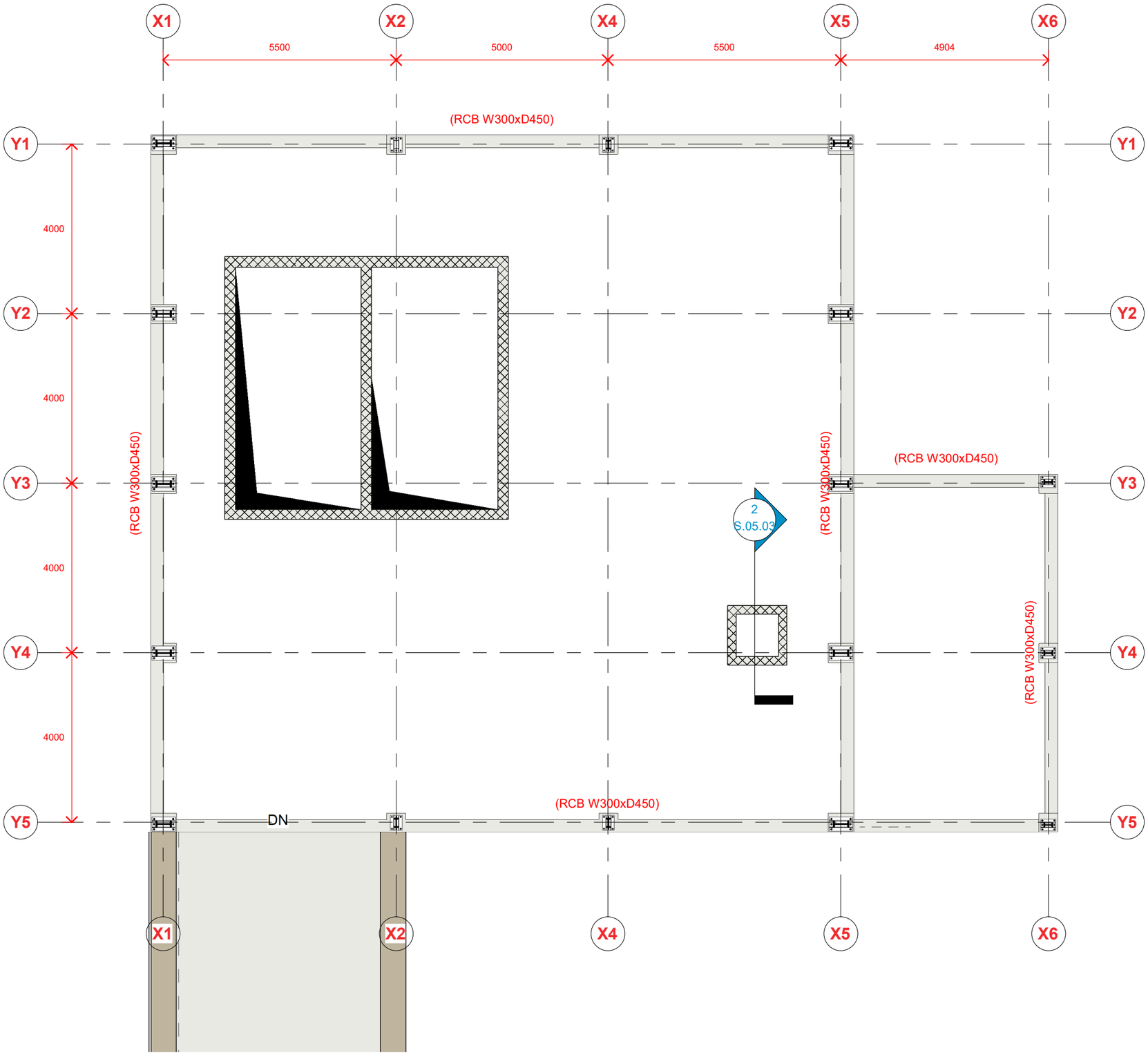
Scale: 1 : 15

Date: 6 October 2025

Work No.: NSS-25/11

S.05.04

SHEET SIZE: A3



1 **Plinth Beam Plan**
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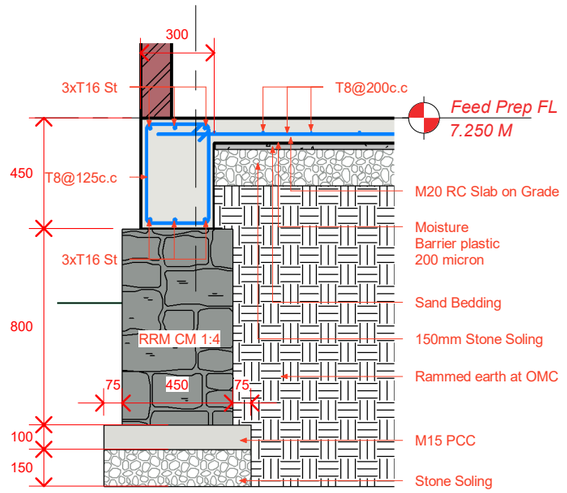


2 **Plinth Beam and Wall Section**
1 : 25

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Memelakha, Thimphu

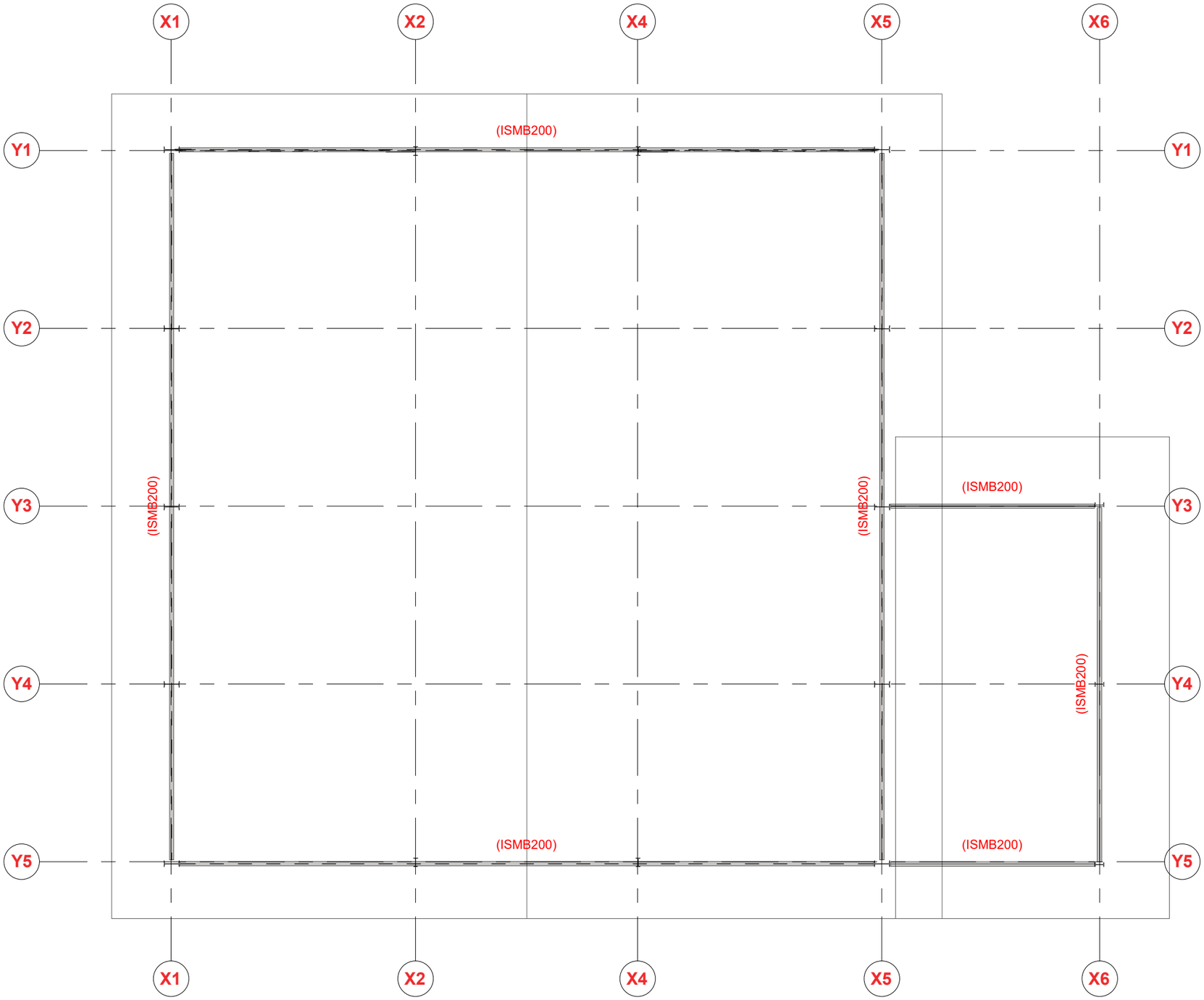
DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Tie Beam Plan

Scale: As indicated
Date: 6 October 2025
Work No.: NSS-25/11

S.05.05
SHEET SIZE: A3



1 **Column Top Lvl**
1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Memelakha, Thimphu

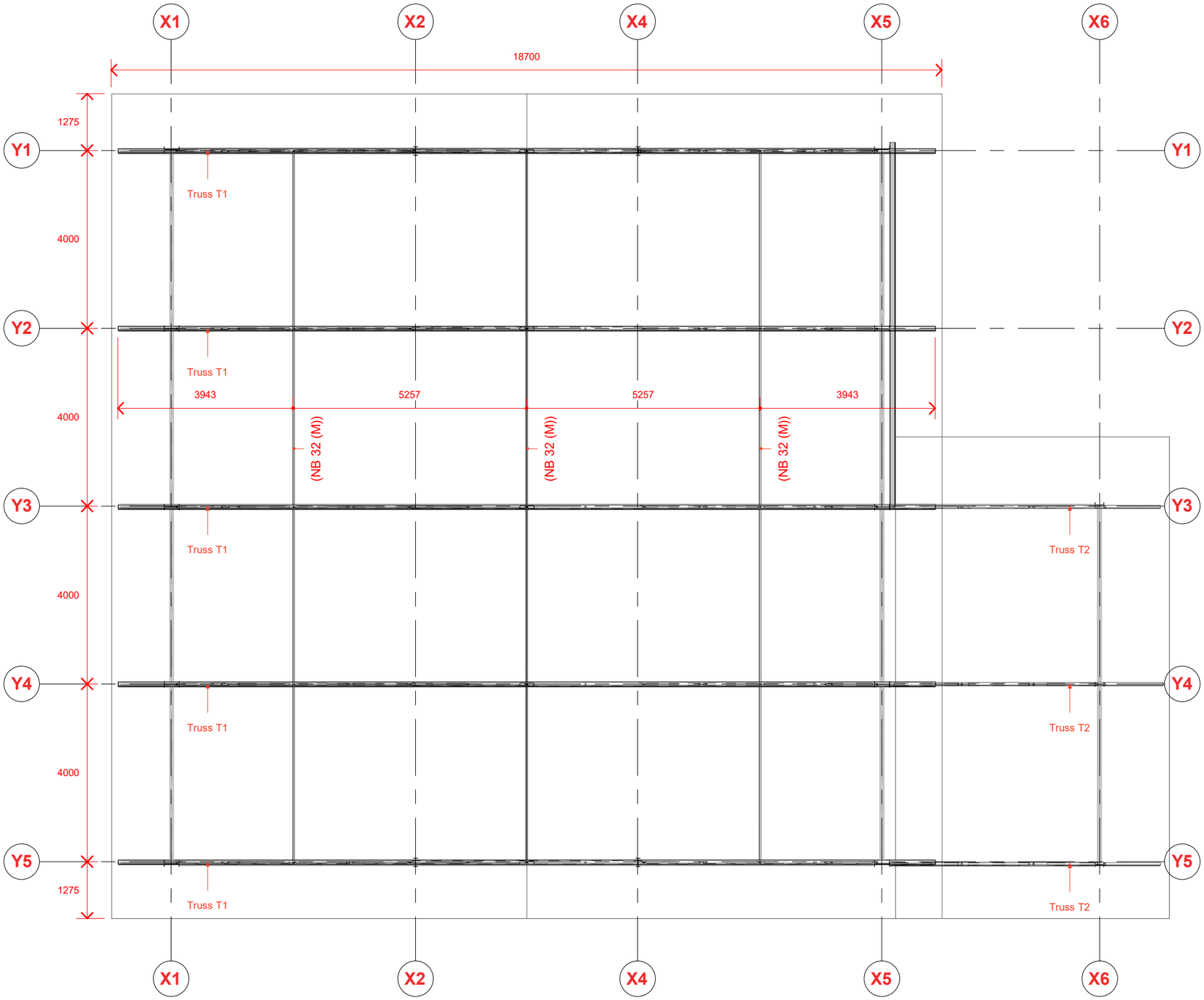
DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Eaves Beal Plan

Scale: 1 : 100
Date: 6 October 2025
Work No.: NSS-25/11

S.05.06
SHEET SIZE: A3



1 **Truss Lvl**
1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Truss Plan

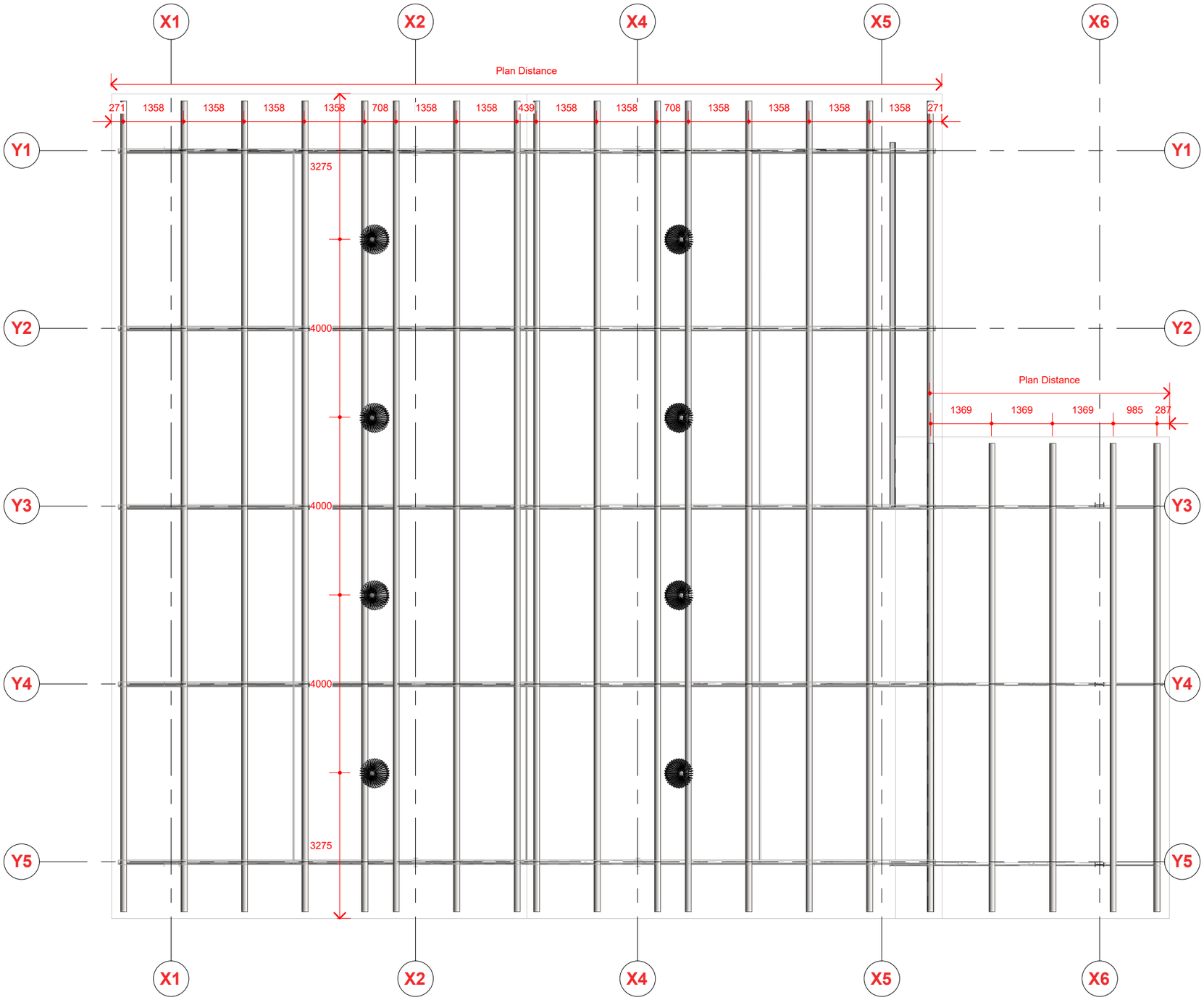
Scale: 1 : 100

Date: 6 October 2025

Work No.: NSS-25/11

S.05.07

SHEET SIZE: A3



1 **Purline Lvl**
1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY
DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

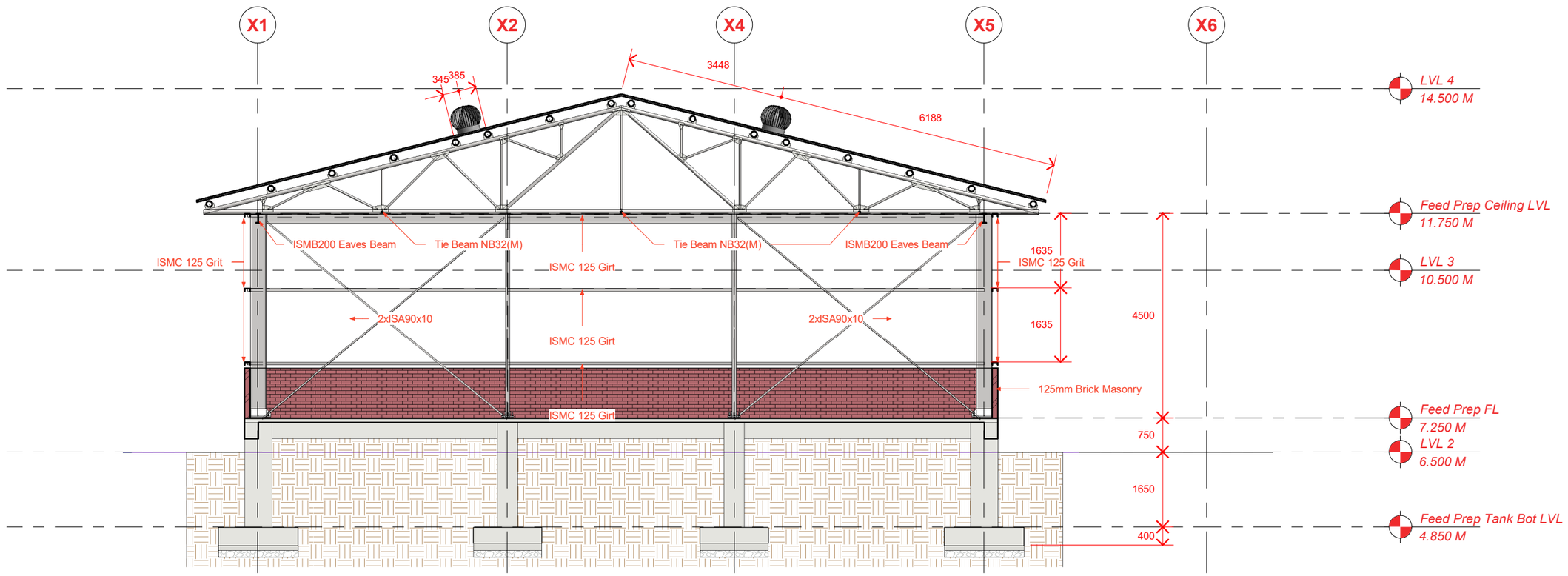
Purline Plan

Scale: 1 : 100

Date: 6 October 2025

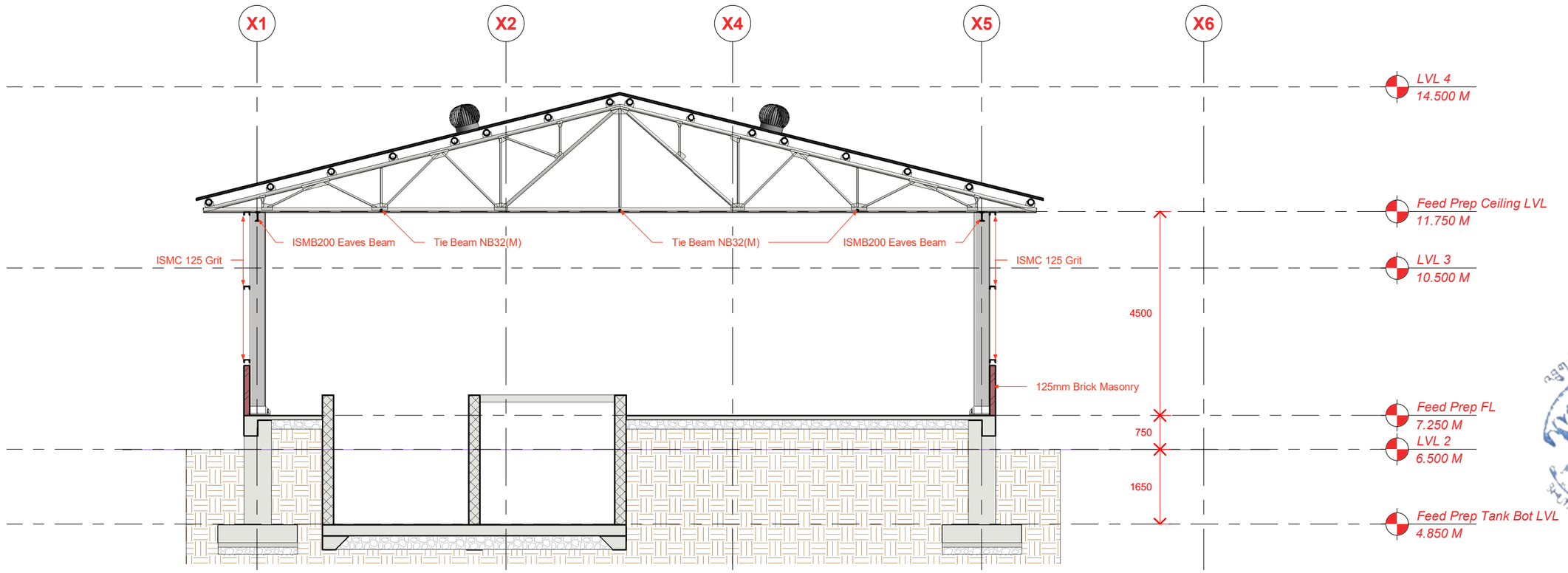
Work No.: NSS-25/11

S.05.08
SHEET SIZE: A3



1 **Frame Along Grid Y1**

1 : 100



2 **Frame Along Grid Y2**

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Along Grid Y1

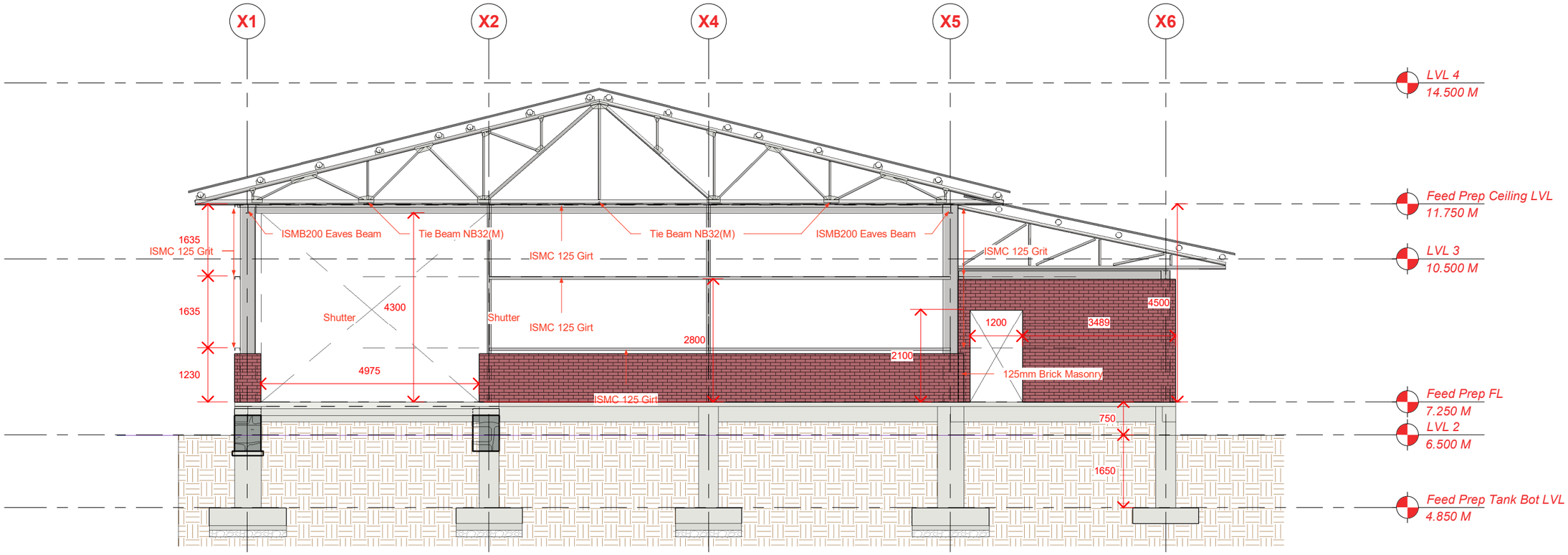
Scale: 1 : 100

Date: 6 October 2025

Work No.: NSS-25/11

S.05.09

SHEET SIZE: A3



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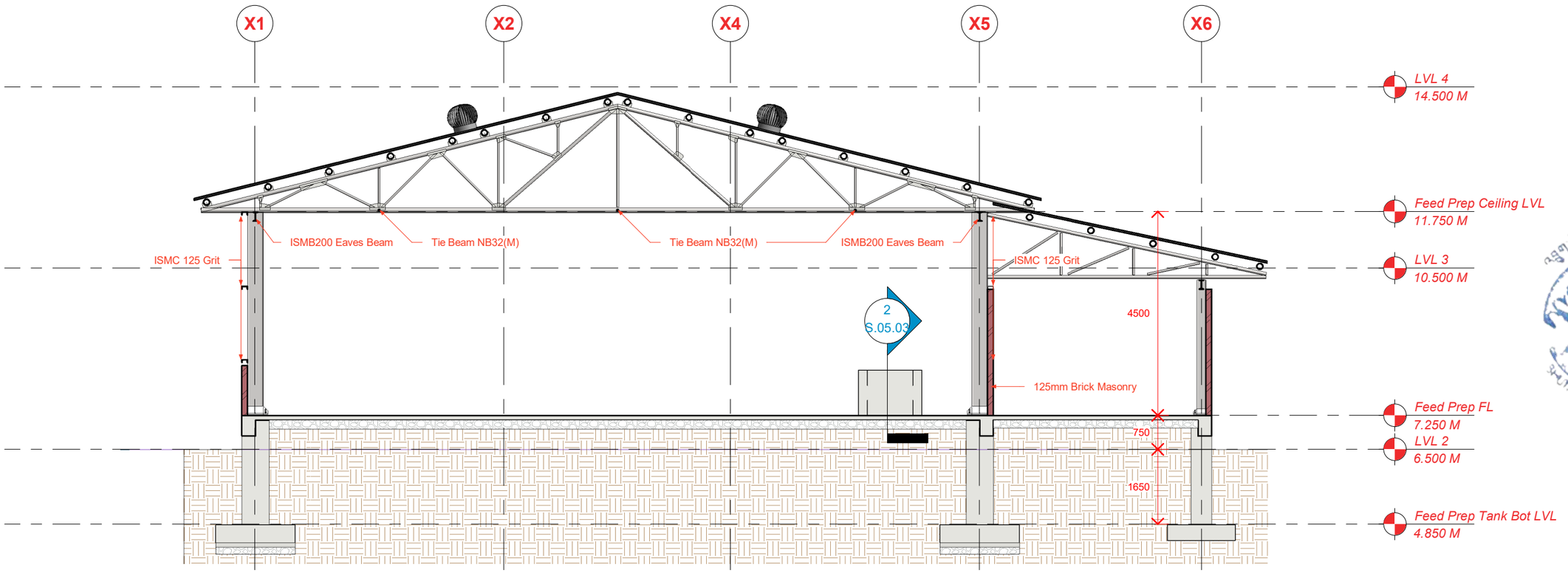


2 **Frame Along Grid Y4**

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Along Grid Y4 and Y5

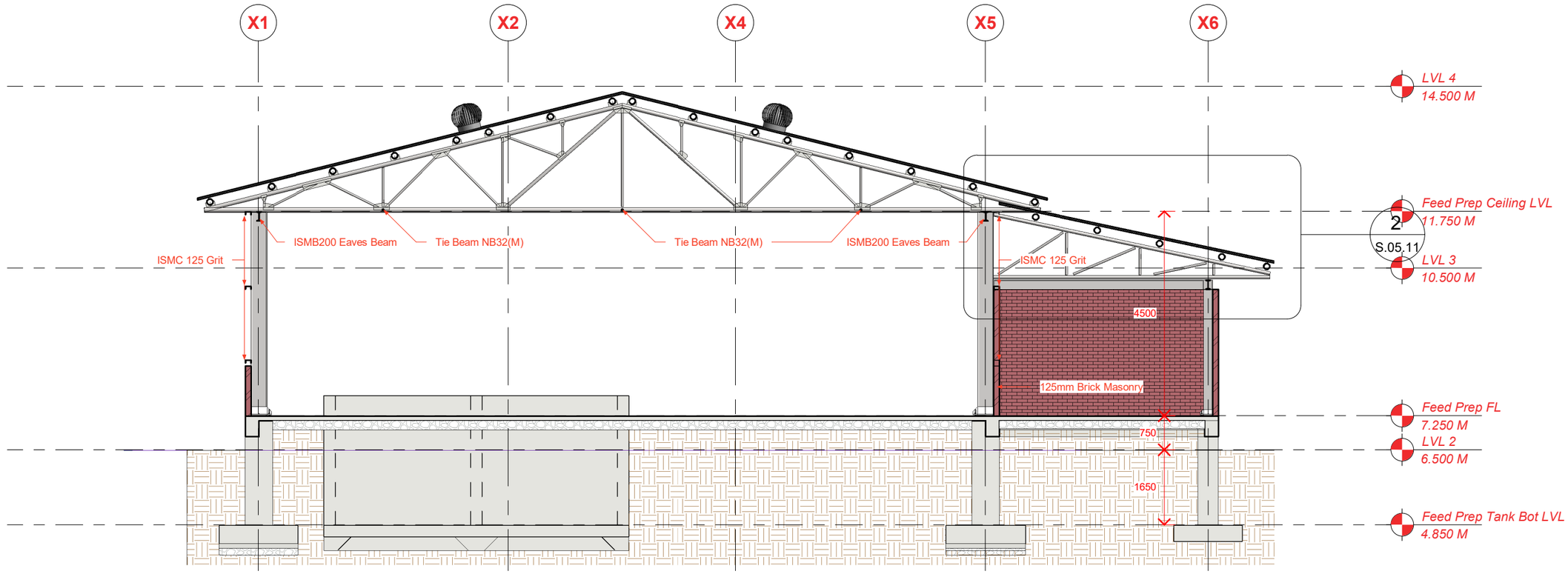
Scale: 1 : 100

Date: 6 October 2025

Work No.: NSS-25/11

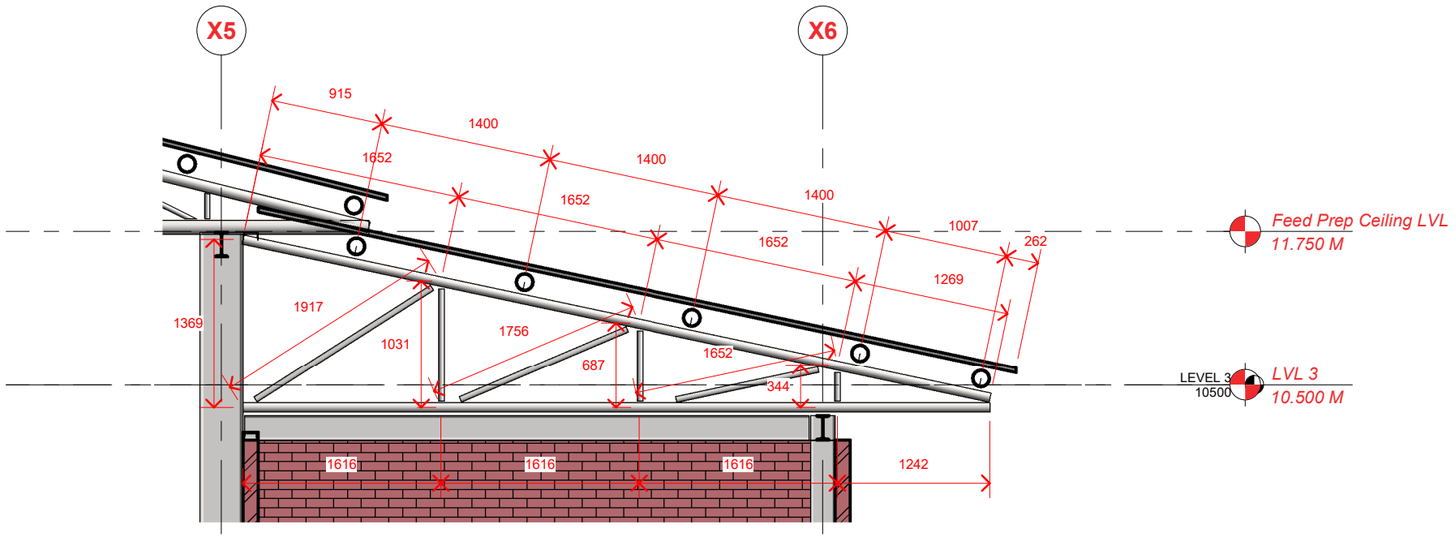
S.05.10

SHEET SIZE: A3



1 **Frame Along Grid Y3**

1 : 100



Rafter - NB50(M)
Bottom Chord - NB50(M)
Web - NB40(M)

2 **Truss T2**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Along Grid Y3

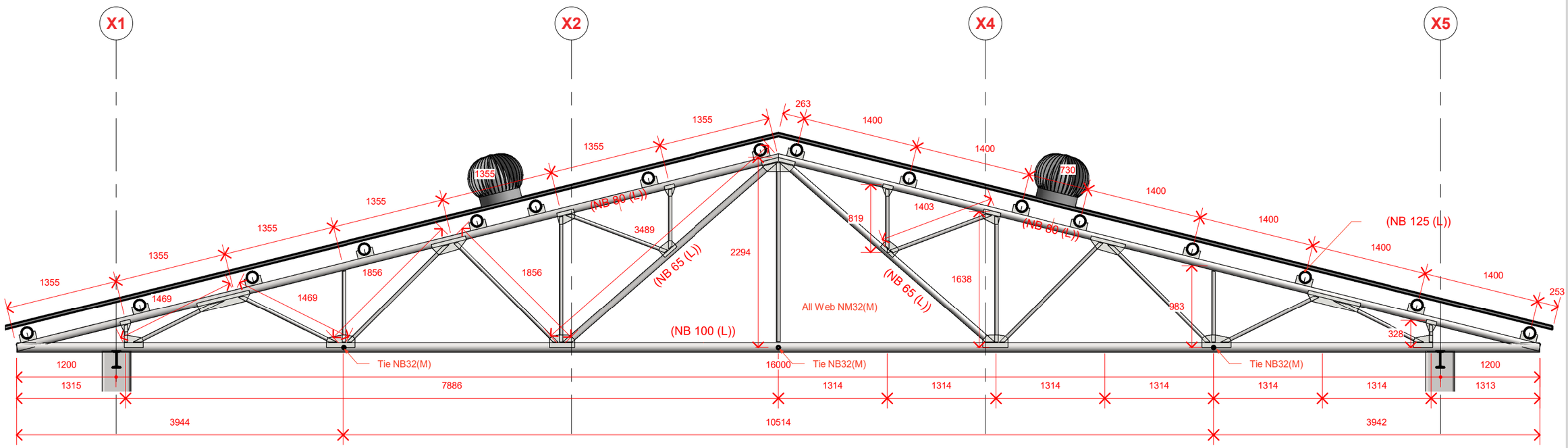
Scale: As indicated

Date: 6 October 2025

Work No.: NSS-25/11

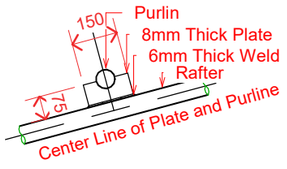
S.05.11

SHEET SIZE: A3

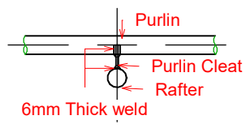


1 Truss T1

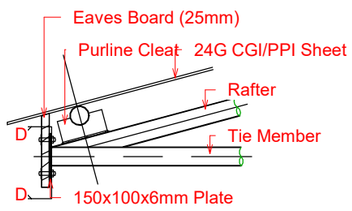
1 : 50



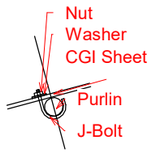
Purline Cleat Fixing Details



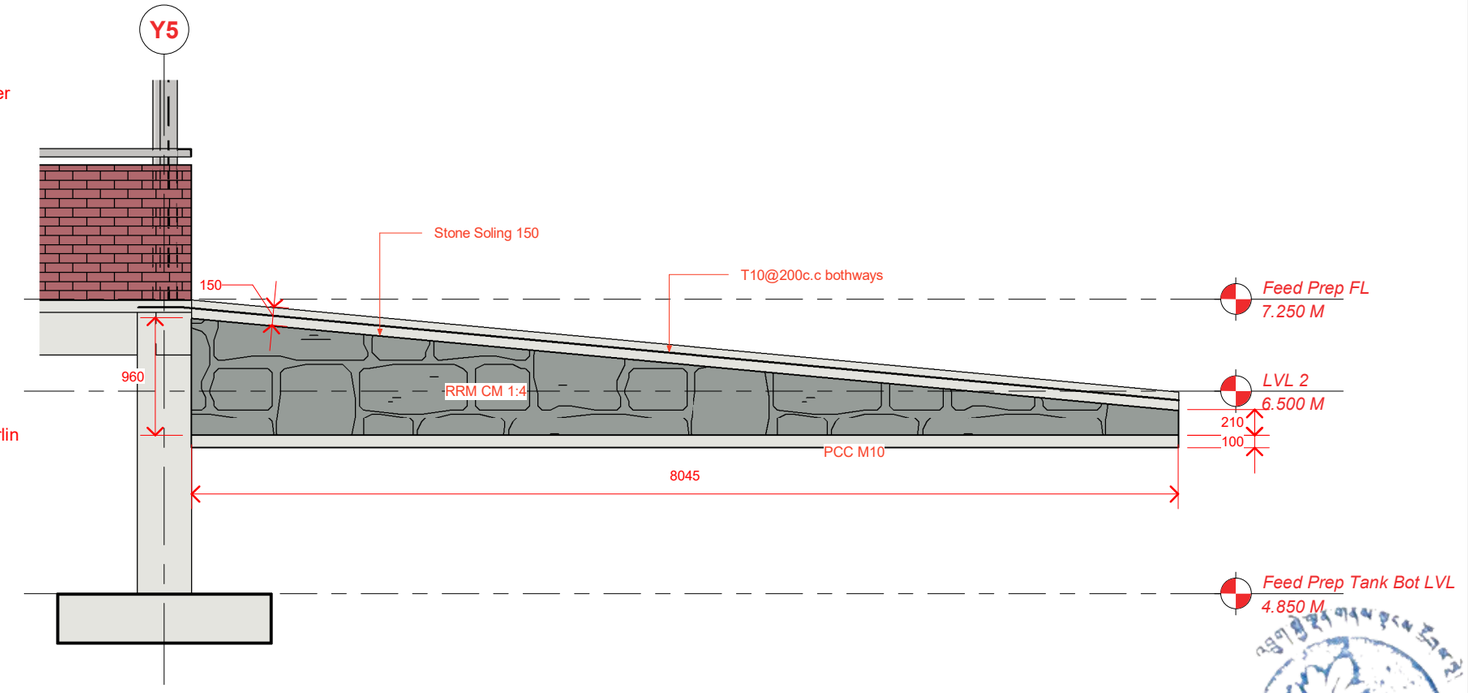
Connection of Purline to Rafter



Eaves Board Connection Detail



Connection of CGI Sheet to Purlin



Note:
1.Refer Section for COlumn Height
2. All members of the truss joint shall be in welding
3.Fabrication of truss must be done at site
4.Welding shall confirm to IS 816-1989 and thickness shall be 6 mm
5. All steel tube section and plates shall confirm to IS 1161-1968 & IS 2062-1984
6.All MS Nust & bolts shall confirm to IS 1363-1984 and Washers shall confirm to IS 5374-1975

2 Truss Joint Details

1 : 20

3 Section RAMP

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Truss T1 and Details

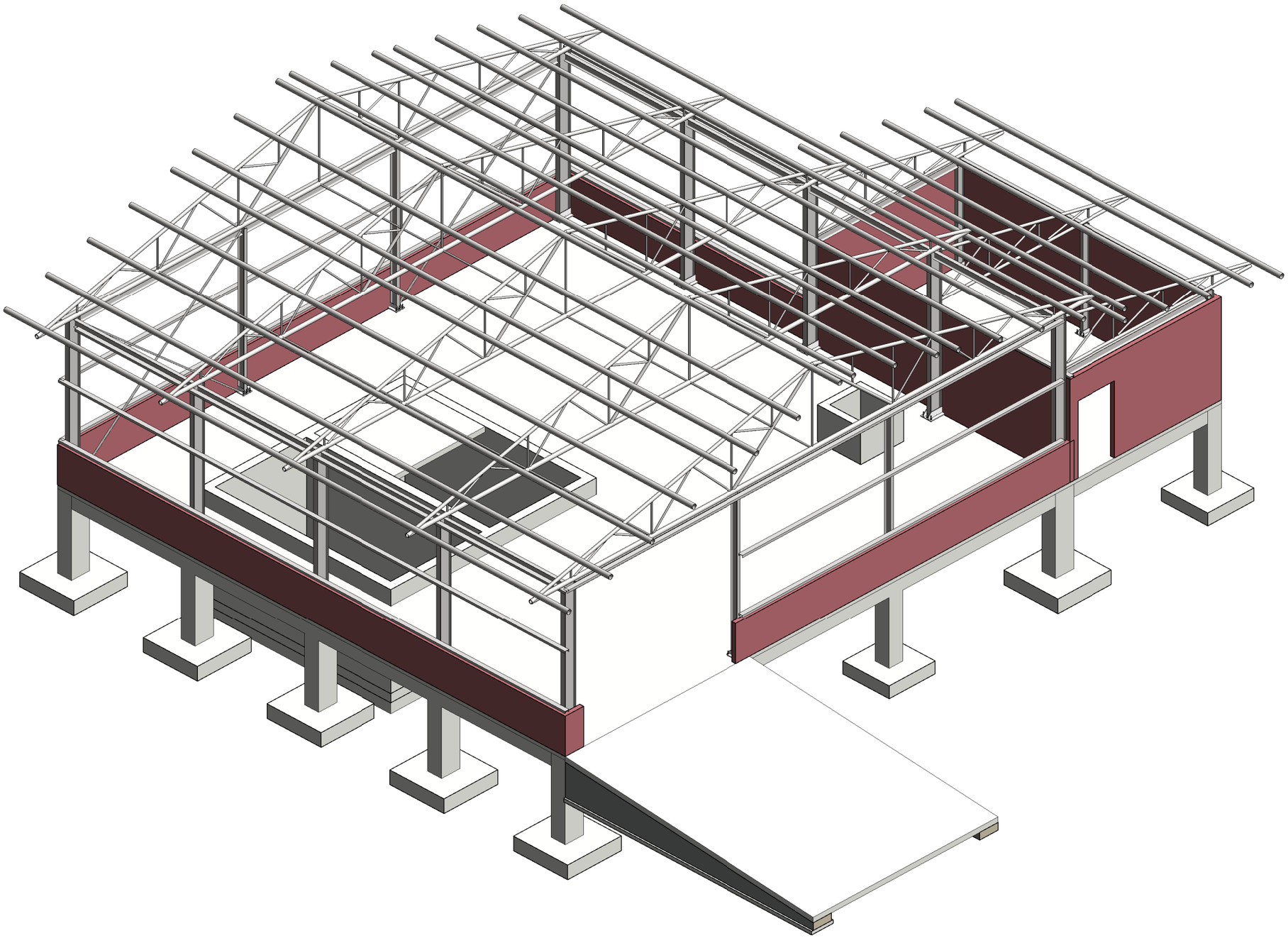
Scale: As indicated

Date: 6 October 2025

Work No.: NSS-25/11

S.05.12

SHEET SIZE: A3



1 {3D}

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

View

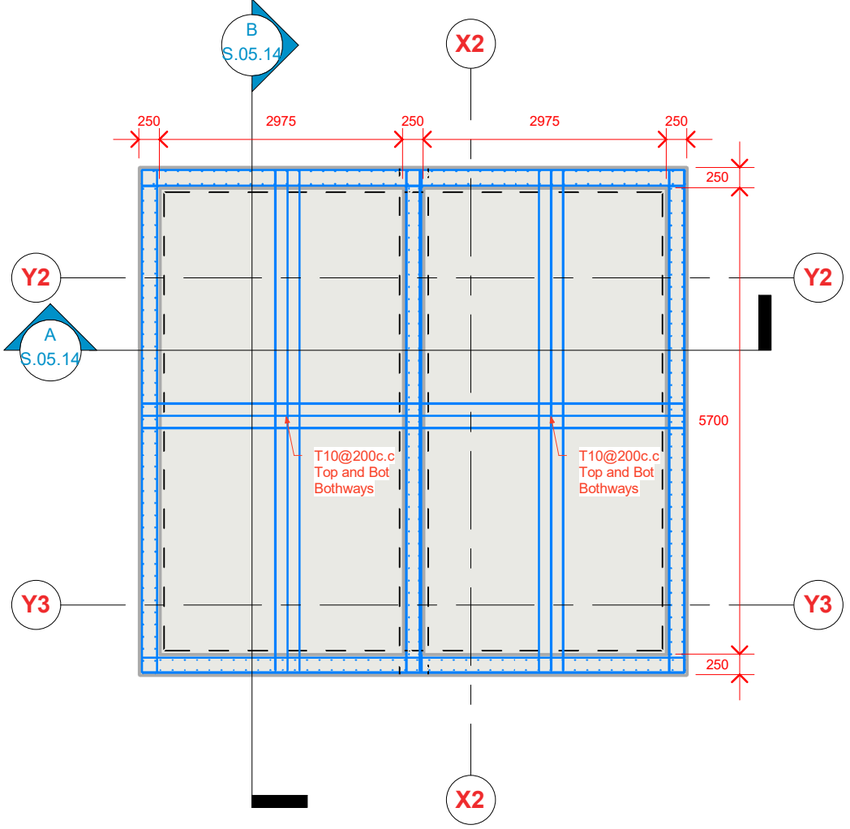
Scale:

Date: 6 October 2025

Work No.: NSS-25/11

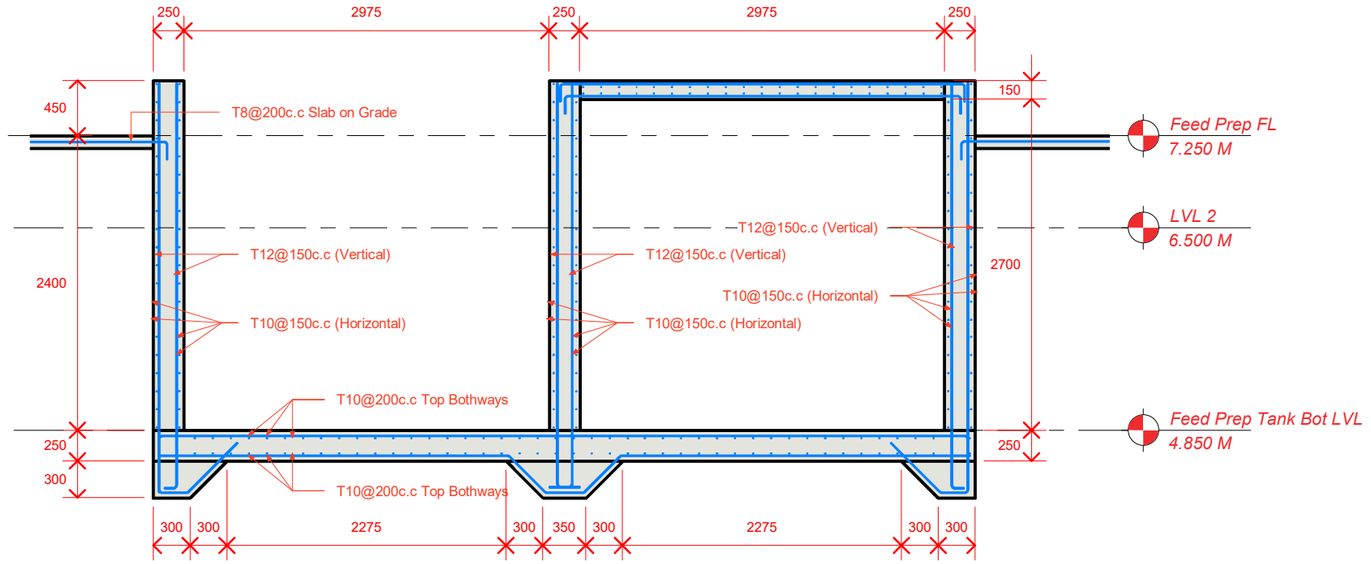
S.05.13

SHEET SIZE: A3



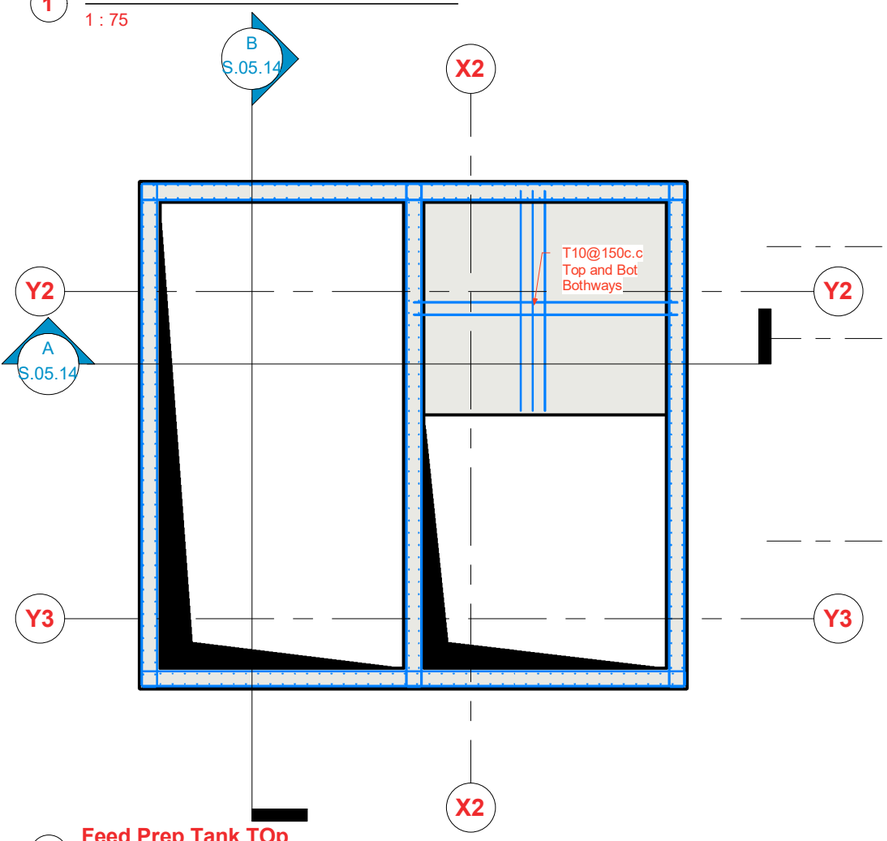
1 **Feed Prep Tank Foundation Slab**

1 : 75



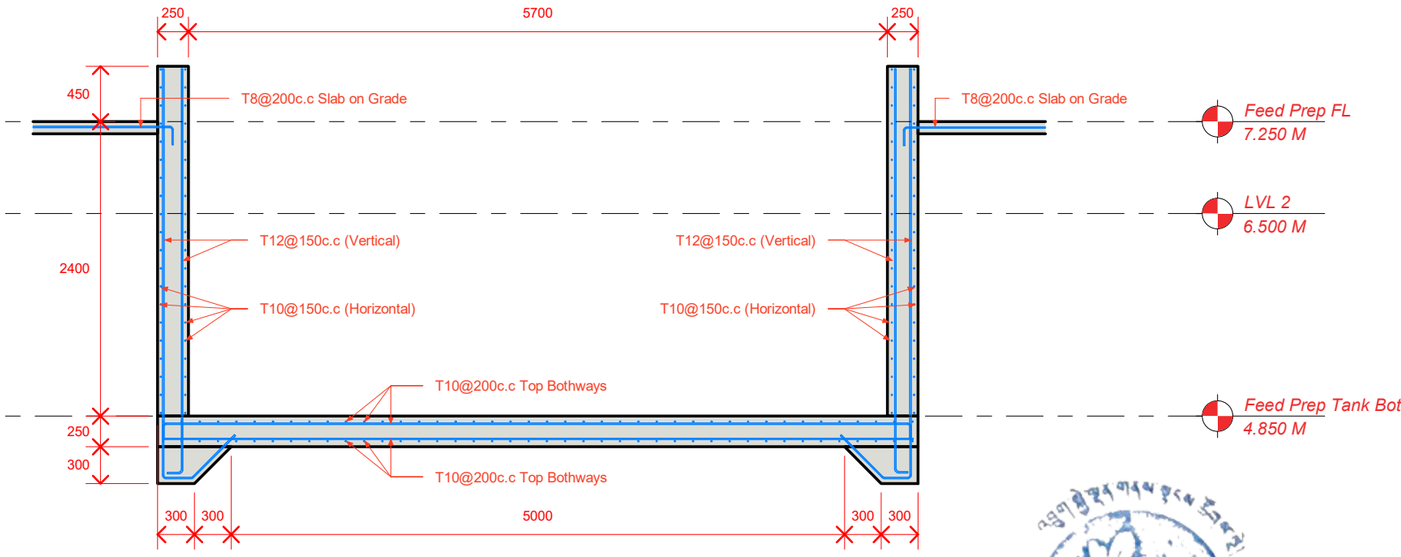
A **Section A-A**

1 : 50



2 **Feed Prep Tank TOp**

1 : 75



B **Section B-B**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Feed Tank

Scale: As indicated

Date: 6 October 2025

Work No.: NSS-25/11

S.05.14

SHEET SIZE: A3

6 DIGESTER TANK BASE

Sheet List

SL. No.	Sheet Number	Sheet Name
1	S.06.00	Cover
2	S.06.01	Digester Tank Base Plan
3	S.06.02	Digester Plant Base Section

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

Memelhaka, Thimphu

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

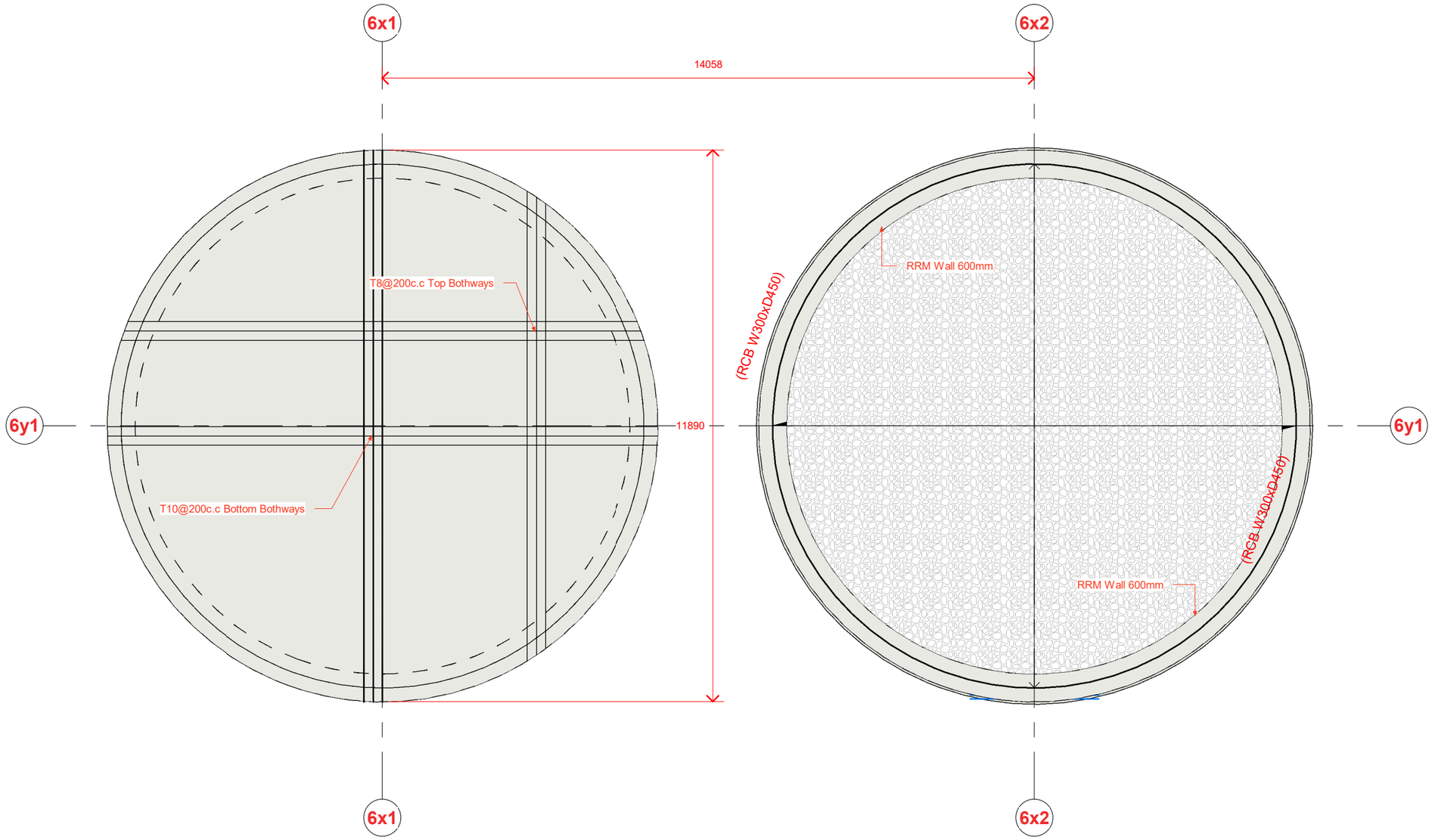
NAMGAY DORJEE

Civil Engineer

Date:10 October 2025

Work No.:NSS-25/15

Sheet Size A3



Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram no. 1812, Plot No. CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelhaka, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Digester Tank Base Plan

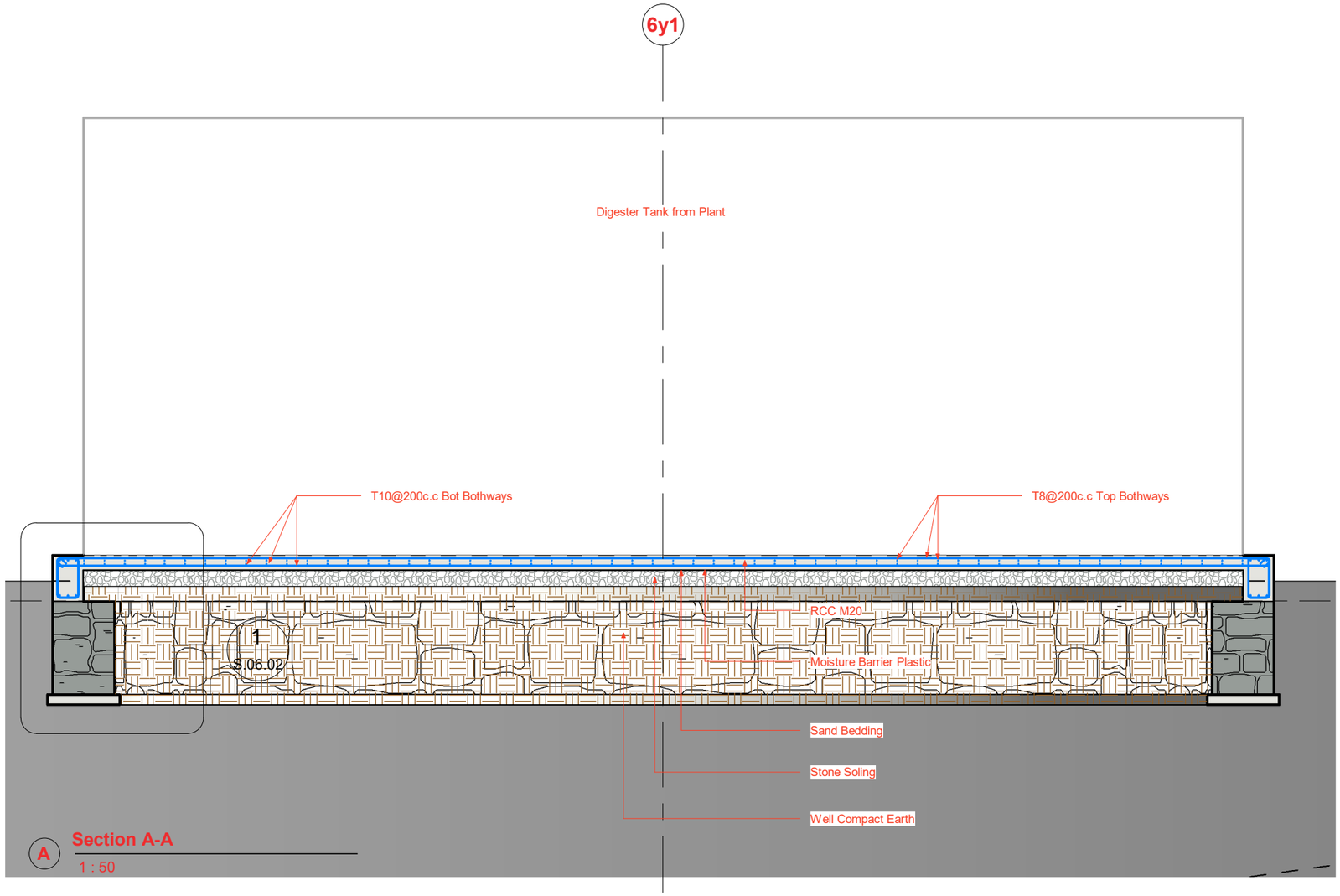
Scale: 1 : 100

Date: 10October 2025

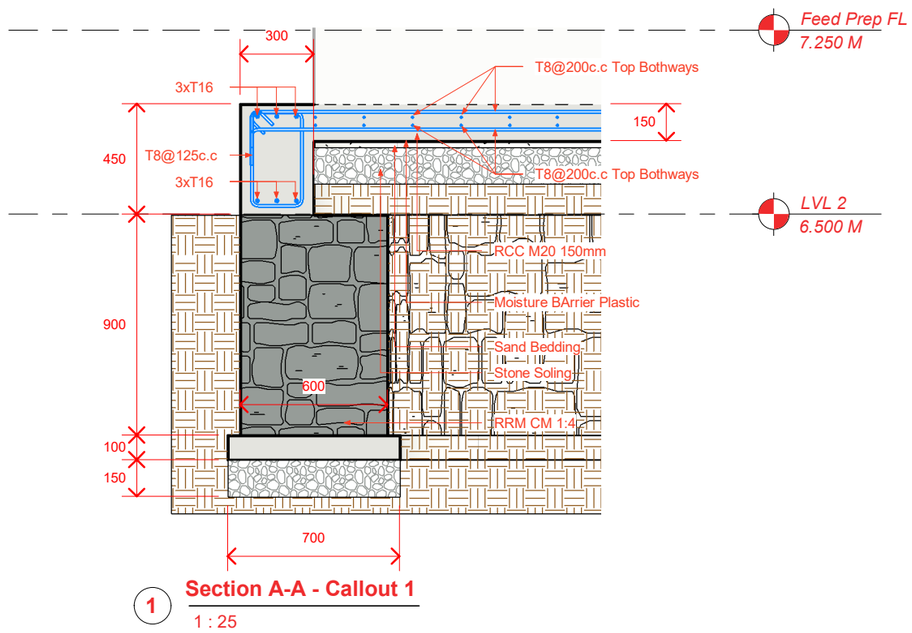
Work No.: NSS-25/15

S.06.01

SHEET SIZE: A3



A **Section A-A**
1 : 50



1 **Section A-A - Callout 1**
1 : 25

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram no. 1812, Plot No. CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Memelhaka, Thimphu

DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Digester Plant Base Section

Scale: As indicated
Date: 10October 2025
Work No.: NSS-25/15

S.06.02
SHEET SIZE: A3

7 DIGEST HANDLING UNIT

Sheet List

Sl. No.	Sheet Number	Sheet Name
1	S.07.00	Cover
2	S.07.01	Footing and Pedestal Plan
3	S.07.02	Pedestal and Footing Details
4	S.07.03	Column Planm and Details
5	S.07.04	Beam Plan
6	S.07.05	Truss and Purline PLan
7	S.07.06	Frame Section
8	S.07.07	Frame Section
9	S.07.08	Digest Handling Tank

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

Thimphu

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

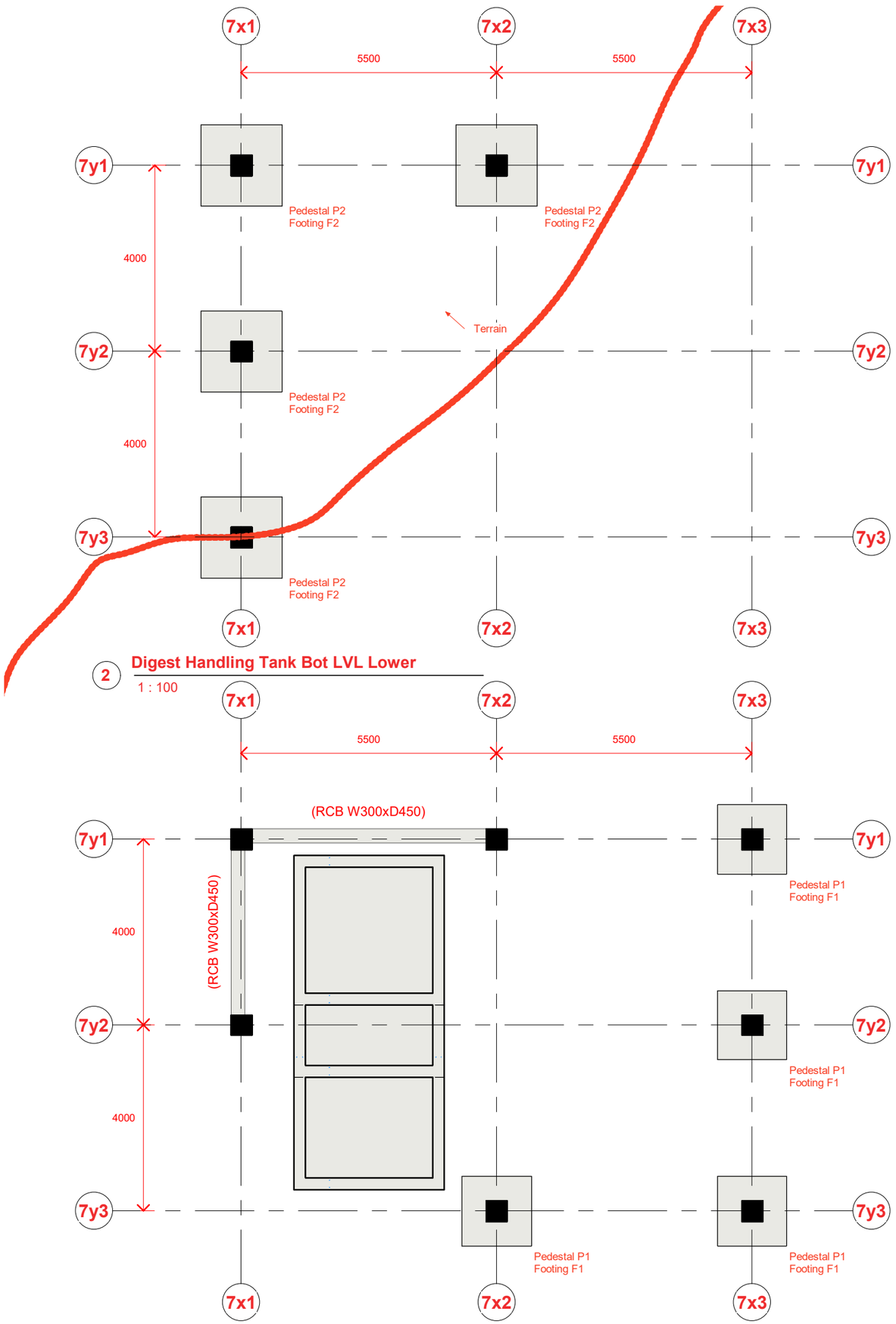
NAMGAY DORJEE

Civil Engineer

Date:10 October 2025

Work No.:NSS-25/15

Sheet Size A3



2 **Digest Handling Tank Bot LVL Lower**

1 : 100

1 **Digest Handling Tank Bot LVL**

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY
DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Footing and Pedestal Plan

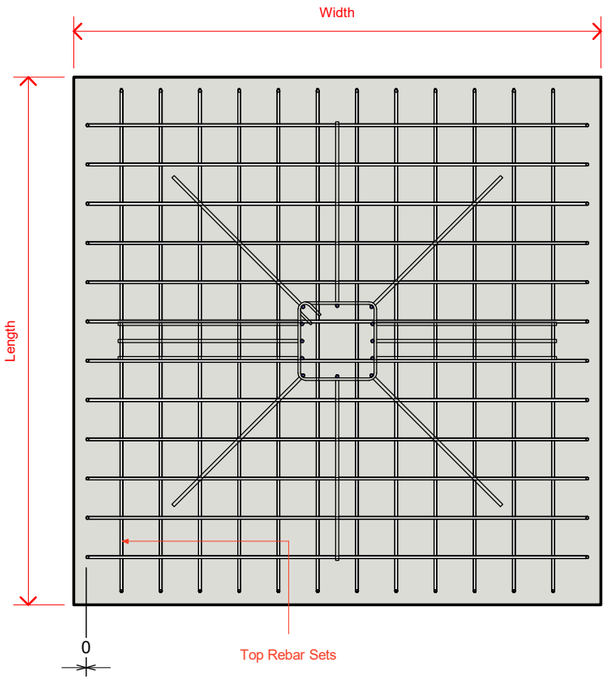
Scale: 1 : 100

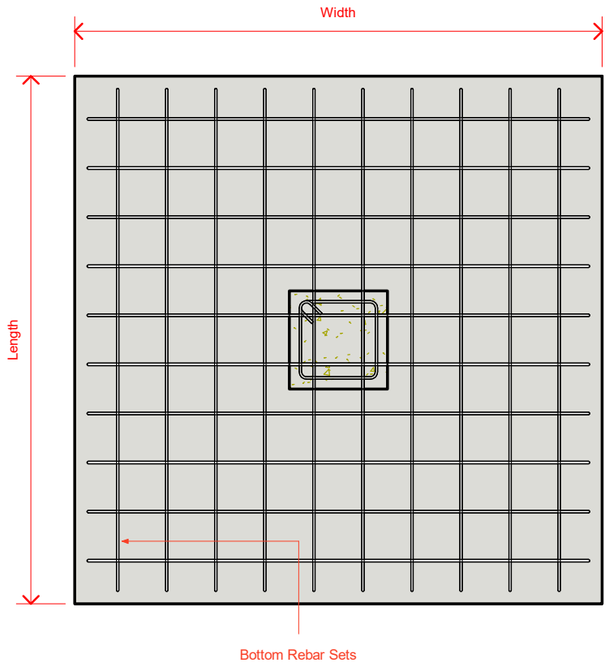
Date: 10 October 2025

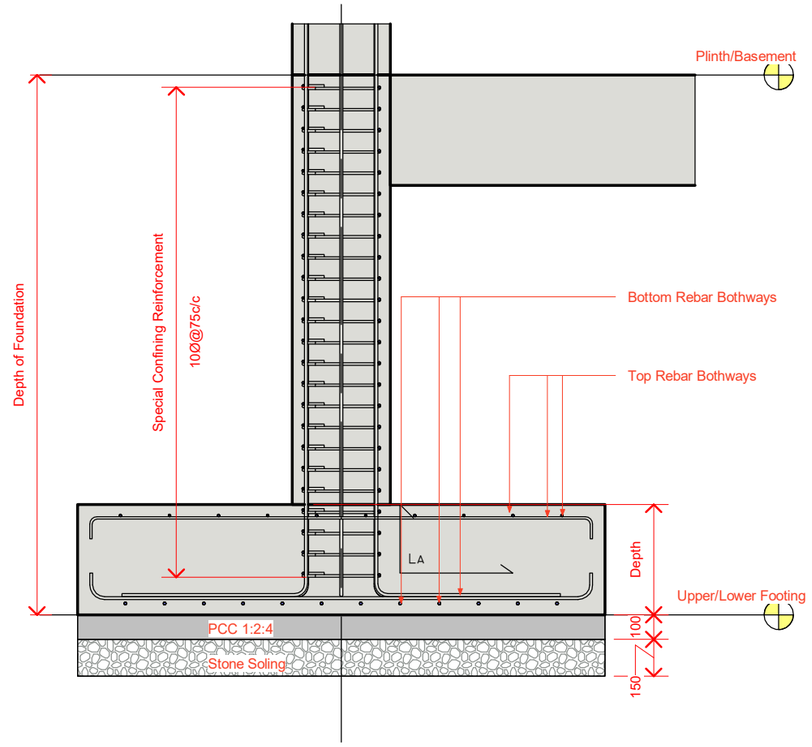
Work No.: NSS-25/15

S.07.01

SHEET SIZE: A3







1 Isolated Footing Details

1 : 25

Sl. No.	Member	Depth in mm	Length in mm	Width in mm	Bot rebar Bothways	Top rebar Bothways
1.	RC PAD F1	350	1500	1500	T10 @ 160 c/c	T10 @ 160 c/c
2.	RC PAD F2	400	2000	1500	T12 @ 200 c/c	T12 @ 200 c/c

2 Footing Schedule

1 : 30

Foundation Notes:

1.Proper Shuttering shall be provided for foundation slab.

2.All materials used for RCC works shall confirm to IS-456-2000.

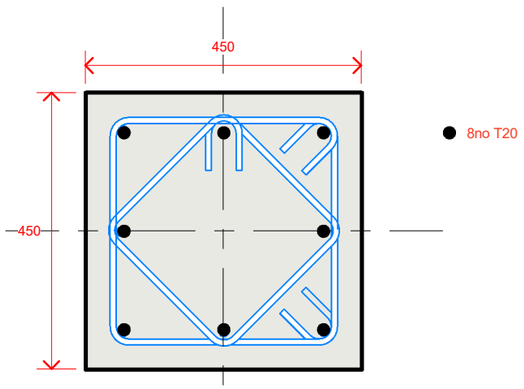
3. Design **SBC=150kN/sq.m.**

4.Footing shall be placed at **1500mm** (minimum)below the original ground level.

5.Concrete-**M20** as per IS:456

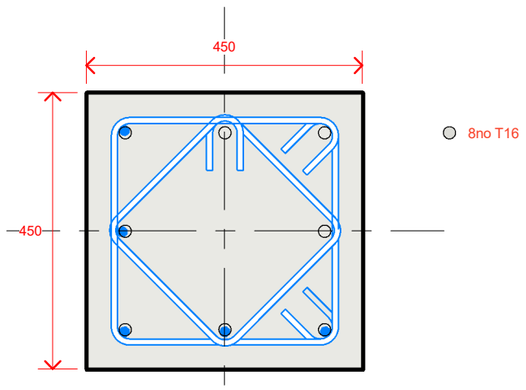
6.Rebar- **Fe500** as per IS:456

7. Clear Cover of **50mm** shall be provided.



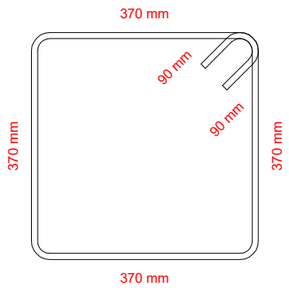
3 Pedestal P2

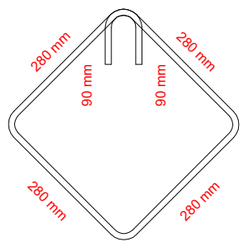
1 : 10



4 Pedestal P1

1 : 10





Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Pedestal and Footing Details

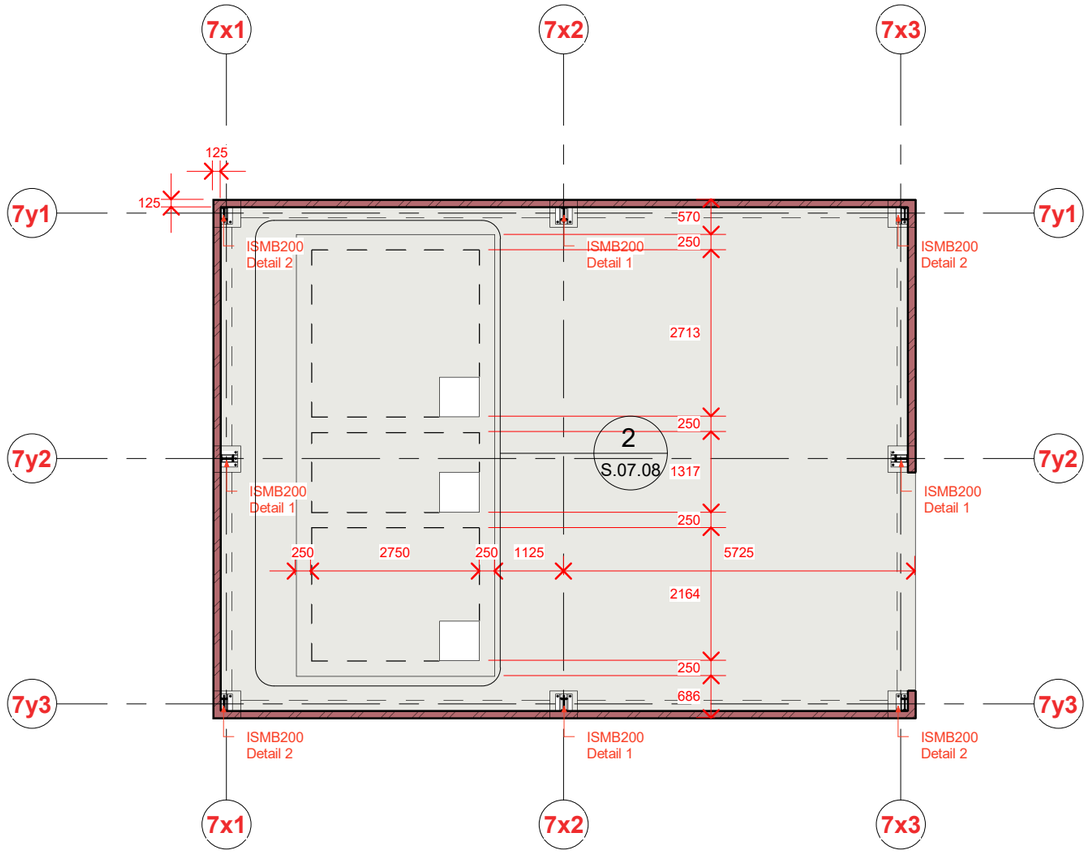
Scale: As indicated

Date: 10 October 2025

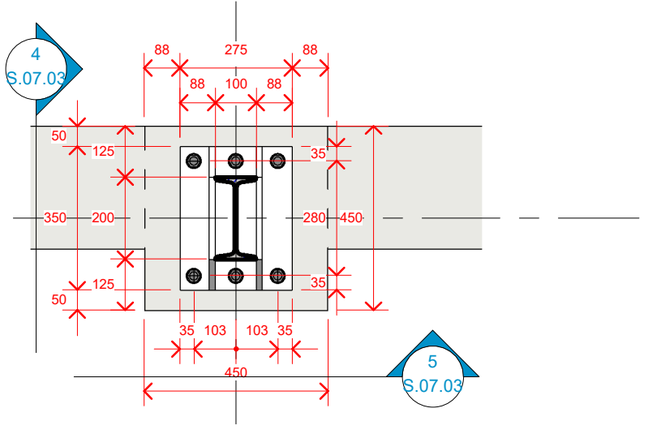
Work No.: NSS-25/15

S.07.02

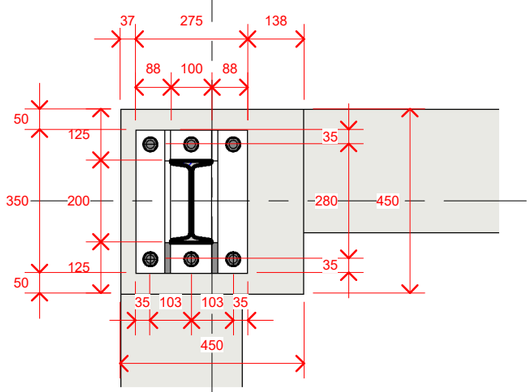
SHEET SIZE: A3



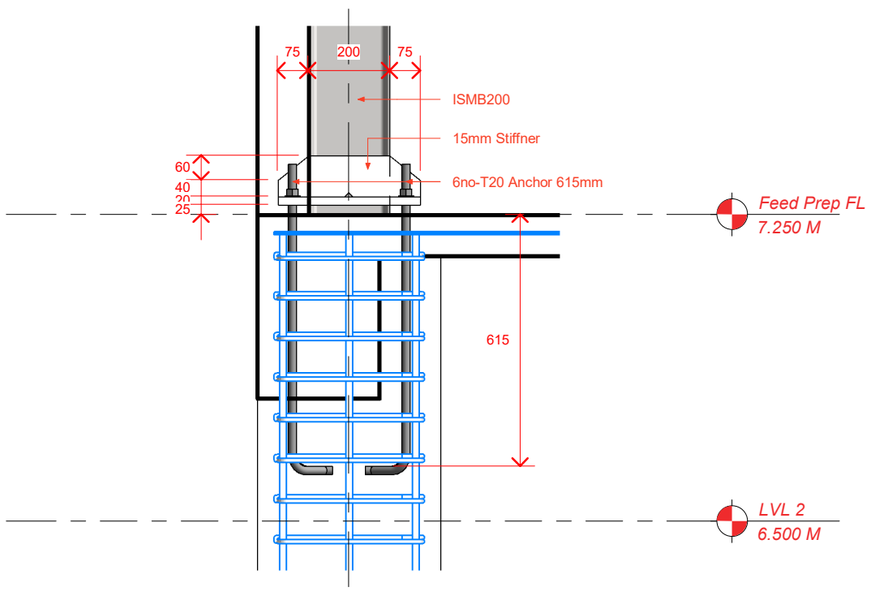
1 **Digest Handling FL**
1 : 100



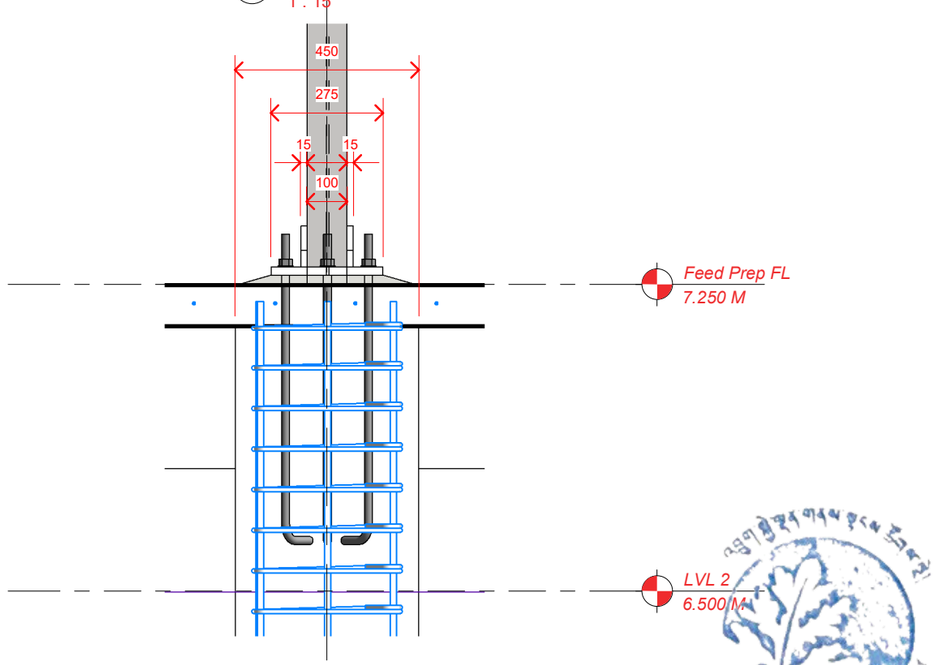
2 **ISMB 200 Detail 1**
1 : 15



3 **ISMB 200 Detail 2**
1 : 15



4 **Section 4-4**
1 : 15



5 **Section 5-5**
1 : 15

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Thimphu

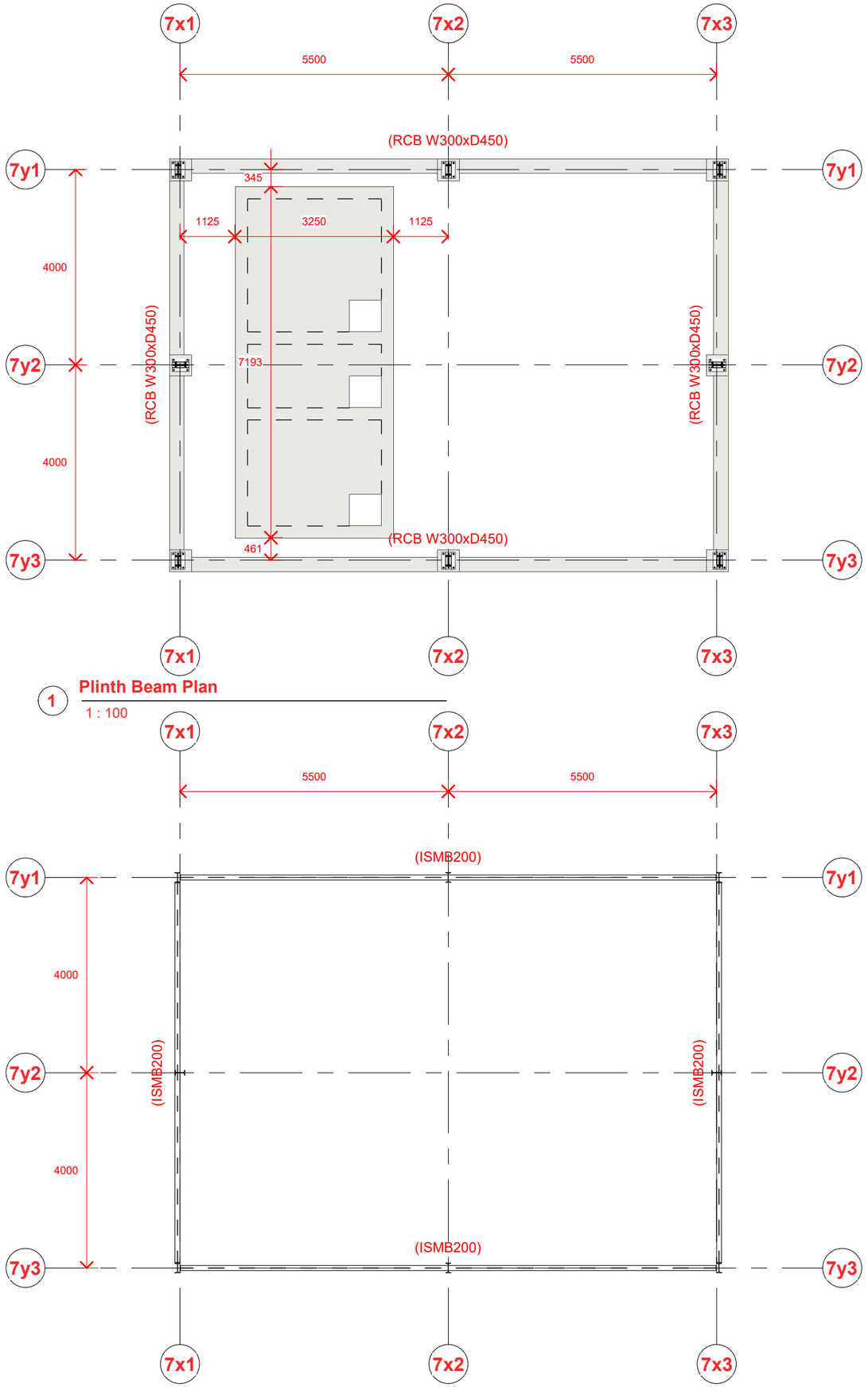
DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Column Planm and Details

Scale: As indicated
Date: 10 October 2025
Work No.: NSS-25/15

S.07.03
SHEET SIZE: A3

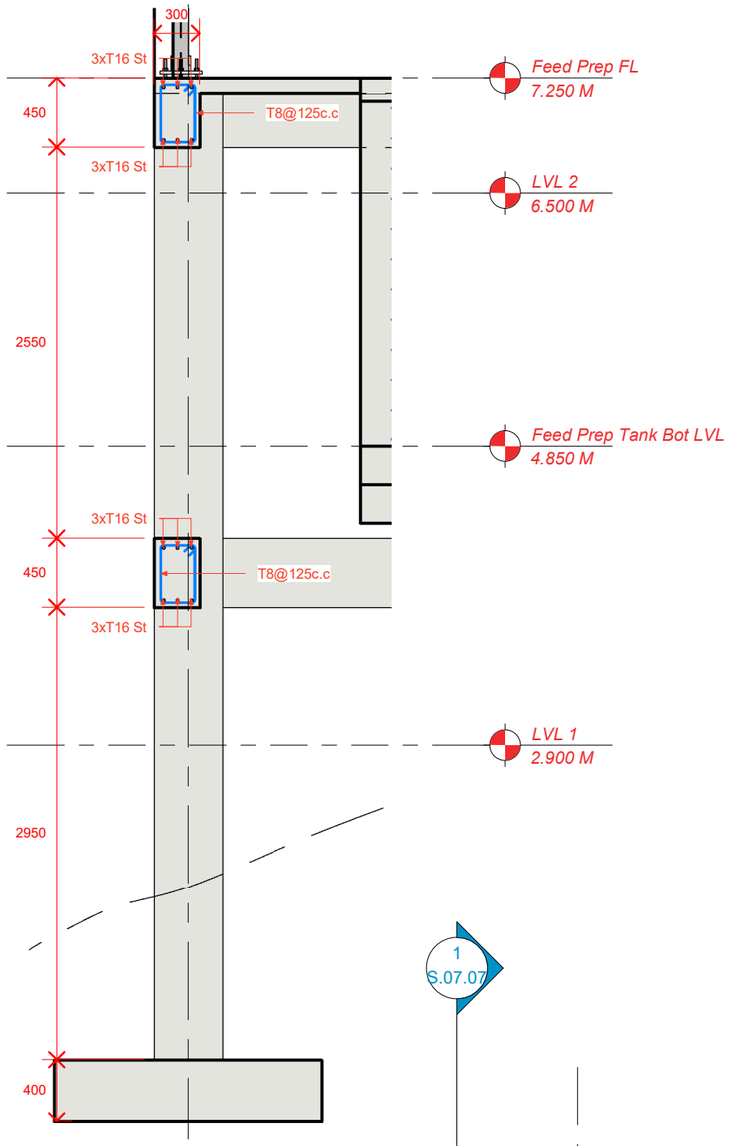


1 **Plinth Beam Plan**

1 : 100

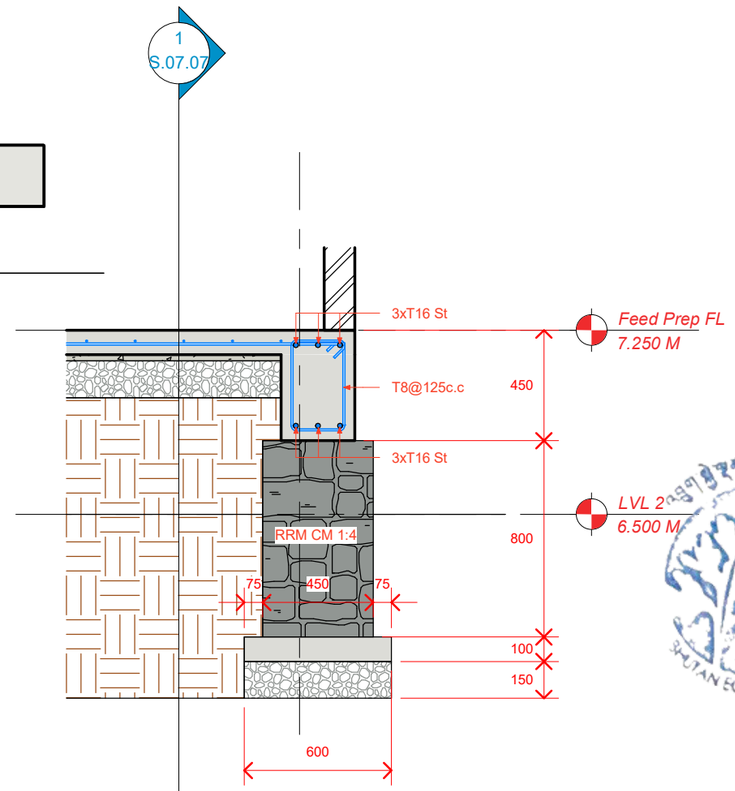
2 **Digest Handling Unit Ceiling**

1 : 100



B **Beam Section B-B**

1 : 40



A **Beam Section A-A**

1 : 25

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Beam Plan

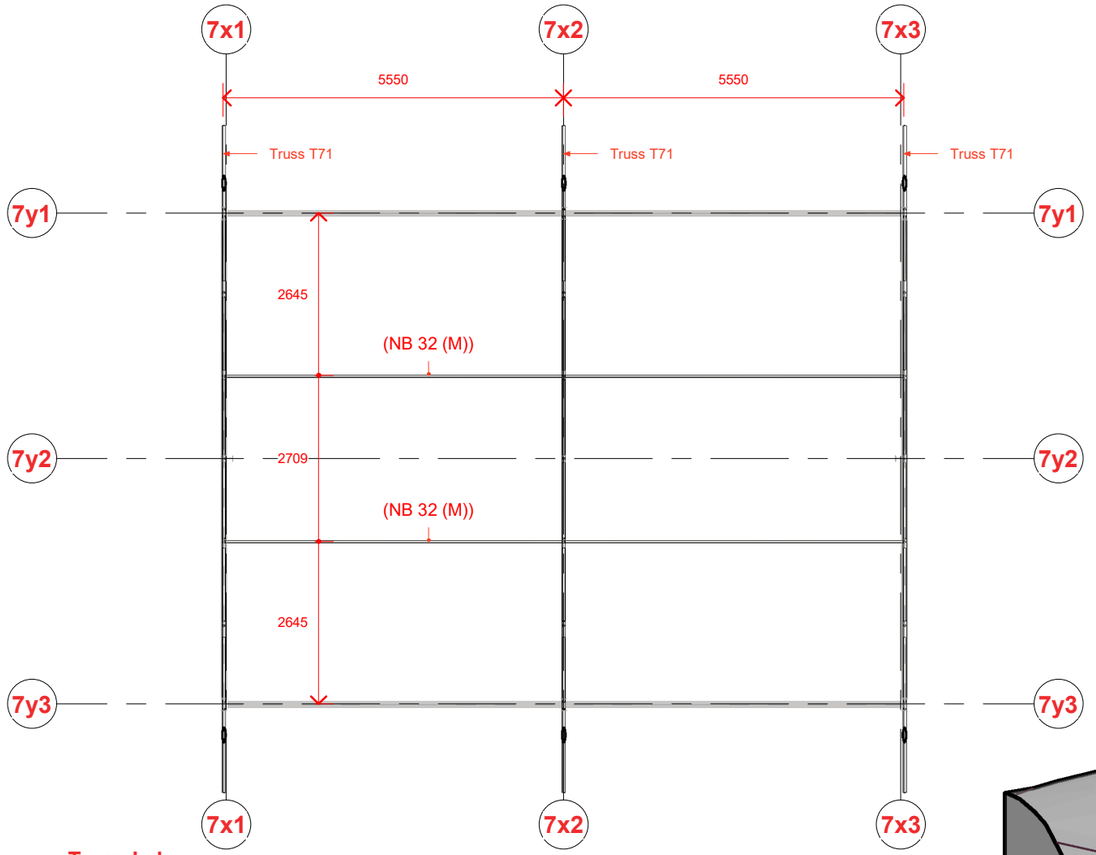
Scale: As indicated

Date: 10 October 2025

Work No.: NSS-25/15

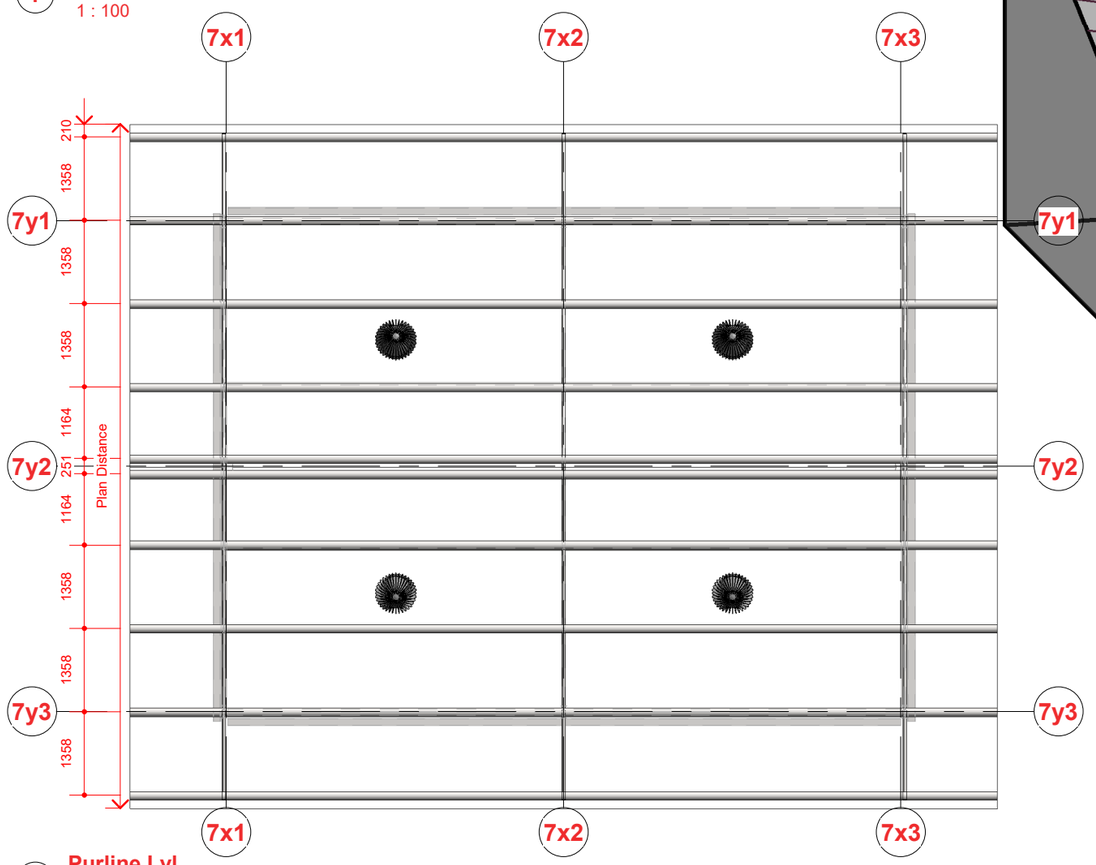
S.07.04

SHEET SIZE: A3



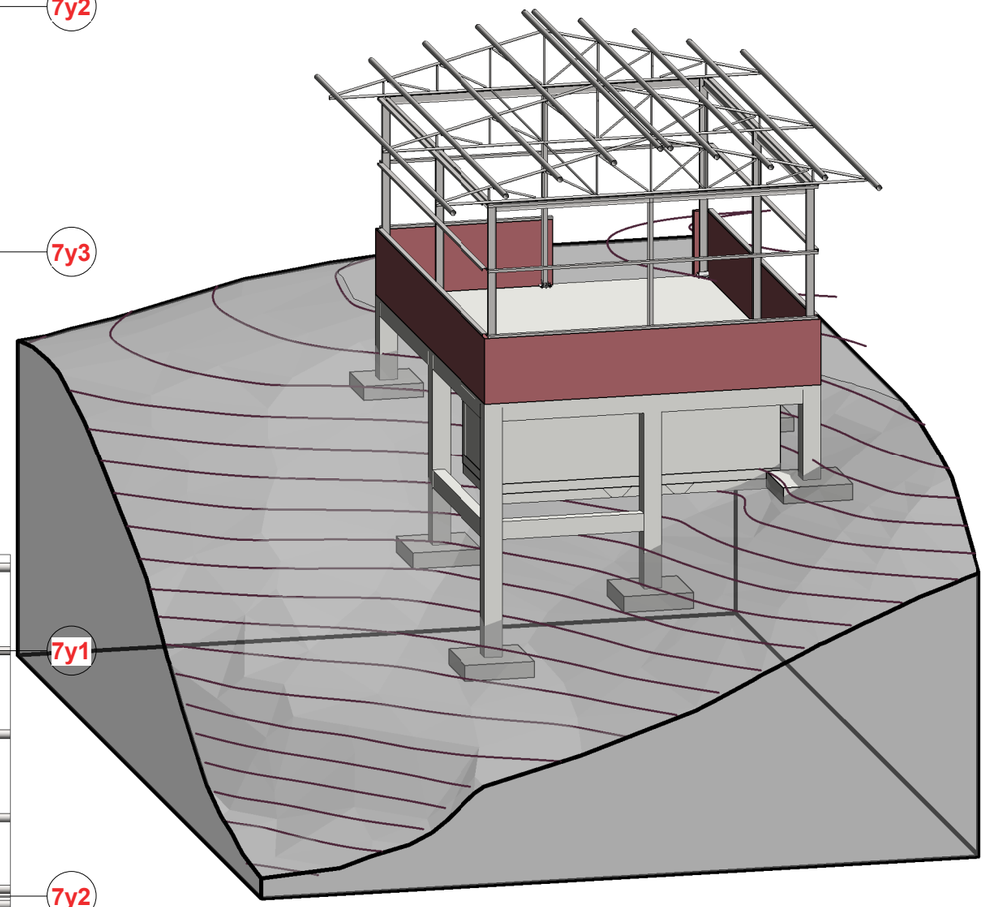
1 **Truss Lvl**

1 : 100



2 **Purline Lvl**

1 : 100



3 **{3D}**

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Truss and Purline PLan

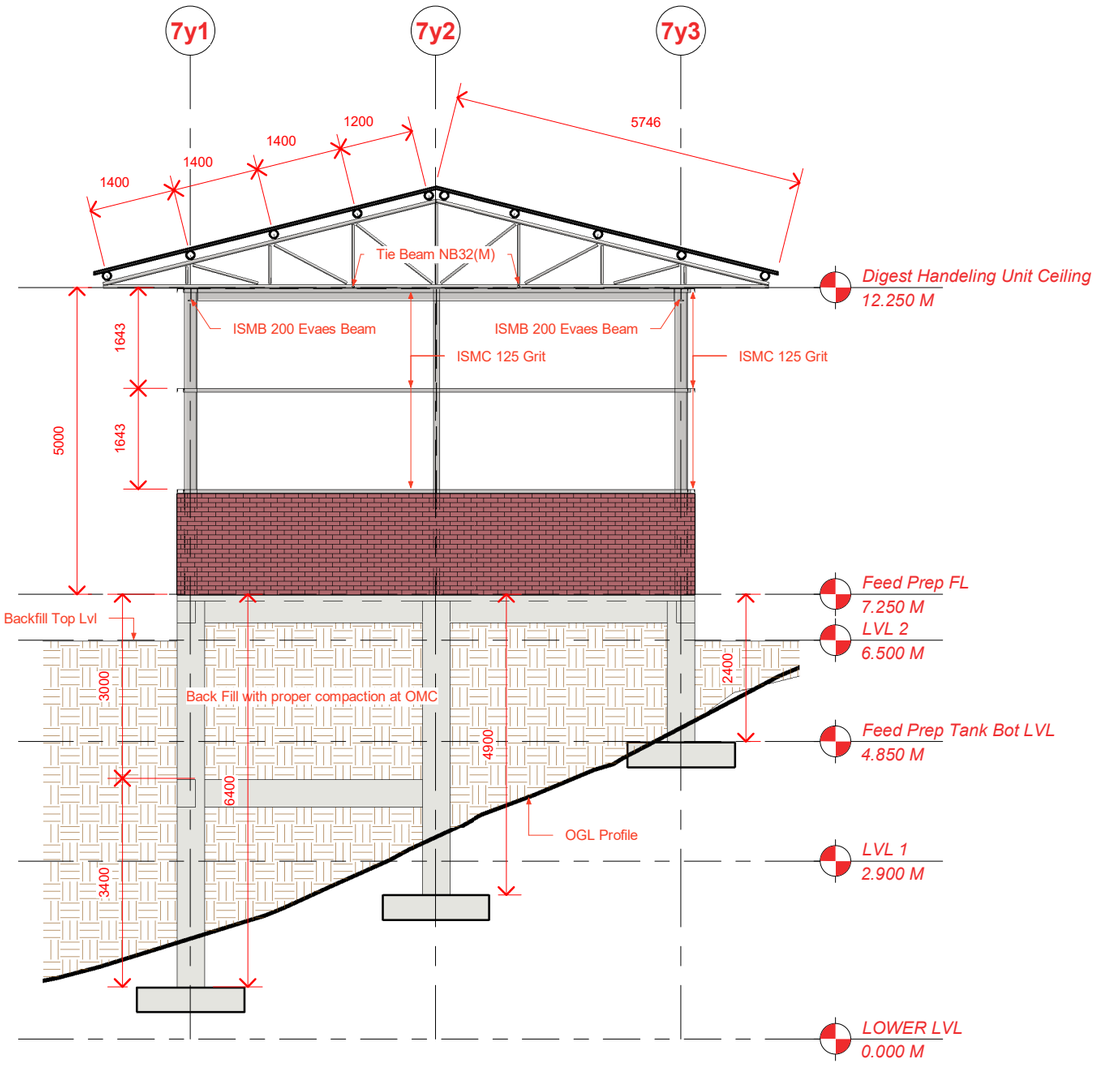
Scale: 1 : 100

Date: 10 October 2025

Work No.: NSS-25/15

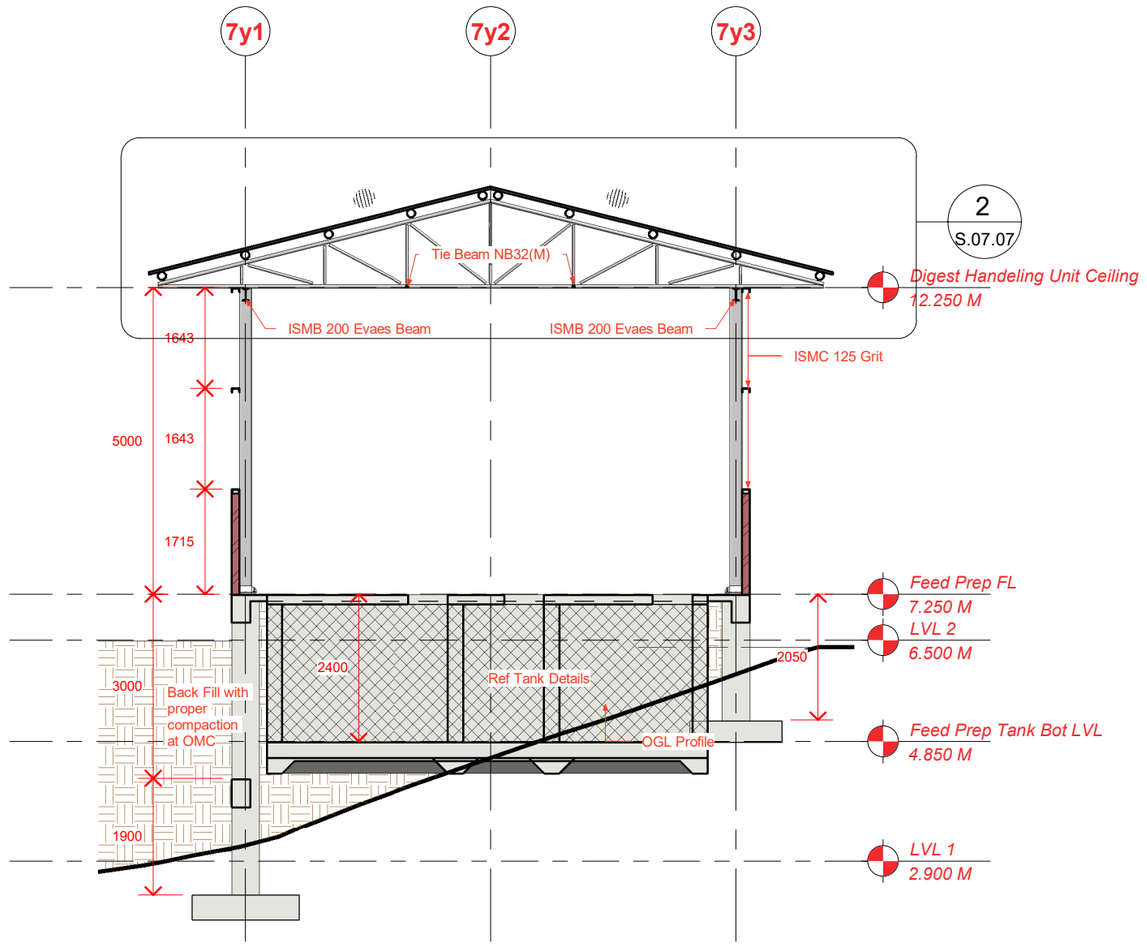
S.07.05

SHEET SIZE: A3



1 **Section 7x1**

1 : 100



2 **Section 7x2**

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Section

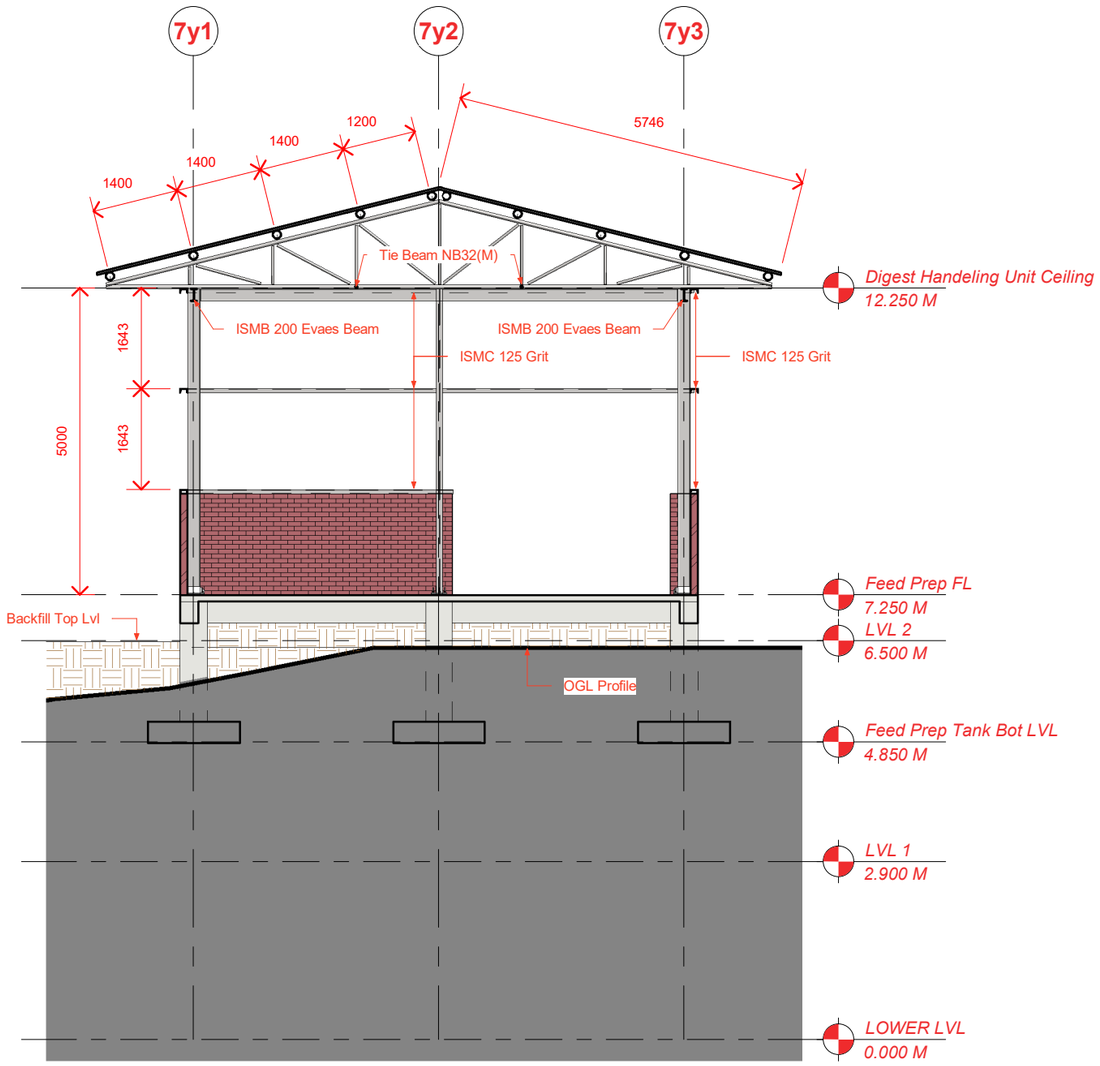
Scale: 1 : 100

Date: 10 October 2025

Work No.: NSS-25/15

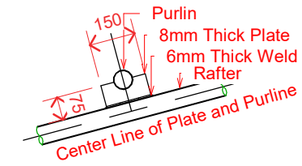
S.07.06

SHEET SIZE: A3

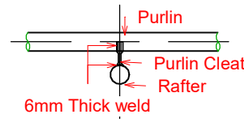


1 **Section 7x3**

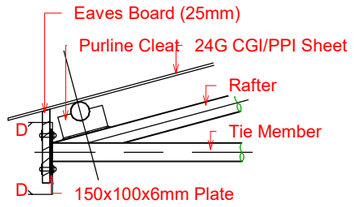
1 : 100



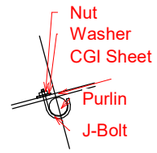
Purline Cleat Fixing Details



Connection of Purline to Rafter



Eaves Board Connection Detail

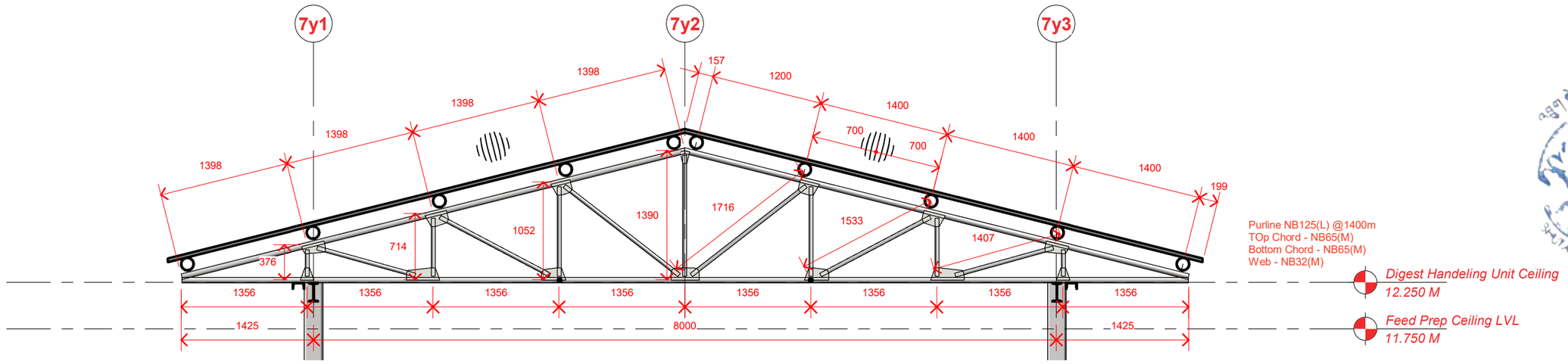


Connection of CGI Sheet to Purlin

Note:
1.Refer Section for COlumn Height
2. All members of the truss joint shall be in welding
3.Fabrication of truss must be done at site
4.Welding shall confirm to IS 816-1989 and thickness shall be 6 mm
5. All steel tube section and plates shall confirm to IS 1161-1968 & IS 2062-1984
6.All MS Nust & bolts shall confirm to IS 1363-1984 and Washers shall confirm to IS 5374-1975

3 **Truss Joint Details**

1 : 20



2 **Section 7x2 - Callout 1**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Section

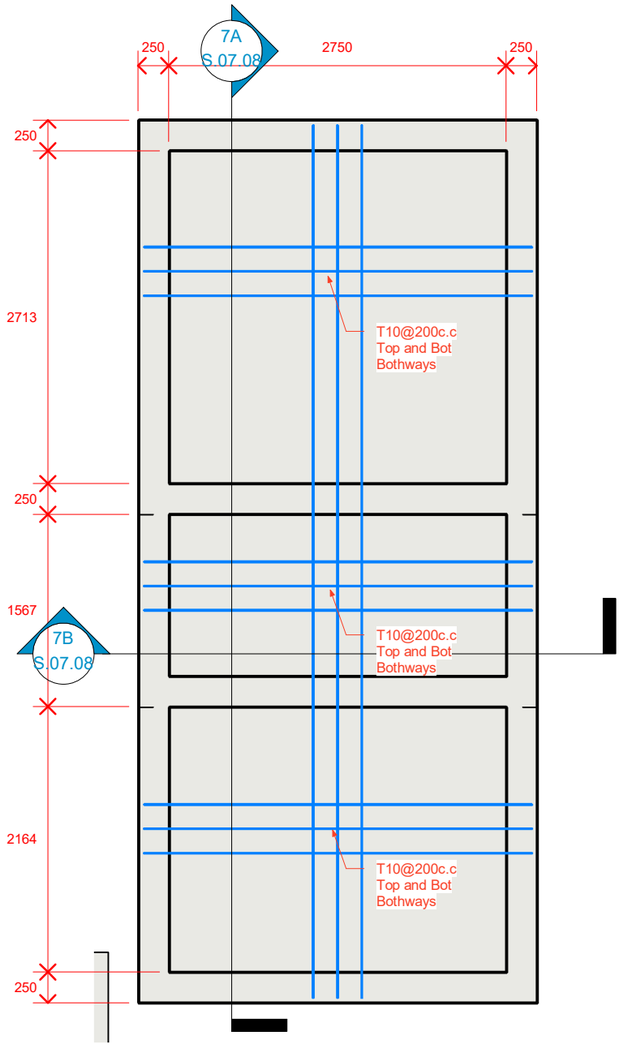
Scale: As indicated

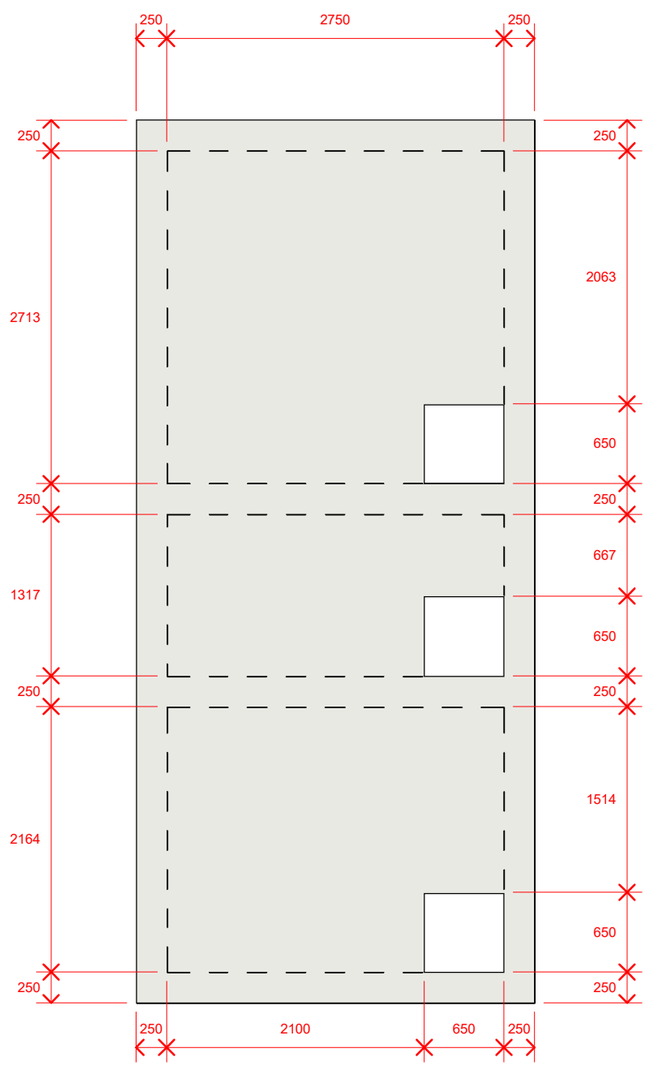
Date: 10 October 2025

Work No.: NSS-25/15

S.07.07

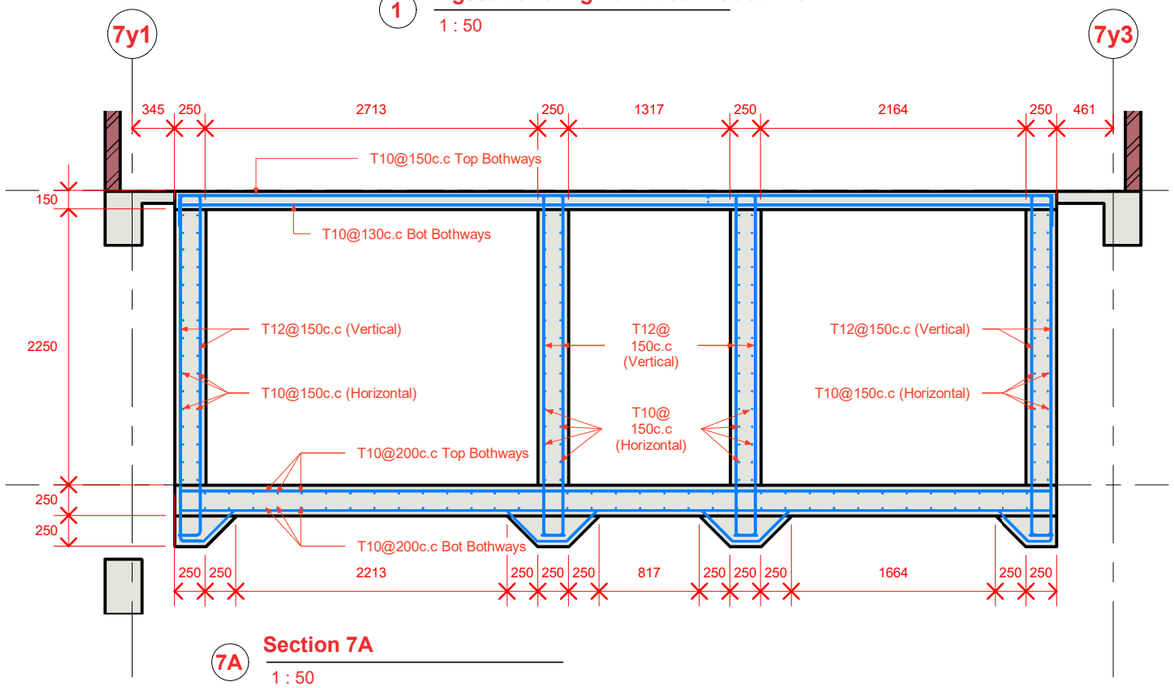
SHEET SIZE: A3





1 Digest Handling Tank Foundation Plan

1 : 50

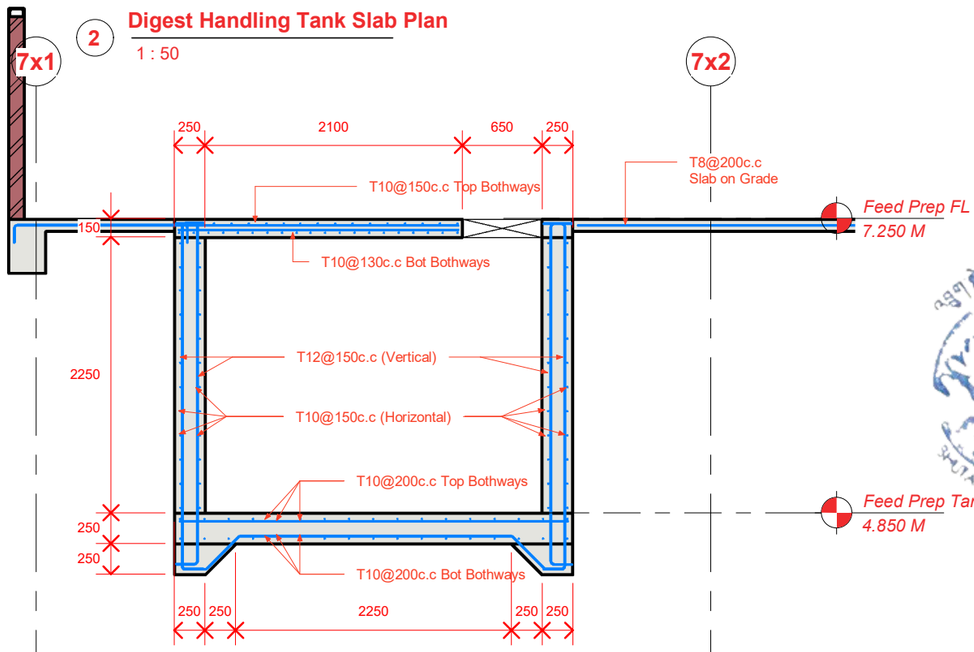


7A Section 7A

1 : 50

2 Digest Handling Tank Slab Plan

1 : 50



7B Section 7B

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Digest Handling Tank

Scale: 1 : 50

Date: 10 October 2025

Work No.: NSS-25/15

S.07.08

SHEET SIZE: A3

9 NITROGEN FIXATION TANK

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

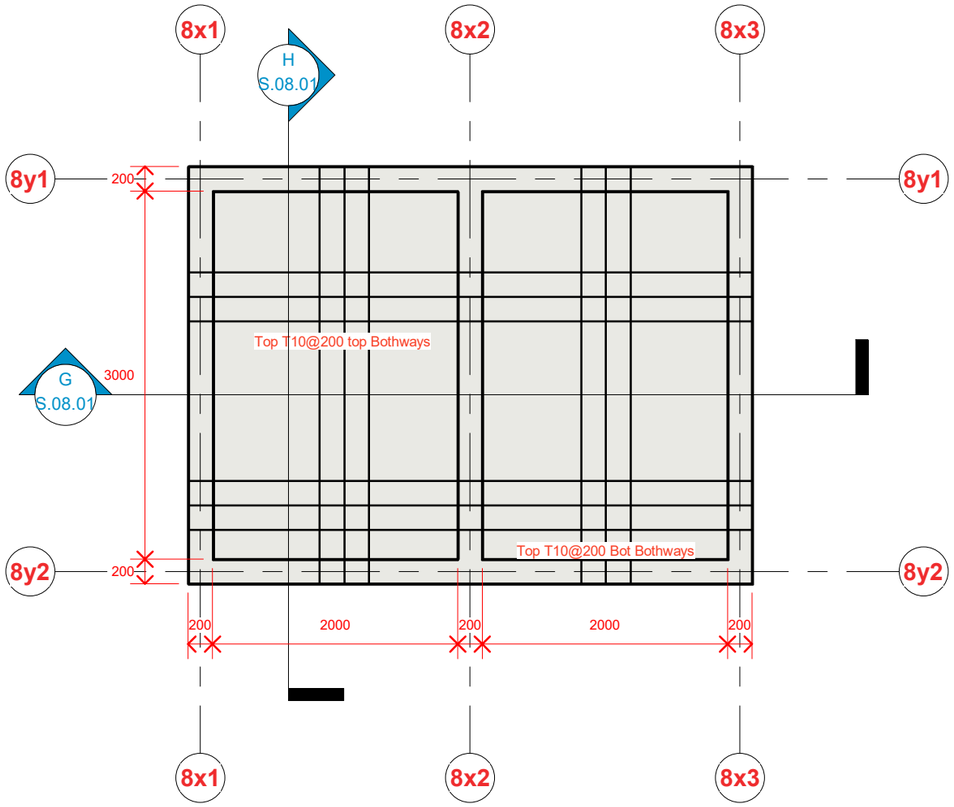
Memelakha, Thimphu

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

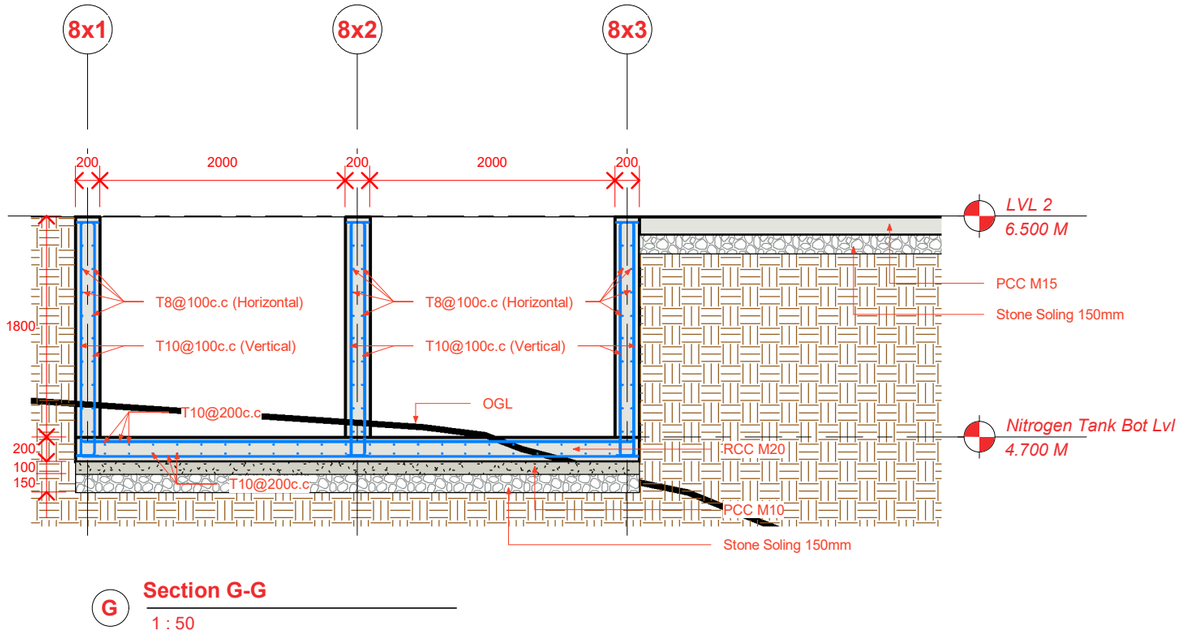
NAMGAY DORJEE
Civil Engineer

Date:10 October 2025
Work No.:NSS-25/15
Sheet Size A3



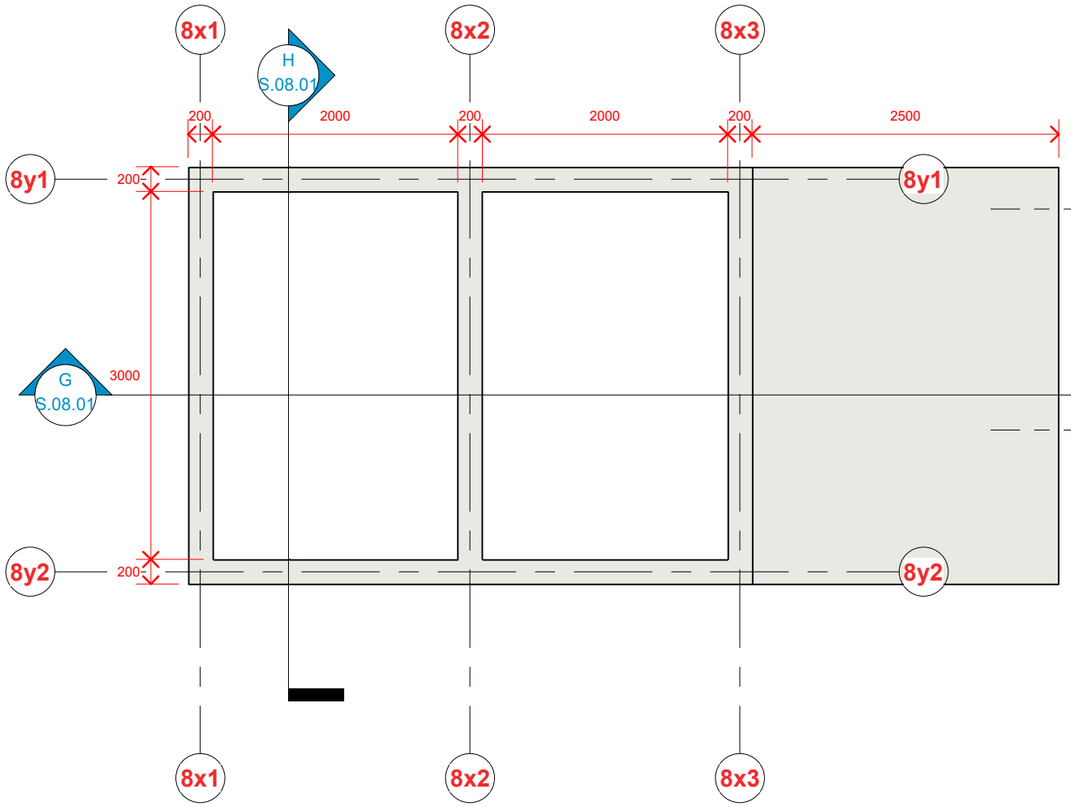
2 **Nitrogen Tank Bot Lvl**

1 : 50



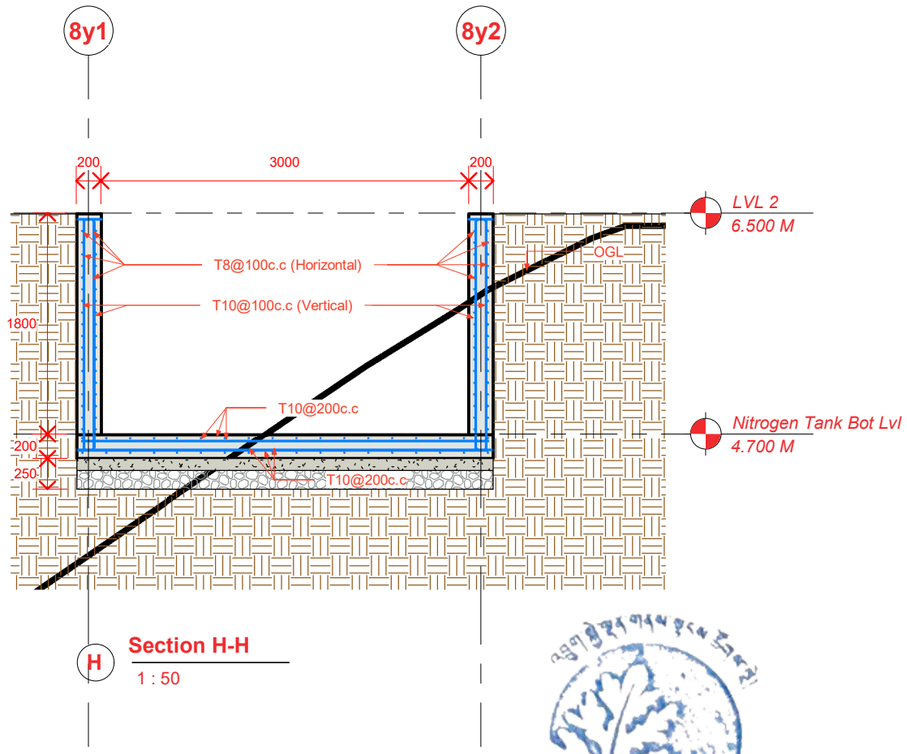
G **Section G-G**

1 : 50



1 **Nitrogen Tank Top**

1 : 50



H **Section H-H**

1 : 50

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Nitrogen Fixation Tank Plan and Section

Scale: 1 : 50

Date: 10 October 2025

Work No.: NSS-25/15

S.08.01

SHEET SIZE: A3

9 BOTTLING UNIT

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

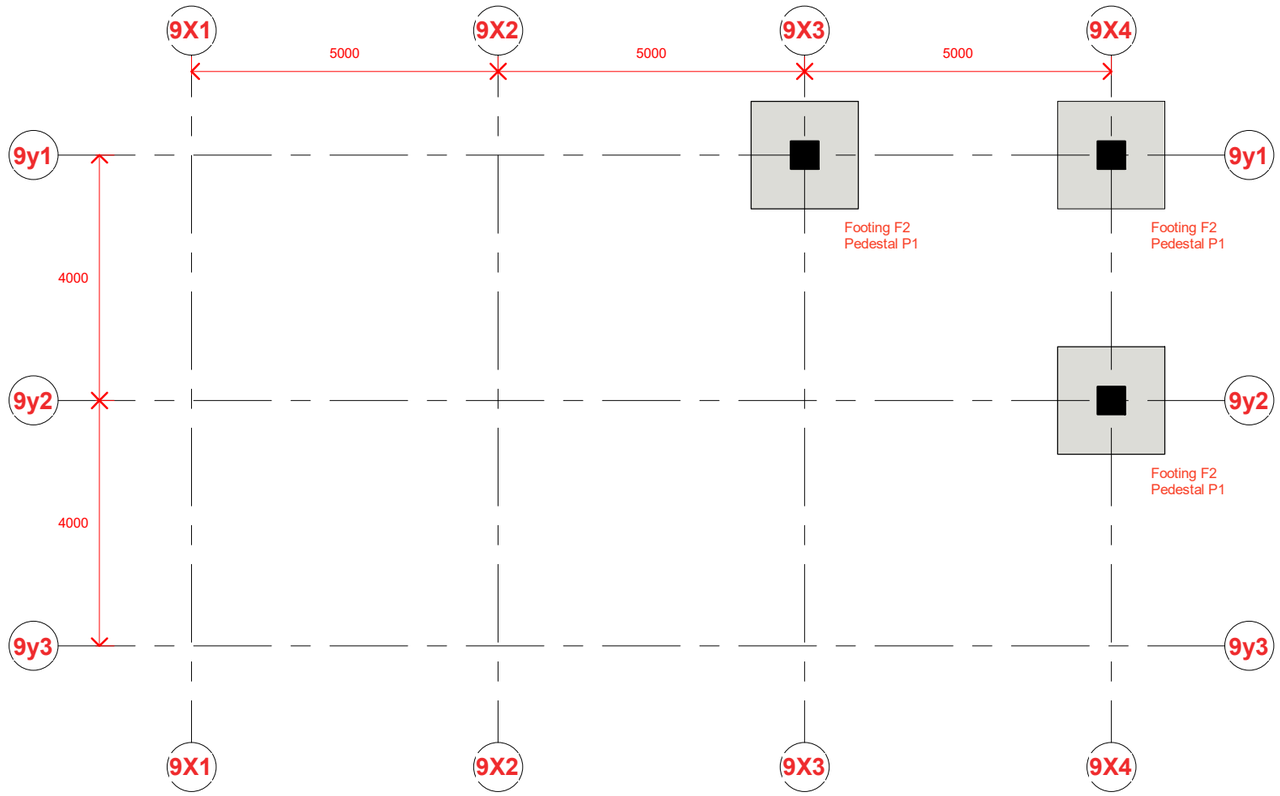
Memelakha, Thimphu

CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

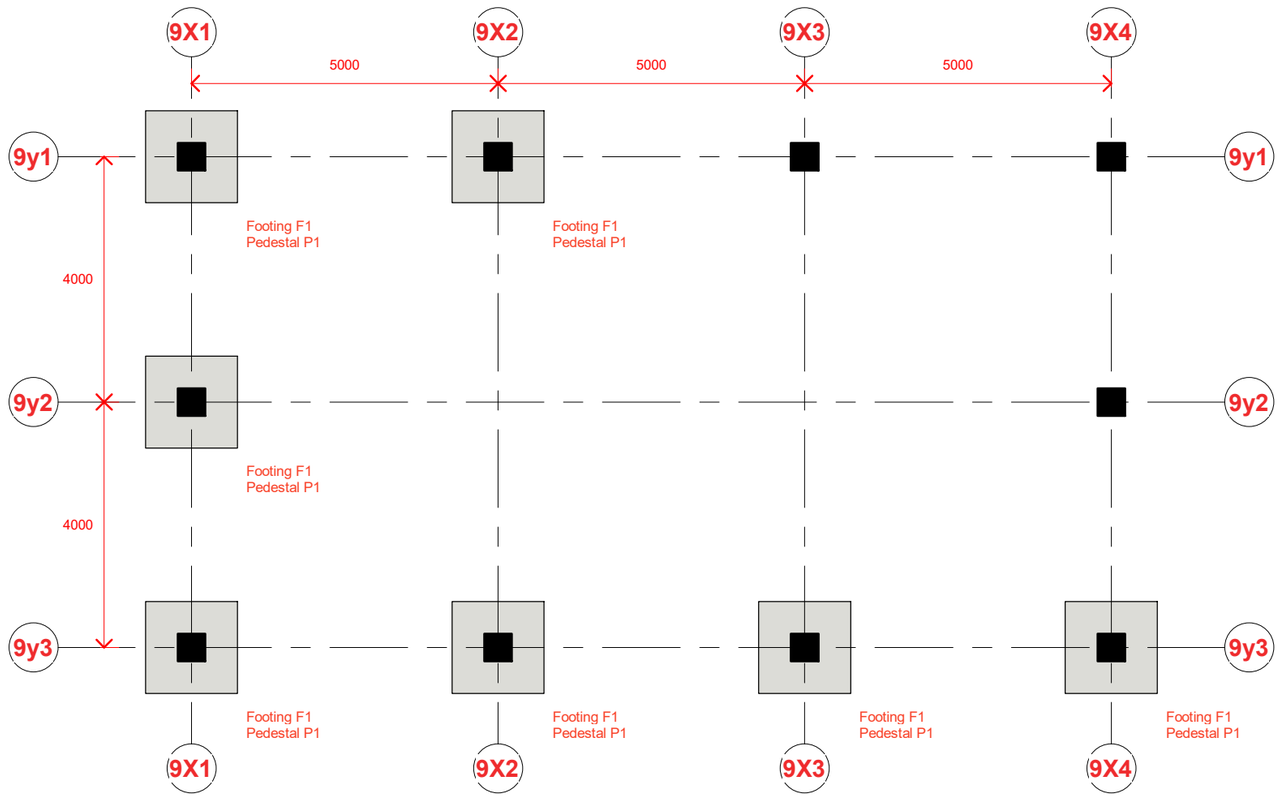
NAMGAY DORJEE
Civil Engineer

Date:10 October 2025
Work No.:NSS-25/15
Sheet Size A3



2 Bottling Unit Fund Lower Lvl

1 : 100



1 Bottling Unit Fund

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Footing and Pedestal Plan

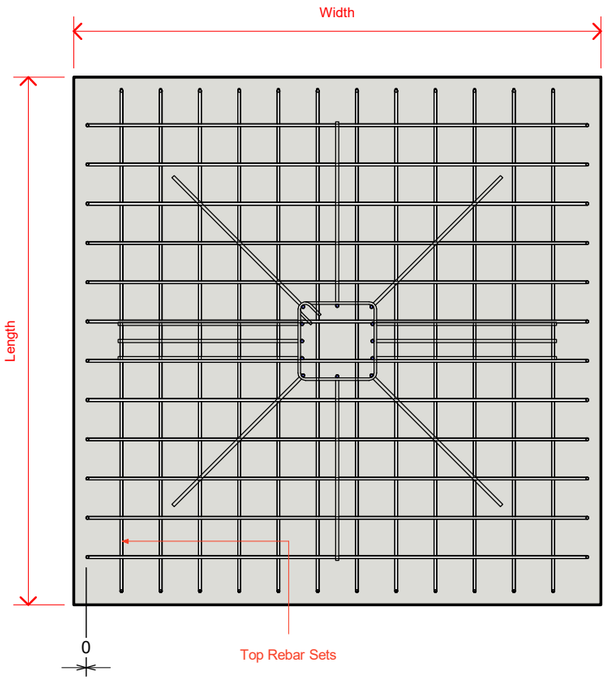
Scale: 1 : 100

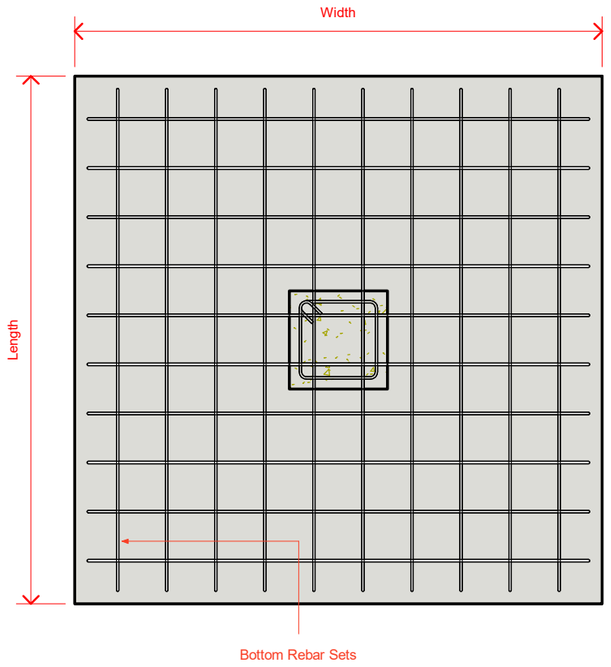
Date: 10 October 2025

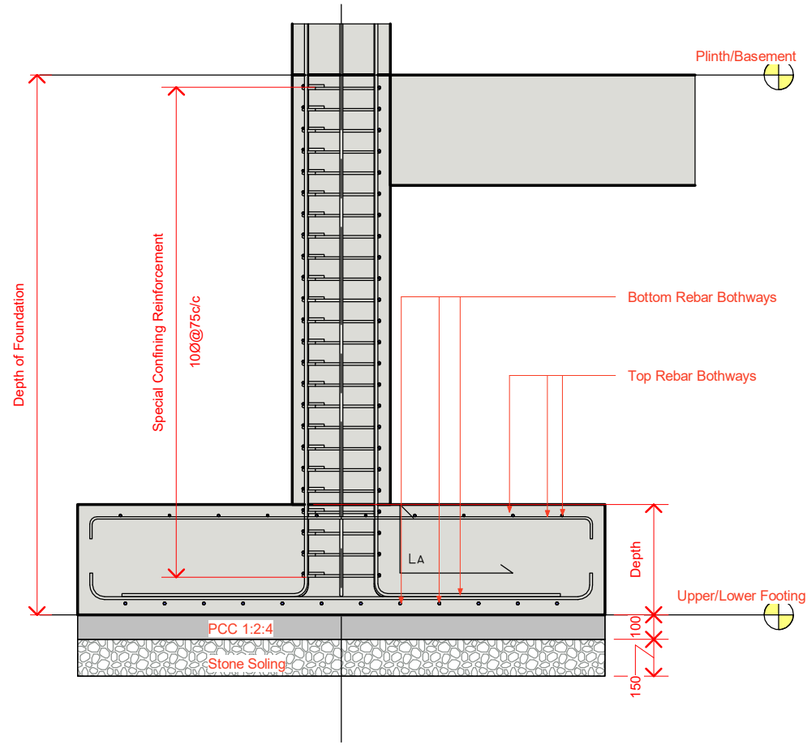
Work No.: NSS-25/15

S.09.01

SHEET SIZE: A3







1 Isolated Footing Details

1 : 25

Sl. No.	Member	Depth in mm	Length in mm	Width in mm	Bot rebar Bothways	Top rebar Bothways
1.	RC PAD F1	350	1500	1500	T10 @ 160 c/c	T10 @ 160 c/c
2.	RC PAD F2	400	2000	1500	T12 @ 200 c/c	T12 @ 200 c/c

2 Footing Schedule

1 : 30

Foundation Notes:

1.Proper Shuttering shall be provided for foundation slab.

2.All materials used for RCC works shall confirm to IS-456-2000.

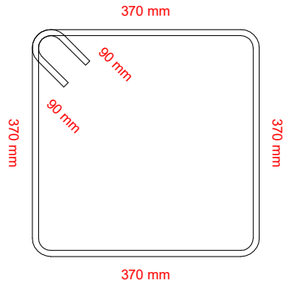
3. Design **SBC=150kN/sq.m.**

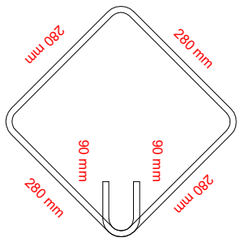
4.Footing shall be placed at **1500mm** (minimum)below the original ground level.

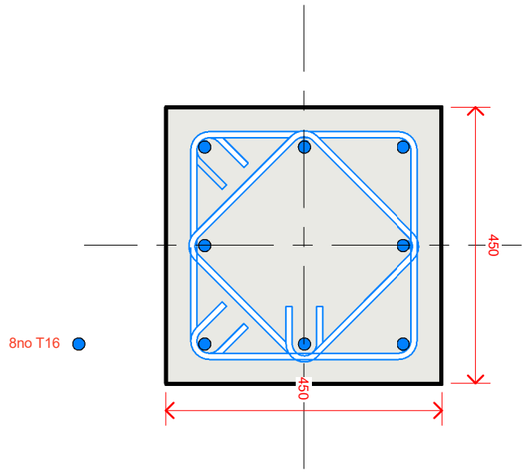
5.Concrete-**M20** as per IS:456

6.Rebar- **Fe500** as per IS:456

7. Clear Cover of **50mm** shall be provided.







4 Pedestal P1

1 : 10

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Pedestal and Footing Details

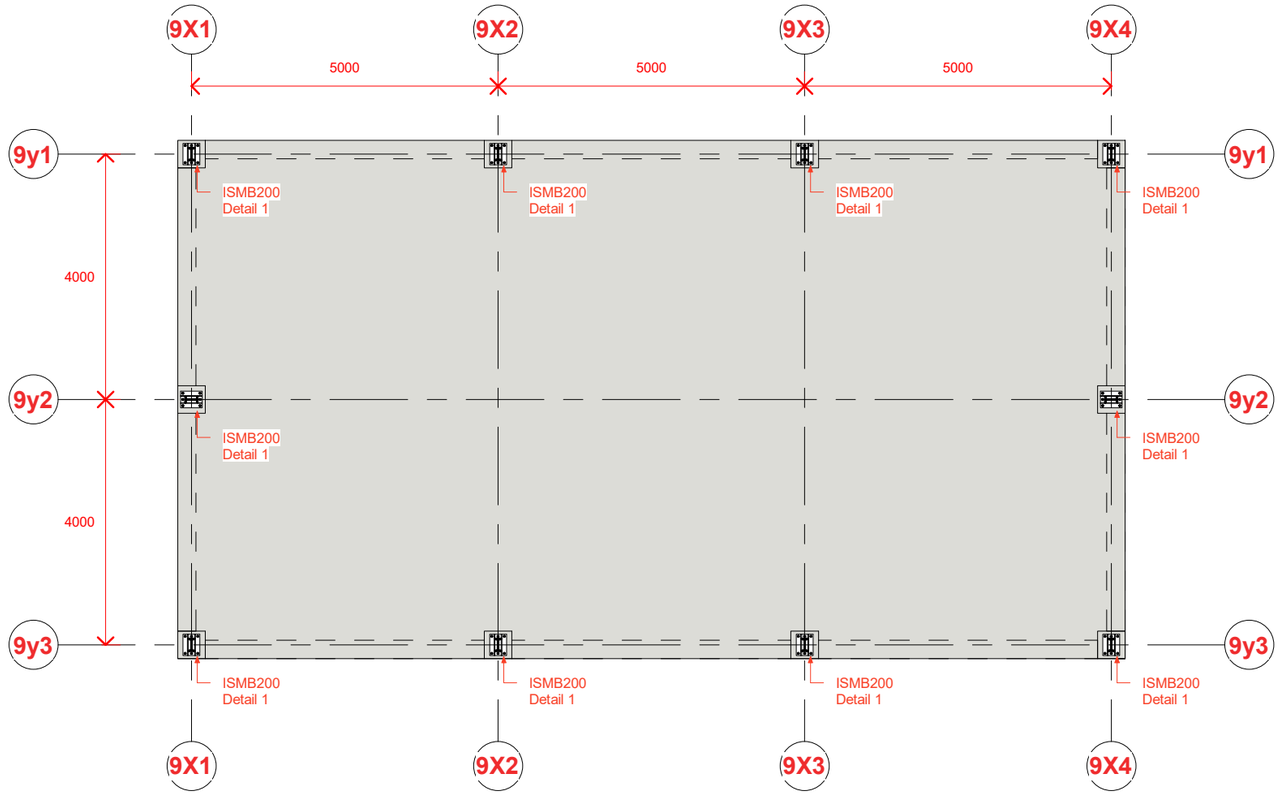
Scale: As indicated

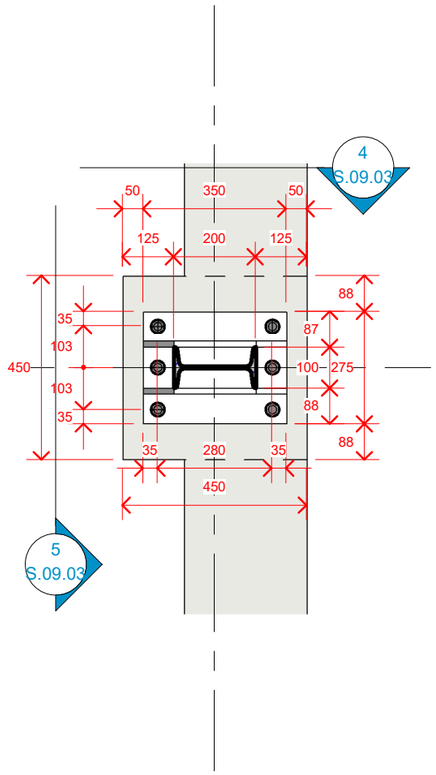
Date: 10 October 2025

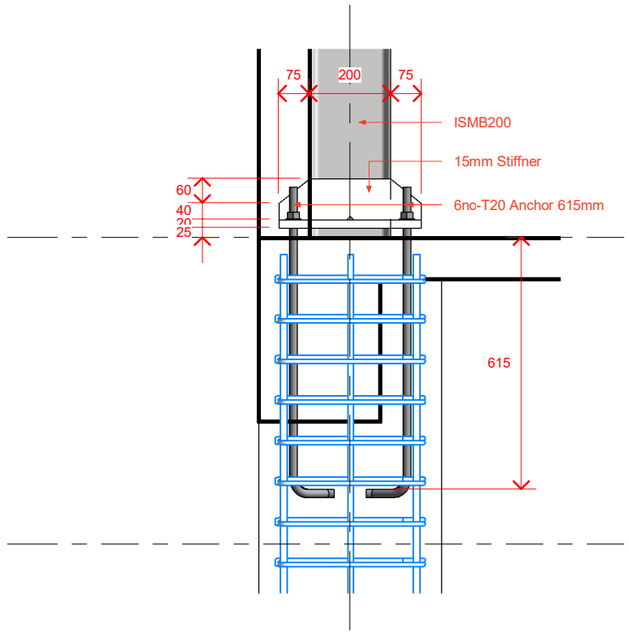
Work No.: NSS-25/15

S.09.02

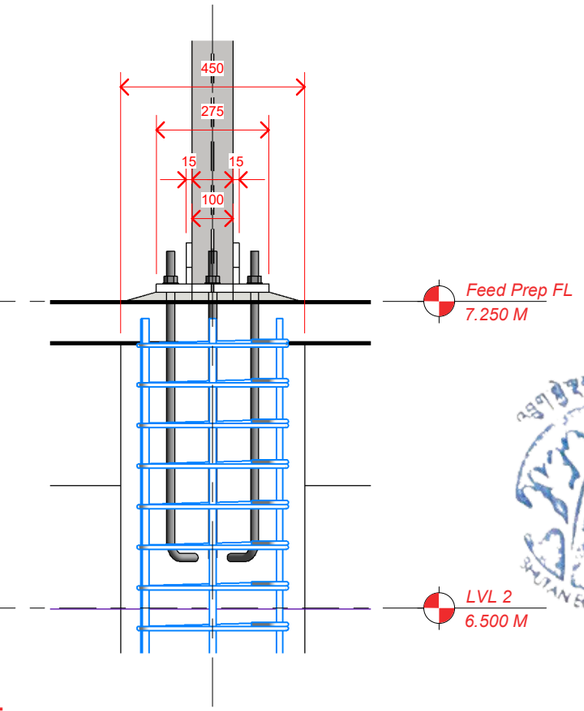
SHEET SIZE: A3







4 **Section 4-4**
1 : 15



5 **Section 5-5**
1 : 15

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Column Plan and Details

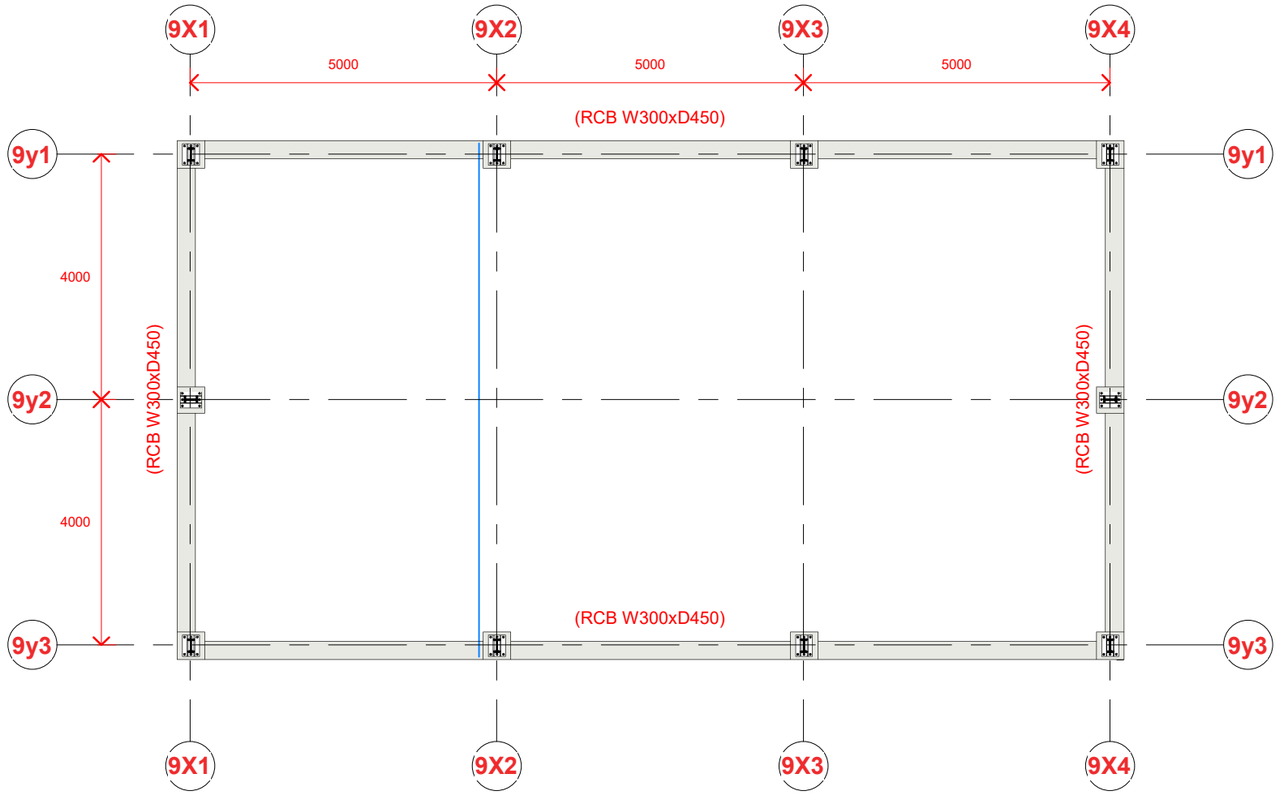
Scale: As indicated

Date: 10 October 2025

Work No.: NSS-25/15

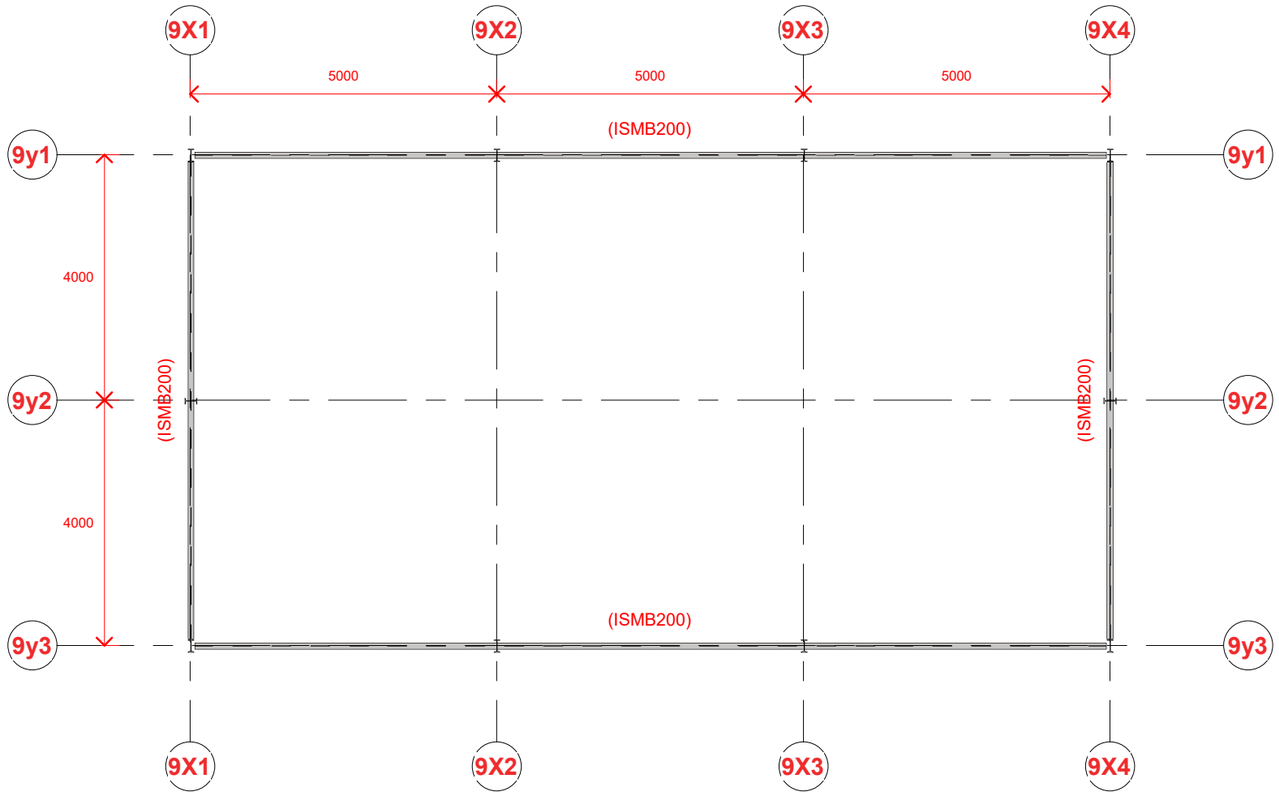
S.09.03

SHEET SIZE: A3



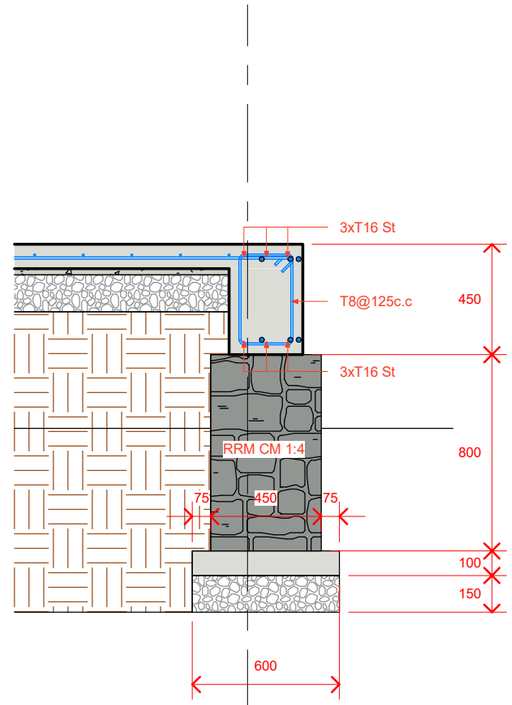
1 **Plinth Beam**

1 : 100



2 **Eaves Beam Plan**

1 : 100



A **Beam Section A-A**

1 : 25

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Beam Plan

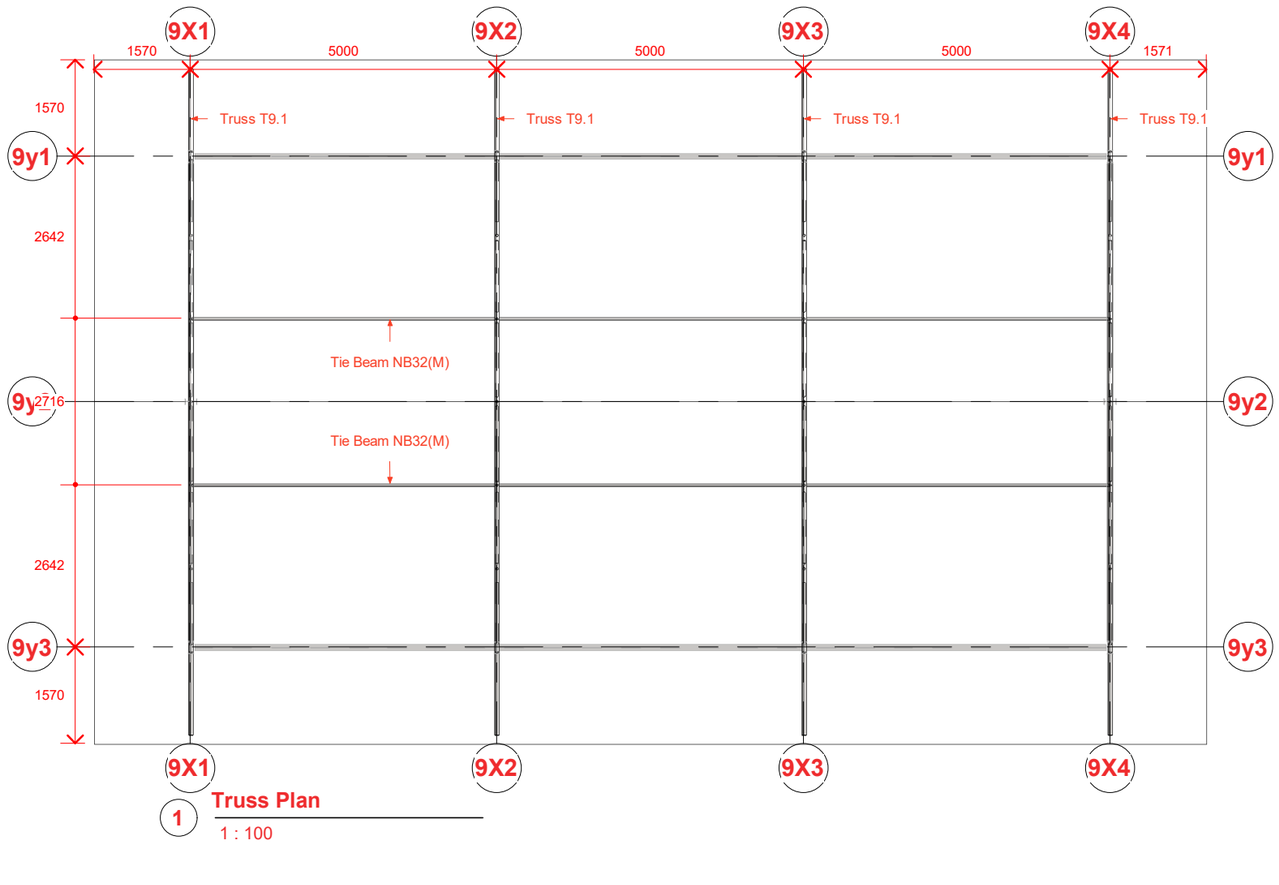
Scale: As indicated

Date: 10 October 2025

Work No.: NSS-25/15

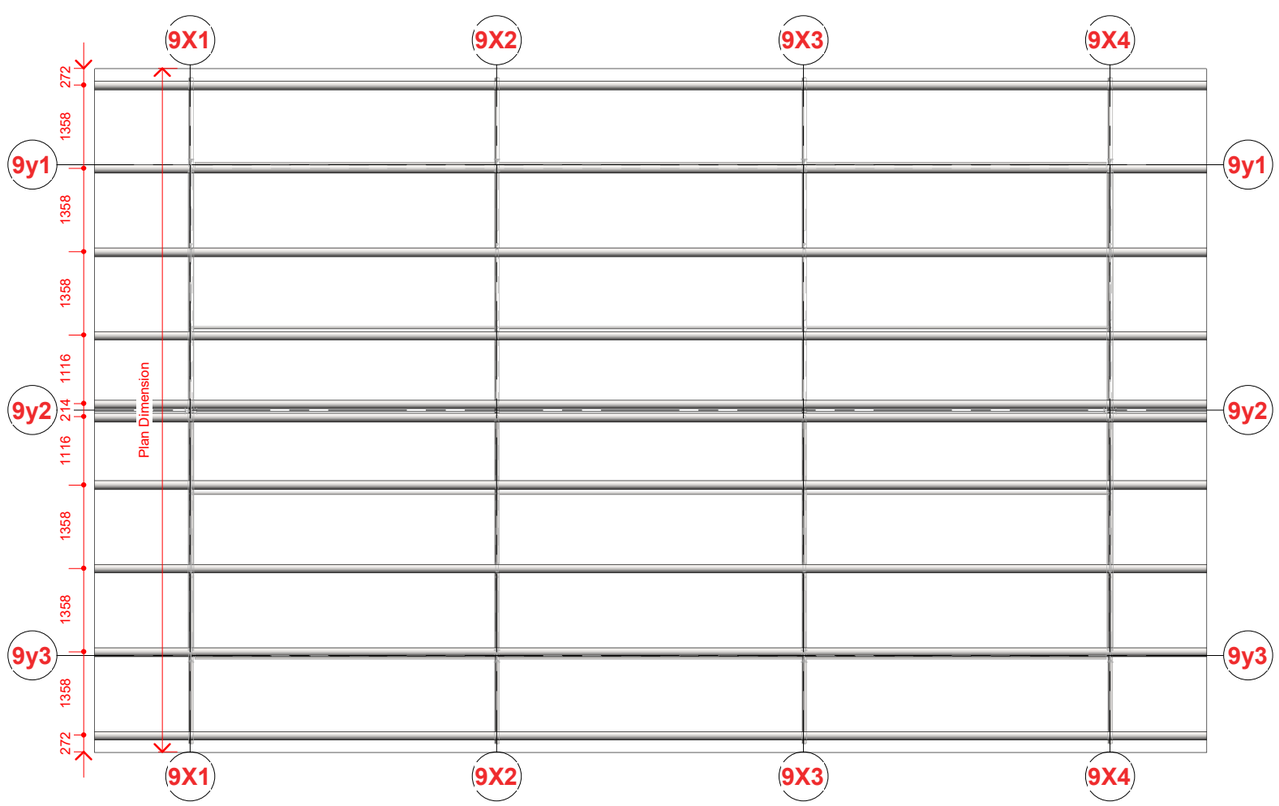
S.09.04

SHEET SIZE: A3



1 **Truss Plan**

1 : 100



2 **Purline**

1 : 100

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Truss and Purline PLan

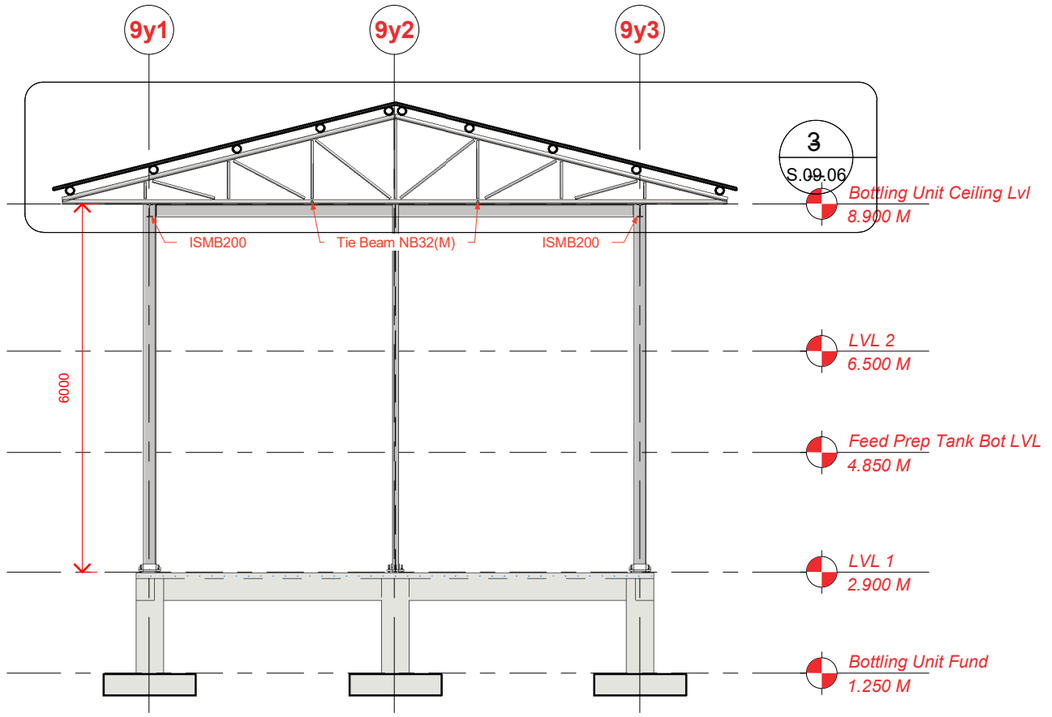
Scale: 1 : 100

Date: 10 October 2025

Work No.: NSS-25/15

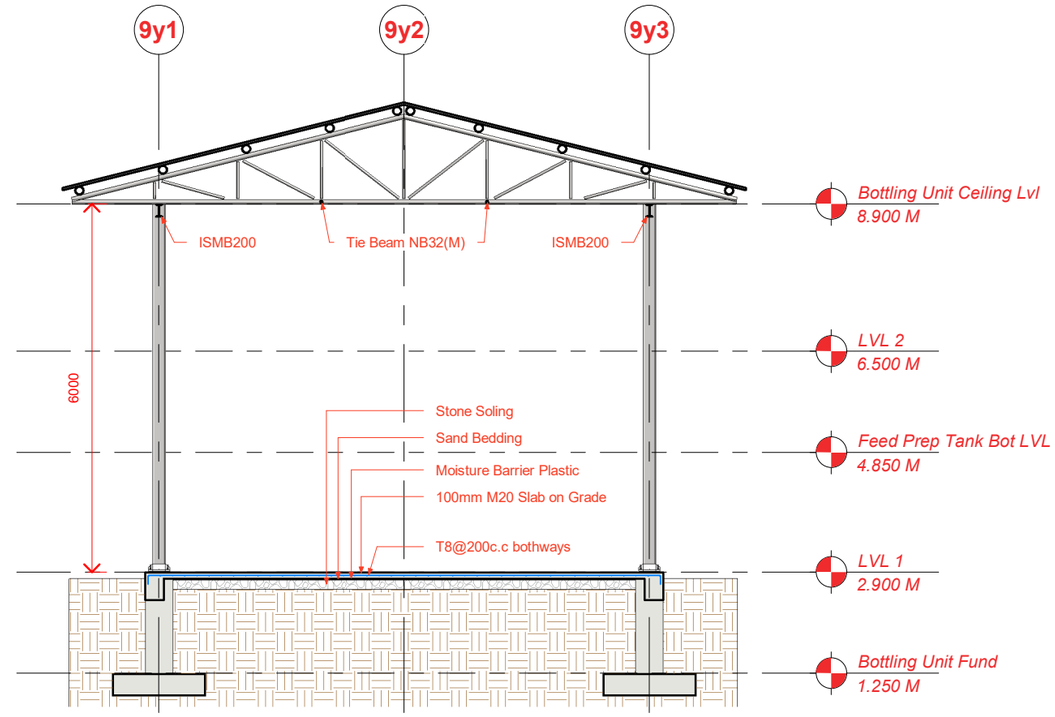
S.09.05

SHEET SIZE: A3



1 **Frame Along Grid 9x1 and 9x4**

1 : 100



2 **Frame Along Grid 9x2 and 9x3**

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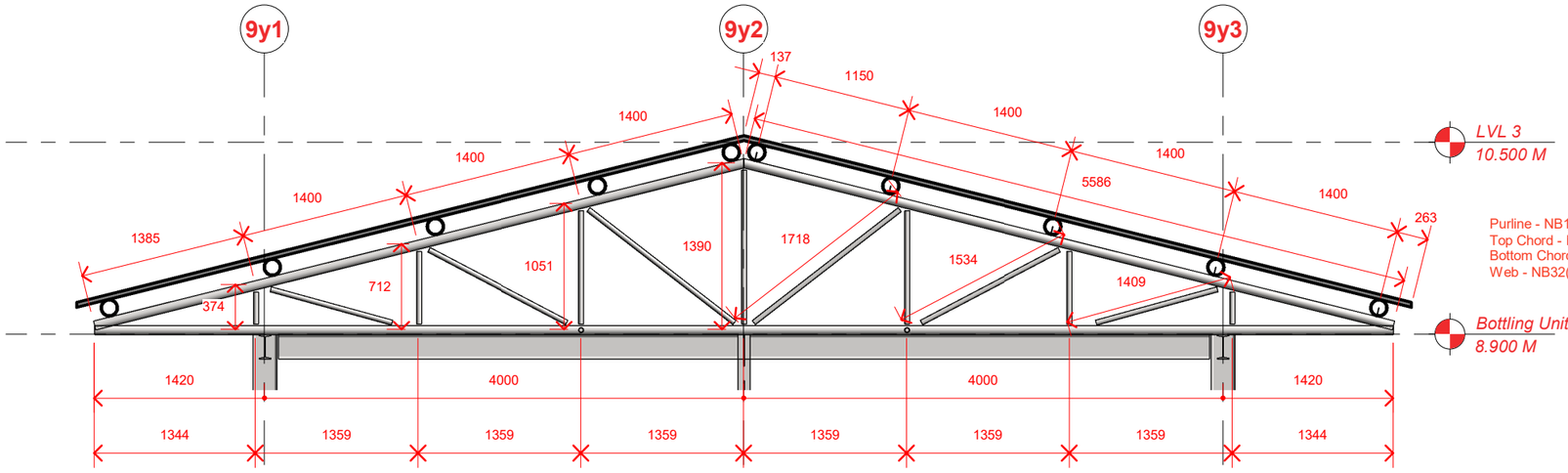
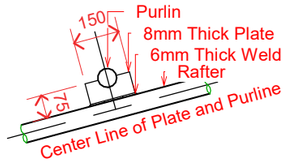
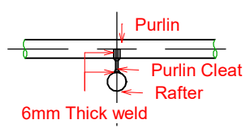


3 **Frame Along Grid 9x1 and 9x4 - Callout 1**

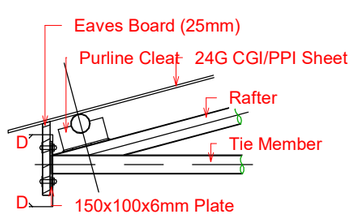
1 : 50



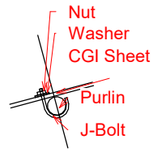
Purline Cleat Fixing Details



Connection of Purline to Rafter



Eaves Board Connection Detail



Connection of CGI Sheet to Purlin

4 **Truss Joint Details**

1 : 20

Note:
1.Refer Section for COlumn Height
2. All members of the truss joint shall be in welding
3.Fabrication of truss must be done at site
4.Welding shall confirm to IS 816-1989 and thickness shall be 6 mm
5. All steel tube section and plates shall confirm to IS 1161-1968 & IS 2062-1984
6.All MS Nust & bolts shall confirm to IS 1363-1984 and Washers shall confirm to IS 5374-1975

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Memelakha, Thimphu

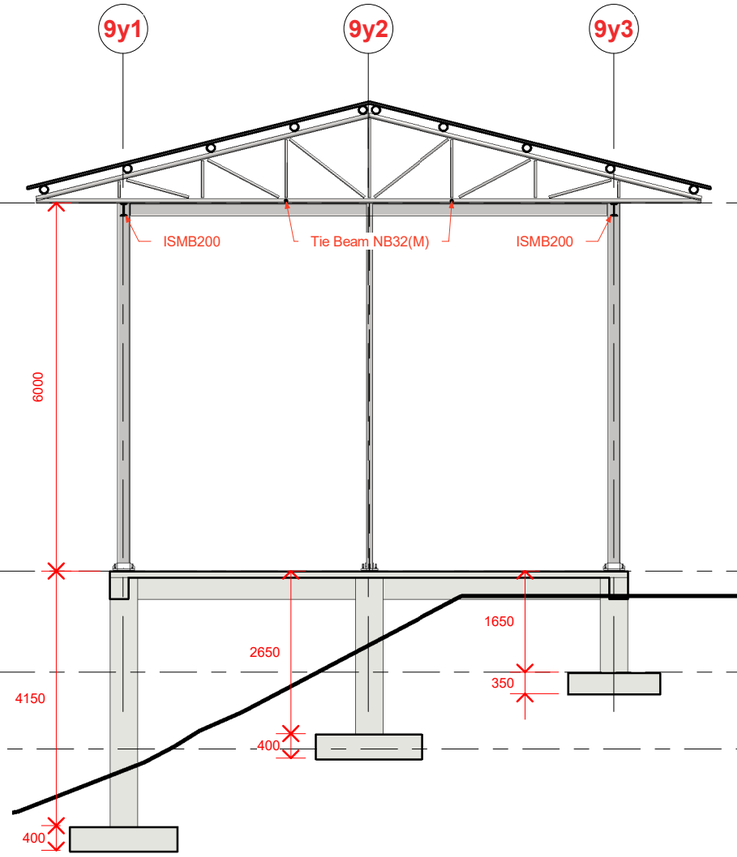
DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Frame Section

Scale: As indicated
Date: 10 October 2025
Work No.: NSS-25/15

S.09.06
SHEET SIZE: A3



1 **Frame Along Grid 9x3**

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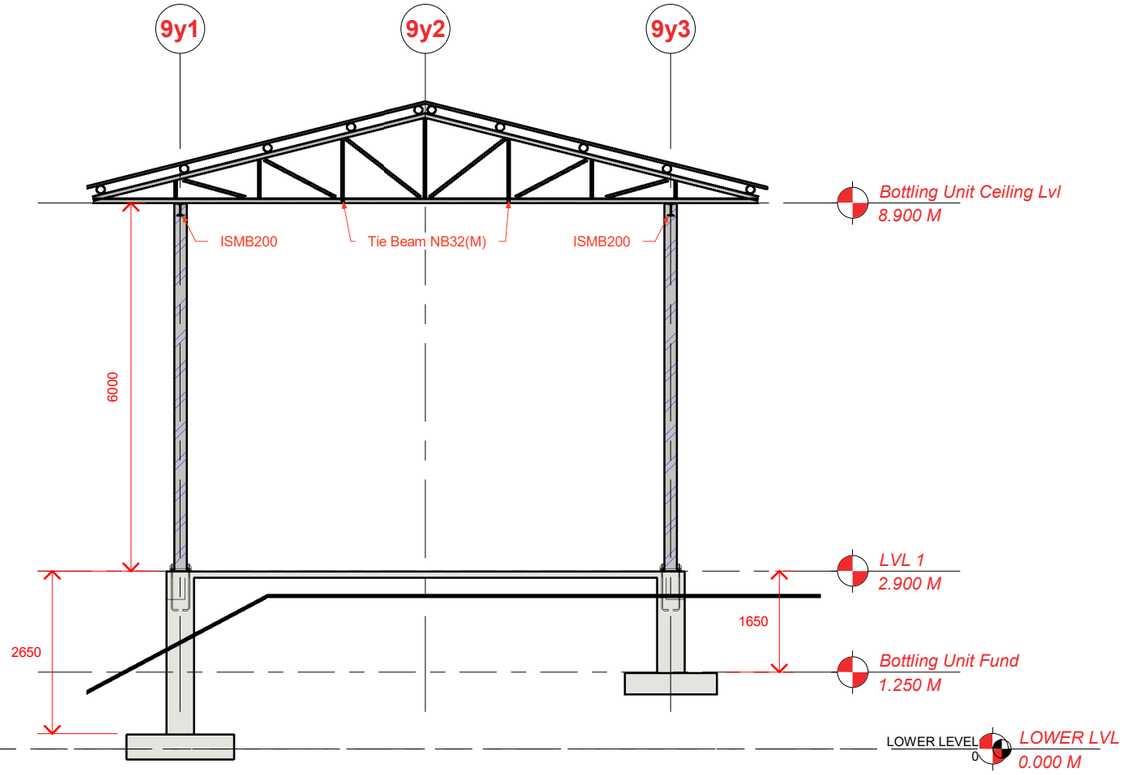

2 **Frame Along Grid 9x4**

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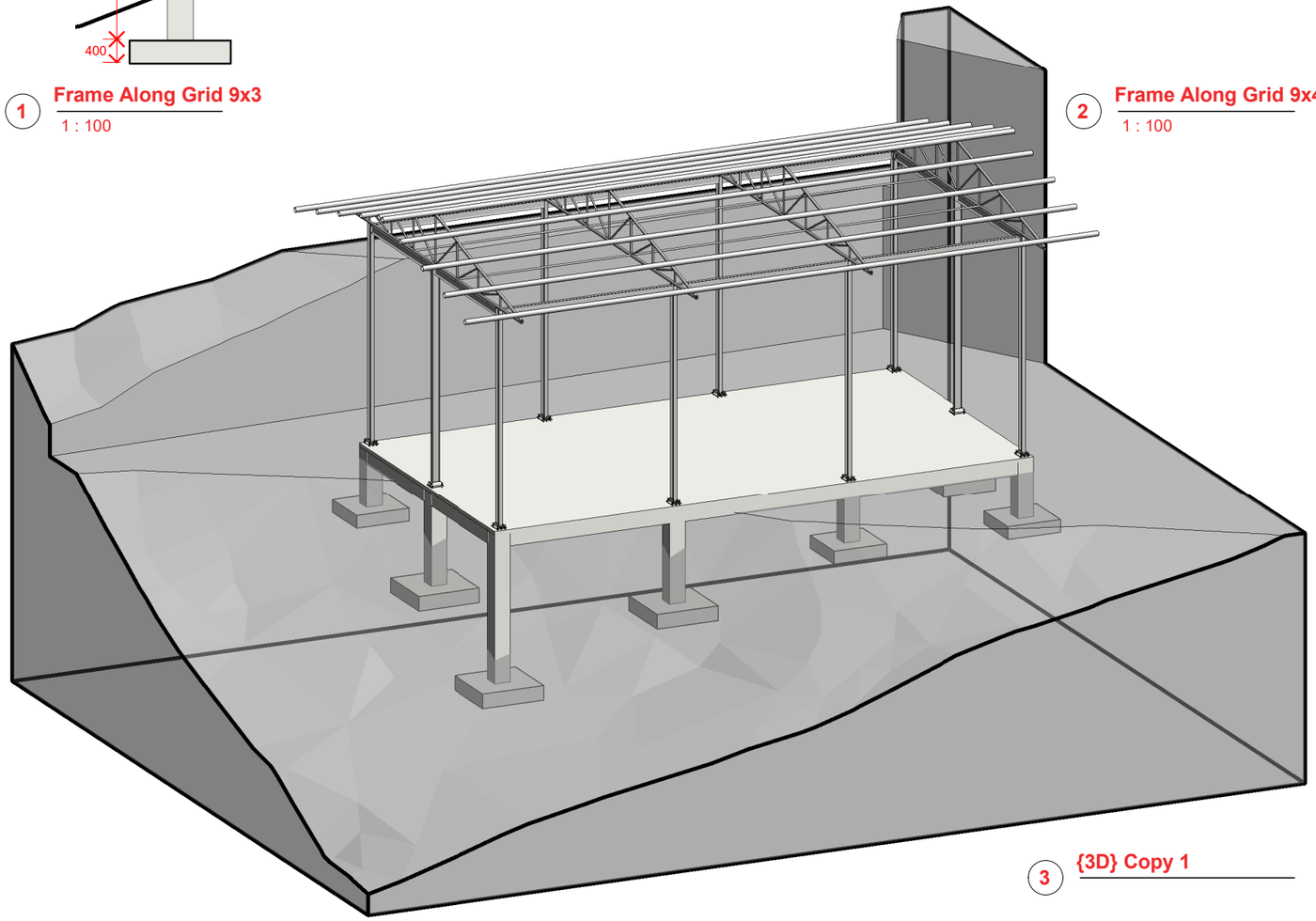


3 **{3D} Copy 1**

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelakha, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Frame Section

Scale: 1 : 100

Date: 10 October 2025

Work No.: NSS-25/15

S.09.07

SHEET SIZE: A3

10 HEATPUMP and WTP TANK

Namey
SAMEY STUDIOS

STRUCTURE DRAWING

PROJECT NAME :
BIO GAS PLANT

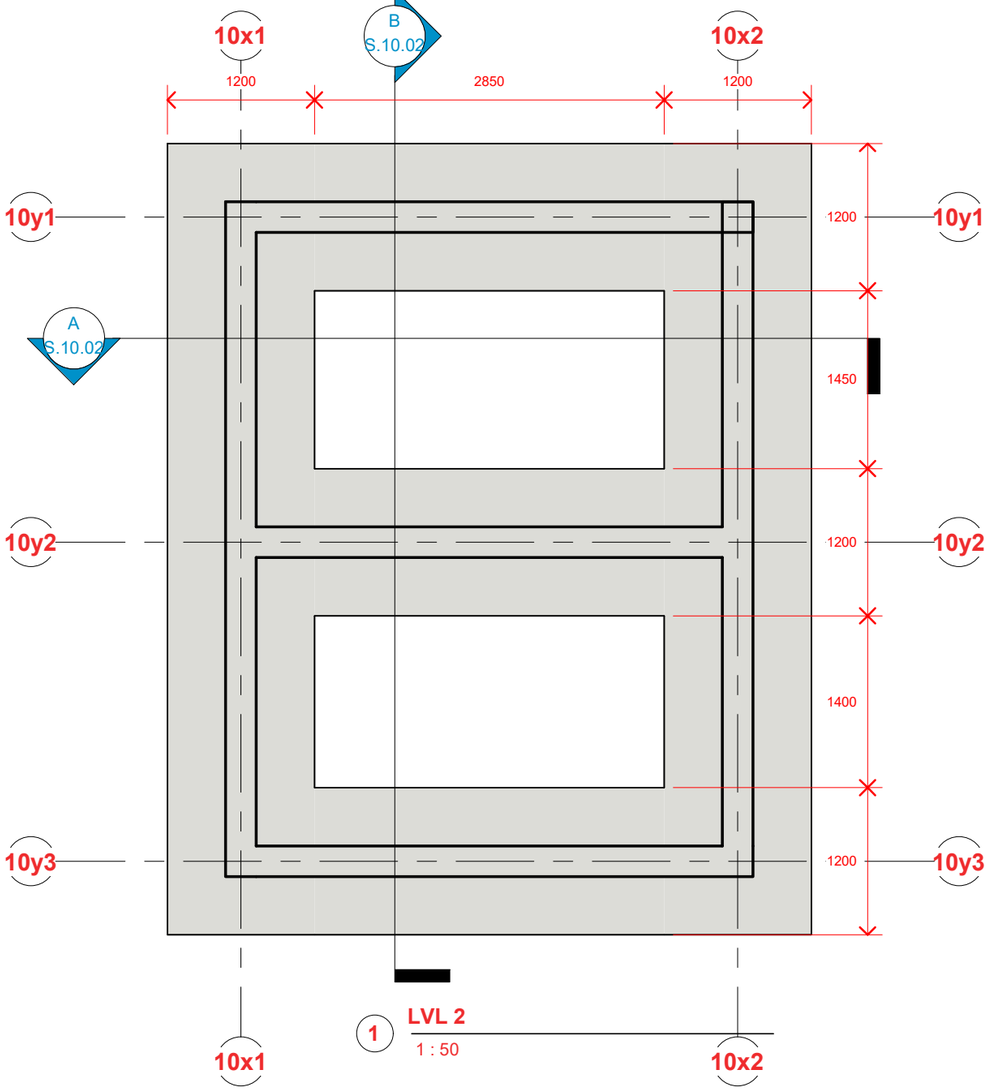
Memelhaka, Thimphu

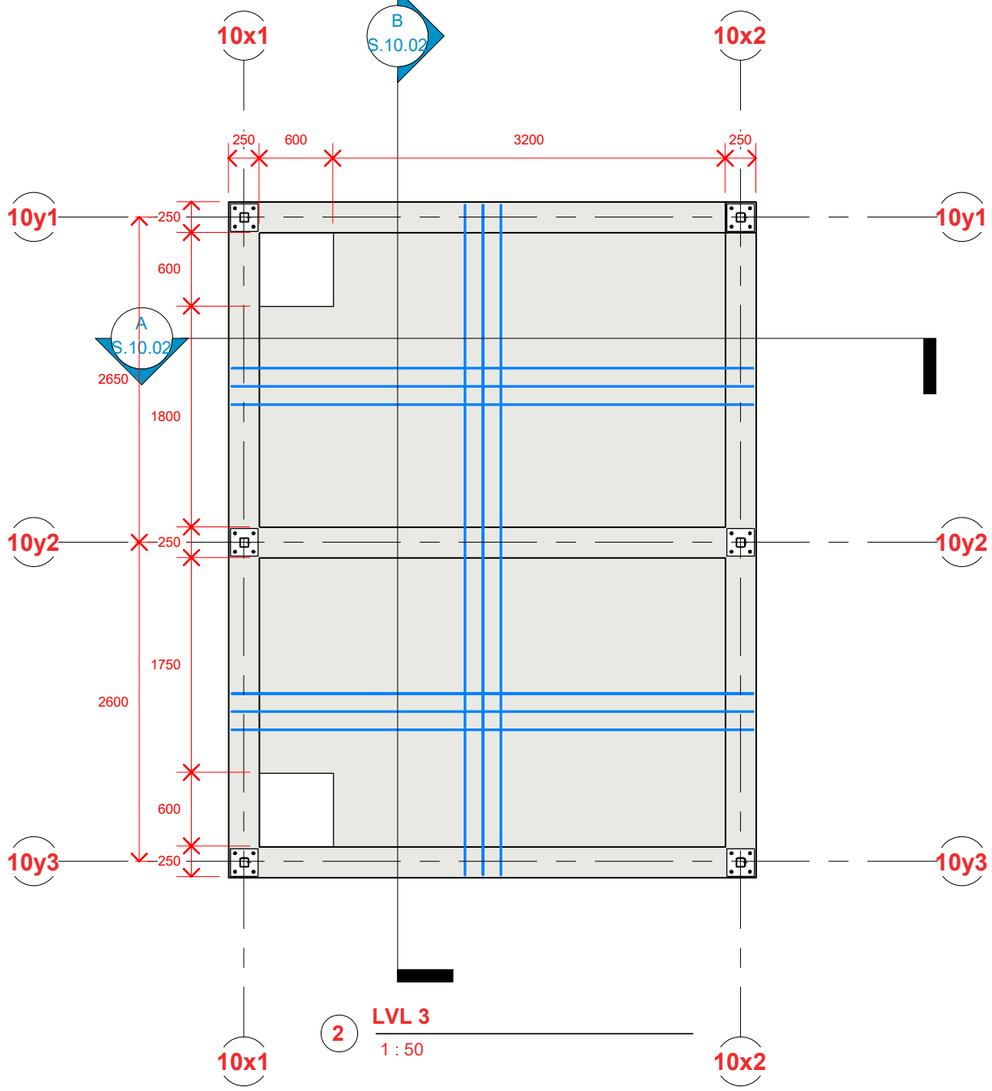
CLIENT NAME :
BHUTAN ECOLOGICAL SOCIETY

DESIGN BY :

NAMGAY DORJEE
Civil Engineer

Date:10 October 2025
Work No.:NSS-25/15
Sheet Size A3





Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelhaka, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Heat Pump and WTP Plan

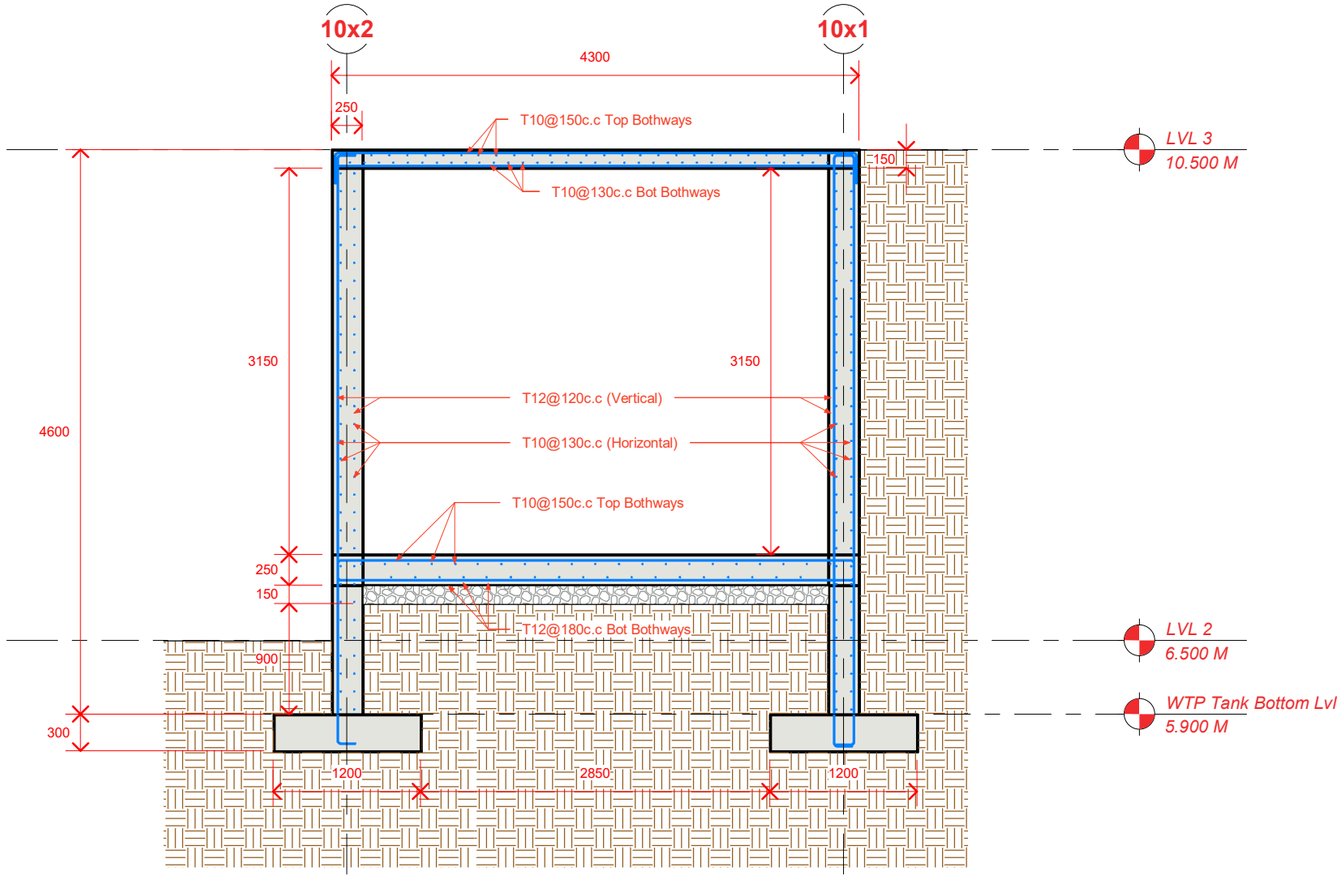
Scale: 1 : 50

Date: 10 October 2025

Work No.: NSS-25/15

S.10.01

SHEET SIZE: A3



A **Section A-A**

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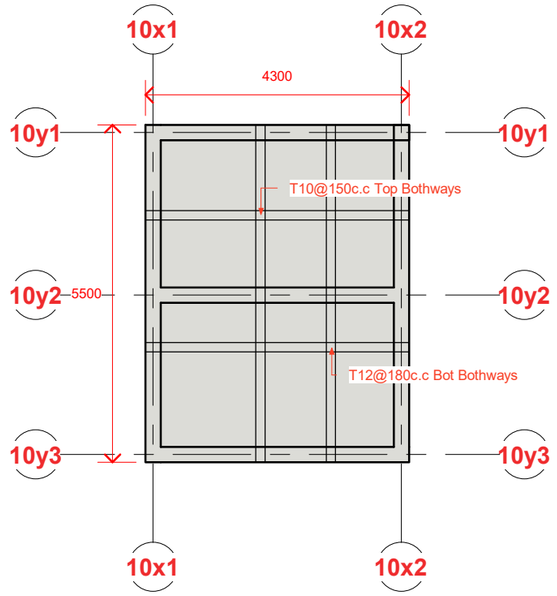
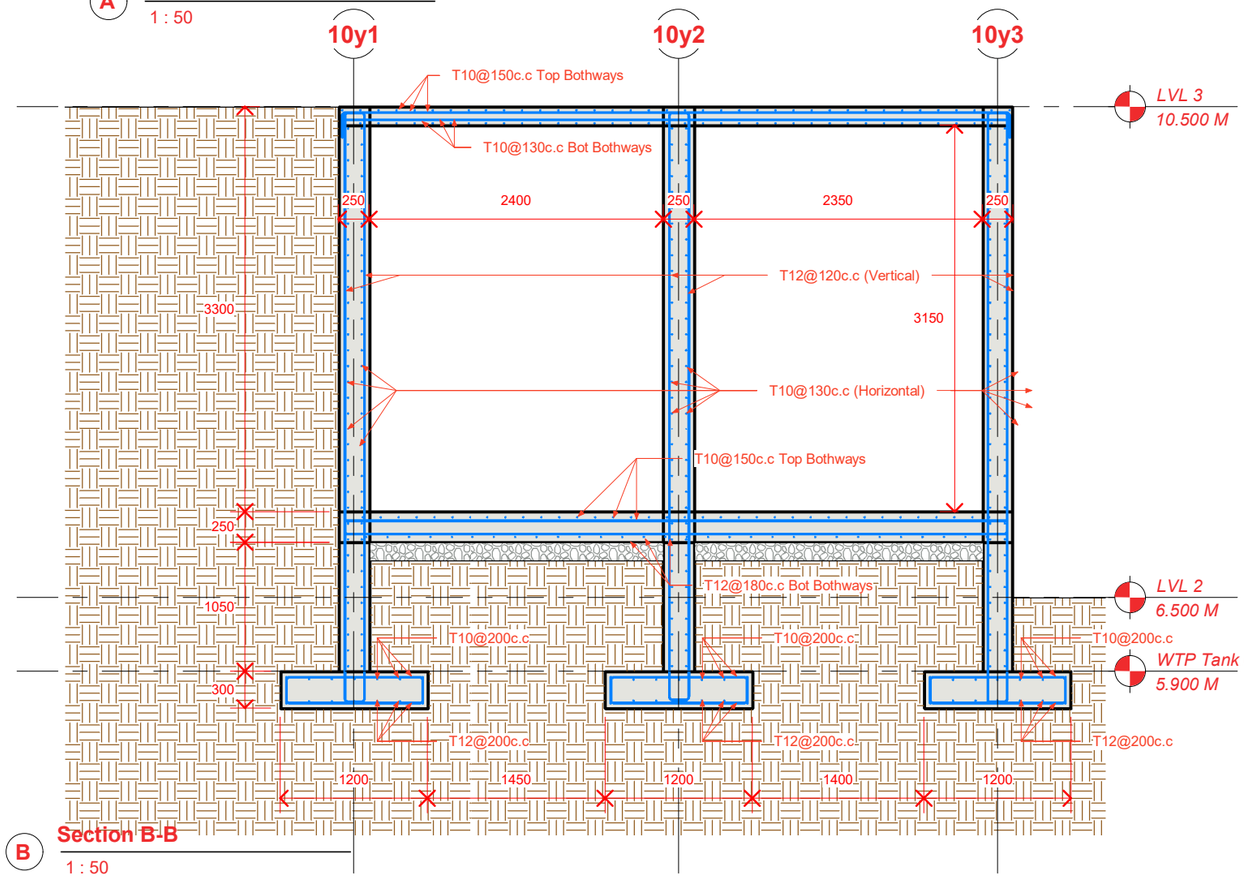


2 **Tank Bottom Lvl**

1 : 100



B **Section B-B**

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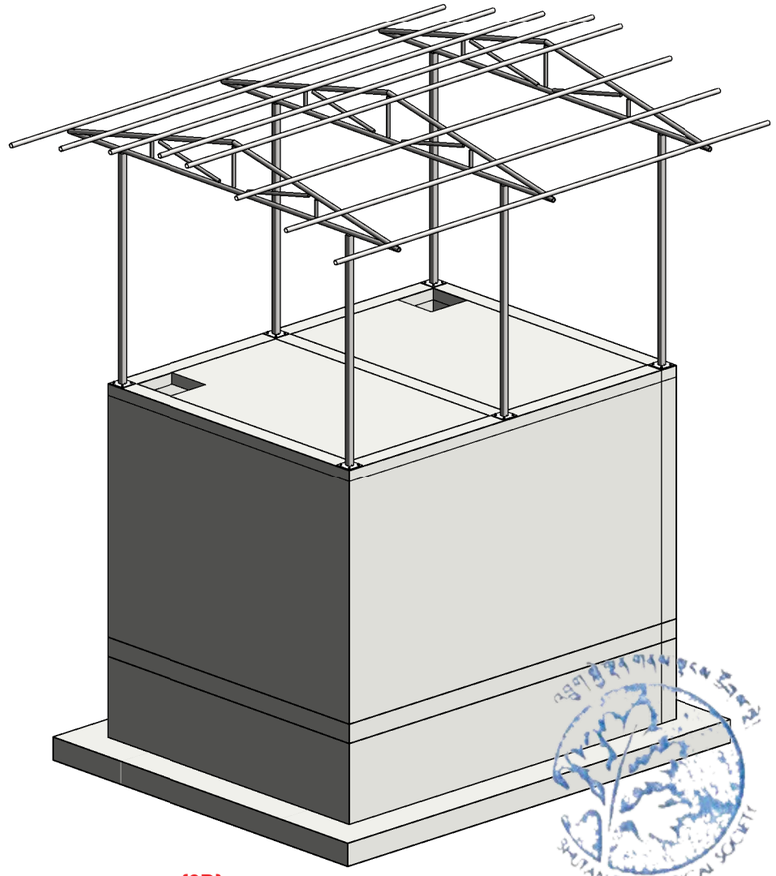


1 **{3D}**

Namey
SAMEY STUDIOS

PROJECT NAME :

BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :

BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :

Memelhaka, Thimphu

DESIGN and DRAWN BY :

NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :

Heat Pump and WTP Section

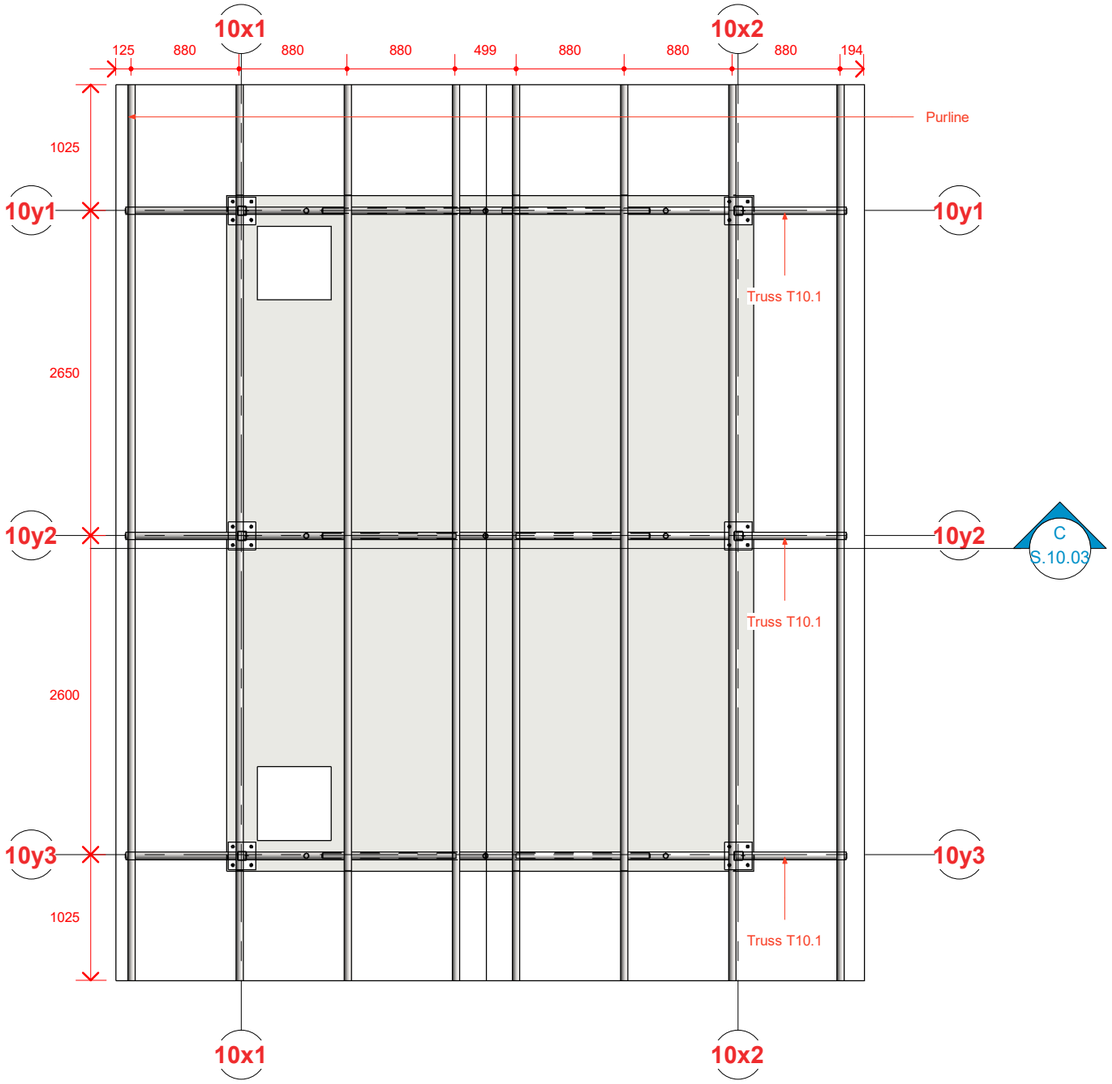
Scale: As indicated

Date: 10 October 2025

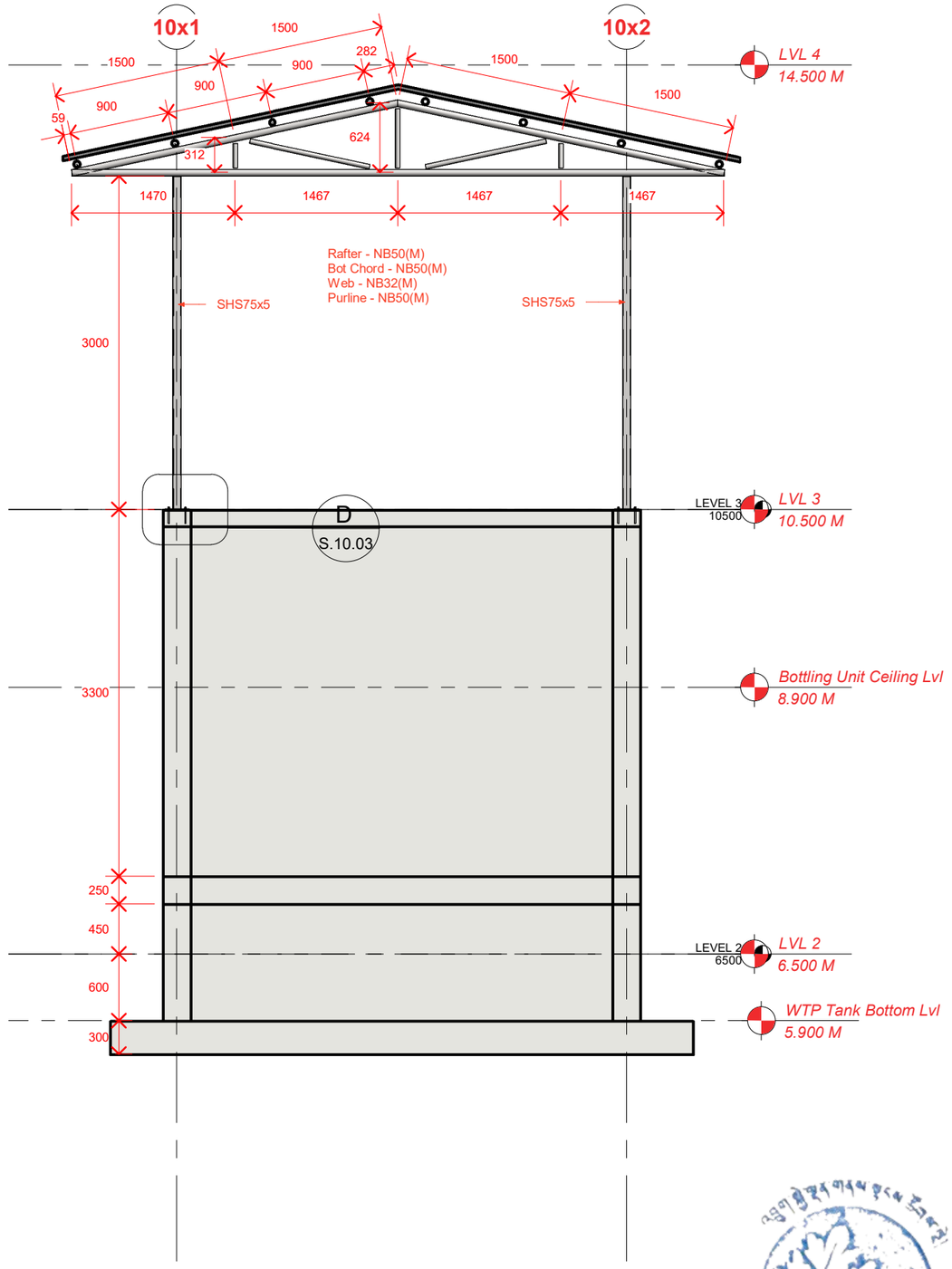
Work No.: NSS-25/15

S.10.02

SHEET SIZE: A3



1 **Purline Lvl**
1 : 50



C **Section C-C**
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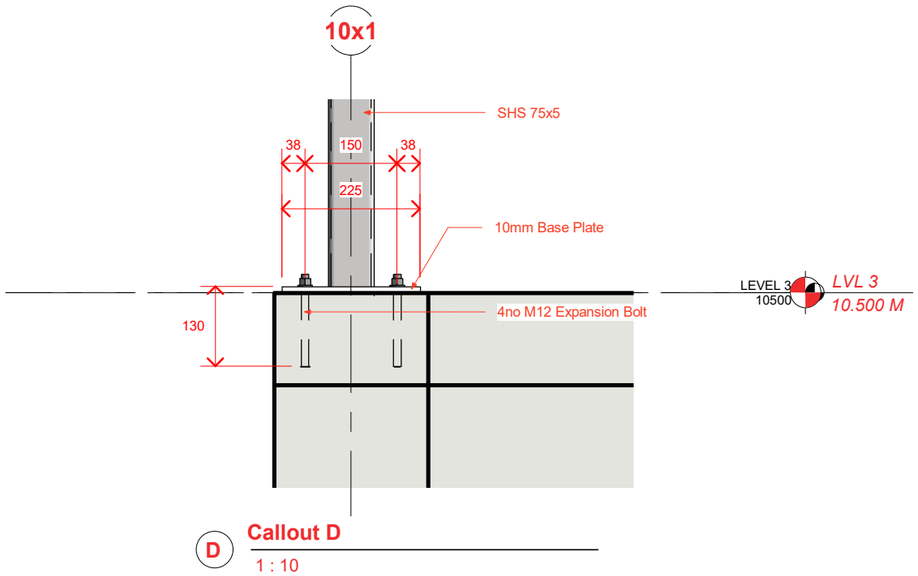


D **Callout D**
1 : 10

Namey
SAMEY STUDIOS

PROJECT NAME :
BIO GAS PLANT

Thram 1812, Plot CHG-2884

COMISSIONED BY :
BHUTAN ECOLOGICAL SOCIETY

PROJECT DETAIL :
Memelhaka, Thimphu

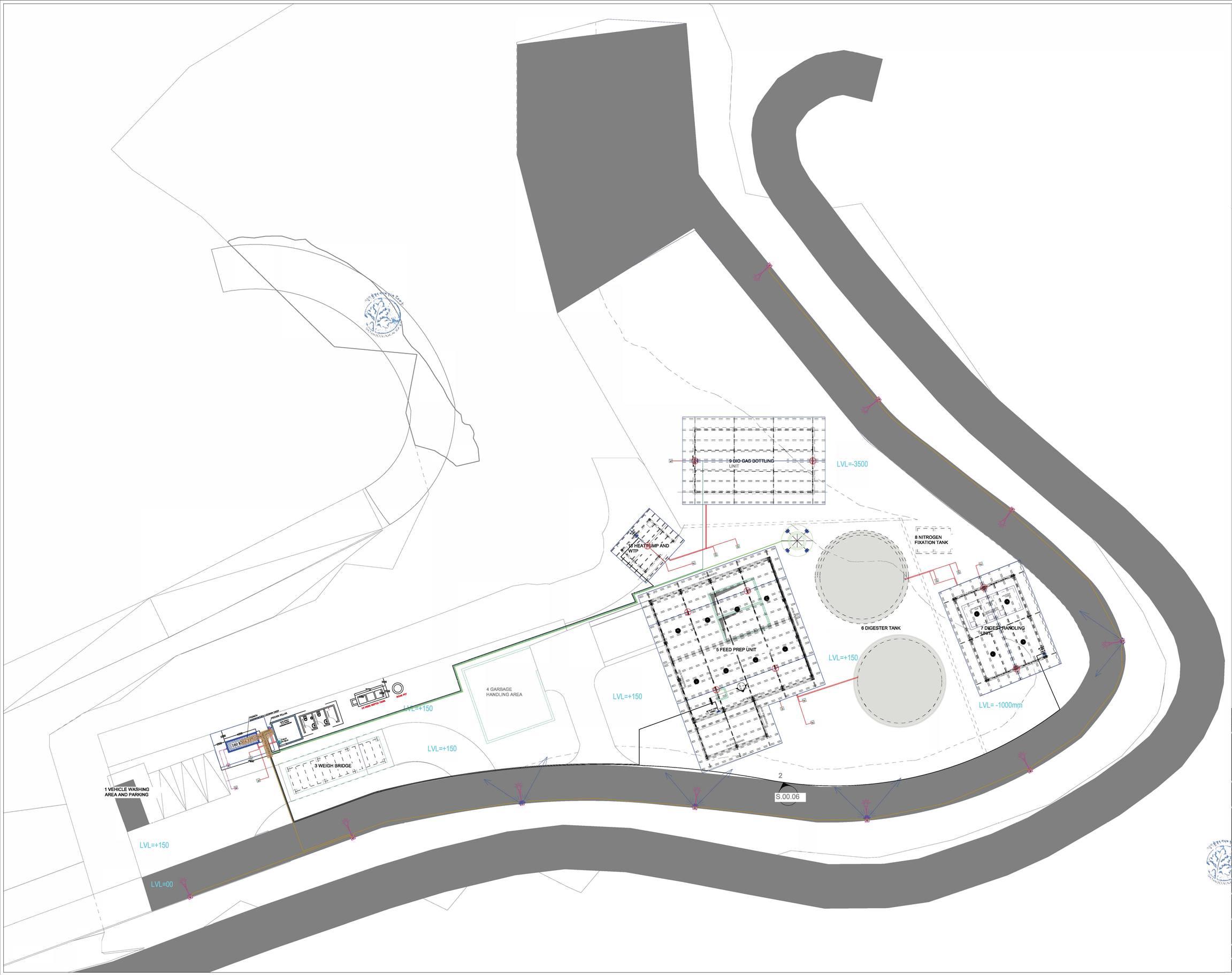
DESIGN and DRAWN BY :
NAMGAY DORJEE
(Civil Engg.)

REVISION NO :

SHEET NAME :
Truss Plan and Section

Scale: As indicated
Date: 10 October 2025
Work No.: NSS-25/15

S.10.03
SHEET SIZE: A3



ELECTRICAL LEGEND BOX

SYMBOL	DISCRIPTION
	SWITCH BOARD LOCATION
	16A SWITCH SOCKET LOCATION
	6A SWITCH SOCKET LOCATION
	HDMI PORT LOCATION
	RJ45 ETHERNET PORT LOCATION
	RJ11 TELEPHONE PORT LOCATION
	1200MM CEILING FAN
	18W LED SURFACE DOWN LIGHT
	20W BATTEN LIGHT
	9W LED RECESSED DOWN LIGHT
	8W MIRROR LIGHT
	6.5MH LONG TUBULAR POLE WITH 1.1MtrLONG SINGLE ARM & 30WATT LED LIGHT
	100W FLOOD LIGHT
	300 MM VENTILATING FAN ON WALL
	300 MM VENTILATING FAN 1400 r.p.m
	400 MM VENTILATING FAN 1400 r.p.m
	2X30 W EMERGENCY EXIT LIGHT
	55W HIGH SKY LIGHT
	JUNCTION BOX
	FEEDER PILLAR LOCATION
	SP(SINGLE PHASE DISTRIBUTION BOX)
	3 PH(THREE PHASE DISTRIBUTION BOX)

DETAILS OF WIRES

SYMBOL	DISCRIPTION
	3x4 sqmm For Power Circuit Wiring
	3x2.5 sqmm For Lighting Circuit Wiring
	1x2.5 sqmm For Inverter Circuit Wiring
	3x1.5 sqmm For Light point Wiring
	3x1.5 sqmm For Inverter Light point Wiring

DETAILS OF CABLE

SYMBOL	DISCRIPTION
	3Cx2.5 sqmm PVC Cu Cable For Single Phase Power Circuit Wiring
	4Cx4 sqmm XLPE Cu Un Ar Cable For Three Phase Power Circuit Wiring
	4 Cx 16 sqmm XLPE AL Ar Cable For Three Phase Power Circuit Wiring
	3.5 Cx 25 sqmm XLPE AL Ar Cable For Three Phase Power Circuit Wiring
	3.5 Cx 95 sqmm XLPE AL Ar Cable For Three Phase Power Circuit Wiring
	3.5 Cx 150 sqmm XLPE AL Ar Cable For Three Phase Power Circuit Wiring
	3.5 Cx 185 sqmm XLPE AL Ar Cable For Three Phase Power Circuit Wiring

EARTHING STRIP

SYMBOL	DISCRIPTION
	25 x 4Galvanised Iron (GI) Strip 80-100 Micron
	20 x 6 Galvanised Iron (GI) Strip 80-100 Micron
	40 x 6 Galvanised Iron (GI) Strip 80-100 Micron
	25 x 3 Galvanised Iron (GI) Strip 80-100 Micron
	25 x 3 Copper (Cu) Strip 99% Electrolytic Grade
	12 SWG Copper (Cu) Wire

EARTHING

SYMBOL	DISCRIPTION
	CU Riveted 2 Mtrs Earthing
	CU Plate Earthing
P	Lightning Arrester Prong 900mm
	Earthing Test Link Box

DISCUSSION DRAWING	☐	GFC DRAWING	☐
DBR DRAWING	☐		
TENDER DRAWING	■		

MEP CONSULTANT

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Website : https://iesslg.in

ARCHITECT-

NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE

BIO GAS PLANT

TILE OF THE SHEET

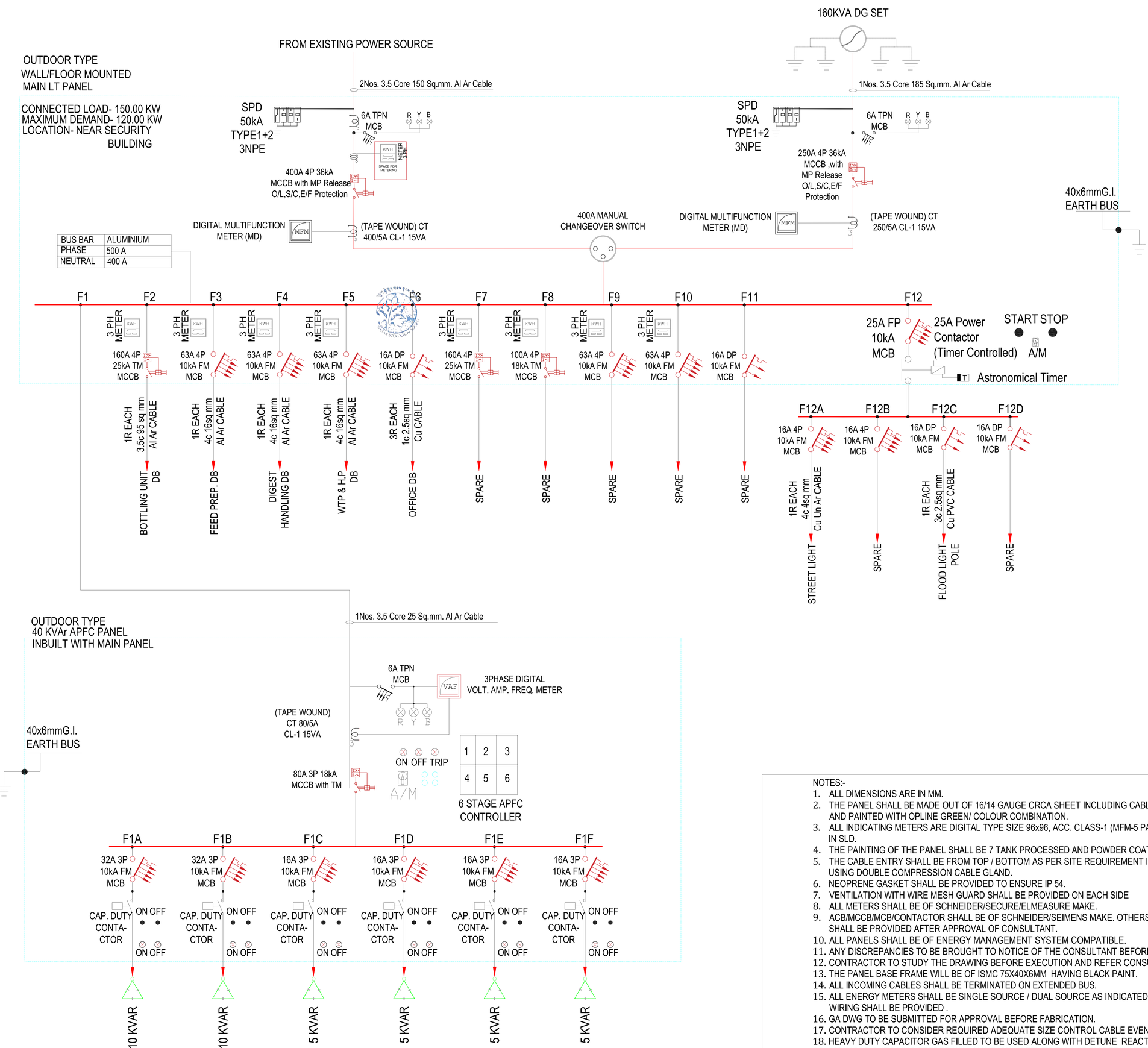
ELECTRICAL EXTERNAL DETAILS

CLIENT

BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	PROJECT CODE	DRAWING NO-	REVISION-
A0	56	BES/BGP/IES/EE-07	R0



LEGEND

MCCB	MOULDED CASE CIRCUIT BREAKER (FP)
MCB	MINIATURE CIRCUIT BREAKER (FP)
MCB	MINIATURE CIRCUIT BREAKER (SP)
MCB	MINIATURE CIRCUIT BREAKER (DP)
RCCB/ELCB/VIGILANT	OVER CURRENT / EARTH FAULT
AL	ALUMINIUM
(TYP)	TYPICAL
CP	CONTROL PANEL
KWH	KILOWATT HOUR METER (DUAL SOURCE)
	CURRENT TRANSFORMER
	SURGE PROTECTION DEVICE
	5 PARAMETER MULTI FUNCTION METER
	CAPACITOR BANK
A/M	AUTO MANUAL SWITCH
	POWER CONTACTOR
ANN	ANNUNCIATOR

NOTES:-

1. ALL DIMENSIONS ARE IN MM.
2. THE PANEL SHALL BE MADE OUT OF 16/14 GAUGE CRCA SHEET INCLUDING CABLE ALLEY, FLOOR MOUNTED AND PAINTED WITH OPLINE GREEN/ COLOUR COMBINATION.
3. ALL INDICATING METERS ARE DIGITAL TYPE SIZE 96x96, ACC. CLASS-1 (MFM-5 PARAMETERS) OR AS INDICATED IN SLD.
4. THE PAINTING OF THE PANEL SHALL BE 7 TANK PROCESSED AND POWDER COATING.
5. THE CABLE ENTRY SHALL BE FROM TOP / BOTTOM AS PER SITE REQUIREMENT IN SEPARATE CABLE ALLEY USING DOUBLE COMPRESSION CABLE GLAND.
6. NEOPRENE GASKET SHALL BE PROVIDED TO ENSURE IP 54.
7. VENTILATION WITH WIRE MESH GUARD SHALL BE PROVIDED ON EACH SIDE
8. ALL METERS SHALL BE OF SCHNEIDER/SECURE/ELMEASURE MAKE.
9. ACB/MCCB/MCB/CONTACTOR SHALL BE OF SCHNEIDER/SEIMENS MAKE. OTHERS REPUTED MAKE ONLY AND SHALL BE PROVIDED AFTER APPROVAL OF CONSULTANT.
10. ALL PANELS SHALL BE OF ENERGY MANAGEMENT SYSTEM COMPATIBLE.
11. ANY DISCREPANCIES TO BE BROUGHT TO NOTICE OF THE CONSULTANT BEFORE FABRICATION.
12. CONTRACTOR TO STUDY THE DRAWING BEFORE EXECUTION AND REFER CONSULTANT FOR ANY CLEARANCE.
13. THE PANEL BASE FRAME WILL BE OF ISMC 75X40X6MM HAVING BLACK PAINT.
14. ALL INCOMING CABLES SHALL BE TERMINATED ON EXTENDED BUS.
15. ALL ENERGY METERS SHALL BE SINGLE SOURCE / DUAL SOURCE AS INDICATED. CTs AND APPROPRIATE WIRING SHALL BE PROVIDED .
16. GA DWG TO BE SUBMITTED FOR APPROVAL BEFORE FABRICATION.
17. CONTRACTOR TO CONSIDER REQUIRED ADEQUATE SIZE CONTROL CABLE EVEN IF NOT DETAILED IN BOQ.
18. HEAVY DUTY CAPACITOR GAS FILLED TO BE USED ALONG WITH DETUNE REACTOR.
19. ALL MCCB OUTGOING FEEDER WILL HAVE 'ON', 'OFF', 'TRIP' LAMP BY DEFAULT EVEN IF NOT MENTIONED ANY WHERE.

DISCUSSION DRAWING ☐ GPC DRAWING ☐
DBR DRAWING ☐
TENDER DRAWING ■

MEP CONSULTANT
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ARCHITECT-
NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

TITLE OF THE SHEET-
ELECTRICAL PANEL DETAILS OF EXTERNAL

CLIENT
BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	PROJECT CODE	DRAWING NO.	REVISION-
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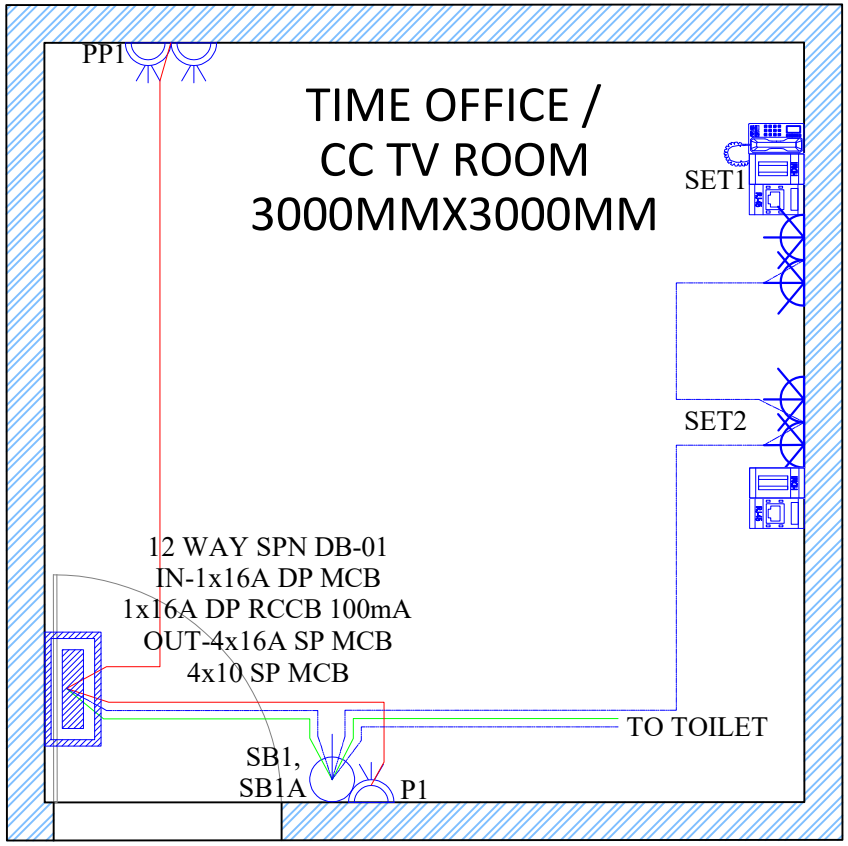

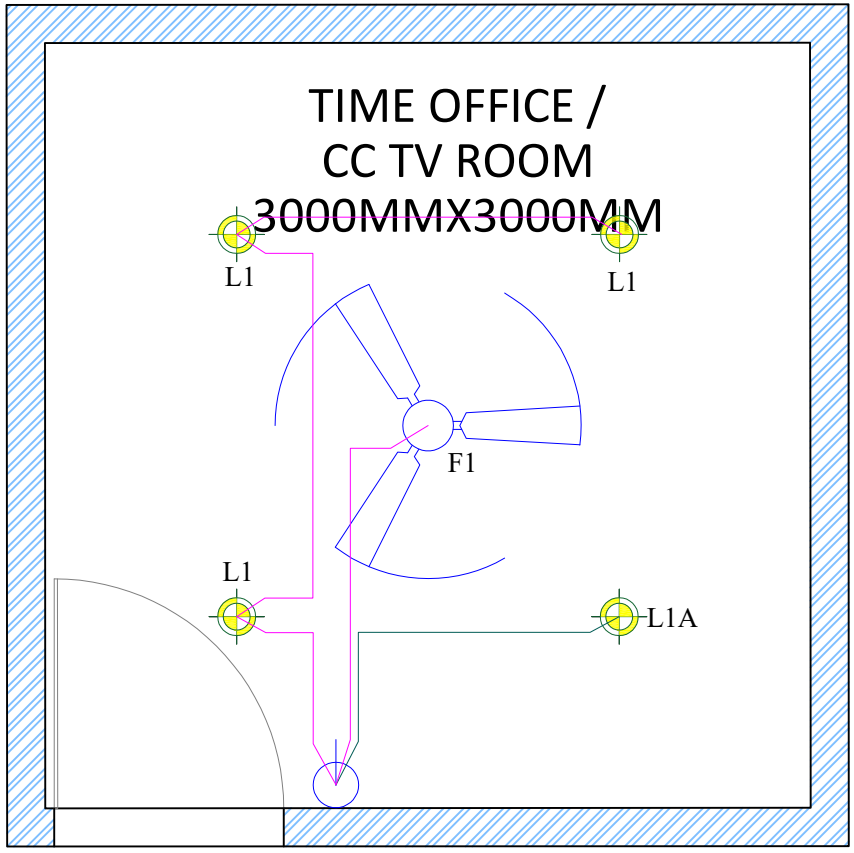

DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

MEP CONSULTANT

INTEGRATED
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Website : https://iesslg.in

ARCHITECT-
NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

TILE OF THE SHEET-
ELECTRICAL DETAILS OF TIME OFFICE

CLIENT
BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	DRAWING NO-	REVISION-
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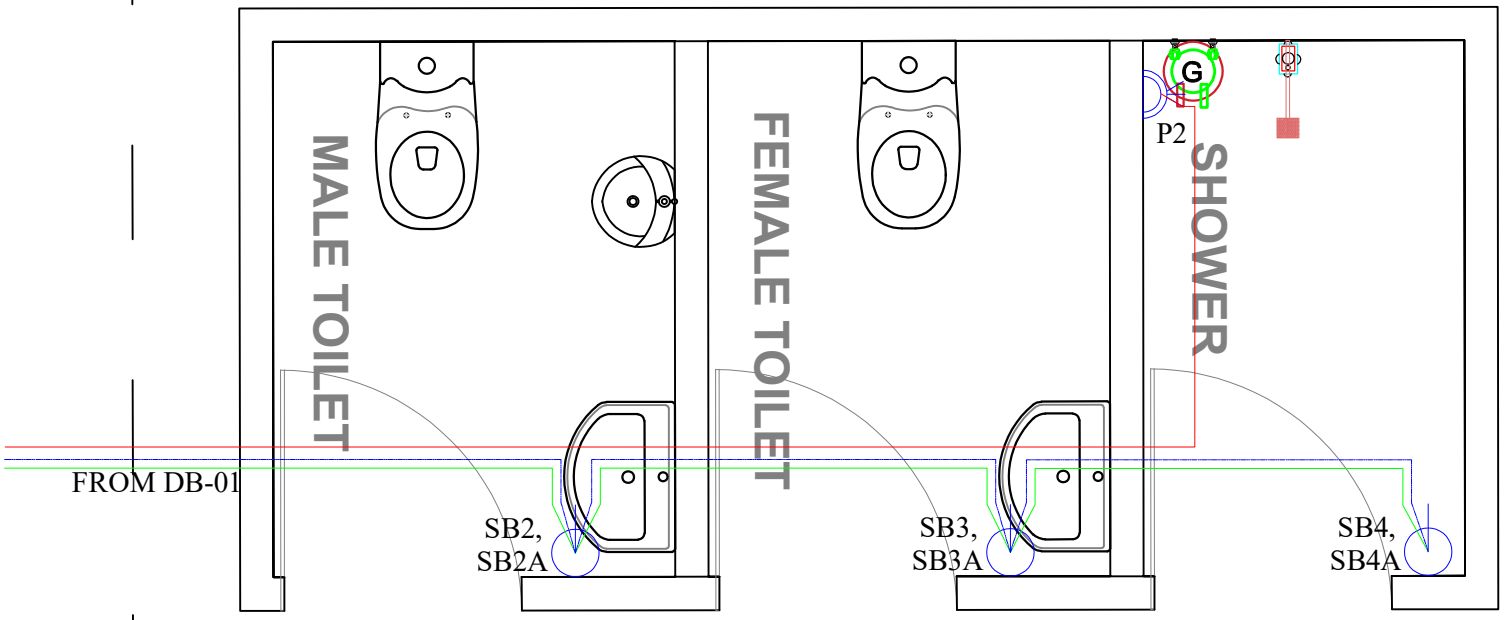

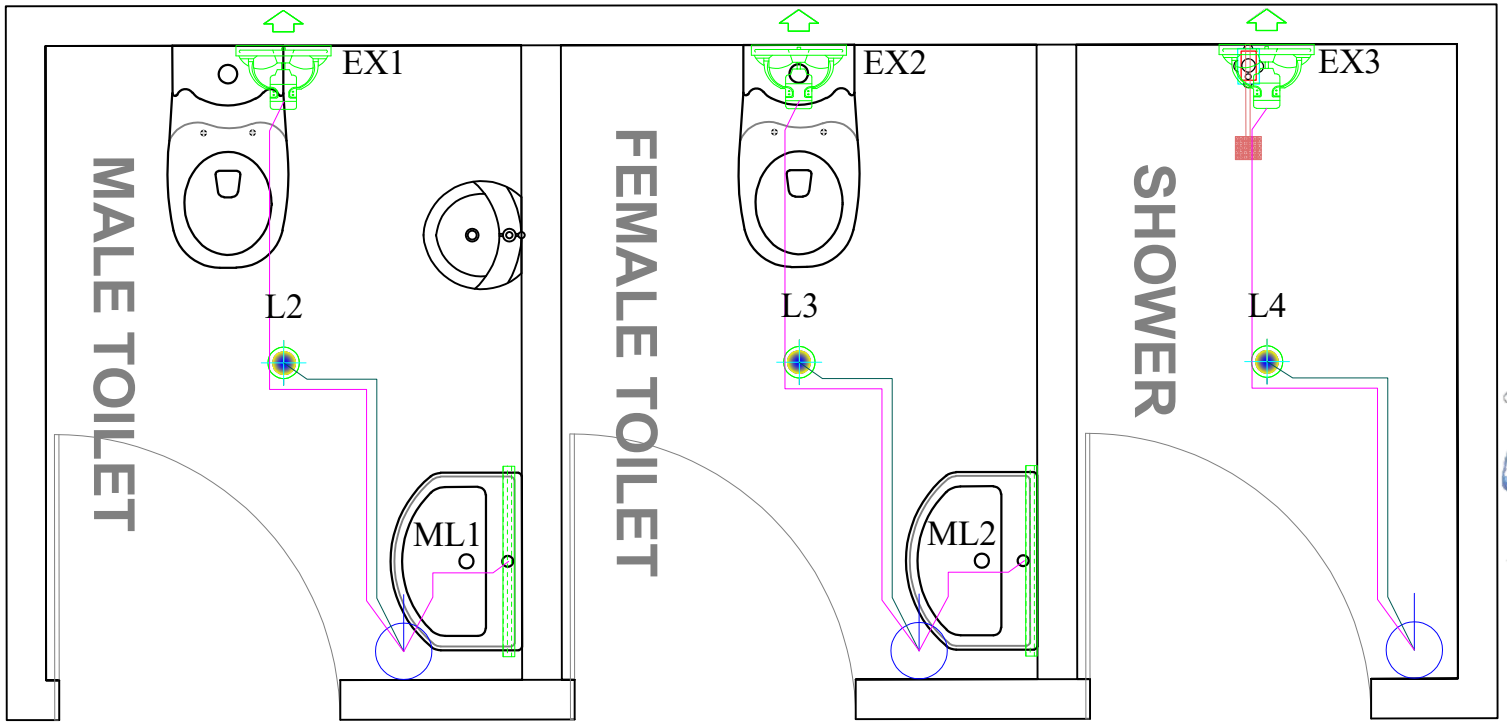

DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

MEP CONSULTANT

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56/ 5, Pran Krishna Sarani Road, Sukanta Nagar, East Vivekananda Pally, Rabindra Sarani, Siliguri, W.B.-734006.
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ARCHITECT-
NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

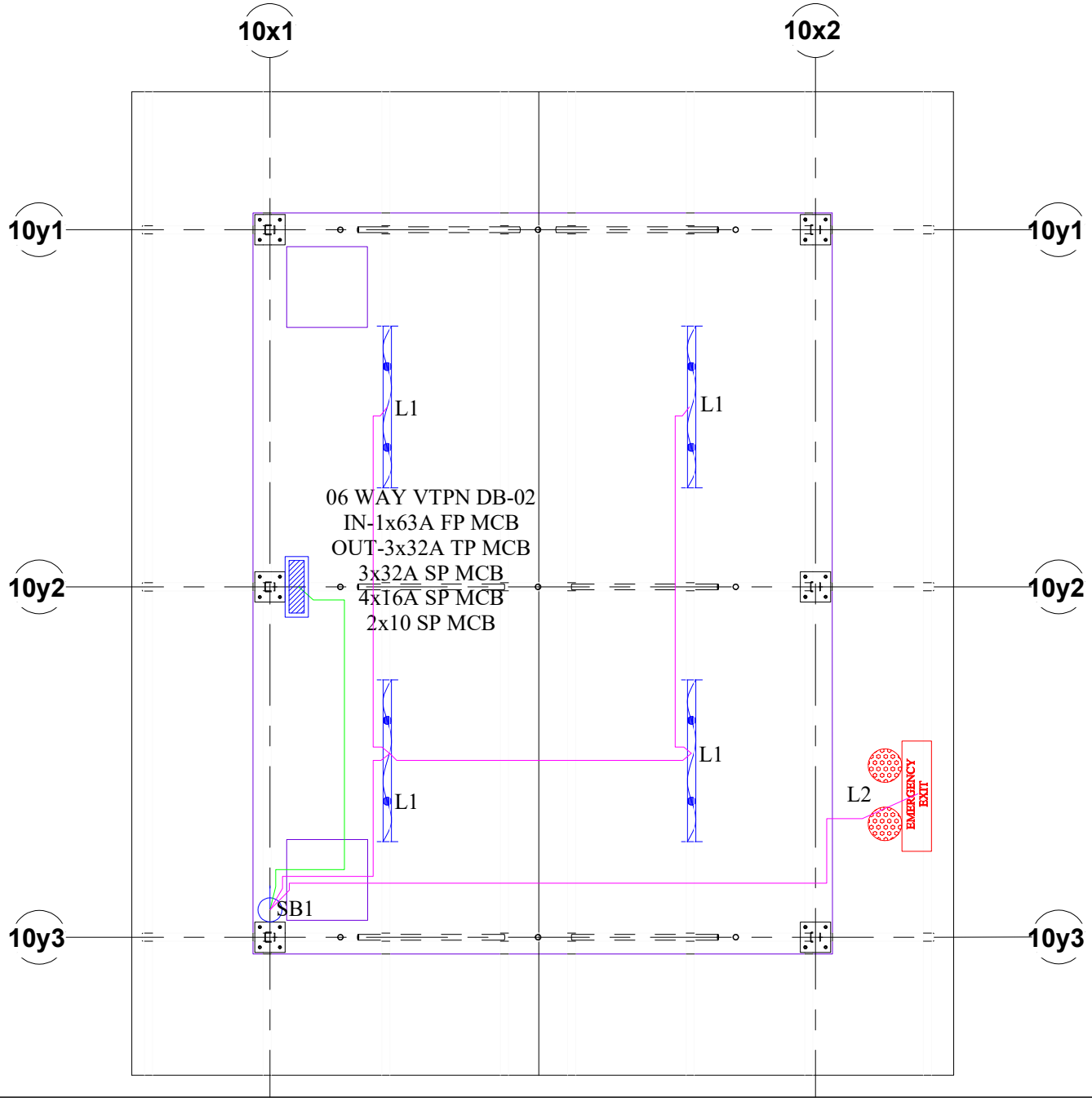
TILE OF THE SHEET-
ELECTRICAL DETAILS OF TOILET

CLIENT
BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	DRAWING NO-	REVISION-
A4	BES/BGP/IES/EE-02	R0

10 HEATPUMP AND WTP



DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

MEP CONSULTANT

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ARCHITECT-
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REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

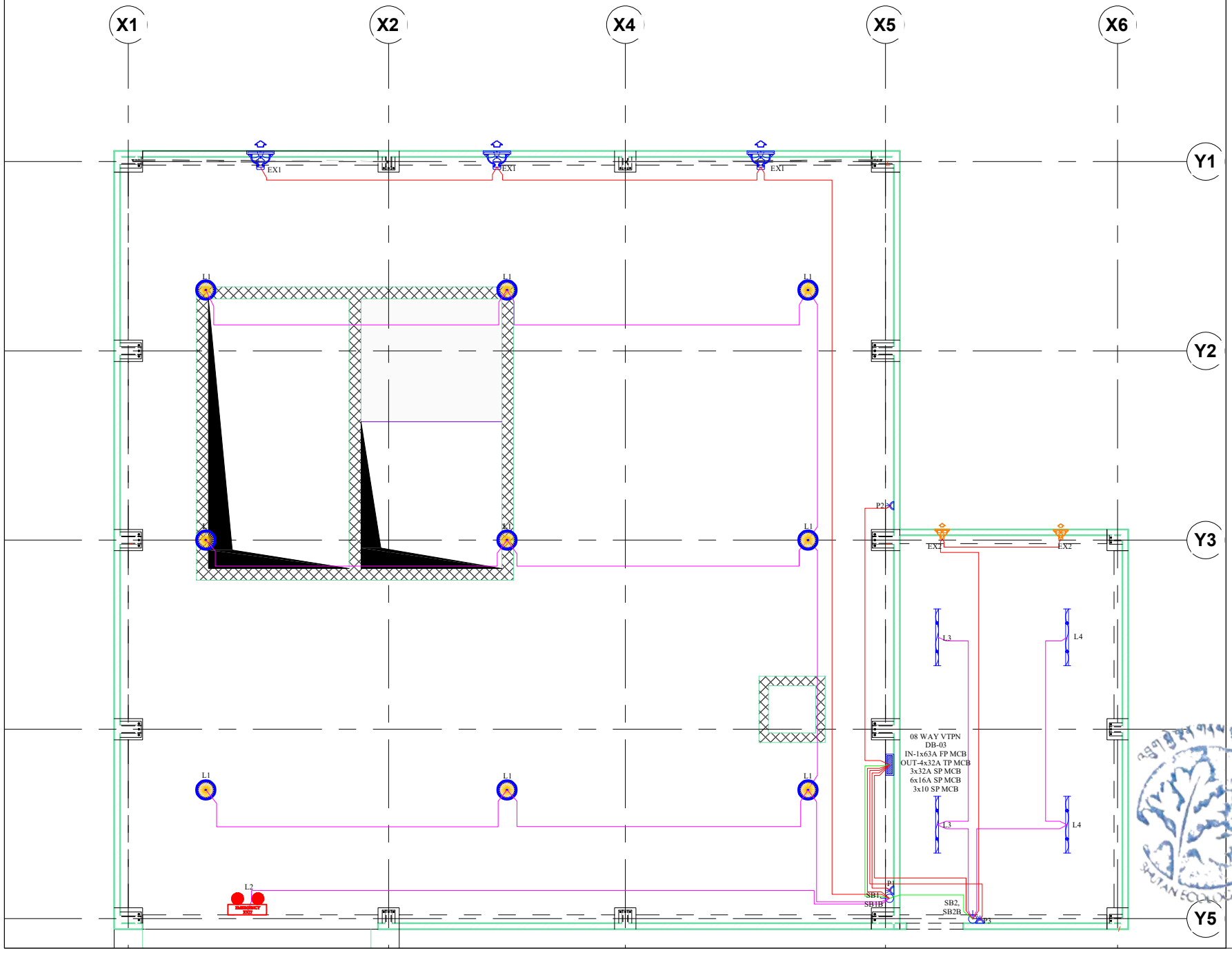
TILE OF THE SHEET-
ELECTRICAL DETAILS OF HEAT PUMP AND WTP UNIT

CLIENT
BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	DRAWING NO-	REVISION-
A4	BES/BGP/IES/EE-03	R0

5 FEED PREP UNIT



DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

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REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE

BIO GAS PLANT

TILE OF THE SHEET-

ELECTRICAL DETAILS OF FEED PREPARATION UNIT

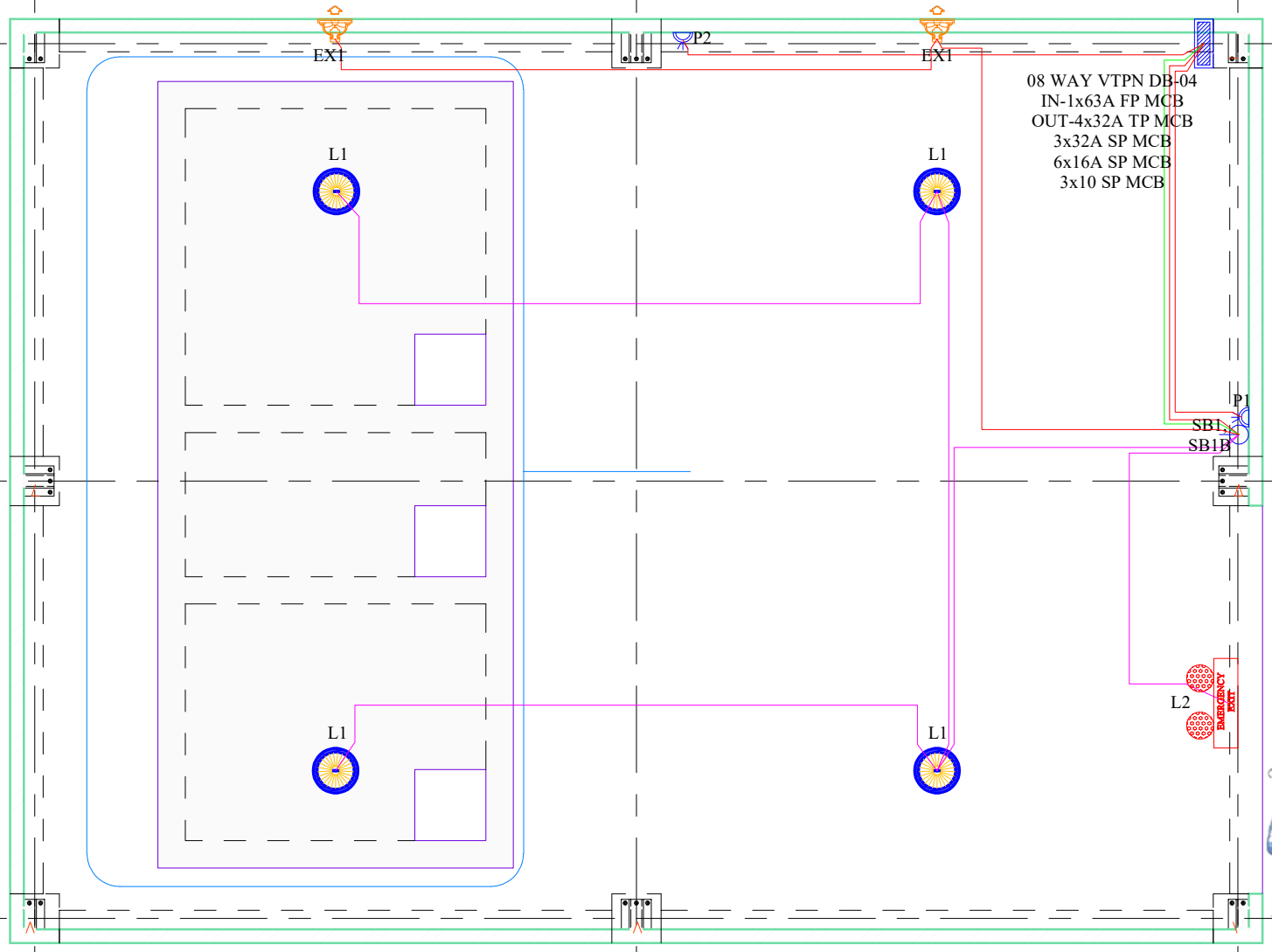
CLIENT

BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	P.R	J.C

PAGE SIZE	DRAWING NO-	REVISION-
A4	BES/BGP/IES/EE-04	R0

7 DIGEST HANDLING UNIT



DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

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ARCHITECT-
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REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

TILE OF THE SHEET-
ELECTRICAL DETAILS OF DIGEST HANDLING UNIT

CLIENT
BHUTAN ECOLOGICAL SOCIETY

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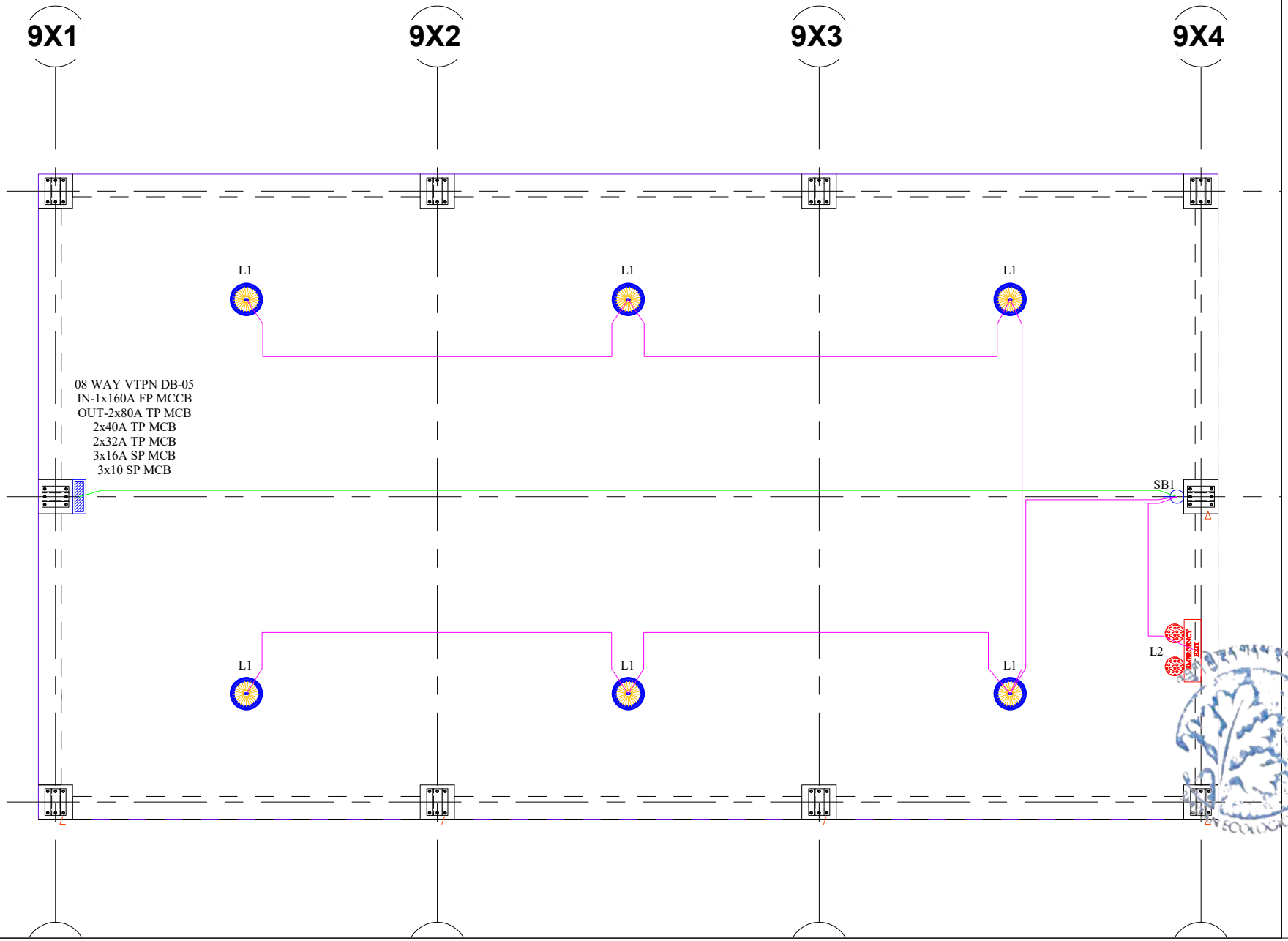
NTS	18/10/2025	P.R	J.C

PAGE SIZE	DRAWING NO-	REVISION-
A4	BES/BGP/IES/EE-05	R0

9 BOTTLING UNIT



DISCUSSION DRAWING	☐
DBR DRAWING	☐
TENDER DRAWING	■
GFC DRAWING	☐

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ARCHITECT-
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REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE
BIO GAS PLANT

TILE OF THE SHEET-
ELECTRICAL DETAILS OF BOTTLING UNIT

CLIENT
BHUTAN ECOLOGICAL SOCIETY

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PAGE SIZE	DRAWING NO-	REVISION-
A4	BES/BGP/IES/EE-06	R0

LEGEND

SYMBOLS	
FIRE EXTINGUISHER (ABC/CO2)	SAND BUCKETS (SET OF 3)
01	02

DISCUSSION DRAWING	☐	GFC DRAWING	☐
DBR DRAWING	☐		
TENDER DRAWING	■		

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ARCHITECT-

NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE

20 TPD BIO-GAS PLANT PROJECT AT MEMELAKHA, THIMPHU, BHUTAN.

TITLE OF THE SHEET-

FIRE EXTINGUISHER AND SAND BUCKET LOCATION DETAILS

CLIENT

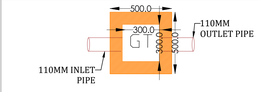
THE BHUTAN ECOLOGICAL SOCIETY

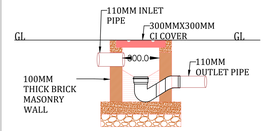
SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	18/10/2025	A.R	J.C

PAGE SIZE	PROJECT CODE	DRAWING NO-	REVISION-
A0	56	BES/BGP/IES/FPS-01	R0

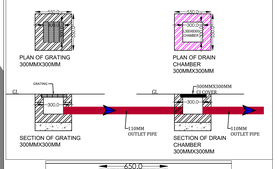
LEGEND BOX

REF. NO	SYMBOL	Description
1		WESTERN ONE PIECE WATER CLOSET
2		WALL HUNG WASH BASIN
3		URINAL
4		HEALTH FAUCET HEIGHT 15" FROM FFL
5		MULTI FLOOR TRAP
6		ANGULAR STOP COCK
7		OVERHEAD RAIN SHOWER WITH SINGLE LEVER DIVERTER , SHOWER SIZE " APD "
8		STORAGE TYPE 25 LTRS. GEYSER
9		25 Ø COLD WATER LINE CPVC SDR -11 ON WALL
10		20 Ø COLD WATER LINE CPVC SDR -11 ON WALL
11		20 Ø HOT WATER LINE CPVC SDR -11 ON WALL
12		50 Ø SWR WWP ON FLOOR
13		75 Ø SWR WWP B TYPE ON FLOOR
14		110 Ø SWR SOIL PIPE B TYPE ON FLOOR
15		20Ø COLD WATER LINE CPVC SDR-11 VERTICAL STACK
16		BALL VALVE



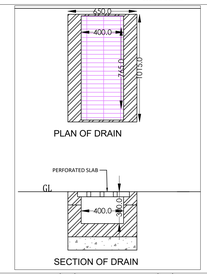


SECTION OF GULLY TRAP



SECTION OF GRATING 300MMX300MM

SECTION OF DRAIN CHAMBER 300MMX300MM



SECTION OF DRAIN

DISCUSSION DRAWING		GFC DRAWING	
DBR DRAWING			
TENDER DRAWING	■		

MEP CONSULTANT

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ARCHITECT-

NAMEY SAMEY STUDIOS

REV	DESCRIPTION OF REVISION	DD/MM/YYYY

PROJECT TITLE

BIO GAS PLANT

TILE OF THE SHEET-

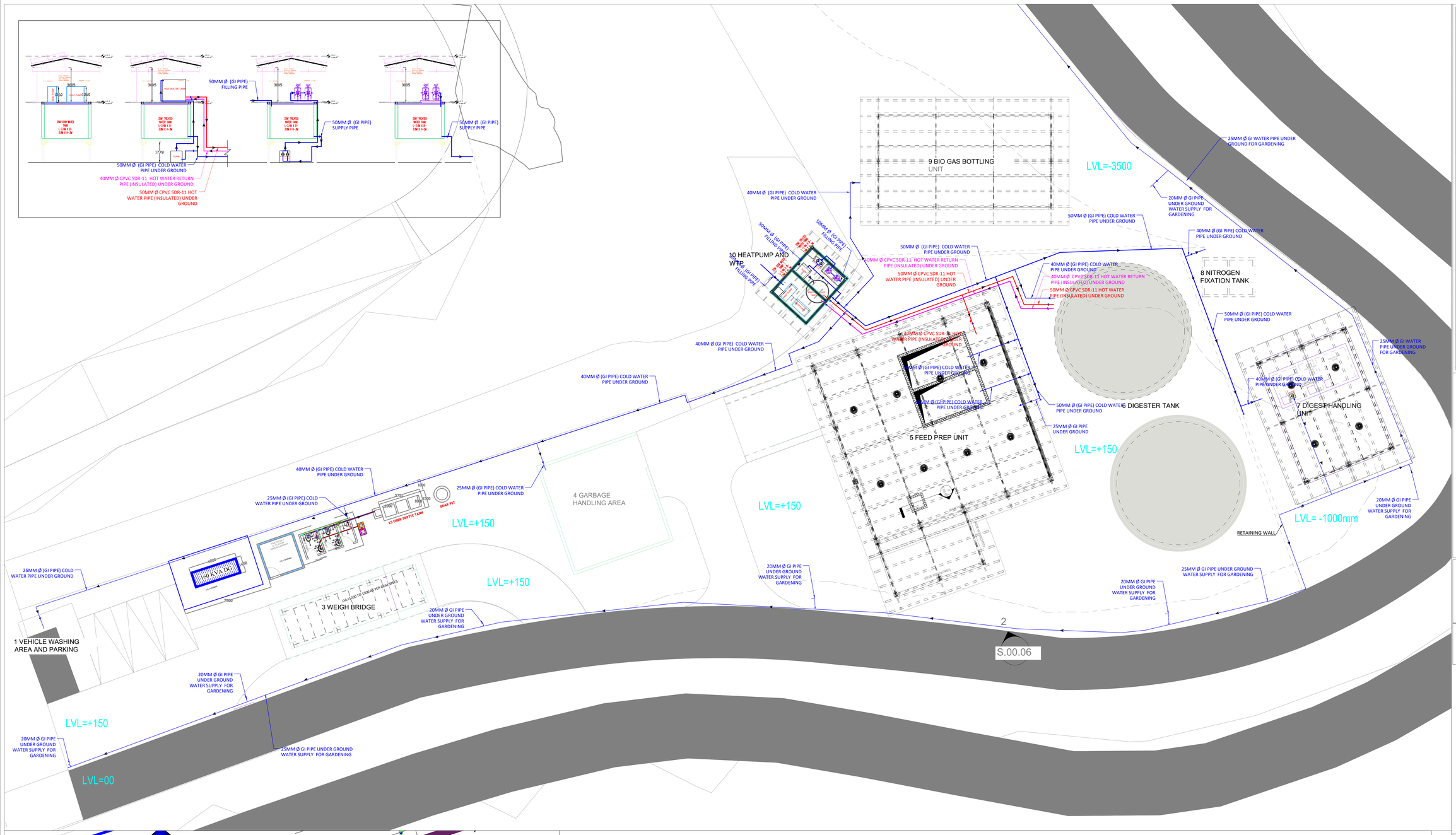
PLUMBING DETAILS FOR DRAINAGE SYSTEM .

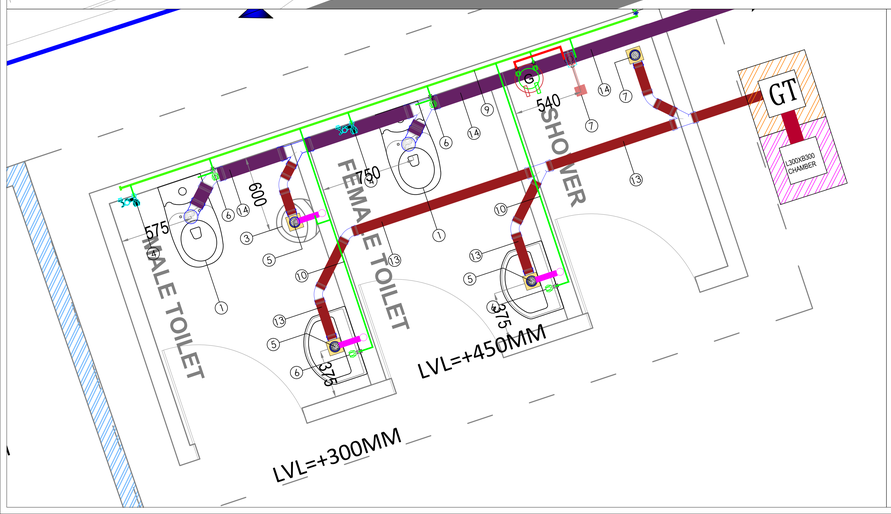
CLIENT

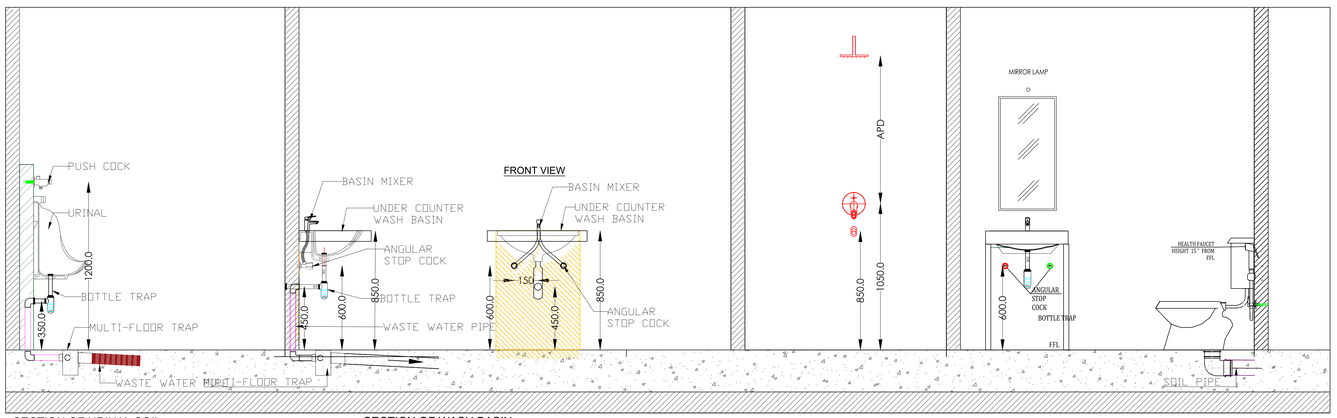
BHUTAN ECOLOGICAL SOCIETY

SCALE OF THE SHEET	DATE	DRAWN BY	CHECKED BY
NTS	17/10/2025	P.T	JC

PAGE SIZE	PROJECT CODE	DRAWING NO.	REVISION
A0	56	BES/BGP/IES/PHE-02	R0







SECTION OF URINAL SOIL OUTLET CONNECTION

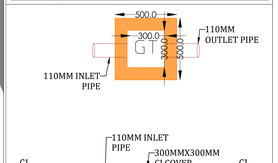
SECTION OF WASH BASIN INLET & OUTLET CONNECTION

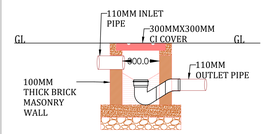
SECTION OF SHOWER AREA

SECTION OF DISABLE TOILET

LEGEND BOX

REF. NO	SYMBOL	Description
1		WESTERN ONE PIECE WATER CLOSET
2		WALL HUNG WASH BASIN
3		URINAL
4		HEALTH FAUCET HEIGHT 15" FROM FFL
5		MULTI FLOOR TRAP
6		ANGULAR STOP COCK
7		OVERHEAD RAIN SHOWER WITH SINGLE LEVER DIVERTER , SHOWER SIZE " APD "
8		STORAGE TYPE 25 LTRS. GEYSER
9		25 Ø COLD WATER LINE CPVC SDR -11 ON WALL
10		20 Ø COLD WATER LINE CPVC SDR -11 ON WALL
11		20 Ø HOT WATER LINE CPVC SDR -11 ON WALL
12		50 Ø SWR WWP ON FLOOR
13		75 Ø SWR WWP B TYPE ON FLOOR
14		110 Ø SWR SOIL PIPE B TYPE ON FLOOR
15		200 COLD WATER LINE CPVC SDR-11 VERTICAL STACK
16		BALL VALVE





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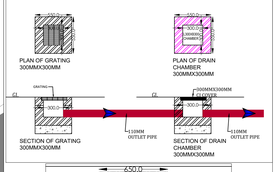

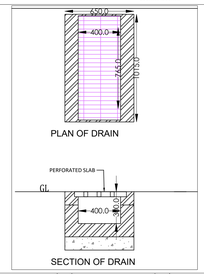

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DBR DRAWING	☐		
TENDER DRAWING	■		

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