



TENUGHAT VIDYUT NIGAM LIMITED
2x210 MW Tenughat Thermal Power Station
Jharkhand
Dry Fly Ash Collection & Disposal System



16.00 DATA DRAWINGS AND INFORMATION TO BE SUBMITTED AFTER AWARD OF CONTRACT

- 16.01 The successful Bidder will submit the consolidated list of various drawings indicating schedule date of submission and approval within month after award of contract as listed in specification. Bidder shall submit eight copies of drawing, documents, calculation data information etc to TTPS / Consultant. TTPS / Consultant will return one copy of the same after comment / approval to bidder. Bidder shall resubmit the drawing after the incorporation of comments to TTPS / Consultant within 15 days for approval.
- 16.02 The actual schedule of these data/drawings will be discussed and mutually agreed to, between the Purchaser and the successful Bidder before the issue of Letter of Award of Contract.
- 16.03 All technical data/information already furnished during offer stage are to be confirmed. Technical details not included in the tender or revision of any data furnished earlier must be submitted for the approval of the Purchaser before start of corresponding work.
- 16.04 Following drawings & documents will be furnished :-
- General arrangement and cross sectional drawings of all equipments indicating major components with bill of material.
 - Single line flow and P&I diagram, showing all equipment, piping, valves, fittings, Controls & Instrumentation's etc, suitably tagged for better identification. Scope of supply will also be clearly marked.
 - Foundation design data for all equipment. Support loading data at each hanger location will also be indicated.
 - Layout of the systems, sub-systems, equipment & plant as a whole indicating general arrangement and cross section. The layout will include all piping as applicable and also area utilisation plan during the construction period.
 - List of sub-suppliers for major bought out items such as motors, compressors, blowers, dryers, heaters, pumps, fans, feeder, ash transporter vessels, valves, pipes, coupling for approval by the Purchaser.
 - Erection drawings for all equipment and structures showing complete erection details.



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- Engineering and design calculations of installations and units as required by the Purchaser.
- 16.05 Detailed procedures of shop testing of all the items applicable will be submitted to the Purchaser for approval before performance of tests.
- 16.06 Following shop test certificates/test curves/data, will be furnished.
- Materials and components test certificates.
 - Performance test results and characteristic curves of all compressors, pumps, blowers, electric drive motors etc.
 - Hydraulic test result of pressure parts, pipes, valves, fittings etc.
 - Non-destructive test results as applicable.
 - Reports and test certificates of shop tests.
 - Type test & routine test certificates.
 - Test certificates for special tests like stability, endurance, road worthiness as applicable.
- 16.07 Following list/ tables will be furnished complete with tag no and brief specification. Proper numbering system as approved by the Purchaser will be adopted.
- Valve schedule.
 - Pipe schedule.
- 16.08 Write-up on erection procedure for all equipment and structures will be furnished by Bidder.
- 16.09 Detailed procedure for performance and acceptance test at site.
- 16.10 **Instruction Manuals**
- Instruction Manuals, presenting the basic categories of information for the operating and/or maintenance personnel, as detailed herein below will be furnished by the Bidder.



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- 16.10.01 The instruction manuals will present the following basic categories of information in particular complete and comprehensive manner and prepared for the use by the operating and/or maintenance personnel.
- Instructions for initial commissioning.
 - Instruction for operation, routine inspection and maintenance including preventive maintenance.
 - Recommendation for inspection points, method of inspection and period of inspection.
 - Instructions on normal repairs and overhaul.
 - Complete parts list with proper and complete identification(Tag nos./Serial nos. as shown in the respective approved drawings) and ordering information for all replaceable parts. The identification details of equivalent and alternative makes for these spare parts which are not manufacturer's own product will also be listed.
 - Lubrication charts.
 - List of special tools & tackles
 - One complete set of as built drawings of the systems for which O & M manuals are meant for.
 - Soft copies of all as- built drawings and O&M manuals.
- 16.10.02 The information will be organised in a logical and orderly sequence. A general description of equipment including significant technical characteristics will be included to familiarise operating and maintenance personnel with the equipment. Such description and technical characteristics will not differ from the approved data.
- 16.10.03 Necessary drawings, curves and other illustrations will be included or copies of appropriate approved drawings will be bound in the manuals. Tests, adjustment and calibration information, as appropriate, will be included. Safety and other warning notices and installation, maintenance and operating cautions will be emphasised.
- 16.10.04 If a standard manual covering more than one equipment and/or model, is furnished, the information for the model and equipment supplied will be clearly marked and identified.



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- 16.10.05 Write-up, figures, part list etc., will be clearly legible. The manuals will be prepared on good quality paper securely bounded in durable folders.
- 16.10.06 The instruction manuals will be subject to the Purchaser's approval in the same fashion as that for drawings.
- 16.11 **General Requirements**
- 16.11.01 All drawings, specification, design calculations and bills of material prepared by the Bidder will comply with the following instructions unless otherwise directed in writing by the Purchaser. The term "drawing" as used in this specification will mean and include design calculations, specifications and bills of material unless otherwise defined. Design calculations to be submitted by the Bidder will include the safety factor used, codes and standards used etc. Drawings and data, furnished by the Bidder for construction use, will be certified as such and will bear the signature of one of the authorised persons, whose names will previously be given in writing to the Purchaser.
- 16.11.02 The Bidder will submit all major drawings for approval, as well as a drawing list from which the Purchaser will select those drawings which they consider necessary for approval.
- Before starting manufacturing of the equipment, the Bidder will have to take approval of the design drawings from the Purchaser. Any manufacturing done prior to approval of the drawings will be rectified in accordance with approved drawings by the Bidder at his own cost, if any discrepancy arises and the equipment will be supplied within stipulated period.
- 16.11.03 It is understood that approval or release by Purchaser does not include the checking for drafting and other errors, but only review of basic concepts and general principles involved. Approval does not relieve the Bidder of responsibility for correctness of design, details and dimensions.
- 16.11.04 All reproducible will be sent to Purchaser in mailing tubes only. They will be packed in such a manner that the quality of subsequent reproductions will not suffer. It must be assured that all dimensions, lettering and representatives on such reproductions will be legible. Soft copies (editable format) of all drawings & documents are required to be submitted to the Purchaser/ Consultant.
- 16.11.05 Blue prints or other non-reproducible drawings can be mailed folded.
- 16.11.06 All drawings, prepared by the Bidder will be as per IS:696. Supplier's standard drawings are exempted from the above size limitation, unless



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his "standard" includes drawings of very large size or length. All design drawings will be oriented to match the plant arrangement drawings, and will have a key plan identifying the plant area to which they apply. All construction/ situation drawings will be made with the north arrow pointing to the top of the sheet or to the left. There will be sufficient reference notes on the drawings to permit identification of all the drawings which are required for a proper understanding.

- 16.11.07 Bills of material and drawings will have cross reference for easy identification.
- 16.11.08 All drawings will be dimension in the metric system. Titles and written notations will be in English. If the original is in another language it will carry English translation. The translations will appear immediately on the drawings. Attached lists of translated words will not be accepted.
- 16.11.09 Drawings and bills of material will be identified by a numbering system to be mutually agreed. Any additional identification numbers or symbols that the Bidder wishes to use for his own purposes are permissible so long as Purchaser's number is the prime means of identification.
- 16.11.10 All reproducible must be made from original drawings.
- 16.11.11 All revised drawing will clearly indicate the number, date and subject to each revision.
- 16.11.13 General arrangement drawings will be submitted for approval of the Purchaser prior to the commencement of detail engineering by the Bidder. These drawings will show to scale, location and size of building facility and all major equipment including electrical equipment and building outlines and overall dimensions with clearances. Approved arrangement drawings will be used as basis for design and preparation of detail drawing to be prepared by the Bidder.