



Department of Fuel and Mineral Engineering
Indian Institute of Technology (Indian School of Mines) Dhanbad

CIL(07)/2017-18/514/FME

Date: 08.09.2017

**Expression of Interest (EOI) Document for Design and Construction of 30-40tph Capacity
 Coal Washing Pilot Plant at Sudamdih Coal Washery, BCCL, Dhanbad**

[A joint initiative of IIT(ISM) Dhanbad, CMPDIL-Ranchi & BCCL-Dhanbad]

1. Background

Indian Institute of Technology (Indian School of Mines) Dhanbad, is an institute of national importance established by an act by the parliament of India under MHRD, Government of India.

2. Objectives:

The main objective of the proposed pilot plant is to create a pilot scale testing facility which can wash Indian Coking and Non-Coking coals crushed to below 20mm size. Based on the result obtained from the Pilot plant process flow sheet will be developed at the targeted yield/ash% of the washed coal by IIT(ISM)/CMPDIL. The Pilot Plant will have a Batac Jig and a Dense Medium Cyclone, both operating either in parallel or in series, with all other additional facilities such crushing, screening, media preparation and recovery besides dewatering units. In doing so, a relative comparison of washing performances; between the Batac Jig and a Dense Medium Cyclone for improved washing is to be made together with optimization of the design and operational parameters of the washing units. Therefore, the plant being built should have all the facilities to change the design and operating variables along with control systems.

3. Invitation for Expression of Interest:

IIT(ISM) intends to build the above mentioned facility of “**Design and Construction of 30-40tph Capacity Coal Washing Pilot Plant at Sudamdih Coal Washery, BCCL, Dhanbad**” under two stage bidding system. At the first stage ‘**Expression of Interest (EOI)**’ is invited from reputed and financially sound company who are involved with and having considerable experience in design and construction of Coal/Mineral beneficiation plants. **Only those companies who will be participating in EOI (presentations-cum-discussions) and shortlisted, will be eligible to participate for subsequent bidding process.** The second stage of bidding process includes submission of EMD, Technical bid and Financial bid. The work is critical in nature and is to be completed strictly as per schedule time frame.

SI No	Event	Conditions
a	Pre- Bid Meeting	18-09-2017 , 10 AM at Department of Fuel & Mineral Engineering, IIT (ISM) Dhanbad (Interested bidders must come with their queries , if any, and hand over the same to IIT(ISM) staff on site
b	Last Date of Bid (EOI) Submission	10-10-2017 , 3:00 PM
c	Bid (EOI) Opening Date & Time	12-10-2017 , 3:00 PM
d	Presentation-cum-Discussion	Will be informed only to the eligible tenderers by E-mail later.
e	Site visit	Visit to the plant site (Sudamdih washery) will be organized for the interested parties participating in the EOI, a day before pre-NIT meet to seek clarification, if any.

4. Terms of Reference:

The EOI documents submitted thereof, shall be evaluated based on the following points:

- Design of the pilot plant, whether it is appropriate to meet the above stated objectives.
- Flexibilities a bidders can give in the flow sheet in crystalizing the objectives the bidder gives.
- After services, spare parts & warranty.
- Provision of automation and control systems.
- Methods adopted so as to complete the task assigned in time.
- Approaches to overcome the bottle necks if any
- Expertise of the bidder in the recent past in building such type of facilities anywhere in India for beneficiation of Coal and Minerals.

5. Eligibility Criteria:

The required eligibility criteria as per given below:-

Sl. no.	Eligibility criteria	Documents to be submitted along with the EOI
a.	The bidders should be a registered company in India under Indian Companies Act 1956	Copy of the certificate of incorporation and certificate of commencement of business or registration certificate.

b.	The bidders having their annual turnover of minimum INR 8.00crore in the last financial year (2016-17) and at least a minimum cumulative turnover of INR 30crore in the last 3 financial year (2014-15 to 2016-17) are eligible to participate in the EOI.	<p>i. The bidder must produce a certificate from the company's Chartered accountant to this effect</p> <p>ii. Audited balance sheet for last three financial years</p>
c	The bidders should not have been blacklisted/barred/disqualified by any regulator/ statutory body during last 10 years.	A self-declaration to this effect must be furnished.
d	Firm/Organization having necessary domain knowledge (both technical and functional) and experience for successful execution of design and construction of Coal/Mineral beneficiation plants and its utilization shall be considered for evaluation.	<p>Details of previous work done during last three years.</p> <p>i. Copy of work orders of similar nature of value Rs. 8.00crore and above</p> <p>ii. Details of successful work completion certificate</p> <p>iii. Details of technical man power with their qualification.</p>
e	It is desirable that firm/organization should have at least 10 years' experience in design and construction of Coal/Mineral beneficiation plants for processing and its end use/ utilization.	<p>i. List of previous work done during last 10 years.</p> <p>ii. List of works executed of similar nature with their details.</p>
f	Bidders with ISO certification will be given preference.	Copy of ISO certificate to be attached.

6. Instruction to the Bidders:

Information to be furnished by the interested organization together with supporting documents:-

- a) Name of the organization and nature of firm.
- b) Year of establishment.
- c) Address and contact No. with E-mail ID.
- d) Details of in house key personnel.
- e) Experience of the organization in related area.
- f) Certificate of solvency.
- g) Collaboration /tie-up with major organization for Coal/Mineral Processing Plant, if any
- h) Details of Annual turn-over during last 3 financial year.

- i) Brief of major consultancy/project assignments executed for similar nature undertaken during last three financial years. Please also attach copy of work order and project completion certificate.
- j) List of works executed of similar nature with their details during last 10 years.
- k) Self-attested copy of the registration of the firm issued by the competent authority.
- l) Audited Accounts for the last three year along with the latest income tax clearance certificate.
- m) Copy of ISO Certification, if any
- n) Self-declaration for blacklist/barred/disqualified by any regulatory/statutory body during last 10 years.

IIT (ISM) may seek additional information from the interested organization following submission of EOI. However, IIT (ISM) reserve the right of rejections/accepting the EOI or inviting fresh EOI, if so required.

7. Scope of Work

- Design and Construction of a Pilot Plant for Washing of Coking & Non-Coking Coals at Sudamdih Coal Washery, BCCL, Dhanbad, Jharkhand.
- Operation and Maintenance of the plant during commissioning and load testing stage.
- **Contractor shall guaranty for trouble free functioning of plant for five year from the date of successful commissioning.**
- **Provision of necessary spares to be considered in the scope of work for ensuring guaranteed life of five year.**
- The pilot plant shall be of 30-40tph throughput capacity, consisting of crushing, coal washing, dewatering and media recovery circuit.
- The crushing circuit should possess a size reduction circuit to crush run-of-mine coal (approx. -300mm size) to a product size of -20mm in 2-stages, in which second stage crusher to be in closed circuit.
- The secondary crusher should have facilities to change its set from 20mm down up to 10mm and similar is with the screen deck to match crusher set.
- The crushed coal will be de-slimes at 0.5mm size. The coarse coal (-20+0.5mm) shall be washed in either Jig (Batac Jig) or Dense Media Cyclone (DMC) or both of them simultaneously in parallel.
- The dewatering of coarse coal will include screen with water spray arrangements, while the dewatering of fines (-0.5mm) shall include a small capacity thickener.
- The successful contractor shall offer necessary training to the workman and supervisor of operating agency with respect to operation and maintenance of the plant.

8. About the Plant (a tentative schematic diagram given at the end of this document)

8.1 Crushing Circuit

The run-of-mine coal (-300 mm) shall be crushed down to the size of -20mm (or even below up to 10mm if required for better liberation). The crushing circuit includes primary (in open circuit crushing) and secondary crushers (in closed circuit with screen). The crushed product (-20mm) shall be de-slimed at 0.5mm size using de-sliming screen to produce Coarse and Fine fractions (-20+0.5mm and -0.5mm). However, the secondary crusher and its screen selection should be made such that it should be able to produce the products of different sizes ranging from (-25mm, -20mm, -15mm, -10mm) with acceptable circulating load ratios.

8.2 Washing Circuit

The washing circuit will commence from de-sliming at 0.5mm. The de-slimed fines shall be sent to dewatering circuit. The details of the dewatering circuit is given in subsequent sections. The washing circuit will have two different circuits operating parallel, for the same feed, as the coarse coal washing circuit. One circuit will contain Batac Jig and its ancillaries, while the second circuit will be of dense medium cyclone unit (DMC) along with media recovery facilities. The circuit to be designed should be such that either jig circuit or cyclone circuit or both simultaneously, should be operative at any given time. When one circuit is operated, the other one may be kept standby. The jig and DMC circuits should have necessary facilities to study the effects of design and operational parameters during the experimentation.

The cyclone of DMC circuit has to be placed inclined in such a way so that the overflow and underflow products can be collected at the same level. Suitable slurry preparation tank, pump, density measurement, pressure gauge, etc. to be provided in the circuit.

8.3 Media Preparation and Recovery Circuit

Fine magnetite shall be used to prepare dense media suspension for DMC This media after coal washing is to be recycled back to the circuit through a drum magnetic separator for reuse. Therefore, a complete media recovery circuit of suitable capacity is to be designed.

8.4 Dewatering Circuit

The product of DMC is to be dewatered using a screen with water spray arrangement so that the used media slurry could be recycled back to media recovery circuit. The dewatering of de-slimed slurry shall be carried out in a thickener/high rate thickener.

8.5 Other Required Facility

The crushing circuit should be provided with online sampling systems so that the sample of requisite amount could be collected from the belt conveyor for analysis in the laboratory. The DMC circuit and Jig circuit should also be provided with similar online sampling facilities.

Appropriate junction boxes, bins, buckers, sumps, agitators, feeders, feed hoppers and conveyor belts are to be designed for storages, feeding and conveyance at intermittent stages. A total space of 100m x 100m will be made available for the plant including the space for storages, vehicle movements etc. The plant requires a concrete floor, the plant will have the steel structure, supported by columns and covered by good quality CGI sheets, both at the roof and all around its four sides. Necessary civil construction and steel structures are to be designed for the plant with safety as the utmost priority. A rail mounted crane to be provided by the designer to facilitate the erection of the equipment and maintenance / dismantling of the units.

Every unit in operation will have control systems with an access to monitor through a computer, placed in small control room which is free from vibrations and a sample analysis and storage room of appropriate size.

9. Formulation of Notice Inviting Tender (NIT)

Based on the above consideration and information /documents submitted by the respondents to this **EOI**, a bidder's meet will be convened to discuss and define the terms and conditions suitable for formulation of Notice Inviting Tender (NIT)/ Tender Specification Document (TSD). Subsequently, Notice Inviting Tender (NIT)/ Tender Specification Document (TSD) will be framed, finalized and floated for only those firms who have participated in the EOI to select suitable and experienced Firm/organization for **“Design and Construction of 30-40tph Capacity Coal Washing Pilot Plant at Sudamdih Coal Washery, BCCL, Dhanbad”**.

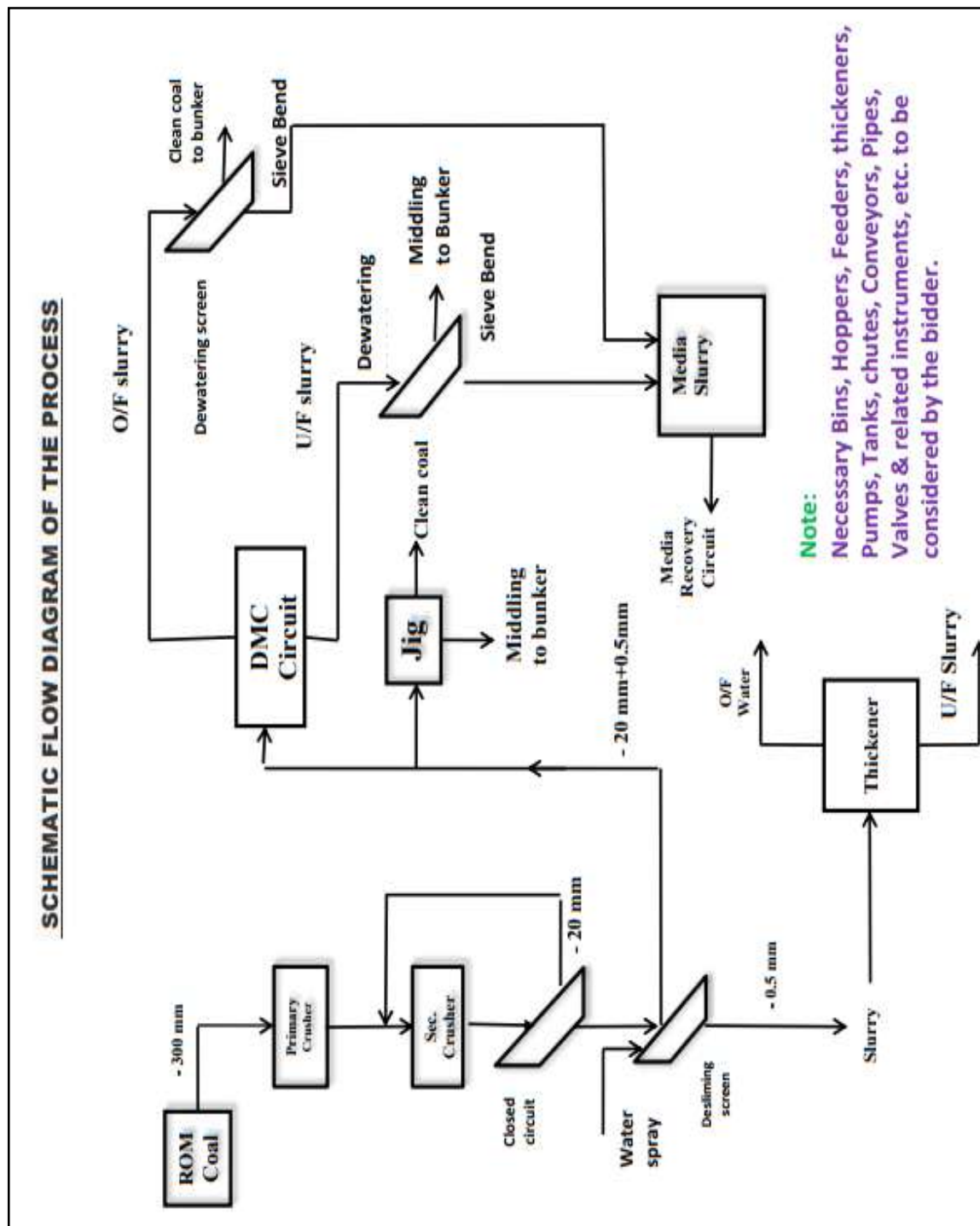
IIT(ISM) reserves the right to (a) accept or reject any/all EOI submitted by potential bidders, (b) cancel the process at any time without any liability and assigning any reason thereof.
Submission of Expression of Interest (EOI):

IIT(ISM) looks forward to receive response in this regard. Interested parties can submit their Expression of Interest (EOI) along with supporting information/documents duly signed and authenticated by the competent authorities in hard copy in duplicate in a sealed envelopes. The envelopes should be superscribed on the top as **“Design and Construction of 30-40tph Capacity Coal Washing Pilot Plant at Sudamdih Coal Washery, BCCL, Dhanbad”**. EOI should be submitted with covering along with organization brief duly signed and submitted in compatible electronic version also preferably in CD/ DVD.

Hard Copy of the Offers along with all supporting documents should be submitted before 10th October 2017 by 15.00 Hrs. (IST) at the following address, and a line of confirmation for submission of offer should be sent through email to the following:

Head of the Department
Department of Fuel & Mineral Engineering
Indian Institute of Technology (ISM) Dhanbad
PIN – 826004, Jharkhand
snikkam2014@gmail.com

Proposed Flow sheet



Site Location: Sudamdih Coal Washery, (Approx: 20 Km from Dhanbad), PO: Sudamdih District: Dhanbad, Pin – 828126, Jharkhand, India