

**HEAVY ENGINEERING CORPORATION LIMITED  
PROJECT DIVISION**

**LIMITED TENDER ENQUIRY**

Tender Enquiry No. : HEC/PROJ/C&S/Meghahatuburu/2012-2379

Dated: 15.05.2012

We request you to submit your most competitive offer for the following works of Tertiary Crushing System (TCS) Project at Meghahatuburu Iron Ore Mines (MIOM), Meghahatuburu as per the given schedule.

**ENQUIRY SCHEDULE**

<b>Sl. No.</b>	<b>Description</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Remarks</b>
1.	The detail design, engineering supported by design calculation as per data and specifications elaborated in technical specification, design criteria etc., preparation of the drawings for mechanical, civil & structural works and obtaining approval from CET/SAIL as per detail scope of works of NIT for Tertiary Crushing System (TCS) Project at Meghahatuburu Iron ore Mines (MIOM)/SAIL, Meghahatuburu. Jharkhand.	-	Lump Sum	

**Issue date of Tender** : 15/05/2012

**Submission date of tender** : 30/05/2012, upto 10.00 A.M

**Opening date of Tender** : 30/05/2012, at 03.00 P.M

TENDERS must be submitted in sealed cover with Tender No. and the due date superscribed on it, failing which Tenders may be ignored.

Offers shall be submitted in two parts to the address of the undersigned.

**EMD & documents for Qualification and other relevant documents** shall be submitted in an envelope duly marked **Part –I**. Price bid for the works shall be submitted in separate sealed envelopes marked **part-2** and subscribing **Price-bid**; which will be evaluated independently.

In case of non-submission of offer, please send regret letter before schedule date of tender.

**Enclosures:** - 1. General Layout and systematic drawings of the proposed system.  
2. Flow diagram of the proposed system.  
3. Technical Specification.

Thanking you,

Sd/-

H.S.Thakur

Manager,  
C&S/ Project Division  
Heavy Engineering Corporation Limited  
HMBP ADMIN. BLDG.  
P.O. - Dhurwa, Ranchi – 834 004  
**Ph.: 0651-2401064**  
**Fax: 0651-2401533**  
**Email: hsthakur@hecltd.com**

## **Scope of Work**

1. Scope of work under this contract covers the detail design, engineering supported by design calculation as per data and specifications elaborated / furnished in technical specification, design criteria etc., preparation of the drawings for mechanical, civil & structural works, obtaining approval from CET/SAIL and preparation of BOQ for volume of works to be executed in prescribed format for Tertiary Crushing System (TCS) Project at MIOM/SAIL, Meghahatuburu, Jharkhand.

### **1.1 General Scope of work**

- i) Preparation, submission and obtaining approval of Mechanical GA design/drawings based on General Layouts and system drawings of the Tertiary crushing System (TCS) project and actual parameters of equipments.

**General layout drawing of the project , schematic drawing of Tertiary Crushing Building and equipment parameters is enclosed. Plot plan, survey and soil report will be given to the successful bidder on award of work for carrying out the design & engineering work.**

- ii) Preparation, submission and obtaining approval of all technological structures drawings including, storage bunker, chutes and liners based on approved system design/ drawing.
- iii) Preparation, submission and obtaining approval of all the Civil and Structural designs / drawings, RCC drawings, fabrication drawings with Bill of Materials and Bar Bending schedules (BBS) based on approved system drawings and design criteria.

- v) Preparation of final BOQ of all the Civil, Structural and Mechanical works to be executed as per the approved design/ drawings for the following areas:
  - a) Complete civil work.
  - b) Complete Structural work for supply, fabrication and erection.
  - c) Complete Technological structure for supply, fabrication and erection.

However bidder is required to furnish preliminary BOQ within 15 days on award of works in prescribed format given in **Annexure-1**. Quantities of works mentioned in the “ABSTRACT OF BOQ” should not be exceeded by 5% (five percent) on approval of design and drawing.

- vi) All drawings and design calculations shall be supplied in Eleven (11) copies and one soft copy of the same on CD containing design calculation and drawings in Auto-CAD.
- vii) All the designs and drawings shall be carried out in accordance with detail Technical Specification including design criteria and relevant latest Indian Standard code. The design/ drawing works is to be carried out in desired sequence as decided by HEC for smooth progress of the site activities and **should be cost effective**.
- viii) Completion period for the complete works **except Clause 1-ix** is three (03) months from the award of the contract. The bidder shall submit detailed time schedule for complete design and drawing works including approval of the design/drawings by the consultant (CET) along with the offer. The successful bidder shall have to submit fortnightly progress report and plan for the next fortnight for the submission and approval of the design / drawings. **This is essential in view of maintaining time schedule.**
- ix) All modifications/deletions/additions/alteration in design/drawings as may be required by client (RMD), their consultant (CET) and HEC for proper execution of works at site till completion and submission of “As Built” drawings for handing over of the project to the client and during defect

liability period.

- x) Any other auxiliary design/drawing works not covered above but required for successful completion of the Project to be carried out suitably.

## **2. Detail scope of works**

### **2.1 Complete Project consists of the following units :**

#### **A. Mechanical**

- a) Installation of Tertiary crushing system consists of:
  - i) Provision of 1 no Tertiary cone crusher (500 TPH).
  - ii) 1 no steel bunker of capacity 50 m<sup>3</sup> (useful volume) with provision of 1 no vibro feeder (500 TPH).
  - iii) Provision of new vibrating screens VS1 (900 TPH) & VS2 (500 TPH).
  - iv) Provision of Pendant operated EOT crane of 30/5 T capacity.
  
- b) New belt conveyers:
  - i. Existing conveyor 306(500 TPH, B/W 800) in screen building shall be augmented and converted into conveyor 306N(900 TPH, B/W 1000) for feeding of materials from existing screen building upto proposed vibrating screen VS-1(inside Crusher building) with provision of discharging material either on screen VS-1 or on the new belt conveyor 306B.
  - ii. 306B (850 TPH)
  - iii. 306C (500 TPH)
  - iv. 306D (500 TPH)
  - v. 306E (500 TPH)
  - vi. 309B (250 TPH).
  
- c) Junction House JH-1 and JH-2 outside the Crusher Building.
- d) Transfer point inside the Crusher Building.

- e) Provision of 1 no 3T capacity electric hoist in each junction house JH-1 and JH-2 and 1 no for maintenance of EOT crane in Crusher Building.
- f) All technological structures, chute with liners, platforms, ladder, handrails etc.
- g) Provision of Dust Suppression System, Ventilation system, Air conditioning & Fire fighting.

**Note: Equipment design / drawing is not under the scope of bidder.**

## **B. CIVIL**

- a) R.C.C. framed electrical room with brick cladding including cable trenches within the crusher building.
- b) R.C.C. framed transformer room with brick cladding including cable trenches within the crusher building.
- c) R.C.C. framed compressor house with brick cladding including foundation of compressor, pumps, motors & R.C.C. overhead water tank outside the crusher building.
- d) Trenches and barbed wire fencing of open space of area 10mx6m for power factor improvement equipment located outside the crusher building.
- e) Foundation for crusher building, conveyer gallery & junction Houses.
- f) Flooring of Crusher building and Junction houses at ground level.
- g) Foundation for crusher, vibro feeder, storage bunker and intermediate platforms. **Crusher foundation shall be separated from frame work of any adjoining structure/building.**
- h) Foundation of column of Screen supporting structure & platforms.
- i) Foundation of Auxiliary items like motors, pulleys, pumps drives etc. as per requirement.
- j) Any other Structure as required to complete the project

## **C. STRUCTURAL**

- a) Conveyor Galleries:
  - i) 306B (850 TPH)
  - ii) 306C (500 TPH)
  - iii) 306D (500 TPH)
  - iv) 306E (500 TPH)
  - v) 309B (250 TPH)
  - vi) 306N (900 TPH).
- b) Building structure for Installation of Tertiary Crushing system with gantry girder and monorail for installation of EOT crane and Electric hoist including intermediate floors.
- c) Structure for JH1 & JH2 with monorails for installation of Electric Hoists.
- d) 1 no Transfer point inside the crusher building.
- e) Screen supporting structure including platform.
- f) Modification of existing conveyer galleries 306A & 324A to accommodate new junction houses JH-1 and JH-2 and conveyer galleries 306B and 309B.
- g) Modification of existing conveyor 306.
- g) Any other structure as required to complete the Project.

**2.2** For the technical specifications and the details of the different items, refer the Technical Specification enclosed with tender document.

**2.3** The scope of work is not limited to the list given in 2.1. Any other related design drawing job, not specifically mentioned herein but necessary for the completion

of the project, shall also be under the scope of the works of the successful bidder **at no extra charge.**

### **3. RESPONSIBILITIES OF SUCCESSFUL BIDDER**

- 3.1** The Successful Bidder undertakes to design, redesign, modify and make changes in the design, drawings, details, if required etc. till they are finally approved by client's consultant CET and as required for completion, trial run, defect liability period and handing over of the project to clients, within the contract value and nothing extra shall be payable to the Successful bidder in this regard.
- 3.2** The Successful Bidder shall furnish preliminary BOQ within 15 days on award of works in prescribed format given in **Annexure-1**. Quantities of works mentioned in the "ABSTRACT OF BOQ" should not be exceeded by 5% (five percent) on approval of design and drawing. In case HEC has to incur extra expenses due to execution of extra quantities/additional work to complete the project as per the approved drawing and design, the same shall be recovered from the bidder upto the extent of maximum 15% (fifteen percent) of total contract value. Further, no bonus shall be payable to the bidder in case of saving in executed quantities as compared to quantities given in Preliminary BOQ.
- 3.3** The Successful Bidder shall ensure that the items of executions & designs considered in bill of quantities are as per specified Technical specifications, relevant IS codes, design criteria, BIS codes and other specification as given by the manufacturer, clients requirement for the Project. The client/HEC shall be at liberty to specify the quality and standard of materials to be used in the construction work and such directions will bind the Successful Bidder. The Successful Bidder shall execute & complete all such design/drawing works in all



respect certified as such by the client's consultant (CET)/HEC.

- 3.4** The Successful Bidder shall take responsibility of soundness of all design. In case, any defects/short comings in the design from the approved design are observed/noticed by the HEC /client at any point of time, Successful Bidder shall be liable to get the defects rectified to the satisfaction of “client(MIOM)/HEC”.
- 3.5** Successful Bidder shall execute the design and drawing works in a time bound manner. On award, successful bidder shall submit to HEC the PERT network/BAR chart on MS PROJECT giving the schedule of all activities pertaining to the design/drawing works. The decision of HEC regarding the time period to be taken for completion of design/drawing works of different units and over all time period shall be final and binding on the successful bidder.
- 3.6** The successful bidder shall be exclusively responsible for all such personnel engaged on the works for such matters as payment of salary, wages, bonus and compensation in event of death and accident. No claim on this account shall be claimable by successful bidder from HEC nor it shall be payable to them.
- 3.7** The successful bidder shall supply free of charge to the HEC, the following documents:
- i) Eleven (11) sets of the drawings to be submitted to the client.
  - ii) Eleven (11) sets of complete detailed design calculations including supply of drawings incorporating subsequent modifications/revision, if any.
  - iii) Eleven (11) sets of each of all working drawings for Structural, Fabrication, Erection , BBS for all services and works (good for

construction drawings), based on the approved drawings including supply of drawings incorporating modifications / revision, if any.

- iv) Eleven (11) sets of additional design, drawings and other documents needed for proper execution of works, if required by HEC/MIOM.
- v) Soft copies of the drawings/documents/design calculations shall also be submitted to HEC including AUTOCAD files, STAAD PRO files or the files of any other software used for the work.

**3.8** The successful bidder shall be fully responsible for evolving safe, economical, technically sound and correct design and shall ensure that the planning and designing of the work is carried out based on the tender documents and specifications of clients, latest BIS codes of practices and good engineering practices. The successful bidder shall undertake that all drawings, design, specifications, plans, estimates and other documents will be prepared and furnished to suit the particular local conditions of the site in the most economical manner so as to ensure that the estimates submitted in the prescribed form by the bidder with their tender document are not exceeded on completion of work. At any stage during the progress of execution of the work, if any defect/deficiency is noticed in the drawings, designs, specifications, plans, estimates or other documents, the successful bidder shall provide free of cost to HEC fresh designs/drawings/specifications/estimates and other documents within a period of the seven days from the date of notice issued by HEC in this regard.

**3.9** The Successful bidder shall be responsible for the accuracy of the data collected and the designs, drawings, and quantities prepared by him as part of the work. Successful bidder shall be responsible for any inaccuracy in the work, which might surface out at the time of ground implementation of the project. In such an eventuality, the successful bidder will be responsible to correct the design / drawings including re-investigations etc. as required without any extra cost implication on HEC.

- 3.10** The Successful bidder shall appoint/depute and notify a team of well qualified Technical personnel from his organization having good knowledge of the subject to carry out the work and to represent the successful bidder in all the meetings/ presentations with HEC/CET and the client MIOM, as and when required. The successful bidder shall also appoint/depute one engineer having good knowledge of the subject and all activity related to design/drawing as nodal officer for the Project, who will be responsible for proper and timely implementation of the design / drawing works for the Project. A suitable office with desired manpower and related facilities, if required to be established at Ranchi for proper co-ordinations, day to day development and timely completion of the complete work.
- 3.11 As made drawings:** After the completion of the project, the bidder will have to submit the “AS MADE” design/drawings for final approval/ acceptance in 11 sets copy.

## **INFORMATION AND INSTRUCTION FOR TENDER**

- 4.1 Site Visit:** The site for proposed plant is situated at Meghahatuburu Iron Ore Mines, Meghahatuburu, Singbhum district Jharkhand. The nearest railway station is Barbil. The bidder is advised to visit the site of work at his own cost and examine it and its surroundings and collect all information that he considers for obtaining necessary parameters for interfacing of various units as per contract for proper assessment of prospective assignment. For further technical clarification, bidder may contact the office of Manager(C & S) on any working day from 9 AM to 5 PM.
- 4.2** The bidder should sign each page of the tender papers on due examination of the same, as acceptance of NIT terms and conditions.
- The related drawings and other documents are available and may be discussed at our office on any working days from 9 AM to 4 PM.
- 4.3** The tender should be typed written or filled in neatly. Overwriting should be avoided, correction to be made by neatly crossing, initialing, dating and rewriting.
- 4.4** Estimated BOQ of all the Civil and Structural (including technological structures) works in the prescribed format is to be filled up and submitted within fifteen (15) days on award of the work.
- 4.5** References, informations and certificates duly certified from the respective clients and capability of the contractor etc should be signed by the concerned Engineer In charge or his authorized representative.
- 4.6** The list of technical persons to be deployed, available office appliances, softwares etc to carry out the design/drawing works is to be furnished along with the offer.
- 4.7** The tenderer may furnish any additional information which he thinks

is necessary to establish his capabilities to successfully complete the envisaged work. Superfluous information is to be avoided.

- 4.8** The Qualifying document for carrying out similar works to be submitted along with E.M.D., the technical part and BOQ in the prescribed format enclosed in Annexure-I in an envelope duly marked Part –I. Price bid for the works shall be submitted in separate sealed envelopes marked part-2 and subscribing Price-bid; which will be evaluated independently.

**4.9 Earnest Money**

- (a) EM to be deposited in form of DD amounting Rs. 15, 000/-(Fifteen thousand) in favour of Heavy Engineering Corporation Limited, SBI Hatia.
- (b) Offers without EMD will be summarily rejected; unless waived/exempted by prevailing Govt. guidelines or by the competent authority of the corporation. A written proof should be enclosed as may be applicable.
- (c) If the value of deposited EM is found less than 2% of awarded cost, the contractor have to deposit the balance amount to make them 2% or the same shall be adjusted from his 1<sup>st</sup> R/A bill. Similarly any excess amount above 2% of the awarded value may be refunded to such contractor on his written request. The decision of department in his regard shall be final and binding.
- (d) EM of unsuccessful bidders will be refunded on their request only after finalization of the contract.
- (e) EM of successful bidders shall be converted into security deposit and the balance S.D. shall be deducted proportionally from their progressive bills to make it 10% or as may be applicable, as per HEC's works and services manual.

#### **4.10 QUALIFICATION CRITERIA. (PART-I)**

4.10.1 Bidder must have experience of having successfully completed three similar works of Rs. 6.0 Lakhs each or two similar works of Rs. 7.0 Lakhs each or one similar works of Rs. 12.0 Lakhs in last five years ending on 31<sup>st</sup> March 2012.

4.10.2 Bidder must have annual average financial turn over (gross) of Rs. 5 Lakhs during last three years ending on 31<sup>st</sup> March 2012 and should be either audited by a chartered accountant or as submitted by the tenderer to the Income Tax Department.

4.10.3 Bidder have to submit Name and postal address of firms with E-mail, telephone and fax no. etc. (if any), Copies of legal status/ registration of firms, name of Directors/ officers and supervisors to the concerned with work with authorization to act for the firm etc.

4.10.4 Bidder must have technical capability to complete the work within three(03) months. A list of equipments, softwares, technical staff, engineers, draftsmen etc. to be enclosed for scrutiny.

**4.11** The department, however reserves the right to restrict the list of qualified bidders to any number deemed suitably by it ; and also reserves the right to accept or reject any application to annual the qualification process and reject all application at any time, without assigning any reason or incurring any liabilities to the tenderers.

**4.12** Even though a bidder may satisfy the above requirements, he would be liable to disqualification if he has;

a) Made misleading or false representation or deliberately suppressed the information in the form of statements and enclosures required for qualifying document.

b) Record of poor performance such as abandoning work, not properly completing the contract or financial failures/ weakness etc.

**4.13** After evaluation of qualifying criteria (Part-I), the qualified bidder or his representative will be allowed to participate in the opening of the price bid (Part-2), for which the opening of price bid will be intimated by E- mail /Fax/Telephone. The price- bid of unqualified bidder will remain unopened /returned /destroyed before or after finalization of the contract.

**4.14 Price-Bid**-The quoted rates should be for total works including the taxes and duties (Except service taxes) with contractor overhead and profit etc. complete. Most competitive and realistic price bid to be furnished in prescribed Bill of Quantities based on prevailing market rates. The bidder may be asked to substantiate the same with cost break-up as per prevailing market rates, failing which or in case of discrepancy the offer will be either rejected and/or loaded as derived by the department with respect to offered price of other bidders. The decision of the department will be final and binding. The rates should be quoted both in figure and words. In case of difference between the two, later will prevail. **The price shall remain firm during entire period of contract.** The bidders are required to furnish the cost break up of their offered lump sum price for due evaluation and making payment.

#### **4.15 Award Criteria**

(a) The offers shall be technically and commercially loaded in respect of various factors to bring all Tenderers at comparable level. The decision of the department shall be final and binding.

(b) The department reserves the right without being liable for any damages or obligation to inform the bidder to:

i) Amend the scope and value of contract to this bidder.

ii) Reject any or all the applications without assigning any reason, thereof. iii)

The department is not bound to accept lowest tenderers.

- iv) May split the works between two or more tenderers based on offered lowest rate / cost in suitable ratio having ratio of 60:40 in case of two bidders and suitable ratio as decided by HEC in case of more than two bidders considered for award of work. HEC's decision shall be binding & acceptable to bidders in this regard..
- v) Offers should be valid for 90 days. Validity period may be extended for another 30days if required: from the date of opening of the tender.



## **SPECIAL TERMS AND CONDITIONS OF THE CONTRACT**

### **5.1 INTENT OF SPECIFICATION**

As mentioned under scope of works.

This specification should be read in conjunction with printed a) General condition of contract, b) Tender documents.

The clause will be in addition to the clauses mentioned in the above documents and will have overriding effect, wherever applicable.

### **5.2 COMPLETION TIME**

**5.2.1** The Successful bidder shall complete the design / drawing works, its approval and provide the documents, drawings, design etc. required for timely completion of works within 03 months from the date of commencement of the work. The date of commencement of the work will be within seven (07) days from the date of issuance of LOI. No extension of time for completion of the same shall be made owing to any variations made in the works by the orders of the clients/HEC, unless the clients in consequences of such variations extends the time allowed to HEC for the completion of the works, in which case HEC may extend the time of completion under this agreement for a proportionate period but not greater than the time allowed to HEC for the completion of the whole works. The contract Terms and Conditions in Toto between HEC & MIOM/ SAIL will also be applicable for their portion of assignments.

**5.2.2** The defect liability period will be 12 months from the date of final handing over to the client MIOM or issue of completion certificate by client. The successful bidder shall visit the site and provide all the drawings/ details/ specification for rectification of defects, if any.

**5.2.3** If at any stage, Project has been delayed by the acts of Client or by the deployed contractor for the work, nothing extra shall be payable to the successful bidder.

However suitable extension of time, giving reasons, for completion of work shall be granted accordingly, if it is granted to HEC by client. Successful bidder shall apply for such extension of time.

### **5.3 LIQUIDATED DAMAGES**

If the contractor fails to complete the work in time during the contract period or any part thereof, the recovery equivalent required to one half percent (0.5%) of the contract price per week or part thereof for the period of delays subject to a maximum of 10% of the contract price shall be charged without prejudice to any HEC's right and other provisions of the contract.

### **5.4 WORK DONE AT RISK AND COST**

At any time, if the progress or quality of work is not found satisfactory, H.E.C. shall have the right either to withdraw the balance work or part thereof and shall get the same done at Contractor's risk and cost after giving an advance notice of 15 days to the contractor. In such a situation no compensation whatever shall be payable to the contractor. The security deposit whatsoever deducted would be adjusted against the excess cost incurred over the balance contract value.

### **5.5 OFFLOADING PROCEDURE**

The works or any part of works cannot be offloaded to any sub-contractor without the prior permission of the Engineer I/c of HEC. The successful bidder will be bound to abide by the order of Engineer before deployment of such agency/agencies.

**5.6** All designs and drawings shall be the property of HEC and the name of HEC shall be predominantly displayed on all the drawings and documents as per the approved "Name Plate". The proprietary rights of designs shall remain with HEC.

## **5.7 INSURANCE SCHEME**

Employee state insurance scheme under employees state insurance Act-1948, insurance cover for all employees shall be taken by the bidder.

## **5.8 Taxes and Duties**

- a) Income Tax shall be deducted from all payments as per the prevailing rules.
- b) VAT/ Sales tax and any statutory Levis etc. shall be borne by the successful bidder except service tax which will be reimbursed as on actual on submission of the same to statutory body and copy of the same submitted to HEC. It would be sole responsibility of the successful bidder to comply such taxes at his own. HEC shall not be liable any way for same.

## **5.9 Payment Terms and Conditions**

**5.9.1** R/A bill shall be paid based on progress of work after deducting applicable statutory and contractual deduction. 80% of the value will be paid as progressive payment on submission and approval of design/drawings, 10% on Erection & Commissioning and 10% on completion of defect liability period.

The break-up for pro rata payment as per above to be furnished by successful bidder for approval of HEC.

**5.9.2** 10% shall be paid on commissioning of the project by in all respects as per contract between HEC & MIOM/SAIL & on issue of certificate by the Engineer, deducting requisite SD & other statutory deductions.

**5.9.3** Balance 10% amount along with SD shall be paid on completion of defect liability period of twelve (12) months which shall be counted after commissioning of the project, only after dully certified and issuing certificate by the Engineer for satisfactory completion of works in all respect.

**5.9.4** Service tax: Service tax, if applicable, shall be reimbursed to successful bidder on submission of valid proof of having deposited the same to the tax authorities. The same is to be submitted along with the bill value submitted to HEC as per billing schedule & progress of works.

**5.9.5** All expenses on account of visits performed by the bidder or their representatives in connection with planning, designing, detailing, obtaining approval from HEC/CET and during construction till completion stage of work & defect liability period are included in the awarded value of the contract. No extra charge shall be payable on this account.

**5.9.6** If at any time after award/start of work, the client decides to abandon or reduce the scope of work for any reason whatsoever and hence not require the whole or any part of the works to be carried out, HEC shall give notice in writing to this effect to the bidder and the bidder shall have no claim for any payment of compensation.

**5.10 LABOUR LAWS TO BE COMPLIED WITH BY THE CONTRACTOR – “as applicable under laws”**

1. The contractor shall undertake to be bound by all the provisions of the contract labour (Regulation and Abolition) Act, 1975 and the Contract labour (Regulation and Abolition) Rules, 1975 in respect of Employee of contract labour, as applicable.
2. The contractor should apply for and obtain necessary labour license/Registration Certification from the labour licensing authority as per state/central Acts, before the commencement of the work, if applicable.
3. The contractor shall not employ in connection with the work any person who has not completed 18 years of age.

The contractor shall comply with the following major laws applicable to establishments engaged in building and other construction works:-

- a) Workman Compensation Act 1923: Compensation in case of injury by accidental arising out of or during the course of employment.
- b) Payment of Gratuity act 1972: gratuity payable to an employee on satisfaction of certain condition of separation of an employee has completed 5 five years or more on death of at the rate of 15days wages for every completed year f service. The act applicable to all establishments employing 10 or more employee.
- c) Employee P.F and Miscellaneous Provision Act 1952: monthly contribution of the employer plus worker at stipulated rate. The benefit payable under the act  
 :Person to family on retirement or death as the case may be.  
 Deposit link insurance on the death in harness of the work.  
 Payment of P.F. accumulation on retirement / death.
- d) Maternity Benefit Act 1951.
- e) Contract labour (Regulation & Abolition) Act 1970: Certain welfare measures to be provided by the contractor to contract labour and in case the contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The act applicable to establishments or contractor of Principal Employer if the employ 20 or more contracts labour.
- f) Minimum wage Act 1948:
- g) Payment of wage Act 1936: It lays down by what date the wage are to be paid and what deduction can be made from the wage of the workers.
- h) Equal Remuneration Act 1979: equal wages for work of equal nature to male and female.
- i) Payment of Bonus Act 1965: applicable to all establishments

employing 10 or more employee. The act provides for payment of annual bonus subject to a minimum of

8.33% of wage and maximum of 20% of wage to employees drawing Rs. 3500 per month or less.

- j) Industrial Dispute Act 1947.
- k) Industrial employment's (Standing Orders) Act 1946. l) Trade Union Act 1926
- m) Child Labour (Prohibition & Regulation) Act 1986
- n) Inter- State Migrant Workman's (Regulation of Employee condition of Service) Act 1979.
- o) The building and other construction workers (Regulation of Employment and condition of services) Act 1996 and Cess Act of 1996.
- p) Factories Act 1948.

4. The contractor shall at his expense comply with or cause to be complied with Model Rules for labour welfare or rules framed by Govt. from time to time for the protection of the life and for making sanitary arrangement for workers employed.
5. The contractor shall at his own expense arrange for the safety provision in respect of all labour employed and shall provide all facilities in connection their with.
6. The contractor shall comply with and be bound by the sub-contract labour regulations.

7. The contractor shall submit necessary documentary evidence as requested by HEC.
8. The contractor will maintain all necessary records/ registrations laws and shall produce them for inspection by HEC/State Govt. authorities as and when required.
9. The contractor shall regularly deposit the CPF of all contract labour either directly to CPF Commissioner, or may deposit to the Trustee Provident Fund, HEC. This is pre-requisite for making payment against R/A Bills.
10. Any disputes arising between HEC & the Contractor will be settled within the jurisdiction of Ranchi only.

#### **5.11 AGREEMENT**

The successful bidder will be required to sign an agreement with HEC on non-judicial stamp of value not less than Rs. 100 only as per HEC's format of Agreement within fifteen (15) days from the issuance of LOI. The cost of the same shall be borne by the successful bidder.

## Price Bid

Sl. No.	Description	Unit	Quantity	Rate (Rs.)	Price (Rs.)
1.	The detail design, engineering supported by design calculation as per data and specifications elaborated in technical specification, design criteria etc., preparation of the drawings for mechanical, civil & structural works and obtaining approval from CET/SAIL as per detail scope of works of NIT for Tertiary Crushing System (TCS) Project at Meghahatuburu Iron ore Mines (MIOM)/SAIL, Meghahatuburu. Jharkhand.	-	Lump Sum	Lump Sum	
Total Price (Rs.)					

**Note :**

The bidder may be asked to furnish the cost break-up of offered Lump Sum price for our evolution and onward payment of progressive bills accordingly.

Signature of  
Contractor  
Duly sealed (with complete address)



**Bill Of Quantity****1 Crusher Building**

<b><u>Sl. No.</u></b>	<b><u>Description</u></b>		<b><u>Unit</u></b>	<b><u>Quantity</u></b>	<b><u>Remarks</u></b>
1	<b>Civil</b>				
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>		
		b) 3-6M	M <sup>3</sup>		
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>		
		b) M10	M <sup>3</sup>		
		c) M15	M <sup>3</sup>		
1.c	RCC	a) M25	M <sup>3</sup>		
1.d	Brickworks		M <sup>3</sup>		
1.e	Plastering		M <sup>2</sup>		
1.f	Flooring		M <sup>2</sup>		
2	<b>Building Structure</b>				
2.1	Steel Structural		MT		
2.2	CGI Sheeting	a) 18 G	MT		
		b) 20 G	MT		
3	<b>Technological Structures</b>				
3.1	Technological Structures		MT		

**2 Crusher Foundation and Supporting Structure**

<b><u>Sl. No.</u></b>	<b><u>Description</u></b>		<b><u>Unit</u></b>	<b><u>Quantity</u></b>	<b><u>Remarks</u></b>
1	<b>Civil</b>				
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>		
		b) 3-6M	M <sup>3</sup>		
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>		
		b) M10	M <sup>3</sup>		
		c) M15	M <sup>3</sup>		
1.c	RCC	a) M25	M <sup>3</sup>		
1.d	Brickworks		M <sup>3</sup>		
1.e	Plastering		M <sup>2</sup>		
1.f	Flooring		M <sup>2</sup>		

3 **Screen Supporting Structure**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

4 **Intermediate Platforms**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

5 **Storage Bunker & Vibro Feeder**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

6 **Junction House JH1**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

7 **Junction House JH2**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheetting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

8 **Transfer Point JH3**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheetting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

9

**Conveyor 306N**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

10

**Conveyor 306B**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

11 **Conveyor 306C**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheetting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

12 **Conveyor 306D**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheetting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

13 **Conveyor 306E**

<u>Sl. No.</u>	<u>Description</u>		<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>				
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>		
		b) 3-6M	M <sup>3</sup>		
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>		
		b) M10	M <sup>3</sup>		
		c) M15	M <sup>3</sup>		
1.c	RCC	a) M25	M <sup>3</sup>		
1.d	Brickworks		M <sup>3</sup>		
1.e	Plastering		M <sup>2</sup>		
1.f	Flooring		M <sup>2</sup>		
2	<b>Building Structure</b>				
2.1	Steel Structural		MT		
2.2	CGI Sheetting	a) 18 G	MT		
		b) 20 G	MT		
3	<b>Technological Structures</b>				
3.1	Technological Structures		MT		

14 **Conveyor 309B**

<u>Sl. No.</u>	<u>Description</u>		<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>				
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>		
		b) 3-6M	M <sup>3</sup>		
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>		
		b) M10	M <sup>3</sup>		
		c) M15	M <sup>3</sup>		
1.c	RCC	a) M25	M <sup>3</sup>		
1.d	Brickworks		M <sup>3</sup>		
1.e	Plastering		M <sup>2</sup>		
1.f	Flooring		M <sup>2</sup>		
2	<b>Building Structure</b>				
2.1	Steel Structural		MT		
2.2	CGI Sheetting	a) 18 G	MT		
		b) 20 G	MT		
3	<b>Technological Structures</b>				
3.1	Technological Structures		MT		

15 **Electrical and Tranformer Room**

<u>Sl. No.</u>	<u>Description</u>		<u>Unit</u>	<u>Quantity</u>		<u>Remarks</u>
1	<b>Civil</b>					
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>			
		b) 3-6M	M <sup>3</sup>			
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>			
		b) M10	M <sup>3</sup>			
		c) M15	M <sup>3</sup>			
1.c	RCC	a) M25	M <sup>3</sup>			
1.d	Brickworks		M <sup>3</sup>			
1.e	Plastering		M <sup>2</sup>			
1.f	Flooring		M <sup>2</sup>			
1.g	Finishing	a) Internal	M <sup>2</sup>			
		b) External	M <sup>2</sup>			
1.h.	Doors and Windows			Nos.	Size	
1.j	False Ceiling		M <sup>2</sup>			
1.k	False Flooring		M <sup>2</sup>			

16 **Compressor House**

<u>Sl. No.</u>	<u>Description</u>		<u>Unit</u>	<u>Quantity</u>		<u>Remarks</u>
1	<b>Civil</b>					
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>			
		b) 3-6M	M <sup>3</sup>			
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>			
		b) M10	M <sup>3</sup>			
		c) M15	M <sup>3</sup>			
1.c	RCC	a) M25	M <sup>3</sup>			
1.d	Brickworks		M <sup>3</sup>			
1.e	Plastering		M <sup>2</sup>			
1.f	Flooring		M <sup>2</sup>			
1.g	Finishing	a) Internal	M <sup>2</sup>			
		b) External	M <sup>2</sup>			
1.h.	Doors and Windows			Nos.	Size	



17 **Drains**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	

**ABSTRACT OF BILL OF QUANTITIES (FOR ALL UNITS)**

<u>Sl. No.</u>	<u>Description</u>	<u>Unit</u>	<u>Quantity</u>	<u>Remarks</u>
1	<b>Civil</b>			
1.a	E/w in excavation, backfill and disposal.	a) 0-3M	M <sup>3</sup>	
		b) 3-6M	M <sup>3</sup>	
1.b	PCC, as applicable grade of concrete	a) M7.5	M <sup>3</sup>	
		b) M10	M <sup>3</sup>	
		c) M15	M <sup>3</sup>	
1.c	RCC	a) M25	M <sup>3</sup>	
1.d	Brickworks		M <sup>3</sup>	
1.e	Plastering		M <sup>2</sup>	
1.f	Flooring		M <sup>2</sup>	
1.g	Finishing	a) Internal	M <sup>2</sup>	
		b) External	M <sup>2</sup>	
1.h.	Doors and Windows		Nos.    Size	
2	<b>Building Structure</b>			
2.1	Steel Structural		MT	
2.2	CGI Sheeting	a) 18 G	MT	
		b) 20 G	MT	
3	<b>Technological Structures</b>			
3.1	Technological Structures		MT	

**Note:-** Items noted above is for guidance purpose only. Bidder to provide all relevant items with specifications of works as per Technical Specification.

S=400

S=450

S=500

W=-950

W=-900

W=-850

W=-800



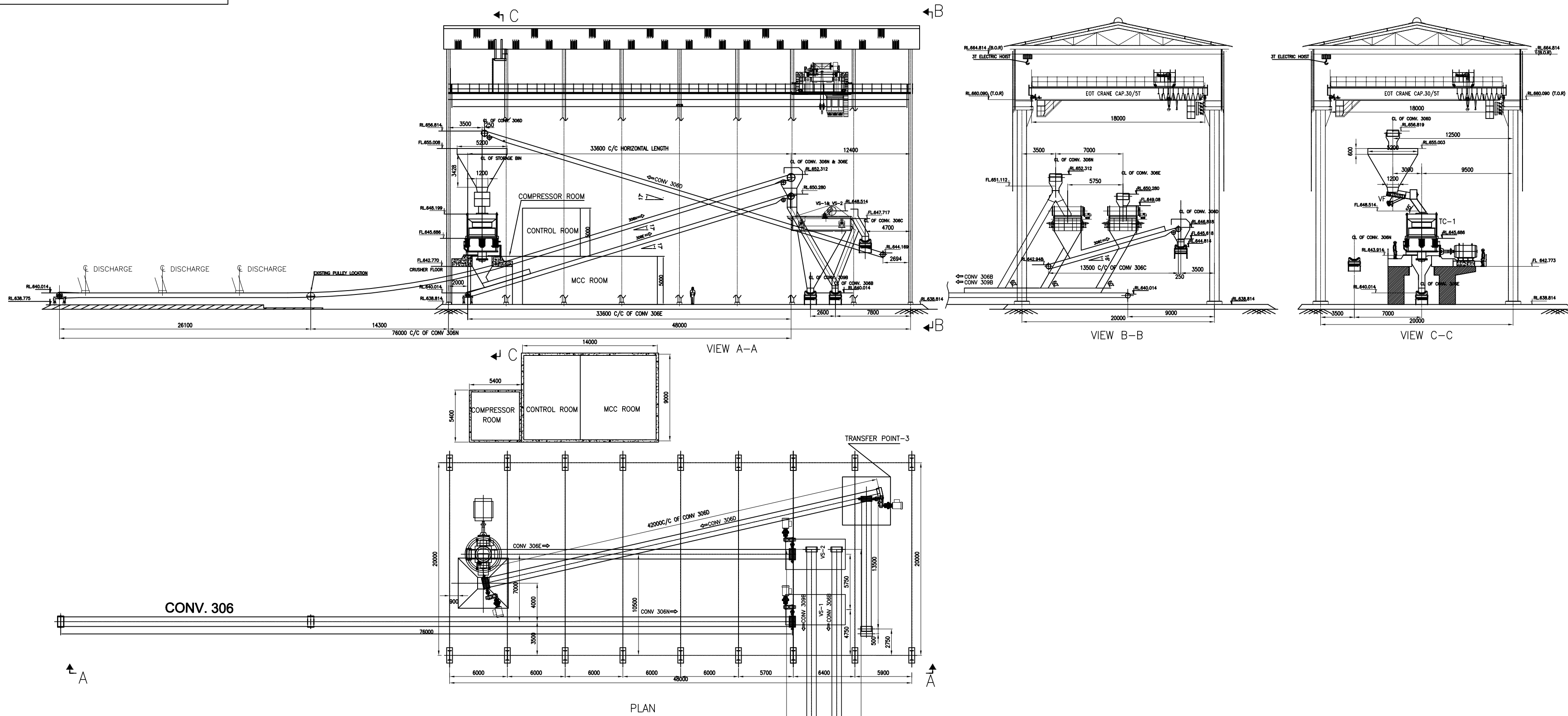
1. ALL DIMENSIONS ARE IN MM & ELEVATION ARE IN METRES
2. DIMENSIONS/STRUCTURAL ARRANGEMENT SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAIL ENGINEERING

SL.NO.	DRAWING NO	TITLE
3.	CET RN 2758 RM2 00 002	LOCATION PLAN SHOWING PROPOSED PLANT
2.	C/MBR/355	MINE AND PLANT LAYOUT
1.	MIOM/TCS/HEC/ME/BE/A/0021	FLOW DIAGRAM FOR TCS AT MIOM

REFERENCE DRAWINGS

NOTES

Revision	Modification	Date	Made by	Checked by
REVISION				
<b>STEEL AUTHORITY OF INDIA LTD.</b> RAW MATERIALS DIVISION MEGHAHATUBURU IRON ORE MINES		CONSULTANT <b>CENTRE FOR ENGINEERING AND TECHNOLOGY</b>		
PROJECT NAME		INSTALLATION OF TERTIARY CRUSHING SYSTEM AT MIOM		
<b>HEAVY ENGINEERING CORPORATION LTD. RANCHI</b>		SUB-CONTRACTOR - SUB CONTRACTOR DRG./DOC. NO.		
M/s HEC DRG./DOC. NO.		HEC/MIOM / TCS / ME / BE / A / 0020		
DRAWN BY	NAME	SIGN	DATE	TITLE:
DESIGNED BY	AK			GENERAL LAYOUT
CHECKED BY	AKP			FOR
APPROVED BY	AKS			INSTALLATION OF TERTIARY CONE CRUSHER
	SM			AT MEGHAHATUBURU IRON ORE MINES
PROJECT DRG. NO.		MIOM / TCS / HEC / ME / BE / A / 0020		
SUBMITTED FOR		APPROVAL REFERENCE / INFORMATION		
				SCALE
				NTS
				SIZE
				REV. 0



LIST OF MAIN EQUIPMENTS			
SL. NO.	EQUIPMENTS	DESCRIPTION	QTY.
1.	VIBRATING SCREEN (VS-1)	900 TPH	1
2.	VIBRATING SCREEN (VS-2)	500 TPH	1
3.	TER. CONE CRUSHER (TC)	500 TPH	1
4.	VIBRO FEEDER (VF)	500 TPH	1
5.	EOT CRANE (EOT)	30/5 T	1
6.	ELECTRIC HOIST (EH)	3 T	3
7.	BELT WEIGH SCALE (BWS)	-	1
8.	CONVEYOR 306N	900 TPH, 1000MM B.W	1
9.	CONVEYOR 306B	850 TPH, 1000MM B.W	1
10.	CONVEYOR 306C	500 TPH, 1000MM B.W	1
11.	CONVEYOR 306D	500 TPH, 1000MM B.W	1
12.	CONVEYOR 306E	500 TPH, 1000MM B.W	1
13.	CONVEYOR 309B	250 TPH, 1000MM B.W	1
14.	STORAGE BUNKER	50 CUM USEFUL	1
15.	MOTORISED FLAP GATE	-	1

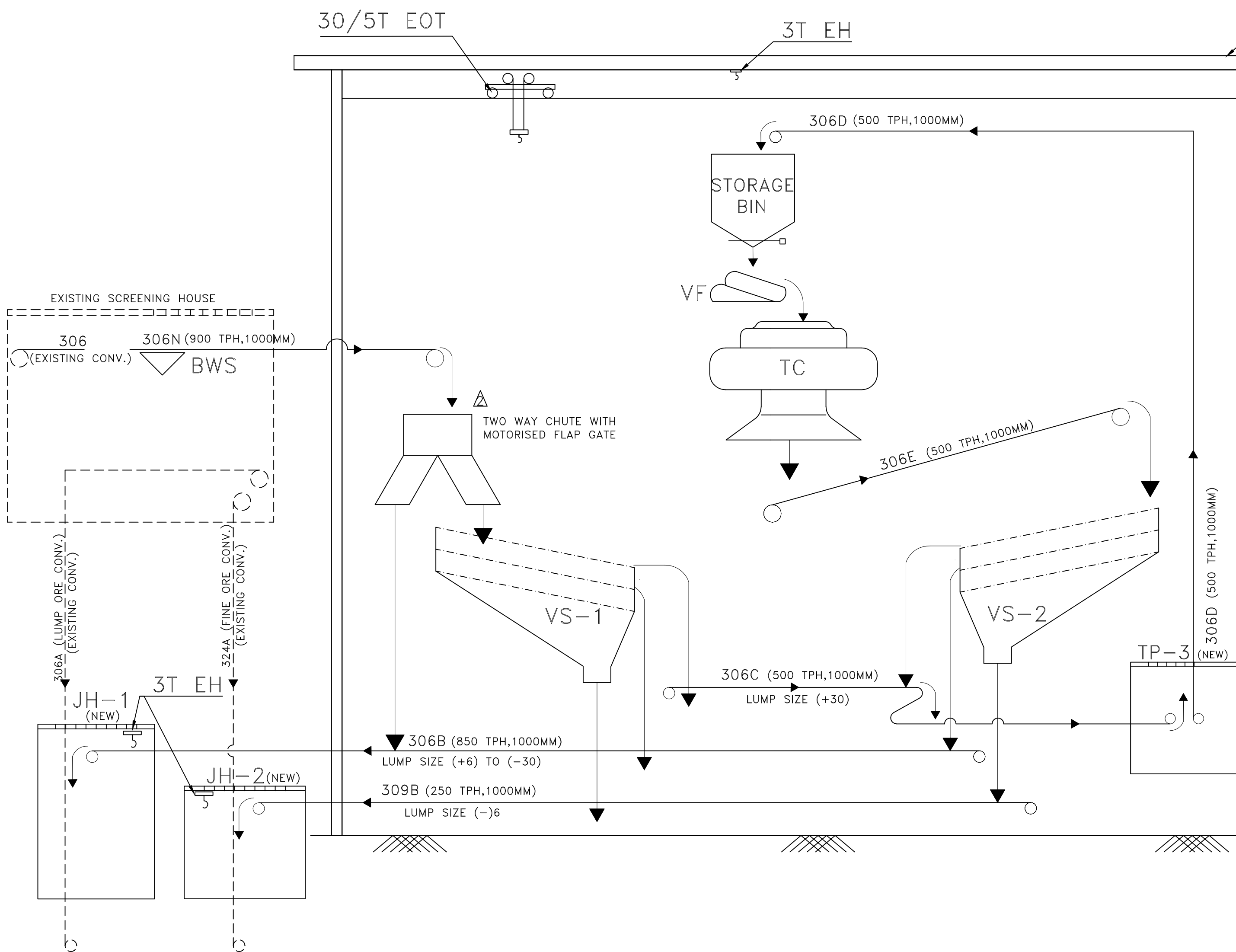
1. ALL DIMENSIONS ARE IN MM & ELEVATION ARE IN METRES  
 2. DIMENSIONS/STRUCTURAL ARRANGEMENT SHOWN IN THIS DRAWING ARE TENTATIVE AND MAY CHANGE DURING DETAIL ENGINEERING

Revision	Modification	Date	Made by	Checked by
<b>REVISION</b>				
<b>STEEL AUTHORITY OF INDIA LTD.</b> RAW MATERIALS DIVISION		<b>CONSULTANT</b> CENTRE FOR ENGINEERING AND TECHNOLOGY		
PROJECT NAME <b>INSTALLATION OF TERTIARY CRUSHING SYSTEM AT MIOM</b>		SUB-CONTRACTOR - <b>HEAVY ENGINEERING CORPORATION LTD. RANCHI</b>		
M/s HEC DRG./DOC. NO. <b>HEC/MIOM / TCS / ME / BE / A / 0028</b>		SUB CONTRACTOR DRG./DOC. NO.		
DRAWN BY	NAME	SIGN	DATE	TITLE
DESIGNED BY	AKP			<b>SCHEMATIC DRAWING</b> OF <b>TERTIARY CRUSHING BUILDING</b>
CHECKED BY	AKS			
APPROVED BY	SM			
PROJECT DRG. NO. <b>MIOM / TCS / HEC / ME / BE / A / 0028</b>		SCALE NTS		SIZE
SUBMITTED FOR				APPROVAL REFERENCE / INFORMATION

SL.NO.	DRAWING NO	TITLE
2.	MIOM/TCS/HEC/ME/BE/A/0020	GENERAL LAYOUT FOR TCS AT MIOM
1.	MIOM/TCS/HEC/ME/BE/A/0021	FLOW DIAGRAM FOR TCS AT MIOM

REFERENCE DRAWINGS

NOTES



LIST OF MAIN EQUIPMENTS			
SL. NO.	EQUIPMENTS	DESCRIPTION	QTY.
1.	VIBRATING SCREEN (VS-1)	900 TPH	1
2.	VIBRATING SCREEN (VS-2)	500 TPH	1
3.	TER. CONE CRUSHER (TC)	500 TPH	1
4.	VIBRO FEEDER (VF)	500 TPH	1
5.	EOT CRANE (EOT)	30/5 T	1
6.	ELECTRIC HOIST (EH)	3 T	3
7.	BELT WEIGH SCALE (BWS)		1
8.	CONVEYOR 306N	900 TPH, 1000MM B.W	1
9.	CONVEYOR 306B	850 TPH, 1000MM B.W	1
10.	CONVEYOR 306C	500 TPH, 1000MM B.W	1
11.	CONVEYOR 306D	500 TPH, 1000MM B.W	1
12.	CONVEYOR 306E	500 TPH, 1000MM B.W	1
13.	CONVEYOR 309B	250 TPH, 1000MM B.W	1
14.	STORAGE BUNKER	50 CUM USEFUL	1
15.	MOTORISED FLAP GATE	-	1
16.	DUST SUPPRESSION SYSTEM	AT MATERIAL TRANSFER POINTS	1 LOT

1.	REVISED AS PER CET'S COMMENTS DATED 26.03.12	31.03.12	AKS	AK
1.	REVISED AS PER CET'S COMMENTS DATED 26.03.12	31.03.12	AKS	AK
Revision	Modification	Date	Made by	Checked by

**REVISION**

**STEEL AUTHORITY OF INDIA LTD.**  
RAW MATERIALS DIVISION

MEGHAHATUBURU IRON ORE MINES

**CONSULTANT**

**CENTRE FOR ENGINEERING AND TECHNOLOGY**

PROJECT NAME: **INSTALLATION OF TERTIARY CRUSHING SYSTEM AT MIOM**

M/s HEC DRG./ DOC. NO. **HEC/MIOM / TCS / ME / BE / A / 0021**

NAME	SIGN	DATE	TITLE:	SCALE
DRAWN BY	PP		<b>FLOW DIAGRAM FOR INSTALLATION OF TERTIARY CRUSHING SYSTEM SHOWING ALL PROPOSED FACILITIES</b>	NTS
DESIGNED BY	AKS			SIZE
CHECKED BY	HST			
APPROVED BY	SM			
PROJECT DRG. NO.			<b>MIOM / TCS / HEC / ME / BE / A / 0021</b>	REV. 2

SUBMITTED FOR  APPROVAL  REFERENCE / INFORMATION

SL.NO.	DRAWING NO	TITLE	SL.NO.	DESCRIPTION	NO	DATE	DESCRIPTION	BY	APPD.
<b>REFERENCE DRAWINGS</b>									
<b>NOTES</b>									
<b>REVISION</b>									