BHARAT HEAVY ELECTRICALS LIMITED

INDUSTRIAL SYSTEMS GROUP, BANGALORE

TECHNICAL ENQUIRY SPECIFICATION FOR SERVICE AIR AND PURGING AIR SYSTEM FOR NMDC-RMHS 3.0 MTPA STEEL PLANT- NAGARNAR.

Any clarification required relating to this specification, the same may be sent to us by e-mail at pallamraju@bhel.in and vis@bhel.in

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SECTION – 1.0 PROJECT INFORMATION

1.1 GENERAL PROJECT INFORMATION:

National Mineral Development Corporation (NMDC) is Setting up of a Green field integrated steel plant in Nagarnar, Chattisgarh, with a production capacity of 3.0 MTPA. For the integrated steel plant all Raw material required for the blast Furnace, Sinter Plant, Coke ovens, lime stone/Dolomite Calcinations plant as well as interplant transportation of finished sinter, Coke, fines generated in coke ovens and Blast furnaces, Granulated slag Transportation etc. shall be covered in the Raw Material Handling System (RMHS). BHEL is the EPC contractor for the RMHS Package and M/s NMDC has appointed M/s MECON Ltd as the owners Engineer (Consultant) for the project.

1.2 Site Conditions

In absence of Meteorological details of Nagarnar, data of nearest Meteorological Station Jagadalpur are given below:

latitude /Longitude	29°05' Latitude, 82°10' Longitude.
Average altitude of the land	553.0 m above MSL
Absolute maximum avg. Temperature	46.1º C
Absolute minimum avg. Temperature	2.8º C
Maximum Relative Humidity	87 %
Minimum Relative Humidity	27 %
Mean Wind speed	10 Kmph
Maximum Rainfall	259.7mm in 24 hrs
Ambient Air Quality	Residential

Note:

Temperature inside shop premises is generally taken as 5ºC above ambient, unless otherwise specified.

RAILWAY

The nearest rail head is Amaguda railway station on the Visakhapatnam-Kottavalasa-Kirandul rail line of East Coast Railway of the Indian Railways and is located at about 5 km from the proposed site in its south direction. The track gauge of SE Railways as well as of the plant tracks are standard broad gauge i.e.1676 mm.

ROAD

The proposed site is well connected to NH-43 and is adjacent to the National Highway. The location of Nagarnar is as follows:

From Raipur, the Chattisgarh capital	- 300 kms.
From Visakhapatnam, Andhra Pradesh	- 300 kms.
From Bhubaneswar, Capital of Orissa	- 540 kms.
From Hyderabad, Capital of Andhra Pradesh	- 530 kms.
From Jagadalpur, Chattisgarh	- 15 kms.

SEA PORT

The site is served from Visakhapatnam, Kolkata, Paradip and Haldia sea ports.

Air Traffic

The nearest airport connected to the national network is Raipur, which is about 300kms away and the nearest international airport is Hyderabad, about 530 kms by road from the plant.

1.3 Seismological Parameters

The proposed project is located in seismic Zone II, Seismic forces would be considered as per the IS accordingly.

1.4 Construction Material

It is expected that all necessary construction material should be available from nearby sources. However, Bidder is requested to satisfy themselves in this regard.

1.5 Construction Power

The requirement of construction Power shall be indicated by the contractor. 415 V, 3 phase, 4 wire supply will be made available at one point at the construction site. There after the distribution of power supply (including energy meter) for contractors use shall be in

contractor's scope. The construction power will be charged as per state electricity rules prevailing at the time.

1.6 Construction water

The requirement of construction water shall be indicated by the contractor. The construction water will be made available at one point near to the contractor's site.

1.7 Raw Water Source

The source of fresh water for proposed 3 mty Integrated Steel plant is Sabri river and for construction purpose the source is Indravati River. Water is fed to the storage reservoir of the Plant through dedicated pumping system to be installed at Intake well on Sabri river. For construction water will be drawn through dedicated pumping system to be installed at Intake well on Indravati River. (For details refer Chapter-02 Part-I of GTS-02).

1.8 The Raw Material characteristics

The Raw Material Characteristics are enclosed in table below.

Sl no.	Material		Size	Density
1.	Metallurgical Coal (washed)	:	(-) 50 mm	0.8 t/cum
2.	Lump Iron Ore	:	(-) 40 mm	2.2 to 2.4 t/cum
3.	Iron ore fines	:	(-) 10 mm	2.2 to 2.4 t/cum
4.	Lime Stone (SP grade)	:	(-) 50 mm	1.6 t/cum
5.	Dolomite (SP grade)	:	(-) 50 mm	1.6 t/cum
6.	Quartzite	:	(+) 25 to (-) 50 mm	1.6 t/cum
7.	Lime Stone (SMS grade)	:	(-) 50 mm	1.6 t/cum
8.	Dolomite (SMS grade)	:	(-) 50 mm	1.6 t/cum
9.	DRI	:	(-) 25 mm	2.0 t/cum

1.9 Power Supply Characteristics

Parameter	**HT**
Power Supply	6.6 kv, 3phase, 50 Hz, 3 wire
Voltage variations	+ 6% -9%
Frequency variation	*+3% - 6%*
System neutral	Resistance grounded
System short circuit level	40 kA for 3 second
Parameter	**LT**
Power Supply	415V, 3phase, 50 Hz, 4 wire
Voltage variations	+/- 10%
Frequency variation	+ 3% - 6%
System neutral	solidly grounded
System short circuit level	50 kA for 1 second

SECTION – 2.0 – APPLICABLE STANDARDS

2.0 CODES AND STANDARDS:

The equipment shall be designed and manufactured in accordance with the latest revision of Indian Standards. Wherever Indian Standards are not available, British Standards, American Standards, DIN, NMDC-CTS/GTS Standards & Codes or any other equivalent / superior Standards shall be followed. Any amendments / revisions in above standards that may be in force during the period of execution shall also be taken into consideration.

Besides the above, the equipment covered under this specification shall comply with all the latest applicable statutory requirements and safety codes which may be in force during the period of execution and which are related with design, construction and operation of the equipment in the locality where it will be installed.

SECTION – 3.0 BROAD SCOPE OF SUPPLY

I. INTRODUCTION:

This document is intended for Service Air and Purging air System for RAW MATERIAL HANDLING SYSTEM of NMDC 3 MTPA Integrated Steel Plant at Nagarnar, Chhattisgarh. The bidder has to study the enclosed document and ensure complete scope for the System on turnkey basis.

II. BROAD SCOPE OF SUPPLY OF COMPRESSED AIR SYSTEM

The scope of bidder for this package includes design, detailed engineering, submission of engineering drawings/ docs. / datasheets/ QAPs/ FQPs, PG test procedure, storage instructions and obtaining the approval from NMDC-MECON/BHEL, supply including manufacturing/fabrication, inspection/ shop floor testing, shop floor painting, packing & transportation to site.

Service air system to be provided at all junction houses, Major buildings, Wagon tippler buildings for cleaning of Equipment's and drive components with suitable length of flexible Hoses, QRC & nozzle in each hose shall be provided with hose reel drum/hose box at each conveyor drive floor and equipment floor. Bidder to consider suitable piping, Fittings, Accessories, Gauges, Switches, other instrumentations, Valves, Air receivers etc. and suitable electrical, C&I and control system to work efficiently as per the system requirement.

Bidder to consider minimum one number of tap point for each Conveyor drive floor and other equipment floor of each building for service air system for cleaning.

Bidder to refer Annexere-1 DBR for brief scope & specification, Bidder has to read this specification in conjunction with DBR & other annexures/GTS of NMDC/MECON. Specification for compressed air pipe work is a part of Volume-I of GTS.

Purging air system for Instruments and CCVM enclosure:

Purging system to be provided to CCVM enclosure and level transmitter. All suitable piping, Fittings, Gauges, Switches, solenoid valves, other instrumentations, Valves and suitable control system required for satisfactory operation purging air system as per the desired conditions (Pressure and Flow) mentioned in Purging System Attachment no. 1 and 2 are in Bidder's scope.

BHEL scope for purging air system consists of only radar level transmitter and CCTV camera enclosures with pipe connection entry as detailed in Purging System Attachment no. 1 and 2 respectively

A. **For radar level transmitters (Total 98 Numbers)**

All radar level transmitters shall be supplied with purging air requirement. List of all radar level transmitters with location and also Pressure and flow requirement and connection details are shown in **Purging System Attachment no. 1**

B. **For CCTV cameras (Total 45 Numbers)**

All CCTV cameras shall be supplied with purging air requirement. List of all CCTV cameras with location and also Pressure and flow requirement and connection details are shown in **Purging System Attachment no. 2**

Sl. No.	System	Tapping point	Location of Terminal point	Remarks
1.	Service & Purging Air System	Tapping Point-01	Node no 17 Near JH-52 (X+4616.5,Y+4841.75)	1. Flow rate of compressed air and instrument air will be 100Nm3/hr and 600Nm3/hr respectively. 2. Pressure of Compressed Air & Instrument Air at approximately 6-7 bar(g).
2.	Service & Purging Air System	Tapping Point-02	TR-38 Near JH-70 (X+4853.5, Y+5854.2)	1. Flow rate of compressed Air and Instrument Air approximately 80 Nm3/hr for both the systems. 2. Pressure of Compressed Air & Instrument Air at approximately 5-6 bar(g).

Note: Bidder to lay the pipeline from existing header at above mentioned tapping points, required pipes, supports, fittings & valves and other accessories as per the system requirement to be provided by the bidder for the required tapping point.

Erection, Supervision, Commissioning of complete package described above, Coordination with BHEL's other package vendor during detail engineering for preparation of Piping layout, mechanical GA drawings and its civil assignment drawings (if applicable), trial run, functional

testing, Performance guarantee testing till final handing over to end customer NMDC-MECON upon satisfactory completion and written confirmation from NMDC-MECON for the system shall be bidder's scope of work and supply.

Shop painting before dispatch & touch –up painting at site after erection & commissioning of all equipment/items which are in bidder's scope , submission of O & M manuals, as built drgs/ doc. shall be in the bidder's scope.

SECTION- 4.0: OTHER IMPORTANT POINTS

Bidders to also consider following things in their scope apart from referred bid documents and broad scope mentioned above.

4.1 The design, manufacture, inspection and testing of the system shall comply with all the currently applicable statutes, regulations and safety codes in the locality where the equipment is to be installed and shall also confirm to the latest edition of standards and codes. Nothing in this specification shall be construed to relieve the contractor of the required statutory responsibility. In case of any conflict & ambiguity in the standard to be followed the decision of the BHEL/customer shall be final and binding.

4.2 The Bidder shall be responsible for providing all materials and services, specified or otherwise (unless specifically excluded) which are required to fulfill the intent of ensuring operability and the reliability of the complete system covered under this specification.

4.3 Receipt & unloading at site, local transportation, storage, preservation & security, shifting to erection work place, Erection & Commissioning of all equipment's shall be in bidder's scope. Bidder to indicate the list of items to be stored in covered storage.

4.4 In case of any ambiguity, conflict in the standard & specification &/or interpretation of clauses in this enquiry spec. and its enclosures, the decision of BHEL shall be final and binding and any change due to this shall have no price implication on BHEL and shall have to be absorbed by successful bidder.

4.5 Bidder shall strictly follow and adhere to the guidelines laid down in the enclosed BHEL's health, safety and Environment manual (HSE) provided with this specification.

4.6 Bidder shall visit the site to familiarize with the status of the project and site constraints before submitting the complete offer to BHEL in all respects. No issues arising out of site condition or layout constraints shall be entertained later on during detail engineering and any modification required due to site condition or layout constraints shall be done by successful bidder without any cost implication to BHEL.

4.7 Bidder has to do the Routing of pipe lines without disturbing the installed facilities, during routing/installation of bidders pipelines/Equipment's, if bidder found any fouling of their facilities with other contractor/BHEL facilities, bidder has to do the necessary modification in their system. any change due to this shall have no price implication on BHEL and shall have to be absorbed by successful bidder.

4.8 Supply of grouting cement and grouting of all mechanical equipment/ items and its drives base if any, shall be in the bidder's scope. Bidder can use existing structures for supporting of their service air pipe lines, However bidder has to take prior clearance/approval from BHEL before starting of their work.

4.9 **Supply of all insert plates, stools, foundation bolts and other embedment in concrete and it's fixing with structural members required for erection during erection shall be in scope of bidder and to be executed by bidder in coordination with BHEL/BHEL's contractor.**

4.10 Minor chipping i.e. up to 50mm thick, micro leveling, and providing shim plates for erection of equipment / items shall be in the scope of bidder.

4.11 Cleaning of any debris produced by the bidder during E&C shall be done immediately at each front.

4.12 Rust preventive after inspection at shop floor before dispatch shall be in bidder's scope.

4.13 All moving parts shall be provided with guards and shall be in bidder's scope.

4.14 Provision of any temporary supports/platforms required for E&C of mechanical / items shall be in the scope of bidder.

4.15 Supply of base frame and fixing/ foundation bolts for all mech. Equipment /items, other related electrical equipment's if any, shall be in bidder's scope.

4.16 Necessary provisions shall be considered in the equipment/ items/ systems which are in bidder's scope for integrating with other equipment's/ systems/ items which are part of other contractor's scope.

4.17 All Material of construction (MOC) for all equipment shall be subject to BHEL/ Customer approval during detail engineering.

4.18 Bidder's scope shall also include system integration & control requirements and control philosophy w.r.t. other auxiliary systems/ equipment's, auxiliary systems for plant done by BHEL/ BHEL's other vendor.

4.19 Bidder shall submit the weekly engineering progress reports in BHEL's format and depute full project team for attending all project review meetings called by BHEL and Customer without fail.

4.20 Bidder to note that time is the essence of this contract, thus they shall submit the submission schedule for the list of Drawings indicated in this document in no. of days from zero date i.e. LOI date. No delay shall be entertained later on.

4.21 Each successful bidder shall furnish the L-3 project schedule in line with the L-2 schedule after award of the contract.

4.22 Bidder shall make their own arrangements well in advance for heavy erection equipment like bigger cranes that are required for erection of equipment which are at higher height.

4.23 Bidder to note that fronts for erection will be given progressively in a staggered manner. So, Bidder has to consider and envisage mobilization of all resources required, including manpower, in a shortest possible time during execution time. For this bidder has to consider advance resource planning so that erection by the successful bidder is not delayed.

4.24 The coal flow diagram and Plot plan attached with enclosed in this specification are indicative only and doesn't show comprehensive scope of work and actual things may vary during detail engineering.

4.25 Bidder shall strictly adhere and follow the Erection & Commissioning terms and conditions as mentioned in the Customer Technical Specification.

4.26 Bidder to ensure sufficient manpower throughout the project for parallel engineering, erection and commissioning activities on jetty etc. Bidder shall depute continuously and maintain minimum number of engineers and supervisors, not limited to nos. to be deputed at site for supervision of E&C, coordination and commercial activity for the package.

4.27 During detail Engg. Bidder to strictly adhere to BHEL/ Customer Dwg. Formats, document numbering, quality plan & FQP formats.

4.28 Bidder shall be responsible for E&C of individual machines, demonstration of performance guarantee parameters of individual machines with all safety interlocks as laid down elsewhere in the specification and support to BHEL's other vendor for integration with Main system like conveyors system, Auxiliary system, JNT's and commissioning of the complete CHP after integration with the machines and other CHP system.

4.29 Equipment's/ systems offered by the bidder shall not be accepted for final handover till the demonstration of PG parameters of the equipment/ systems and in case any changes required in machines to match the overall system PG test parameters without affecting other associated system shall have to be done by the bidder without any cost implication to BHEL/ Customer.

4.30 Construction Power, Construction/ Service/ Drinking Water Facilities shall be provided by BHEL at respective terminal points and shall be as per Customer Specifications.

4.31 Bidder to extend all help and documentary support for compliance and addressing any statutory issues raised at site which pertains to the area / work under bidder's scope.

Note

Bidder shall attend pre bid meeting scheduled by BHEL for ambiguity, clarifications (technical and commercial) if any, required for this package. Any deviations in post bid will not be entertained.

a. **Bidder should have the minimum qualification as per PQR, all supporting documents shall be furnished along with the offer.**
b. **Bidder shall submit a signed copy of BHEL's this tender enquiry specification along with all enclosures as technical offer along with the bid without any deviations.**
c. **Complete detail engineering drawings, calculations, selection of components etc. shall be reviewed by BHEL engineers during detail engineering.**
d. **Successful bidder shall take prior approval from BHEL/NMDC while placing the E&C contract order for this package to their sub-contractor. BHEL/NMDC reserves the right to disapprove/reject any such E&C contactor which BHEL/NMDC deems not fit for executing E&C of this contract.**
e. **Bidder to quote for this offer considering the enclosed Plot plan Project drg. no. NMDC/BHEL/01/55/BE/--/000 Rev 06 and flow diagram Project drg. no. NMDC/BHEL/01/50/BE/--/001 Rev 04**

Bidders to also consider following things in their scope apart from bid document and broad scope mentioned above:

1. Material of construction of all Pipes, valves etc. for this package shall be selected as per bid documents so as to avoid any type of corrosion or blocking and the same shall be subject to NMDC-MECON/BHEL's approval.

2. Hoist schedule indicating monorail sizes & capacity, height of fall shall be in the scope of bidder including supply of hoist & monorails etc.for maintenance of Bidders equipment's if any.
3. Interconnection activities like fixing pipe taking support from stringer post or gallery by taking suitable support by nut & bolt or by welding shall be in bidder's scope of work.
4. Supply, E&C of all pipe supporting angles and its fixing required for Pipes/Equipment/ items/ systems during erection shall be done by bidder in association & coordination with BHEL/BHEL's civil & structural contractor.
5. Rapping & coating of all pipes shall be in bidder's scope. Pipes must be stored on sleepers and wound with necessary cover to avoid rusting and burring in soil during entire storage period.
6. Provision of any temporary supports/ platforms required for E& C of mech. Equipment /items shall be in the scope of bidder.
7. Base frame and fixing/foundation bolts for all equipment related to this package shall be in Bidder's scope.
8. Necessary provisions shall be considered in the equipment/ items/ systems which are in bidder's scope for integrating with other equipment/ systems/ items which are part of other contractor's scope.
9. Proper receipt & unloading at site, local transportation, storage, preservation & security, shifting to erection work place, E&C of all equipment and pipes shall be in bidder's scope .
10. Bidder's scope shall also include system integration & control requirements and control philosophy of the systems with other systems / equipment of overall RMHS plant.
11. Bidder shall submit the weekly engineering progress reports in BHEL's format and depute full project team for attending all project review meetings called by BHEL and MECON/NMDC without fail.
12. **Bidder shall strictly adhere to the NMDC Preferred makes list which is enclosed in bid document. Sub-vendors considered by the bidder for the items which are not mentioned in the above list shall also be subject to NMDC-MECON/BHEL approval. Bidder to note in case any vendor not approved by NMDC-MECON/BHEL but considered by bidder in their offer then same has to be excluded during detail engineering and there shall be no price implication to BHEL in such event.**

13. For all air piping, pipe clamps/hangers etc. painting specification mentioned in referred NMDC/BHEL-NIT document to be followed. The painting colour code shall be provided to the Contractor during detail engineering.
14. The list of drgs. /documents to be submitted by the successful bidder shall be finalized with NMDC-MECON/ BHEL after award of the contract (however bidder to consider following tentative list of drg which is not exhaustive) and the bidder shall furnish the drgs. / docs. Accordingly. Engineering drg./doc must essentially contain the following (individual to system, equipment and items) but not limited to these and any drg./ doc required desired by BHEL/NMDC-MECON shall be furnished by the vendor during detail engineering:
    a. Design Basis Report of Service air and Purging air system
    b. Schematic Diagram of Compressed Air Line
    c. Technical Data Sheet - Valves, Strainers, MS pipe and GI Pipes (for DW system) Local control panel (wherever applicable/required) for system.
    d. Piping Layout Drg.
    e. Various schedules.
    f. Design calculations, Data sheets, O&M manuals,
    g. PG test procedures, QAP & FQP
15. Bidder shall furnish the L-2 project schedule for complete project indicating various milestones and constraints along with the bid. Successful bidder shall furnish the L-3 project schedule in line with the L-2 schedule after award of the contract.
16. Drawings like Conveyor profiles, Junction House/Major building GA drgs, crusher houses & Raw Material flow diagram and Plot plan attached with enclosed NMDC-MECON bid document which are indicative only and don't show comprehensive scope of work.
17. Wherever specification of particular item/equipment, Material of construction etc is not explicitly mentioned in the enquiry it shall be subject to BHEL/NMDC-MECON approval during detail engineering and if same is found to be changing from the bidder's offer it has to be absorbed & offered without any cost implication to BHEL.
18. Bidder to note and confirm that performance guarantee test for the complete system shall be in the bidder's scope.
19. Bidder shall also refer to all the enclosed sub-sections of NMDC's NIT DOCUMENT.
20. Bidder to note & confirm that all data sheets, specification, schedules , vendor list etc furnished in their offer are complying with the BHEL's enquiry spec. and NMDC's NIT

DOCUMENT and scope & exclusions mentioned there in. If any deviation is there same shall not be acceptable to BHEL and in the event bidder becomes a successful bidder and LOA is placed on the bidder then all such data sheets, specification, schedules etc submitted with the offer having technical deviation shall stand null and void and shall not be considered during detail engineering. And detail engineering shall be done as per the spec. as per BHEL/NMDC-MECON approval and these changes shall not have any kind of cost implication on BHEL.

21. Bidder to confirm that following things are considered in their scope of work as per spec and the enclosed Drawings.

a) Straight piping, bends, tees, elbows, branches, laterals, crosses, reducing unions, couplings, caps, blank flanges, saddles etc. necessary for making reliable piping system, Hose Pipe, Quick Fix Coupling.

b) Gaskets, ring joints, jointing materials etc. as required.

c) Instrument tapping connections, stubs.

d) Gate, globe & check valves to start/stop, regulate and to prevent back flow.

e) Anchors, hangers, supports and hardware as required including secondary steel embedment etc.

f) Underground pipe protection for all underground pipe work.

22. Special tools and tackles, as required, Supply & application of rust preventive & paints at shop floor and at site after erection.

23. Bidder to consider filters/strainers at each suction point and isolation valve in all terminal points of input water (which shall be subject to NMDC-MECON/BHEL approval during detailed engineering) to suit the equipment, pipings etc. offered by the bidder for various systems.

24. Bidder to furnish all the information without deviating from nomenclature of Conveyor numbers, PH's, Crusher Houses, WTC, JT's, MCC's etc as given in the Technical Enquiry Specification.

25. Bidders to furnish signed and stamped copy of complete Technical Enquiry Specification Along with all the enclosures of the Package and the final un priced –Price format.

26. Bidders shall furnish and confirm the working principle Service and Purging air system.

27. **Bidders to furnish a separate "Deviation List" indicating all the deviations from the Technical Enquiry Specification, if any, for BHEL scrutiny.**
28. Bidders to note that the Material of construction (MOC) for all Mechanical items like pumps, pipes etc shall be as per the Technical requirements furnished along-with the Technical Enquiry Specification and no deviation in this regard shall be accepted. For all other parts for which MOC is not mentioned specifically in this technical spec & its annexure/enclosure, the same shall be subject to NMDC-MECON/BHEL approval during detail engg.
29. Bidder to note and confirm the MOC (Material of Construction) as per NMDC Bid Documents.
30. Bidder to note and follow points for Special cleaning, protection and painting of Piping & Fittings as per NMDC-NIT specification:

    (a) Wherever painting specification is not mentioned for particular item then for those items detail painting schedule shall be prepared by vendor during detail engg. and this shall be subject to BHEL/NMDC-MECON'S's approval. And in case the same is found to be changing from what vendor has considered during bidding, then same has to be changed as per Customer's requirement by package bidders without any cost implication to BHEL during detail engineering.
31. Bidder to note & confirm that conveyor distances indicated in plot plan are tentative and may undergo some minor changes, bidder to take care the same in their offer without any price implication to BHEL during detail engg.
32. List of Quality assurance plans of various equipments/ items shall be frozen with the successful bidder during detail engg. as per NMDC-MECON/BHEL QC requirement.Bidder has to arrange office and its amenities on his own, only space shall be provided by NMDC-MECON /BHEL as per approval.
33. The bill of materials reqd. for system shall be finalized as per system requirement at the time of detailed engineering with BHEL/NMDC-MECON approval.
34. Bidder shall furnish the list of drawings envisaged for this package along with their offer. **Without this their offer shall not be considered**. However bidder to note that this list is not exhaustive and any drawing/document required later on by NMDC-MECON/BHEL shall be furnished without any delay/cost implication to BHEL/NMDC-MECON.

35. **Note:**

1. Bidder to note that list above is not exhaustive and any work required for completing the system and ensuring its satisfactory running shall also be in the scope of this package bidder.

2. Bidder shall submit the signed and stamped copy of all the pages which constitutes this technical enquiry specification signed by authorized signatory and clearly mentioning each clause under following two categories to avoid any ambiguity in scope understanding & the scope division as a technical offer during bidding:

a. **"accepted without deviation and considered in scope of work"**

b. **"Not considered in scope of work".**

SECTION- 5.0

DRAWINGS AND DOCUMENTATION: (To be made from available standard)

The schedule for the submission of drawings and documents/QAP/painting schedule/Inspection procedure refer NMDC-GTS.

Notes on Drawings and Documentation

Bidder shall submit the L-2 network for all the activates like engineering, supply, erection & commissioning etc. Dates for submission of GA drawings and corresponding civil assignment drawings shall be indicated. Requirement of fronts from BHEL for starting the erection activities shall be indicated for achieving the commissioning date.

The drawings shall be furnished as per the title block format of BHEL enclosed along-with this purchase order.

All documents to be furnished by the suppler shall be duly certified and signed by the competent authority and all revisions shall be duly recorded.

All drawings shall be mentioned in metric system & shall generally be of A1/A2/A3/A4 size only.

Title and written notation shall be in English.

Test certificates and documents of operation and maintenance manual shall be strictly in A4 size 297 x 210 mm only. All copies of test certificates as stipulated shall be on good quality of paper having good and legible printing. Catalogues and Manuals . The drawings shall be prepared in Auto CAD only (schematic diagram, wiring diagram, Bill of Material, OGA GA etc).

All the documents shall be duly signed by competent authority of the manufacturer.

SECTION-6.0

DOCUMENTS / INFORMATION TO BE FURNISHED ALONGWITH TECHNICAL OFFER:

01- Schedules
02- Un-Priced Format
03- Supporting Documents of Pre-qualification Criteria
04- Erection schedule

SECTION-7.0 LIST OF ENCLOSERS

Following enclosures are an integral part of this Technical enquiry and must be signed and stamped and submitted along with the offer:

1. Design Basis Report (DBR)
2. Flow Diagram
3. Plant layout
4. Conveyor Profile Drawings
5. Conveyor Gallery Cross Section Drawings
6. General Technical Specification (GTS)
7. Contract Technical Specification (CTS)
8. Preferred Makes List-Chapter 13
9. Inter plant pipeline_TAPPING POINT
10. Purging system attachment-1
11. Purging System Attachment-2

Note:

1. Bidder has to submit the Un-priced price format along with technical offer with quoted/not quoted.
2. Bidder must submit signed & stamped copy of all the enclosures and enquiry specs.