



Gujarat Mineral Development Corporation Limited

Tender Document For

Design, Supply, Installation, Testing & Commissioning work of PLC Based SCADA system for Plant Automation work

At

GMDC Kadipani Fluorspar Project.

Tender Number: GMDC/HO/PURCHASE/AUTOMATION/01 /24-25

**MANAGER (ELECTRICAL)
Gujarat Mineral Development Corporation Ltd.
(A Govt. Of Gujarat Enterprise)**

CIN: L14100GJ1963SGC001206, GST: 24AAACG7987P1ZT

GMDC Fluorspar Project, Village: Kadipani, Tal: Kawant, Dist: Chhota Udepur-391170, Gujarat

E-mail: ymshenekar@gmdcltd.co.in, Website: www.gmdcltd.com



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TENDER NOTICE

Tender Number: GMDC/HO/PURCHASE/AUTOMATION/01 /24-25

Brief Description of work	Design, Supply, Installation, Testing & Commissioning work of PLC Based SCADA system for Plant Automation work at GMDC Kadipani Fluorspar Project.
Location of Work	The Work to be carried out at GMDC Fluorspar Project , Village: Kadipani, Tal: Kawant, Dist: Chhota Udepur-391170, Gujarat, India
Period of contract	The period of contract will be 04 months from the date of acceptance of LOI.
Estimated Contract Value	Approximately Rs. 1,16,35,000/- (Rupees One Crore Sixteen Lakhs Thirty-Five Thousand only) for total work excluding GST.
Availability of Tender	Tender Document will be available on the GMDC website (www.gmdcltd.com) and nprocure portal (https://gmdctender.nprocure.com). Price Bids shall be required to be submitted online only on the n- procure portal (https://gmdctender.nprocure.com).
EMD (Earnest Money Deposit)	Rs. 3,49,050/- (Rupees Three Lakhs Forty-Nine Thousand Fifty only) in Form of <ul style="list-style-type: none"> ➤ DD in favor of GMDC Ltd. Payable at Ahmadabad. ➤ Digital Mode, please note if payment is made through Digital Mode kindly submit the receipt of the same in the attached documents. RTGS details for payment (Annexure-B) ICICI Bank, Ahmadabad Branch, Ahmadabad Account Number: 002405019379 IFSC: ICIC0000024 <p><i>Relaxation in terms of submission of EMD shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.</i></p>
Tender Processing Fee	Rs.15000/- (Two Fifteen Thousand only) plus GST @ 18% aggregating to Rs.17,700/- payable by Demand Draft/ Pay Order drawn in favor of “GMDC Ltd.” payable at Ahmadabad. <i>Relaxation in terms of submission of Tender Processing Fee shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.</i>
Commencement of tender	From - 10th Sept 2024



Last date for download the tender document.	01st Oct 2024 up to 18.00 Hours
Last date of submission of bid through online	01st Oct 2024 up to 18.00 Hours
Last date of submission of physical documents i.e. EMD, Tender Processing Fee etc.	01st Oct 2024 up to 18.00 Hours at Corporate Office, GMDC, Ahmedabad
Date and time for online opening of preliminary bid.	03rd Oct 2024 at 11.00 Hours
General and Important Terms and Conditions	<ol style="list-style-type: none"> 1. GMDC reserves absolute right/discretion to accept and/or reject any or all the tenders received or invite fresh bid at any stage or split the work between more than one Bidders as the case may be. 2. The Bidders are required to quote the rate as per the terms and conditions mentioned in the Tender document. Conditional tender shall not be entertained and will be rejected summarily without assigning any reasons, whatsoever. 3. GMDC may issue amendments/corrigendum in the tender documents, schedule, forms etc. at any time during the period between publication of notice and submission of bids of the tender on website. The Bidders in their own interest are advised to visit the website regularly till the last date of submission of the bid. No separate newspaper advertisement will be released for amendments/corrigendum. 4. GMDC reserves the rights to modify or alter any Condition of the Tender. 5. The Bidders are advised to submit their price bid online on https://www.gmdctender.nprocure.com only. Physical price bid shall not be accepted and shall be rejected summarily without assigning any reasons, whatsoever. 6. Failure to submit online bid in stipulated time due to any reason whatsoever by any Bidder shall result in disqualification of bid. In such circumstances, bid submitted physically along with supporting documents, tender processing fees, EMD amount etc. shall not be considered as bid submitted and the same will be returned back to the Bidder without opening the same. GMDC reserves the right to take suitable decision in this regard.



1. Purpose of the Document

The Tender Document floated by GMDC (Gujarat Mineral Development Corporation Limited), A Government of Gujarat Enterprise is to select a successful bidder who would be responsible for the **Design, Supply, Installation, Testing & Commissioning work of PLC Based SCADA system for Plant Automation work at GMDC Kadipani Fluorspar Project.**

2. About GMDC

Gujarat Mineral Development Corporation Limited herein after referred to as GMDC, a Government of Gujarat Enterprise, is a pioneer company in the field of mining for six decades, catering to the needs of the minerals and solid fuel for the industries based in Gujarat. GMDC's mining activities are spread all over Gujarat. It is currently dealing in minerals like Lignite, Bauxite, Fluorspar, Ball Clay, Silica sand and Manganese. GMDC has also set up a 250 MW lignite based Thermal Power Station at Nani Chher in Kutch, Wind power plant of 200.9 MW at Maliya, Jodiya, Godsar, Bhanvad, Bada, Varvada, Rojmal and Solar Power plant of 5 MW at Panandhro Project.

3. Location of Work

The work to be carried out at Kadipani Project, located at Kadipani of Kawant Taluka in Chhotaudepur District of the Gujarat State. The project is located about 125kms from Vadodara. The nearest Railway Station and Airport is at Vadodara.

4. About Kadipani Project.

Gujarat Mineral Development Corporation (GMDC) is having two mining leases as Ambadungar Fluorsapr Mines at Vill: Ambadungar Tal: Kawant, Dist: ChhotaUdepur, Gujarat and beneficiation plant at Vill :Kadipani Tal : Kawant, Dist :: Chhotaudepur. The two mines having a lease area of 31.2 hectres and 32 hectres respectively. The 31.2 Hectors mine is in operation and 32 Hectres mine is new and mining activity to be commenced. A20,000 MT per annum capacity beneficiation plant for production of fluorspar powder was originally commissioned in 1970. The feed capacity of raw Fluorspar ore from the mines to primary crusher of Fluorspar Beneficiation Plant is 500 MTPD located at approximately 5.5 Km away from the mines area. Gujarat Mineral Development Corporation Limited Power Department Bid Document Page 8 of 68 The plant can upgrade fluorspar ore having 21% CaF₂ (Calcium Fluoride) content to 85% to



96% CaF₂ content concentrates which is commonly known as Acid grade fluorspar powder (>92.5% CaF₂ content) and Metallurgical grade fluorspar powder (85% to 92.5% CaF₂ content) by using flotation process. Plant consists of in three stages of crushing (Primary, Secondary, and Tertiary), two Ball Mills, Filtration, Thickeners, Dryer, Bagging and tailing ponds. Plant also consists of briquetting unit to produce briquettes from fluorspar powder produced from Plant.

5. General Instructions to Bidder

The section aims to provide guidelines/Instructions for Bidders, to be used while submitting the Proposals.

5.1 Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its bid and GMDC LTD., shall no event or circumstance be held responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

5.2 Due Diligence

The Bidder is expected to and shall be deemed to have examined all instructions, forms, terms and specifications and other information in this Tender Document. The bid should be precise, complete and in the prescribed format as per the requirement of the Tender Document. Failure to furnish all information required by the Tender Document or submission of a bid not responsive to the Tender Document in every respect will be at the Bidder's risk and may result in rejection of the bid. GMDC shall at its sole discretion be entitled to determine the adequacy/sufficiency of the information provided by the Bidder.

5.3 Clarification of Bidding Documents

GMDC shall make best efforts to respond to any request for clarification of the Tender Document. The response/clarification shall to the extent possible be made in writing.

5.4 Amendment of Tender Document

At any time before the deadline for submission of bids, GMDC LTD may modify the tender Document for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender Document by



amending, modifying and/or supplementing the same. Any amendments/modifications in the tender document would be displayed on GMDC Web Site/nprocure website and all such amendments shall be binding on the Bidder without any further act or deed on GMDC LTD part. In the event of any amendment, GMDC LTD reserves the right to extend the deadline for the submission of the bids, in order to allow prospective Bidder reasonable time in which to take the amendment into account while preparing their bids. GMDC LTD may at its sole discretion, extend this deadline for submission of bids by amending the bid documents.

5.5 Contact Details

All inquiries concerning this procurement are to be addressed to the following:

MANAGER (Electrical), GMDC Fluorspar Project, Village: Kadipani, Tal: Kawant, Dist: Chhota Udepur-391170, Gujarat

E-mail: ymshenekar@gmdcltd.co.in, Website: www.gmdcltd.com

5.6 Language of Bid

All Proposals and various documents related to these Proposals should be in English Language. All correspondence between GMDC LTD., and the Bidder would also be in English Language. Supporting Documents and Printed Literature furnished by the Bidder may be in another Language provided the same are accompanied by an accurate translation in English Language.

5.7 Late Bids

Any bid received by GMDC LTD after the deadline for submission of bids prescribed by GMDC LTD., summarily rejected. GMDC LTD. shall not be responsible for any postal delay or non-receipt /non-delivery of the documents. No further correspondence on this subject will be entertained.

5.8 Right to Accept Proposal

GMDC LTD reserves the right to accept or reject any Proposal, and to annul the Proposal process and reject all Proposals at any time prior to award of contract, without thereby incurring any liability to the affected Bidder or any obligation to inform the affected Consortium of the grounds for such decision.



5.9 Site Visit

5.9.1 Bidders are advised to visit the site to study the actual working conditions, before submission of the bid and shall have to submit the site visit declaration in the prescribed format FORM PG Site Visit Certificate.

5.9.2 Any neglect or failure on the part of the Bidder in obtaining necessary and reliable information upon the foregoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of the work at the contracted rates and time in strict accordance with the contract documents.

5.10 Period of Validity of Bids

Bids shall remain valid for 180 days after the date of bid opening prescribed by GMDC LTD, pursuant to the Tender schedule mentioned in this document. In exceptional circumstances, GMDC LTD. may solicit the Bidder's consent to an extension of the period of validity. The request and the response thereto shall be made in writing. Extension of validity period by the Bidder shall be unconditional.

5.11 Subcontract

The Successful bidder shall not assign or sub-contract any portion of this work without prior written consent of GMDC.

5.12 Consortium / Joint Venture

Consortium / Joint Venture are not allowed.

5.13 Change in Law

Nothing in this contract shall entitle the Bidder to claim additional payment against the work executed or being executed or likely to be executed upon the change in law by Government of India or State of Gujarat as regards any taxes, liabilities arising out of work contract, judgments of court etc. That nothing under the said laws shall create any additional liability on the GMDC over and above that set out herein. That unforeseen circumstances in the working of the said contract shall not entitle the Successful Bidder to abandon or demand additional payment under a different head not originally mentioned herein and hence nothing except what is contained in the present contract shall constitute binding obligations between parties.



5.14 Interpretation

That no communication preceding or following the present tender shall have any bearing on the terms and conditions set out herein. That no contract, promise or obligation shall arise out of the said communication, over and above what is set out herein above. That the terms contained herein constitute the entire bargain between the parties and shall not be interpreted in the light of commercial correspondence between the parties.

5.15 Declaration

The Bidder should submit the declaration regarding unconditional acceptance of all the terms and conditions of the Tender document including Annexure and corrigendum if any and it has not enclosed any conditional offer as per FORM PD provided in the Tender Document.

GMDC is authorized to take suitable decision and action in case of requirement to amend/alter the contract conditions/quantities of the works/ extension of the contract period/allotment of additional works/revision of the rates of the work etc. if necessary, in the interest of GMDC.

The Successful bidder shall not change the constitution of the firm/name during the currency of the contract without prior approval of GMDC. Upon such change in constitution and/or name, Supplementary agreement to that effect shall be executed and if the SD is submitted in form of BG/FD than fresh BG in the name and/or constitution shall be submitted failing which necessary action as deemed fit by GMDC shall be taken.

6. Earnest Money Deposit

A non-interest-bearing Earnest Money Deposit Rs. 3,49,050/- (Rupees Three Lakhs Forty Nine Thousand Fifty only) in any one of following form

- Demand Draft in favor of GMDC Limited Payable at Ahmadabad

OR

- Digital Mode, please note if payment is made through Digital Mode kindly submit the receipt of the same in the attached documents. RTGS details for payment (Annexure-B)

ICICI Bank, Ahmedabad Branch, Ahmedabad



Account Number: 002405019379

IFSC: ICIC0000024

Relaxation in terms of submission of EMD shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.

7. Tender Processing Fee

The Tender Processing Fee is to be paid at the time of submission of supporting document of technical bid in the form of demand draft of Rs. 15,000/- plus GST @ 18% (Rs. 2700) aggregating Rs 17,700/- as mentioned in tender notice in the sealed technical bid cover.

If the amount mentioned in the DD is found short, the tender will not be considered for scrutiny and will be out rightly rejected.

Relaxation in terms of submission of Tender Processing Fee shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.

8. Security Deposit

8.1 Security Deposit is measure of liquidated damages sustained by GMDC for not performing the contract satisfactorily. Nothing herein above shall disentitle GMDC from claiming the damages actually sustained in the value over and above the Security Deposit.

8.2 The successful bidder shall submit security deposit of 10% of the total contract value excluding Goods & Service Tax (GST) Within 10 days from the date of receipt of acceptance of LOI in any one of following form.

➤ Demand Draft in favor of GMDC Limited Payable at Ahmadabad

OR

➤ Fixed Deposit from Banks approved by Govt. Of Gujarat (except Co-operative Bank) duly pledged in favor of GMDC for a period of contract period from the date of receipt of LOI and shall be renewed from time to time in case of requirement.

OR



- Bank Guarantee issued by banks approved by Govt. Of Gujarat from time to time (except Co-Operative bank) in the form and manner acceptable to GMDC (Govt. GR is annexed at “B” for approved bank). It should be valid for a period of contract period from the date of receipt of LOI and shall be renewed from time to time in case of requirement.

8.3 It shall be refunded to the Successful bidder, within a period of six months after satisfactory completion of the work and the due fulfillment of all the terms and conditions of the contract.

8.4 The Successful bidder shall obtain “No Dues Certificate”, “Site Clearance Certificate” and Work Completion Certificate” from Maintenance department and shall submit the same to Maintenance department at HO, who after verification of the fact will arrange for refund of SD.

8.5 The SD deposited by the Successful bidder shall be forfeited if the successful bidder fails to adhere to fulfill the conditions of work order.

8.6 Security deposit shall not bear any interest under any circumstances.

8.7 GMDC will reserve the right to recover the charges or the liquidated damages from the Security Deposit in the following circumstances-

8.7.1 If the successful bidder or its employees causes any damage or destroy any property belonging to GMDC.

8.7.2 The shortfall amount of all compensations, penalties, and other sums of money payable by the successful bidder or recoveries to be made under the terms of this contract which is due but not paid by the successful bidder in full, etc.

8.7.3 Any other dues on account of statutory compliance.

9. Procedure for Submission of the Bid

9.1 Offers prepared in accordance with the procedures enumerated below.

9.2 Bid should be submitted **online** at www.nprocure.com on or before the last date and time as prescribed in this tender.

9.3 The Bidder should submit their bids in Three parts, these are

9.3.1 Prequalification bid (Details of EMD and Tender processing Fee),

9.3.2 Technical Bid

9.3.3 Price Bid.



9.4 Manual price bids or the bids submitted by fax/ e-mail etc. will not be accepted under any circumstances. No correspondence will be entertained on this matter.

9.5 Bidders are advised to follow the 'Instructions for Bids Submission' given annexure "A" for e-submission of the bids online through n-procure.

Documents should be submitted as per check list given in form "PA" through 'off-line' in the sealed cover super-scribed as "**Technical Bid for Tender Number GMDC/HO/PURCHASE/AUTOMATION/01 /24-25 and Name of work: " Design, Supply, Installation, Testing & Commissioning work of PLC Based SCADA system for Plant Automation work at GMDC Kadipani Fluorspar Project."**

Bids must be submitted as per the schedule (date & time) indicated in tender notice.

10. Eligibility and Qualification Criteria of Bidder

10.1 Experience

The Bidders should have following minimum experience of having successfully completed similar works during last 7 (seven) years ending on last day of July 2024 (i.e. period from 01.08.2017 to 31.07.2024):

A. Three similar completed works each having amount of Rs 46,54,000/- (Rupees Fifty-Six Lakhs Fifty Four Thousand Only) or more during last 7 (seven) years.

OR

B. Two similar completed works each having amount of Rs 18,17,500/- (Rupees Eighteen Lakhs Seventeen Thousand Five Hundred Only) or more during last 7 (seven) years.

OR

C. One similar completed work having amount of Rs 93,08,000/- (Rupees Ninety three Lakhs Eight Thousand Only) or more during last 7 (seven) years.

Similar works means the Bidders should have experience to carry out one or more following works for Government/Semi Government / Municipality / Corporation/Private Company and should have been carried out under the single LOI/Work Order/Agreement.



- Design, Supply, Installation, Testing & Commissioning work **PLC Based SCADA system** and should have been carried out under the single LOI/Work Order/Agreement.

OR

- Renovation and Modernization of automation system and should have been carried out under the single LOI/Work Order/Agreement

Bidder shall submit the details of work completed in form PC as provided in the Tender Document Separate year wise Statement of experience with work orders and work executed certificates (Work Completion Certificate) duly certified by the certificate issuing authority shall be submitted as supporting documents.

10.2 Financial

10.2.1 Bidder must have an average positive Net Worth as on last three financial year of 31.03.2022, 31.03.2023 and 31.03.2024.

10.2.2 Bidder must have a Minimum Average Turnover of Rs 34,90,500/- (Rupees Thirty Four Lakhs Ninety Thousand Five Hundred Only) for financial year ending on 31.03.2022, 31.03.2023 and 31.03.2024.

10.2.3 A certificate from Chartered Accountant regarding financial capacity shall be submitted as per format provided in FORM PC of the Tender Document.

10.3 Site Visit Certificate

The Bidder should give a declaration of site visit as per the format provided in FORM PG of the Tender Document.

10.4 Blacklisting of the Bidder

The Bidder or its directors have not been blacklisted by any Government Organization. The Bidder will submit a declaration to this effect as per the format provided in FORM PD of the Tender Document. If at any time such declaration is found false, the bid will be rejected or if the contract work is already awarded, it will be terminated forthwith without payment of any compensation and the EMD/SD will be forfeited.



11. Evaluation of Bids

11.1 Completeness of Bids

GMDC, will examine the bids to determine whether they are complete, whether they meet all the conditions of the Tender Document and Technical Specifications, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bid Documents are substantially responsive to the requirements of the Tender Document.

11.2 Tender Clarifications

The GMDC may at its discretion, seek from any or all bidders, clarifications on his/their bids, including technical information, documents and materials after technical bid opening but before opening of commercial bid.

11.3 Rejection of Bid

A bid that does not meet all eligibility criteria or is not responsive shall be rejected by GMDC. Submission of false or incorrect information, history of delayed work, reports of unprofessional conduct, among other things, shall be sufficient grounds for disqualification in technical bid.

11.4 Opening of Bids

Technical bids will be opened after verification of receipt of payment towards Tender Processing Fee and EMD. The eligible bidders will be able to view the technical bids after opening of technical bid. On verification of the supporting documents, technical qualification of the bidders will be assessed. The eligible bidders will be communicated the date and time of online opening of price bids by fax or telephone or email or SMS. However, all bidders will be able to view the price bids online on their computers after opening of price bid.

11.5 Selection of Bidder

The contract will be awarded to the bidder who stands L1 in total price. The GMDC reserves its right to reject any or all tenders or split the job between more than one bidders without assigning any reason and thereby without



incurring any liability to the affected successful bidder or Bidders or any obligation to inform the affected successful bidder or bidders of the grounds for GMDC Ltd., action/decision.

11.6 Discussion

It is essential for the successful bidders to quote the lowest price at the time of making the offer in their own interest. GMDC, however, will have the discretion to choose to enter any mode of discussion or not.

11.7 Acceptance of LOI and Issuance of Work Order:

11.7.1 GMDC, on acceptance of the offer, will issue Letter of Intent to the successful bidder, who will be required to confirm its acceptance of the LOI within 10 days from the date of receipt. If he does not accept the LOI within stipulated period, the amount of the EMD paid will be forfeited and necessary further actions may be initiated as may be deemed fit by the GMDC.

11.7.2 The Successful bidder shall have to submit the Security Deposit with within 10 days from the date of LOI. The Successful bidder shall submit the Security Deposit in the manner prescribed in this Tender Document after that issuance of work order. In case of failure to submit the security deposit, the amount of EMD will be forfeited and necessary further actions may be initiated as may be deemed fit by the GMDC.

11.7.3 GMDC will award the Work Order to the successful bidder, after the payment of Security Deposit, in token of acceptance of the terms and conditions of the contract, within 30 days from date of LOI. In case of any necessity arising after executing work order and during the execution of the work, which requires alteration/modifications in the agreement, the same can be made in writing after mutual understanding and consent of both the parties.



12. Scope of Work

- 12.1** The scope of works includes Design, Engineering, procurement, Supply, Installation, Testing and Commissioning of system in line with Bill of material including all items necessary and as required by drawing and specified herein after or given in the specification. Brief of scope work is under for that SITC works carry out at Fluorspar Project, GMDC LTD.
- a) Supply, Installation, Testing and Commissioning of Hot Redundant PLC + Hot Redundant SCADA system.
 - b) Operation of all Flotation and its cleaner (02 out of 01) valves and scavenger and its cleaner (02 out of 01) valves auto operated double acting cylinder (if air fail than cylinder will be as it is position) installed. Total 22 nos cylinder shall be integrated and Controlled by its level set point through newly supplied PLC+SCADA and HMI system.
 - c) Operation of Ball mill sump pump 02 nos VFD shall be integrated and Controlled by its level set point through newly supplied PLC+SCADA and HMI.
 - d) The cables are to be laid in two tier (Power & Control) cable tray with necessary mounting arrangement along the existing trench. Wherever cables are to laid underground same shall be laid through HDPE conduits of suitable sizes separately for power and control cables. Cost is deemed to bidder scope.
 - e) Supply, installation, testing and commissioning Field Instruments as per BOQ and integration with newly supplied PLC+SCADA system and HMI.
 - f) Flow transmitter 01 nos in fresh water, Flotation air blower 01 nos, 02 nos in 60” FT thickener, 02 nos in 100” FT thickener, 01 nos Desliming cyclone should be as per design point of view so that it can show accurate reading.
 - g) 02 nos Density transmitter in 60” FT thickener ,02 nos Density transmitter in 100” FT thickener and 01 nos Density transmitter in Desliming cyclone as per design point of view so that it can show accurate reading.
 - h) Total 12 Nos. Flow and Desinty transmitter having local indicator required for Field Operation.
 - i) All Flotation cell and cleaner, Scavenger cell and its cleaner should install 01 level transmitter each. Total 22 nos level transmitter with its local level indicator to be installed.
 - j) All chemical storage tanks Total 08 nos level transmitter with local level indicator to be installed.



- k) Total 09 nos pH analyzer should be integrated to PLC+ SCADA and HMI system.
- l) Total 04 nos belt weigher, 25 MCC power meters, 02 nos pH should be integrated from PLC + SCADA and HMI system through MODBUS communication.
- m) For all that monitoring and measuring of all instruments with PLC+SCADA and HMI system necessary power, signal and communication cable in bidder scopes.
- n) Plant all major drive/equipment ON indication with necessary graphics to be integrated to PLC, SCADA and HMI.
- o) Bagging system Totalizer (02 nos) and bag counter (02 nos) should be integrated to PLC, SCADA and HMI.

12.2 General terms and condition:

Contractor Scope:

- 1) Total SITC works with transportation, loading, unloading & safe keeping of SCADA servers, PLC Controller, IO Cards, Networking System, Data Back-up system, UPS System, Field Instruments, Marshalling Panels, Cables, Cable Trays & all necessary items for Plant Automation works at GMDC Kadipani Project.
- 2) SITC works 01 nos Engineering, 01 nos Operating Work Station and remaining 03 nos Operating work station for SCADA system with 32" monitor display. Also it's include PLC as well as HMI system.
- 3) All field instruments and PLC I/O cards 10% spares given to Owner or Client after compilation of work.
- 4) Contractor should do visit at site before manufacture & finalization of any works with concern GMDC Kadipani Fluorspar Project Team.
- 5) SITC works all necessary tools tackles, consumables, and testing equipments/meters in contractor scope.
- 6) SITC works should be done with necessary skill & qualified manpower.
- 7) For SCADA control room minimum 03 nos 2 TON five-star rating of current year and with latest inverter technology Air conditioner with (24*7) running heavy duty application and HP printer should be provided.
- 8) SITC works must be done with follow safety norms and safety PPEs.



- 9) All signal, communication and power cables and trenches installation, cable laying, cable glands, cable lugs and cable termination works in contractor scopes.
- 10) Contract should state concern state required.
- 11) All instruments end to end all cables connections, termination, tagging woks under contractor scope.
- 12) Instruments termination details in Marshalling Panel/Junction Box under Contractor scope.
- 13) All instruments end to end pneumatic air line installation, connections, tagging woks under contractor scope.
- 14) Materials likes MCCB, MCB, Relay, Contactor & all related accessory of SITC works in contractor scope.
- 15) Earthing works of all instruments electrical & electronics, panels, servers and all equipments under contractor scope.
- 16) If any defect is observed during trial run, the same must be rectified by successful contractor at free of cost.
- 17) Successful contactor must be submitting all necessary software data back-up copy and 4TB portable hard disk.
- 18) Documentation: Successful contractor must be submitting Operational & Maintenance Manuals with Technical Drawings & Technical Manuals with 05 Nos. duplicate hard copy and also with Soft copy before compilation of work.
- 19) Successful Contractor must be submitting all necessary Testing, Calibration & Warranty Certificates of NABL approved lab required.
- 20) Final test certificate must be submitted to GMDC Kadipani Project, along with warranty period.
- 21) **Lodging and Boarding in Contractor scope.**
- 22) **Successful bidder must be submitting all necessary SOPs for Plant smooth Operation & Maintenance works.**
- 23) **Bidder should have contractor license issued by the state of consigning location & also submit latest/renewed license copy.**



12.3 INSTRUMENTS REQUIRED TO BE INSTALLED AND INTEGRATED ITS READIND TO PLC,SCADA AND HMI

A) FLOW TRANSMITTER AND DENSITY TRANSMITTER:

SL. No.	FLOW TRANSMITTER (NOS) WITH LOCAL INDICATOR	DENSITY TRANSMITTERS (NOS) WITH LOCAL INDICATOR	LINE DIA METER	MEDIA	REMARK
1	02+02	02+02	6"	SLURRY+LIQUID	60" FT THICKNER
2	02+02	02+02	4"	SLURRY+LIQUID	100" FT THICKNER
3	01+01	01+01	4"	SLURRY+LIQUID	DESLYMING CYCLONE
4	01+01	NOT REQUIRED	8"	LIQUID	FRESH WATER INLET
5	01+01	NOT REQUIRED	12"	HOT AIR (APPROX 50'C)	AIR BLOWER

B) STORAGE TANK LEVEL TRANSMITTER:

SL. No.	TANK NAME WITH UNIT NO	LEVEL TRANSMITTER AND LOCAL LEVEL INDICATOR	DIMENSION(MM)	MEDIA
1	SODIUM SILICATE U-208	01+01	2040	LIQUID
2	SODIUM FLOURIDE U-214	01+01	2350	LIQUID



3	ALLUMINUM SULPHATE U-226	01+01	1760	LIQUID
4	MESB U-232	01+01	2500	LIQUID
5	AKF2 U-242	01+01	2270	LIQUID
6	CALGON U-248	01+01	3300	LIQUID
7	NAOH U-254	01+01	1330	LIQUID
8	SODIUM SULPHATE U-220	01+01	2610	LIQUID

C) LEVEL TRANSMITTER:

SL. No.	LEVEL TRANSMITTER	DIMENSION IN MM	MEDIA	LEVEL TRANSMITTER & LOCAL LEVEL INDICATOR	AIR CYLINDER(DOUBLE ACTING WITH F/B TRANSMITTER)
1	RO FLOTATION CELL -1	1240	LIQUID+SLURRY	1+1	01
2	RO FLOTATION CELL -2	1240	LIQUID+SLURRY	1+1	01
3	RO FLOTATION CELL -3	1240	LIQUID+SLURRY	1+1	01
4	RO FLOTATION CELL CLEANER-1	900	LIQUID+SLURRY	1+1	01
5	RO FLOTATION CELL CLEANER-1	900	LIQUID+SLURRY	1+1	01



6	RO FLOTATION CELL CLEANER-1	900	LIQUID+SLURRY	1+1	01
7	RO FLOTATION CELL CLEANER-2	900	LIQUID+SLURRY	1+1	01
8	RO FLOTATION CELL CLEANER-2	900	LIQUID+SLURRY	1+1	01
9	RO FLOTATION CELL CLEANER-3	900	LIQUID+SLURRY	1+1	01
10	RO FLOTATION CELL CLEANER-3	900	LIQUID+SLURRY	1+1	01
11	RO FLOTATION CELL CLEANER-4	900	LIQUID+SLURRY	1+1	01
12	RO FLOTATION CELL CLEANER-4	900	LIQUID+SLURRY	1+1	01
13	SCAV.FLOTATION CELL -1	1240	LIQUID+SLURRY	1+1	01
14	SCAV.FLOTATION CELL -2	1240	LIQUID+SLURRY	1+1	01
15	SCAV.FLOTATION CELL -3	1240	LIQUID+SLURRY	1+1	01
16	SCAV. SCALP	900	LIQUID+SLURRY	1+1	01
17	SCAV. 1 ST CLEANNER1	900	LIQUID+SLURRY	1+1	01
18	SCAV. 1 ST CLEANNER2	900	LIQUID+SLURRY	1+1	01
19	SCAV. 2 ND CLEANNER1	900	LIQUID+SLURRY	1+1	01



20	SCAV. 2 ND CLEANNER2	900	LIQUID+SLURRY	1+1	01
21	SCAV. 3 RD CLEANNER	900	LIQUID+SLURRY	1+1	01
22	SCAV. 4 TH CLEANNER	900	LIQUID+SLURRY	1+1	01

D) AIR OPERAED PNUEMATIC POWER CYLINDER:

TOTAL 22 NOS DOUBLE ACTING PNUEMATIC POWER CYLINDER WITH DOUBLE ACTING SMART POSITINER WITH NECESSARY ASSEMBLY

E) BELT WEIGHER:

1.BELT WEIGHER TOTAL 04 NOS.-IN BCN CONVEYOR-1,4,6,7
ALL READING ON PLC SCADA SYSTEM THROUGH MODBUS SIGNAL

F) MCC KW METER:

KW METER TOTAL 25 NOS
READING ON PLC SCADA SYSTEM THROUGH MODBUS ANALOG INPUT SIGNAL

G) pH METER: TOTAL 09 NOS

pH METER READING FOR CT-1,2,3,4,5, MESB TANK, BALL MILL SUMP
READING ON PLC SCADA SYSTEM ANALOG INPUT SIGNAL THROUGH HARDWIRE

pH METER READING FOR ETP-I/L, ETP-O/L
READING ON PLC SCADA SYSTEM ANALOG SIGNAL THROUGH MODBUS

12.4 GMDC scope:

- 1) GMDC should provide Lodging facility as per day chargeable as per GMDC norms.



- 2) Material came from outside is safe keeping at GMDC store after it will safely be unloading by contractor.
- 3) For installation of instruments and SCADA room preparation work necessary help form Civil, Electrical and Mechanical should be provided by GMDC.
- 4) For preparation SCADA control room necessary furniture and room provided by GMDC.
- 5) For auto operation of Cylinder in Rougher cell 7 Kg/cm² pressure instrument air compressor in GMDC scope.

12.5 Training of Owner's Personnel:

The Successful Bidder shall be responsible for providing operations and maintenance training for all the hardware and software of the upgraded PLC systems to the Owner's personnel at the Plant. The Successful Bidder shall also train the Owner's personnel on the Successful Bidder's system to develop detailed understanding of the HMI system of the upgraded PLC The Successful Bidder shall train the Owner's personnel for efficient and safe Plant operation and maintenance practices.

03 days training of process operation person training about changing setting of flotation cell and scavenger cell and all parameter monitoring and Totalizer data taken from PLC SCADA server and mention shift wise logbook. Further how to check trend for observation for analysis work.

One week training of C&I all staff for PLC new tag formation, new channel assigning, Fault finding, Logic modification and data backup work, Program uploading and downloading work. New alarm assignment and trending work. Also training about signal simulation work and normalization work.

12.6 Testing:

I. Factory acceptance tests (FATs)

1. A 100% integrated system simulation test shall be carried out in the Successful Bidder's staging area to test all the hardware and software supplied by the Successful Bidder.
2. The Successful Bidder shall arrange for factory acceptance tests to be conducted for all equipment at the Successful Bidder's facilities, prior to shipping, in the presence of the Owner and other representatives deployed by the Owner, if needed.
3. The Successful Bidder shall arrange necessary accommodation and food and beverage requirements, for the Owner and other representatives



deployed by the Owner for supervision of the Factory Acceptance Tests.

4. During system development, it will be decided if the Factory Acceptance Test will either be performed on the complete Control System or if separate tests will be conducted on each item performing a final integration test.
5. Cyber FAT test shall be arranged by the Successful Bidder at the respective OEM's works for the complete system, within stalled hardware and software.
6. Successful Bidder shall be responsible for making all connections between system components, peripherals, and test equipment, including foreign device interfaces.
7. The cost of performing the FAT shall be borne by the Successful Bidder.

II. Facilities

1. The Successful Bidder shall assign qualified personnel during the entire test period to perform the test and operations
2. The staging area shall satisfy the following requirements:
 - i. Area dimensions shall be enough to easily accommodate all cabinets and equipment necessary to the complete test.
 - ii. A warehouse containing at least one item per device type in the supply shall be available to change any device found defective during the test within one working day.
 - iii. Power supply lines for system equipment shall be suitable for testing purposes.

III. Test Procedure

1. Duration will depend upon the real status of the system which will be checked at the FAT beginning.
2. The Successful Bidder shall given time limit to Owner prior to the scheduled test beginning.
3. Daily meetings shall be held to state progress, pending points, modifications, and any required rescheduling of activities.

IV. Hardware Test

1. FAT shall be performed using hard-wired simulated inputs, with simulators to be provided by the Supplier
2. The Successful Bidder shall provide monitors and equipment to determine



the performance of the system under test with respect to loading and response time requirements

3. The Hardware tests shall consist, but not be limited to the following tests:
 - i. Check of supply completeness
 - ii. Visual check of hardware against Manufacturer's documentation
 - iii. Item list check:
 - a) Number of Item's modules
 - b) Quantities of auxiliary equipment
 - c) Quantities of switches and push buttons
 - d) Check of system documentation
 - e) Quantities of consumable
 - iv. System drawings check: System cabling and wiring check
 - v. Check of proper change-over of the back-up units in case of unit failure
 - vi. Power loss simulation
 - vii. Shutdown of operator stations and their reloading
 - viii. Shutdown of process stations and their reloading
 - ix. Fail on(for redundant systems):
 - a) Processor-MasterCard
 - b) Communication-MasterCard
 - c) Power supply-MasterCard
 - d) Processor-Back-up card
 - e) Communication-Back-up card
 - f) Power supply-Back-up card
 - x. Communication fail: for redundant cables/busses and serial links
 - xi. Demonstration of diagnostic features
 - xii. Power off and power on of any single unit
 - xiii. Check of auxiliary devices
 - xiv. Check of correct functionality of keyboards
 - xv. Testing of the printer
 - xvi. Simulation of power-off and restart
 - xvii. Test of system interfaces working
 - xviii. Check of power supply load
 - xix. Check of analogue channels accuracy(tests to be performed as sample)

V. Software Test

The Software tests shall consist, but not be limited to the following tests:

1. Check of database configuration
2. Check of batch sequences(if any) and interlocks configuration
3. Check of monitor displays (all kind of displays)
4. Check of all the report generation variations
5. Check of system internal loading (processors, communication system, etc.)
6. Check of printing functions (alarm, reports,etc.)
7. Check of time stamping and continuous operation
8. Scan time checking (test to be performed as sample)



VI. Input output working

The I/O working tests shall consist, but not limited to the following tests:

1. Analogue(4-20mA) inputs check
2. Analogue(4-20mA)outputs check
3. Digital inputs check
4. Digital outputs check
5. Check of proper correspondence between electrical signals and internal indications .Check of AI/AO/DI/DO points against detailed design engineering diagram

VII. System configuration check

1. Data base configuration check

VIII. Internal Programs test

1. Energy measures check
2. Flow compensation formula as check
3. Optimization programs check :the proper working of the programs and their ease of handling will be verified
4. Special control algorithms check
5. Special functions check: all the functions implemented inside the system (i.e., data reconciliation checks, etc.)
6. Interlocks checks: the proper working of all the interlock schemes will be checked against engineering Successful Bidder's documentation using external simulators to simulate the field
7. VA/PT(CFAT)tests to be carried out for vulne rability and security assessment

IX. Auxiliary devices

1. Proper working of printers shall be checked
2. Proper working of trip amplifiers, temperature convertors, relays etc. is to be checked



X. Documentation

The Successful Bidder shall prepare documentation and deliver a copy of the same to the Owner two weeks before the FAT beginning. The Successful Bidder shall provide the following document

1. System Database
2. Application database
3. Logic Diagrams
4. Factory Acceptance test plan

12.7 Commissioning

Commissioning of the Plant shall be done after successful completion SATs and FATs. The commissioning shall be divided into the following major steps:

1. Cold commissioning and startup services(without process part)
2. Hot commissioning(including process part)

Each step of commissioning shall be performed by following the set industry practices for–

1. Closed loop control
2. Open loop control
3. Power supply and monitoring
4. Control and Plant network
5. Operator and Engineer stations

The Successful Bidder must ensure that the following requirements are met during the commissioning of the upgraded control and instrumentation systems in the Plant:

1. Conduct necessary loop tests for all the instruments, by simulating the Process conditions.
2. Provide one complete set of tools and tackles required for installation, assembly, disassembly, and maintenance of the upgraded systems, at the time of commissioning
3. Ensure that the Plant shall not trip during the commissioning of the upgraded system.

12.8 Site acceptance tests (SATs)

The Successful Bidder shall submit the procedure for carrying out the SAT for Owner's approval. The SAT shall be carried out on the basis of this approved document.

The Successful Bidder shall test all the items/material/equipment supplied and installed after completing all the services necessary. The Successful Bidder shall demonstrate the functional



integrity of the hardware and software for all the PLC systems. All the equipment shall be checked thoroughly after its installation and commissioning. The tests as a minimum shall include:

1. Visual, mechanical and functional testing
2. Redundancy checking of all the redundant units like, Controller, Communication bus, Sub communication I/O modules, power supply unit etc.
3. Demonstration of all system diagnostics features
4. Checking of changeover of redundant devices
5. Demonstration of all system functions
6. Checking of proper functioning of PLC programming unit
7. Checking of complete engineering configuration of PLC including Graphics tuning, FLD etc.
8. Loop testing and inter lock checking.
9. Demonstration of an overall accuracy of +/- 1% wherever deviations are observed in each loop
10. Checking of System loading time, control loop update time for of all the DCS/PLC systems
11. Communication between internal systems as well as communication with other third-party systems/devices as per specifications

All the SATs shall be done in the presence of the Owner and other representatives deployed by the Owner (if needed). The Owner and other Owner's representatives (as needed) shall sign off the SATs, to mark the successful completion of the SATs.

12.9 Post up gradation Support:

The Successful Bidder shall provide an active spares and services support to the Owner, for all the hardware/software supplied and installed during the Overhaul, for a minimum of 15 years after the completion of the Overhaul. The Owner shall formally register a request for support as and when needed, to which, the Successful Bidder shall respond within 5 working days. The Owner also reserves a right, but not an obligation, to invite the Successful Bidder to execute an inspection of the PLC systems, once in every year for 15 years after the completion of the Overhaul, including running a system diagnosis to identify any potential existing/future potential issues with the system. The Successful Bidder shall provide all the necessary support fulfill Owner's request in a timely manner.



12.10 Technical Data Sheets for Instrumentation & Automation Works with Level Base Automation of Flotation cell Area of Fluorspar projects of GMDC At Kadipani.

Content:

1. Full Bore Electromagnetic Flow Transmitter:.....
2. Thermal Mass Flow Meter:.....
3. Ultrasonic type Level Transmitter:
4. Hydrostatic Type Level Transmitter:
5. Digital Process Indicator/ Totalizer (Panel Mounted):
6. PLC & SCADA System
7. Uninterruptible power Supply.....
8. POWERANALYZER(MFMETER)
9. INSTRUMENT POWER SUPPLY CABLES, INSTRUMENTATION SIGNAL, AND CONTROL CABLES WITH HDGICABLE TRAYS AND JUNCTION BOXES.....
10. Instrumentation Earthing Systems
11. SMARTPOSITIONER:.....
12. PNEUMATIC ACTUATORS:
13. Pneumatic Accessories.....



01 Full Bore Electromagnetic Flow Transmitter and Density transmitter:

Sr. No.	Description	Design requirement
1	General	
1.1	Make	As per approved vendor list
1.2	Item	Full Bore Electromagnetic Flow Meter
1.3	Service	Common Header of MS line.
1.4	Fluid	Chemical Water
1.5	Area Classification	Non-Hazardous/Hazardous
2	Flow Sensor	
2.1	Type	DC pulsed
2.2	Electrode/Sensor MOC	Has alloy C
2.3	Flow Tube MOC	SS304
2.4	Coil Housing MOC	Noncorrosive(SS304)or Die cast aluminum with anti-corrosive grade paint suitable for application
2.5	Grounding Ring MOC	SS304
2.6	Liner MOC	PTFE
2.7	Process Connection	Flanged
2.8	Flange MOC	CS
2.9	Housing Protection	IP 68
2.10	Pressure Rating	10/16Kg/cm ²
2.11	Temperature	50°C Ambient
2.12	Size(mm)	To suit flow parameters, with pipe & specials to be Provided as necessary.
3	Flow and Density Indicator With Transmitter	
3.1	Type	Microprocessor Based, Remote Mounted
3.2	Power Supply	230VAC Line Power
3.3	Accuracy	± 0.5 % of measured value
3.4	Repeatability	+/-0.1%
3.5	Transmitter Protection	IP67
3.6	Transmitter MOC	Dia-cast Aluminum with PU finish/Polycarbonate
3.7	Output	One Current – 4 to 20 mA (isolated) proportional to flow rate Hart (version 6 or above) One Scale able Pulse One Status Output
3.8	Communication	Modbus RS485
3.9	Display	2 Line Backlit LCD, Programmable
3.10	Maximum Digit Display	8 Digit



3.11	Indication on Display	<p>Actual Flow Rate/ Instantaneous Flow Rate Cumulative Forward Flow Cumulative Reverse Flow Cumulative Flow/Sum/Totalizer Alarm Five (5) digit backlit/ Normal LCD, for flow rate in m³/hr. Eight(8)digit backlit/Normal LCD for totalized flow in ML Display with 8 digits for main</p> <p>Information. Index ,menu and status symbols for dedicated information Key for toggling through the information and reset customer Totalizer and call-up function.</p>
3.12	Zero and Span adjustment	<p>Factory set Password protection of all parameters and hardware protection of calibration and revenue Parameters.</p>
3.13	Facility for online diagnosis	<p>Required as following:</p> <p>Diagnostic</p> <ul style="list-style-type: none"> • Continuous self test shall include <ul style="list-style-type: none"> - Coil current to drive the magnetic field - Signal input circuit - Data calculation, handling and storing • Features <ul style="list-style-type: none"> - Alarm statistics and logging for fault analyzing - Electrode impedance to check actual media contact - Flow simulation to check pulse and communication signal chain for correct scaling - Number of sensor measurements(excitations) - Transmitter temperature - Low impedance alarm for change in media - Flow alarm when defined high flow exceeds. -Verification mode for fast measure performance check <p>Statistic flow and consumption data</p>



3.14	Cable Gland	Required
3.15	Cable Length(sensor to transmitter)	10 Meter minimum or suit to site
3.16	Data Protection:	<p>All data shall be stored in an EEPROM. Totalized statistic shall be backed up every 10 min Power consumption and temperature Measurement statistic at every 4 hour</p> <p>Minimum 30 days of data shall be stored in EEPROM. Password protection of all parameters and hardware</p> <p>Protection of calibration and revenue parameters.</p>
3.17	Power Supply in case of Raw Power is not available	External AC/DC power supply required with 8 Hour battery back up



02 Thermal Mass Flow Meter:

The general specifications for Thermal Mass flow meter shall be as under:

Service	Air Application
Function	To measure & indicate Instantaneous Flow and Totalized Flow/Transmit(Flow)
Installation	Indoor or Outdoor, Below or Above Ground as per piping/ site conditions
Measuring Principle	Thermal dispersion principle
Material measuring tube	SS316L
Insertion tube length(mm)	As per site condition
U/S and D/S Stream Length for installation	As per Mfr. Std.
Housing Type	Integral Type/Compact Type
Protection Class	IP66/67
Material Housing	Aluminum coated or as per mfr. std.
MOC of Sealing Surface	PEEK or as per mfr.std.
MOC of Gasket	HNBR or as per mfr. std.
Accuracy	+5% of Full scale or better
Analogue Output Signal	For Flow, Isolated, 4 -20 mA DC with HART /Modbus. HART /Modbus port of instrument to have required connectivity with PLC for instantaneous & totalized Readings and fault diagnostics
Pulsed O/p	Required for Totalized
Instrument Power Supply	100 to 240VAC+ 10%, 50Hz+ 5% or 24VDC as per mfr. Std.
Cable/Conduit Entry	1/2" NPT.
Local Indicator/Display	Inst. & Total Flow, LCD Display for Inst. & Tot. Flow reading



03 Ultrasonic type Level Transmitter:

Sr. No.	Description	Design requirement
1	General	
1.1	Make	As per approved vendor list
1.2	Item	Level Transmitter
1.3	Service	Sump/Tank
1.4	Fluid	Chemical Water
1.5	Area Classification	Non Hazardous/Hazardous
2	Level Sensor	
2.1	Type	Ultrasonic
2.2	Sensor MOC	PP/PVDF
2.3	Seal MOC	EPDM
2.4	Sensor Housing MOC	Di-cast Aluminum with PU finish/Polycarbonate
2.5	Process Connection	Flanged
2.6	Flange MOC	PP/ CS
2.7	Housing Protection	IP 68
2.8	Temperature compensation	Required
2.9	Swirling arm arrangement For mounting of sensor	Required for access during maintenance
2.10	Size(mm)	To suit Sump/Tank Height
2.11	Pressure Rating(Kg/cm ²)	Atmospheric
2.12	Temperature	50°C Ambient
3	Level Transmitter	
3.1	Type	Microprocessor Based, Remote Mounted
3.2	Power Supply	230VAC Line Power/24VDC
3.3	Accuracy	±0.1% of measured value
3.4	Repeatability	+/-0.1%
3.5	Transmitter Protection	IP67
3.6	Transmitter MOC	Dia cast Aluminum with PU finish/Polycarbonate
3.7	Output	One Current 4 to 20 mA(isolated) Proportional to Level
3.8	Display	2 Line Backlit LCD, Programmable
3.9	Maximum Digit Display	8 Digit
3.10	Indication on Display	Actual Sump/ Tank Level Alarm
3.11	Zero and Span adjustment	Factory set Password protection of all parameters and hardware protection of calibration and revenue parameters.
3.12	Cable Gland	Required
3.13	Cable Length(sensor to transmitter)	10 meter minimum or suit to site



04 Hydrostatic Type Level Transmitter:

Sr. No	Description	Design requirement
1	General	
1.1	Make	As per approved vendor list
1.2	Item	Level Transmitter
1.3	Service	Chemical tanks
1.4	Fluid	Chemical Water
1.5	Area Classification	Non Hazardous/Hazardous
2	Level Sensor	
2.1	Type	Hydrostatic
2.2	Sensor MOC	SS316
2.3	Process Connection	Flanged
2.4	Flange MOC	PP/ CS
2.5	Housing Protection	IP 68
2.6	Temperature compensation	Required
2.7	Swirling arm arrangement For mounting of sensor	Required for access during maintenance
2.8	Size(mm)	To suit Sump/ Tank Height
2.9	Pressure Rating(Kg/cm ²)	Atmospheric
2.10	Temperature	50°C Ambient
3	Level Transmitter	
3.1	Type	Microprocessor Based, Remote Mounted
3.2	Power Supply	230 VAC Line Power
3.3	Accuracy	± 0.1 % of measured value
3.4	Repeatability	+/-0.1%
3.5	Transmitter Protection	IP67
3.6	Transmitter MOC	Dia cast Aluminum with PU finish/Polycarbonate
3.7	Output	One Current 4 to 20 mA(isolated) proportional to Level Hart (version 6 or above)
3.8	Display	2 Line Backlit LCD, Programmable
3.9	Maximum Digit Display	8 Digit
3.10	Indication on Display	Actual Sump/ Tank Level Alarm
3.11	Zero and Span adjustment	Factory set Password protection of all parameters and hardware protection of calibration and revenue parameters.
3.12	Cable Gland	Required
3.13	Cable Length(sensor to transmitter)	10 meter minimum or suit to site



05 Digital Process Indicator/Totalizer (Panel Mounted) for Local level Indication purpose:

Process Indicator:

Type	Microprocessor based, programmable
Input	4-20 mA
Display	4½ Digit, 7 Segment LED display
Alarm Set point	Two nos., pot. Free relay contact rated at 5A @230VACresistive load, adj. over entire range
Transmitter Supply	Required,24VDC @30mA
Terminals	Suitable for up to 2.5 sq. mm. wires
Mounting	Panel flush mounting
Power	110/230VAC,50Hz



06 PLC & SCADA System:

PLC shall comply with International standards such as NEMA, IEC, ANSI, ISA, IEEE, DIN and VDE

DESIGN AND CONSTRUCTION REQUIREMENTS:

PLC Hardware and Software shall be from the same family and should be sourced from approved Vendors only.

1. I/O summary: Tentative I/O count module for PLC for Kadipani Fluorspar Project.

CLCS: 30, OPLCS: 10, DI: 60, DO: 60, AO: 40, AI: 110

A) I/O from Modbus Communication:

Tentative I/O for Modbus communication AI: 35

B) Hardwire Signal:

AI: 85, AO: 40

Programmable logic controller (PLC) shall be microprocessor based with 64 bit or suitable processor and be fully programmable and capable of performing control relay logic, including timing, counting, sequencing, and interlocking. Programmable logic controller (PLC) shall be microprocessor based with 64 bit or suitable processor and be fully programmable and capable of performing control relay logic, including timing, counting, sequencing, and interlocking.

The PLC shall be high performance processors suitable for real time process application. High inherent reliability, self-checking, error-recovery and trouble-shooting features shall be some of the features of PLC.

The PLC shall have a modular/modular chassis design which allows for ease of future expansion. The processor module shall be easily removed from the I/O chassis for service or repair. The I/O chassis shall have slots for installing I/O cards, communications, or other special function modules. All I/O cards and modules shall be capable of being installed in any open slot in the chassis or DIN rail mounted. Module and channel level diagnostics should be standard feature.

The PLC shall have a suitable power supply and can be easily serviced or replaceable. The system shall be capable of being power edon120VAC/230VAC/24VDC as per mfr. Std.

The PLC shall be rated to operate from 0 to 60 Degrees C, with a humidity rating of 5 to 95% (none condensing). All module circuit boards shall be encased and protected such that, when properly installed, they are not exposed to accidental contact by personnel or other objects.



The PLC shall be of high quality and reliability with replacement processors, power supplies, chassis, I/O and specialty modules that are readily available on an urgent or emergency basis.

All PLC products shall be fully supported and available for purchase for up to Fifteen (15) years from the date of the original system purchase.

Note: Control logic shall be finalized during detailed engineering and shall require is changing / fine tuning during operation phase as per operational experience and requirement to provide adequate supply with minimum manual intervention. This is applicable for all entire instrumentation work including PLC/SCADA logic and screen development.

Basic Processor Functions:

- Real-time control of output points for turning on and off digital devices such as motor starters and solenoids.
- Read the status of real world digital inputs from limit switches, float switches, and other field devices.
- Real-time control of analog process control variables.
- Read the status of real world analog set points and feedback values.
- Perform timing, counting, sequencing, and interlocking functions for pump/equipment control. Process local alarm handling functions
- Math and Advanced Functions
- Four function math in floating point or signed integer format Convert to/from BCD
- Data comparison and manipulation
- Scaling from integer data in to engineering units such as flow, level and pressure
- Full PID Instructions for control of process control variables such as flow, level and pressure. ASCII instruction set for interfacing to ASCII devices.
- Compute Instruction which executes a mathematical expression and can be used for totalizing functions
- Trigonometric and Exponential math functions
- Real-Time Calendar Clock for time stamping alarms and events. Automatic restart of the system on resumption of power shall be provided.

The processor shall have solid state RAM memory to store the application program, process data, and alarm status. This memory shall have both capacitor and battery backup in the event that input power to the processor is lost. It shall also have the capability of EEPROM backup which automatically reloads the memory on a power cycle. The processor shall have the ability to automatically control the process on a power cycle, provided there are no major or unrecoverable processor faults.

Processor RAM memory shall be adequate and selected with at least 30% spare capacity for application program storage over the actual requirement, and also should be expandable for future expansions.



Sufficient program memory and data memory space shall be provided. System initialization and application software shall be stored in EEPROM or EPROM with necessary hardware. Running data shall be stored in a RAM with internal battery back-up

All process parameters and electrical parameters as specified in the tender shall be monitored at HMI and necessary controls actions shall be initiated.

Additional Features Required for PLC System:

PLC shall be redundant in CPU Level and Hot standby. PLC Input/output, its power supply and networking side redundancy required.

PLC should be capable of the following:

Integrated color Graphic display with Touch/viewer screen and all specified memory units
Built-in Accurate recording of all events
Effective alarm management for the personnel concerned
complete remote surveillance.

Each PLC shall have memory protected built in historical archiving/data logging of system alarms & events and process variables. Data logger shall be able to log data based on time or an event PLC shall have enough memory allocated to allow 200,000 time and data stamped discrete and /or analog values to be archived. The historical archive shall allow the oldest data to roll off the system as memory is used keeping the 200,000 most current data points available. Process point time stamping frequency shall be selectable within the configuration software. It shall be possible for the archived data to be exported in CSV format allowing use with standard spreadsheet and data software applications.

PLC shall have the following attributes as a Hot-Standby Configuration: Carry out sequential logic implementation for operations of plant;

Carry out computation and interfacing for data acquisition, data storage and retrieval; it shall accepted own loaded program from a programmer; it shall have different functional modules to perform the desired functions; it shall scan the inputs in time cycles and update the status of its outputs.

Every Data logger at RESERVOIR or DMA to be connected via an intelligent switch to GPRS/ wireless telemetry (from any service provider available locally) to be connected to the communication Modem.

The wireless communication shall enable seamless data transfer from each Data logger to a centralized reception at the Central Control Room, wherein the data are stored in a suitable high density storage data server.

The communication technology services require a service provider who shall set up and maintain necessary transmission devices at each location within DMA. The transmission set up at each station shall include necessary equipment like firewall, routers, etc. for network security. The



data transmission over the entire wireless network shall be secured and same shall be visaged by Setting up required equipment's at each transmission/reception points

Specific Requirements for PLC:

(a)Expandability in future	30% of installed capacity
(b)Weather Protection	IP-20forPLChardware andshallbeIP-52ofIS 13947whenmountedinICP
(c)Power Supply	230V AC/24VDC
(d)Interrogation Voltage	24VDC
(e) CPU, communication module and power supply module	Required, high performance 32 bit or suitable CPU Module having modular configuration suitable for real time processapplication.CPU Shall be of same family if provided at different locations.
(f)Scan time	0.7Millisecondsorbetterfor1K instructions
(g)Key Switch for Processor	Shall be as per mfr. Std.
(h)Three way to configure channel	(1) Via BOOT for DHCP (2) Manually by software (3) Via LCD Display
(i)Duplicate IP add. Detection	Checkevery2Min.onnetwork
(j)Mounting	Inside the main instrument/local instrument control panel with view in glass on the door
(k)Inputs and Outputs	As required for process operation with an intention to maximize the automatic operation of equipment/plant and ease of operation and Maintenance of the plant.
(l)System Loading	Max.60% under worst loading conditions
(m)Power supply to sensor/ transmitters	Required
(n)Type of input	NO/NC–Contacts field selectable from Programmer
(o)Outputs	Relay outputs for driving MCC starter coils, Driving motorized valves etc.
(p)Spare I/O(Wired)	Min. 2 nos. or 30% of each type of I/O, which ever is higher, at each panel/location, Wired to terminal block
(q)Accessories	One set of licenses software for PLC Programming
(r)Interposing Relays	Shall be provided for all (Actual + Spare) the Digital Output(DO) including spare DO & for Digital Input where ever required



Input/ Output Modules:

- a. Standard DIN Rail / rack mounted I/O modules with plug-in cards shall be provided. Field wiring shall be terminated in screwed terminal blocks and interconnected to the processor I/O system with preferably pre-fabricated cables and plug in card type connectors.
- b. Min. 2 nos. or 30% of each type of I/O, whichever is higher, extra I/O's of installed capacity for each type at each location shall be provided as spares and shall be wired to the terminal block of the control panel. Provision shall be made for future expansion of extra I/O modules of the installed capacity.
- c. All type of signal spare channel 30% required as per installed I/O also 30% spare I/O required for future expansion signal integration with existing PLC.
- d. All signal required for simulation provision and at that at simulated signal actual value showing in our SCADA system.
- e. Discrete Input Cards: Solid-state input circuits rated for 10-30VDC operation. Cards must be available in 8 or 16 or 32 point configurations and shall source current to the field device .Each input point shall have a status LED which indicates the ON or CLOSED condition for that field sensor or switch. Cards must have removable terminal strips so that module can be easily replaced without disturbing the field wiring online while system is running.
- f. Discrete Output Cards: Solid-state output circuits rated for 24VDC operation. Cards must be available in 8 or 16 or 32 point configurations and shall be able to operate a control relay. Each output point shall have a status LED which indicates the ON condition of the output. Cards must have removable terminal strips so that module can be easily replaced without disturbing the field wiring. The control Relay-contact shall be rated for 5A @240VAC or 5A@24VDC. The control relay shall have a LED indication to show the status of the control relay.
- g. Analog Input Cards: Analog inputs shall capable of reading in 4 to 20mA signal. The A/D converter shall provide a minimum 12-bit resolution over the full range from module minimum to module maximum.
- h. Analog Output Cards: Analog Outputs shall be capable of outputting 4 to 20mA signals. The A/D converter shall provide a minimum 12-bit resolution over the full range from module minimum to module maximum.
- i. RTD card: A/D converter shall provide a minimum 12-bit resolution over the full range from module minimum to module maximum
- j. Modbus: Required for distance signal measurement.

Communications:

- a. The data communication shall be based on ETHERNET/GSM/GPRS with required communication port and modem suitable for GPRS data communication on 4G network of selected service provider.
- b. RS 232/ RS 485/ Ethernet or other such required port/s for the program upload / download, on-line editing, peer-to-peer messaging, data acquisition and man machine interface.



- c. One Modbus Converter port for connecting devices over network for data acquisition from Energy analyzers/soft starters /temp. Scanners etc. connectivity of all energy analyzers of along with required cabling in the scope of this contract work.

Operation philosophy / logic specified anywhere in tender specifications is indicative only and same shall be submitted as per requirement and to ensure smooth and trouble free operation with minimum manual intervention during detailed engineering for review and approval and shall carry out all software development as per approved philosophy only.

Minimum of 3 sets of as-built control panel wiring drawings, PLC logic write-up, I/O Schedule/assignment, ladder diagram and other relevant documents in hard copy format and 3 sets in soft copy form on CDs shall be submitted. Soft copy format shall be in editable form to enable in cooperating any changes in future. 3 sets of application program as back-up shall also be provided in soft form on CDs. All application programs shall be without password protection and as per final approved scheme ready to install condition.

General Specifications for Panel Enclosure:

1	Panel shall be pre-fabricated from CRCA Sheet Steel, having all round solid construction enclosure, with Primer & Powder Coated Textured Surface Finish (RAL 7035 Color shade or Equiv. Approved). Panel shall be wall mounting type with required wall mounting brackets at rear.
2	Panel shall be with Single Door Construction with foamed in door seal. Door shall have padlocking facility with common master key and necessary arrangement for applying seal shall be provided to prevent panel tempering. Additionally a door lock limit switch shall be provided interlocked with PLC to provide local & remote alarm with SMS to programmed numbers in case of an attempt to open the panel door by any person. It shall be possible to swap the door To opposite side to suit site conditions.
3	Panel shall have Zinc Plated Mounting Plate
4	Enclosure shall have one Gland Plate in Base with Neoprene Gasket. Minimum 8 nos. holes of 0.5" size shall be factory drilled during panel assembly and provided with plugs to prevent entry of dust.
5	Enclosure shall have IP-65 Degree of Protection Confirming to EN60529/09.2000 as a minimum.



General specifications for AVR.

1	Automatic Voltage Regulator, Input 160V to 290 V, Output 200V to 240V
2	High/ Low Voltage Cutout
3	Surge Protection
4	Delay Start time on Power Return
5	Overload Protection

Specifications for GPRS Modem shall be as under:

1	Modem shall support SIM900 Quad Band GSM/GPRS engine suitable to transfer data over GPRS for any 4G network
2	Modem shall have Built In RS232 Serial Interface Port/ Ethernet/Suitable port
3	Modem shall have Built In Network Status LED
4	Modem shall have Built In Sim Card Holder
5	Modem shall have configurable Baud Rate
6	Modem shall operate with Input Voltage of 24 VDC
7	Modem must have auto reset facility when network resume

SCADA REQUIREMENT AT CONTROL ROOM:

Sr. No.	Item Description
1	01 Nos SCADA System at ADM Building Office or other suitable Location as decided by Competent authority for overall monitoring and control of Plant.
2	04 Nos. Desktop Servers (One for EWS and other three OWS) with 32" LED Display with required Licensed Latest OS (Operating Consoles) Latest Dell/HP Processor with high speed in Hz, 16GB DDR5 Ram, 1TB SSD, USB 3 Ports, DVD R/W, Optical Mouse, Multimedia Keyboard and Speakers, 4 PCIE Slots, 4GB graphic card, Dual LAN port, data update every 15 minute maximum, hardware for data acquisition and storage for the data. 5 year server warranty SCADA software shall be with open architecture suitable for integration with third party system as per requirement Of GMDC in future.
3	Data Acquisition & Storage Server: 4TB Data Storage Device (NAS System)-1 No
4	VPN Router with suitable number of ports-1 no.
5	Unlimited Tag/Screen SCADA (Runtime + Full development) Software License-1 lot
6	Reporting software-1 no.
7	32" LED Display-04 no. for Servers + 01 Nos at Adm Building for Monitoring purpose
8	A4 Laser Printer (HP LaserJet Pro 4004dw Printer)
9	Split type Air Conditioner (2 Ton Current year 5 star rating) -3 nos., Heavy Duty (24



	hours running) with latest Inverter Technology
10	Latest MS office License & 5year Antivirus license.
11	Any other items required to complete the working all respect

Total server 05 nos: 01 nos Engineering server and 01 nos operating work station, remaining 03 server only monitoring purpose. All Software license ownership shall be transferred to client name after project completion. Programming Software:

The programming software should help in maximizing performance, save on project development time and improve productivity.

The programming software should be able to operate on latest Windows-10 operating system.

The programming software shall have Online editing features which is used to modify the application program while the process is still operating.

Make system backup copies while the system is online. Upload and down load programs to the PLC.

Human Machine Interface (HMI/SCADA) Software:

The HMI shall be designed for use in Microsoft Latest Windows and shall use OLE, ODBC, DDE, OPC and ActiveX technologies for optimal performance and integration with other software systems.

The HMI shall have several Methods (relying on DDE server / OPC server / etc.) for collecting data from programmable controllers.

The tag database shall be organized in a hierarchy, each level represented by a folder that can be expanded or collapsed.

The HMI shall have the ability for the current value of a tag to be updated from the device it is connect to and stored in RAM so it is immediately accessible to all parts of the HMI.

The HMI shall have the ability to create a tag whose value is the result of an expression. The expression can be made up of mathematical operations, tag values, if-then-else logic and other special functions. The current value of the derived tag shall be stored in an analog, digital or string tag in a value table.

The HMI shall provide a Macro capability that will execute system commands, user defined commands and other macros.

The alarm system shall have the ability to define up to eight different severity classes to visually and audibly distinguish alarms.



The alarm system shall have the ability to use system default messages or create unique messages to describe an alarm log messages to a file, to a printer or to both suppress alarms for maintenance and tuning purposes and setup global alarm monitoring.

The alarm system shall provide a means of displaying up to 2000 tags that are in alarm. This alarm summary display shall be fully configurable.

The alarm system shall have the ability to create alarm log files periodically, at specified times and on event. This alarm log system shall have the ability to automatically purge old files after a specified time.

The HMI shall have the ability to trigger actions based on an event that has an expression applied to it.

An expression is an equation containing tag values, mathematical operations, if- then-else logic, or other functions. An action shall have the ability to produce a variety of functions including, but not limited to, initiating a snapshot of tag values, displaying an error screen and changing a tag value. The HMI shall have the ability to allow certain users or groups of users to access only certain parts of the system. The security shall be based on a series of codes.

Each code shall allow the users, or groups of users, with security privileges for that code to access the HMI commands allowed by that code. Users shall be allowed to be assigned combinations of security codes, allowing for each user to access a different set of features.

The security system shall assign each person a user account with a login name, password, and any desired macros. The HMI shall have a minimum of 2-3 different security codes.

The HMI shall provide a graphics display editor for creating displays using graphic objects. The graphics display editor shall have the ability to drag and drop objects from a pre-configured graphics library, paste objects that are copied to the clipboard from another Windows application, and insert objects created by another Windows application using OLE. The graphic display editor shall allow the user to create libraries of graphic objects.

The graphic display editor shall have the ability to attach, as a minimum, the following control to objects: blinking colors, visibility, rotation, horizontal and vertical movement, resizing (width and height), fill and touch.

Provide cyber security measures as per CEA guideline supply and install a server updating process of the security patches and system application software develop by OEM from time to time.

Min 10% of installed quantity of spares card are provided.

Min. 25% spare slots in system cabinet rack for expansion purpose in future.

20% spare channel required for PLC cards.



Inserting DIN type rail for mounting terminal block, execute all the cable connection with cross ferruling as per signal wise.

Human Machine Interface (HMI)

The HMI package shall provide the following features:

Display status of Plant in a graphical and tabular format (i.e. running, stopped, fault etc.)

Display Analog values on the appropriate graphic screen.

Annunciation alarms associated with the area of the plant concerned including details of the time the alarm occurred

The HMI package shall also provide following facilities for the operator Station

Adjust process set points Select process modes Acknowledge alarms

View a journal of unacknowledged alarms

View a journal of the alarms acknowledged and unacknowledged. Display process set points

Provide real time and historic trending of local analogue values Provide data archiving of all local analogue values

Prepare daily and weekly reports (providing details of daily and weekly throughputs against numbers of pump running hours, power usage, etc.)

Display a total running hour's log of local transmission pump drives. Display preventive /planned maintenance schedules.

Any additional features required to assisting the effective and efficient operation

Graphic screens shall be provided as follows but not limited to this: Main and sub system menus

Plant / Process overview (i.e. providing details of Nos. of pumps / equipment running, Flow, totalized flow, levels, process parameters/ power supply status, etc.)

Overview of power system (if connectivity provided with PLC) Overview of control system



Screens to permit viewing of process set points

Tabular screen of Pumping / Treatment Plant status and values Running hours log for Pumping Station and plant process pumps, etc.

Any signal simulation provision required and simulated signal should be traceable.

Earth monitoring system for any instrument or panel in HMI.

Self Diagnosis for Hardware failure should be in HMI.

Any I/O cards, Processor module, LAN switch, Modbus module fault indication should be in HMI.

UPS alarm status also required in HMI.

Power analyzer (MF Meter) value should show in HMI.



07 Uninterruptible Power Supply: UPS having two nos supply one from Main Normal Supply and other from DG set supply. In case Main supply get fail so UPS supply change over with DG set supply with static bypass switch provision required.

UPS of suitable capacity as per following specifications for minimum 60 minutes back-up for PLC System shall be supplied for entire load of instrument control panel including PLC and essential /critical instrument supply for necessary shut-down and minimum 60 minutes back- up for Zonal and Master control SCADA in case of power failure.

- a. The UPS shall be floor mounted, self contained and metal clad and shall be suitable for supplying a non-linear load
- b. It shall be possible to open the enclosure front door when the unit is in use without exposing
- c. Any live contact touch. The UPS shall be on-line type incorporating a six-pulse rectifier and pulse width modulation inverter technology with microprocessor control. It shall incorporate a static bypass switch that shall operate in event of UPS failure, overload or manual initiation in order to transfer the output supply to mains without disturbance to the output supply.
- d. The UPS shall incorporate a DC under voltage trip circuit to Electro-mechanically trip the UPS output in order to protect the batteries.
- e. The noise level of the unit shall not exceed 50 dB (A) at 1m from the UPS cabinet.
- f. The output of the inverter shall be a sine wave having less than 3% THD for linear loads and less than 5% for 50% non linear loads. It shall be suitable for load power factors 0.8 lag to 0.9 lead.
- g. The unit shall have a dynamic response such that 100 % step load causes an output voltage transient of less than $\pm 4\%$ with a recovery of less than 4ms. The load crest factor shall not be less than 3:1.
- h. Indicators shall be provided for the following
 - i. UPS status
 - ii. PS alarm conditions
- i. The UPS shall provide volt free contact outputs for the following purpose:
 - iii. Warning, (viz., low battery voltage)
- j. The UPS shall have an overloaded capacity of 110-125 % for 30 seconds and shall be protected in the event of a short circuit of the output.
- k. The batteries shall be of the rechargeable, sealed maintenance free lead acid type. The battery supply to the UPS shall be via a fused load break switch disconnected circuit breaker. The battery recharge time to 90% of full charge shall be approximately ten times the discharge time at full load.
- l. Terminals shall be shrouded to prevent accidental contact.

The Uninterruptible Power Supply (UPS) System with SMF Lead Acid battery shall conform to the minimum following specifications:



i. Input	
Input Voltage	230V, 5%
Frequency	50 Hz, 5%
Nominal DC input (Battery)	Bidder to design and submit calculations
ii. Output	
Output	230V AC, applicable KVA with 25% margins Per Load Calculation
Regulation mode	1%
Load power factor	0.8 to unity
Duty	Continuous
Ripple on DC	<2%
iii. General	

Principal of operation	Shall be solid state, pulse with Modulation (PWM)
Cable entry	Bottom
Cooling method	Forced air
Type of Battery	Sealed Maintenance free
Alarms	Sealed Maintenance free Potential free contact for Power Healthy, Fault and Bat. Low shall be provided



08 **POWER ANALYZER (MF METER):**

- Energy meters shall be of Class 1.0 accuracy, 3-phase, digital type, 96mm x 96mm size, multi function type with a RS-485 MODBUS Protocol or other communication port suitable for communication with PLC/SCADA. Meter shall be programmable type, with LCD display and shall provide instantaneous and cumulative values and shall also be capable of providing display off fundamental and total harmonic values for currents and voltages of all phases.
- Necessary CT/PTs and other hardware/accessories shall also be provided for proper functioning of the analyzer and with communication port for communication with PLC/SCADA, etc. complete in all respects. Necessary connection with communication network of PLC shall be carried for monitoring the power status in real time trends and historical data.
- Necessary modification work required into Existing LT Panels to install this meters.



09 INSTRUMENT POWER SUPPLY CABLES, INSTRUMENTATION SIGNAL, AND CONTROL CABLES WITH HDGI CABLE TRAYS AND JUNCTIONBOXES.

Cables For Analog Signals:

Cables shall be of 660V/1100V grade, single or multi-pair cables, annealed, tinned, high conductivity 1.5 sq.mm stranded copper conductor, PVC insulated two cores twisted into pair, laid up collectively, individual pair shielded and overall shielded with aluminum Mylar tape, ATC drain wire running continuously in contact with aluminum side of the tape, PVC inner sheath, armored with galvanized steel wire overall sheathed with PVC, conforming to IS:1554 & IEC:189 Part II shall be used for analog signals. Sequential marking of the length of the cable in meters shall be provided on the outer sheath at every one meter. For multi pair cable, Pair identification as per BS 5308 Part-II marking pair no. for each pair shall be provided at maximum 50mm between two consecutive numbers.

Cables for Digital Signals:

Cables of 660V/1100V grade, multi-core cables, multi-stranded high conductivity annealed

1.5 sq.mm stranded, tinned copper conductor, PVC insulated, overall shielded with aluminum Mylar tape, PVC inner sheath, armored with galvanized steel wire overall sheathed with PVC, conforming to IS:1554 & IEC:189 Part II shall be used for digital signals. Sequential marking of the length of the cable in meters shall be provided on the outer sheath at every one meter. The embossing/engraving shall be legible and indelible. Control cables having 6 cores and above shall be identified with prominent and indelible Arabic numerals on the outer surface of the insulation. Colour of the numbers shall contrast with the colour of insulation with a spacing of maximum 50mm between two consecutive numbers. Color coding for cables up to 5 cores shall be as per IS.

Cables for Instrument Power Supply:

Cables of 660V/1100V grade, multi-core cables, multi-stranded high conductivity annealed

2.5 sq.mm, stranded, tinned copper conductor, PVC insulated, PVC inner sheath, armored with galvanized steel wire overall sheathed with PVC, conforming to IS: 1554 & IEC:189 Part I & II shall be used for instrument power supply. Sequential marking of the length of the cable in meters shall be provided on the outer sheath at every one meter.

Laying of Cables:

Cables shall be laid on trays, in trenches, conduits, ducts as necessary. Instrument cables shall not be buried in ground as far as possible. Cable joints in instruments signal and power supply cables shall not be permitted. In case if some of the



instrument cables are to be buried in the ground, it shall be as per standard/good engineering practice and shall be subject to client's/ consultant's approval.

The contractor shall also supply necessary materials such as junction boxes, glands, lugs etc. required for termination of cables. Each cable shall be terminated to individual panel/terminals box. Cable glands shall be of Nickel Plated Brass and of Double Compression Weather proof type.

A distance of minimum 300 mm shall be maintained between the cables carrying low voltage AC & DC signals and a distance of minimum 600 mm shall be maintained between cables carrying HT<

cables. Identification of each cable shall be by proper ferrules at each junction as per cable schedule to be prepared by contractor. All cables shall be identified close to the extermination point by cable numbers as per cable interconnection schedule. Identification tags shall be securely fastened to the cables at both ends.

A. CABLEGLANDS:

Cable glands shall be nickel-plated brass and shall be of double compression type suitable for armored cables.

Flame proof gland wherever required shall be with Ex(d)certification.

B. CABLE TRAYS:

All branch cables/tubes, cables on various civil units/structures shall run on cable trays only.

Cable trays shall be made out of galvanized mild steel sheets of 2 mm thickness with required accessories. All material shall be hot dip galvanized (610 g/m²) as per IS2629. The width shall be so selected that 40-50% space is available for future use.

Suitable cable clamps shall be supplied for binding cables/tubes at every 500 mm

c. JUNCTION BOX:

Junction Box material shall be Cast Aluminum (LM-6) only and shall be weatherproof to IP- 65. Flame proof junction boxes shall be supplied with Ex(d) certification in addition.



The boxes shall have terminals suitable for a minimum of 4 mm² cable termination mounted on rails. 20% spare terminals shall be supplied in junction boxes. Each junction box shall have 10% or minimum 2nos., whichever is higher, spare entries of each size. Spare entries shall be provided



10 Instrumentation Earthing Systems:

- Supply, Erection, Testing and commissioning of earthing station having 'Pipe in Pipe' technology using Safe Earthing Electrode. The special type back filling compound having inherent moisture absorption characteristics must be used to make the earthing station maintenance free and no periodic water pouring should be required. The work shall include excavation refilling providing manhole cover, chamber etc. the earthing station shall as per IS 3043:1987 requirements.
- Earthing station shall be provided for Instrumentation / PLC / SCADA system as per above technology. Earthing station shall be provided having G.I. electrode 3000 mm long, outer diameter of minimum 50 mm and inner diameter of minimum 25 mm with GI earthing strip.
- Multiple earth connection shall be taken from suitably located earth plates connected to earth loop. All hardware used for earthing installation shall be hot dip galvanized or zinc passivated.
- Spring washers shall be used for all earthing connections of equipment. Unless otherwise specified, earthing connections to individual equipment shall be done in accordance with standard equipment earthing schedule.
- Plant instrument system clean earthing, UPS system clean/safety earth shall be separate from the electrical earthing system.
- Earth connections shall be made through compression type cable lugs/by welded lugs.
- All hardware used for earthing installation shall be hot dip galvanized or zinc passivated.
- Spring washers shall be used for all earthing connections and all connections adequately locked against loosening.
- Masonry chamber with cast iron cover etc.
- The entire earthing installation shall be tested as per requirements of Indian standard Specifications: 3043.
- The following earth resistance values shall be measured with an approved earth megger and recorded.
 1. Each earthing station.
 2. Earthing system as a whole.
 3. Earth continuity conductors
- Earth conductor resistance for each earthed equipment shall be measured which shall not exceed 5 ohm in each case.
- Measurements of earth resistance shall be carried out before earth connections are made between the earth and the object to be earthed.



11 SMART POSITIONER: -

Followings Materials & Parts Property required for the Smart double acting positioner.
Diaphragm – Unique polymer design for long life and prevent malfunctioning. All moving and internal parts shall be a SS Grade only.

The metals pool and metal poppet ensures the min. air leakages.

Internal and external mounting of position transmitter and limit switches required.

Internal circuit of the positioner is highly corrosion resistant as no part (metal plate) is exposed.

Technology–Flapper Nozzle.

Local buttons – required.

LCD Display – required

Feedback–Yes

Failsafe –yes

IPrating–IP66Enclosure

material – AL/SS

Operation–Poppet

Analog O/p –4-20mA



12 PNEUMATIC ACTUATORS: -

Sr. No.	Job Description	Material Description	Standards
1	Housing	CastIron-FG220	IS210/ ASTMA4835B/40B/GG-20
2	Cover	CastIron-FG220	IS210/ ASTMA4835B/40B/GG-20
3	Worm Wheel	SGIron-500/7	IS1865/ ASTMA53680-55-06/GGG-50
4	Input Shaft	EN8	45C8/SAE1040/CK45
5	Worm	EN8/20MnCr5	45C8/SAE1040/CK45
6	Spur Housing	CastIron-FG220	IS210/ ASTMA4835B/40B/GG-20
7	Spur Cover	CastIron-FG220	IS210/ ASTMA4835B/40B/GG-20
8	Spur Pinion	EN19	C55/ SAE4140/42CrMo4
9	Spur Gear	EN19	C55/ SAE4140/42CrMo4
		SGIron-500/7	IS1865/ASTM A53680-55-06/GGG-50
10	Clutch & Declutch Hand wheel	MS	----
11	Selector assembly	MS	----
12	Eccentric Bush	MS	----
13	Lever	MS	----
14	Thrust Bearing	Standard	----



13 Pneumatic Accessories:

FEATURES

- Filter/Regulator combination unit offers extremely precise control.
- Unique valve design and large ratio of diaphragm to valve area affords highly sensitive performance.
- Designed specially to meet instrumentation requirements
- Metal bowl on combination unit resists corrosive and chemical atmosphere.
- Double acting Cylinder.



PARAMETERS	SPECIFICATIONS
Pipe Threads	Rc1/4, 1/2Taper(F)-Standard BSP/NPT-Optional
Body Material	Al. Alloy die-cast
Filter Element Size	5, 25,50 micron.
Filter Element Material	Plastic (Polypropylene)– Standard Sintered Bronze -Optional
Filter Bowl Material	Al. Alloy Metal - Standard
Maximum Inlet Pressure	17.5 kg/cm ² (250psig)
Maximum Operating Temperature(ambient)	80°C (175°F)
Recommended flow (at an inlet pressure of 7 kg/cm ²)	0 to 2.85 dm/sec (0 to 6 cfm)
Drain	Manual-Standard



Regulator Type	Relieving–Standard Non-Relieving–Optional		
Pressure Adjustment	Hand wheel– Standard		
Regulated secondary outlet pressure (spring range) and recommended Pressure gauge ranges available in kg/cm ²)		Spring Range	Gauge Range
	1	0.07 to 0.70	0 to 1.0
	2	0.21 to 2.10	0 to 2.5
	3	0.35 to 3.50	0 to 4.0
	4	0.50 to 5.00	0 to 7.0
	5	0.70 to 7.00	0 to 10.0
Gauge size	52 mm OD		
Gauge Port size	Rc ¼		
Gauge connection	Back		
Mounting Bracket	Optional		
Panel mounting	Possible–Optional		

All Tubing and fittings accessories shall be a min of SS Grade only.



BOQ:

Sr. No.	DESCRIPTION	VENDOR/ MANUFACTURERNAME
1	ULTRASONIC LEVEL TRANSMITTER, (ELECTROMAGNETIC FLOW METER AND DENSITY TRANSMITTER,) THERMALMASS FLOW METER.	M/S ENDRESS+HAUSER M/S EMERSON M/S KROHNE M/S ENDRESS + HAUSER M/S FORBESMARSHALL/KROHNE M/S EMERSON M/S ENDRESS + HAUSER M/S FORBESMARSHALL/KROHNE M/S EMERSON
2	PLC, SCADA, HMI	M/S ROCKWELL M/S ABB M/S HONEWELL
3	POWER CABLE INSTRUMENT SIGNAL CABLE	M/S RR CABLE M/S POLYCAB M/S HAVELLS M/S FINOLEX
4	UPS SYSTEM	M/S DB POWER M/S EMERSON
5	LED/LCD TV	M/S SAMSUNG/ M/ S SONY M/S LG



6	PANEL MOUNTED INDICATOR	M/S MASIBUS M/S PYROTECH M/S WIKA M/S SELEC
7	AIR CONDITIONER	M/S VOLTAS M/S HITACHIM/ S DAIKIN
8	COMPUTER SYSTEM	M/S DELL M/S HP M/S ACER M/S SONY
9	PRINTER	M/S HP M/S CANON M/S EPSON
10	GSM MODEM	M/S LANTRONIX M/S AXITECH M/S DLINK M/S NETGEARM/ S MOXA
11	MINIATURE RELAY	M/S OMRAN M/S PHOENIX M/S ROCKWELL M/S SCHNEIDER
12	INDICATION PILOT LAMPS (LED TYPE)	M/S TEKNIC M/S SCHNEIDERM /S SIEMENS
13	PUSH BUTTON / SELECTOR SWITCH(WITH NO/NC ELEMENT)	M/S TEKNIC M/S SCHNEIDERM /S SIEMENS



14	DC POWER SUPPLIER(DIN RAIL MOUNTED)	M/S PHONIX M/S SCHNEIDER M/S ROCKWELL
15	TERMINALS	M/S ELMEX M/S PHONIX M/S WAGO M/S CONNECTWELL
16	PANEL WIRES	M/S FINOLEX M/S HAVELLS M/S RR CABLE M/S L&T
17	PANEL ILLUMINATION	M/S PHILIPS M/S CROMPTON
18	ELECTICAL POWER ANALYSER /METER RS-485 AND 4-20MA COMMUNICATION	M/S MULTISPAN
19	PNEUMATIC ACTUATOR(DOUBLE ACTING)	M/S NORGREN M/S FESTO M/S JANTICS M/S PNUICON
20	AIR FILTER REGULATOR	M/S JANTICS M/S JRU M/S EROFLEX
21	ELECTICAL POWER ANALYSER /METER RS-485 AND 4-20MA COMMUNICATION	M/S MULTI SPAN



22	SMART POSITIONER FOR ACTUATOR(DOUBLE ACTING)	M/S SIEMENS
23	AIR FILTER REGULATOR	M/S JANTICS M/S JRU M/S EROFLEX

Bullet Points for Automation SITC work at Kadipani Fluorspar Project

1. PLC system:
Latest processor, I/O cards and Server OS should be installed. Processor memory should be enough for future expansion of plant.

2. UPS SYSTEM:
 - ACDB (AC supply distribution panel) Panel required for Field Instruments stabilized power supply through UPS system.(Point no:07)
MCC----UPS ----STABILIZER----ACDB PANEL-----FIELD INSTRUMENTS
 - UPS capacity and load calculation to be carried out by bidder during the site visit.

3. For loop power current repeater: MTL1145, Make: MTL, Application: Analog Input & Output cards safety.

4. EARTHING:
 - Earthing Scheme: FG-Frame Ground Bus bar, SG- Signal Ground Bus bar, PE-Power Earthing in bidder scope & should be separately.
 - Field Instruments earthing should be done separately with new earthing earth pit by bidder.



5. Revised Tentantative I/O signal:

- AI(HARDWIRE):80
- AI(MODBUS):35
- AO:40
- DI: 60
- DO: 60

6. Field Instruments specifications and selection in successful bidder scope after getting a dimension/parameter during site visit.



13. Period and Duration of Work

Sr No	Activity	Duration
1	Mobilization	Within 02 month after receiving work order/LOI
2	Completion of supplies	First Month Field instruments installation with cable laying work completed. Second Month designing of new logics, tag, alarm assigning, networking and its redundancy, also all I/O redundancy and check all CLCS and OPLS from PLC and SCADA server.
3	Completion of Performance Testing	SITC work completed within 04 Month, after it 06 Month its performance testing

13.1 The Contract period shall be given for Four months period from the date of acceptance of LOI.

However, period of contract may be extended for another period of three months with same terms and conditions at the sole discretion of GMDC.

13.2 In case of any reason including adverse working conditions during execution of the contract that may compel suspension/closure of the contract, GMDC shall be at liberty to conclude/postpone/complete/terminate/foreclose this contract. No compensation or payment shall be made on account of afore-stated events. Decision of GMDC in this regard shall be final and binding to the successful bidder.

13.3 GMDC reserves the right to review and assess the performance of the work at any time during the contract period. In case of poor or unsatisfactory performance and/or breach of any terms and conditions of the contract, GMDC shall have discretion to take appropriate action including termination of the contract.

14. Liquidated Damages (LD)

14.1 Time and quality are the essence of the contract, and the successful bidder has to complete the work accordingly. If the successful bidder fails to complete the actual work as per



stipulated time , a liquidated damages @ Rs 15,000/- per day for delay period shall be levied subject to a maximum of 10 % of the total contract value.

Looking to this, if the delay in completion of the works happens which can be attributed to the successful bidder, the GMDC will be free to forfeit the EMD and /or SD, or both the EMD and SD.

- 14.2 Incompletion of any work or part of the work found of the contract affecting to the operation and safety of equipment and manpower shall be considered non-completion of the work and may lead to liquidated damage.
- 14.3 Under any circumstances GMDC shall not be liable to pay any compensation to the successful bidder.
- 14.4 If the delay of getting Electrical Inspector final approval occurs but the successful bidder has applied for the same in time, then this delay shall not be considered as delay attributable to the successful bidder. However, the Successful Bidder shall ensure to get the approval / clearance at the earliest. Payment shall be released only after submitting Electrical inspector approval/ clearance.
- 14.5 GMDC reserves right to terminate the contract and get the balance work completed at the cost and risk of the Successful bidder if the work shall not be carried out up to the satisfaction of GMDC and not completed in time.
- 14.6 For calculation of LD, date of acceptance of LOI shall be the reference date.
- 14.7 The overall cap on total LD for delay in supply and / or works shall be 10% of total contract value.

15. Insurance

- 15.1 Insurance –The Successful bidder shall take full responsibility to take all precautions to prevent loss or damage to the works or part thereof for any reasons whatsoever (except for reasons which are beyond control of the Successful bidder or act of God, e.g. flood, riots, war, earthquake, etc.) and shall at his own cost, repair and make good the loss/damage to the work so that on completion, the work shall be in good order and condition and in conformity with the requirements of the Contract and instructions of the Project Authority, if any.
- 15.2 The Successful bidder shall, at all times during the pendency of the Contract, indemnify the GMDC against all claims, damages or compensation under the provisions of the Employee’s Compensation Act and shall take insurance policy covering all risk,



claims, damages or compensation payable under the Employee's Compensation Act or under any other law relating thereto.

- 15.3** The Successful bidder shall ensure that the insurance policy/policies are kept alive till full expiry of the Contract by timely payment of premiums and shall not be cancelled without the approval of the GMDC. The cost of premiums shall be borne by the Successful bidder, and it shall be deemed to have been included in the tendered rate.
- 15.4** In the event of the successful bidder's failure to effect or to keep in force the insurance referred to above or any other insurance which the successful bidder is required to effect under the terms of the Contract, the GMDC may effect and keep in force any such insurance and pay such premium/premiums as may be necessary for that purpose from time to time and recover the amount thus paid from any moneys due by the Successful bidder.
- 15.5** It is the responsibility of the successful bidder to hand over the entire system to GMDC on completion of the contract period in working condition. The final handing over / taking over will be done after joint inspection by GMDC and the successful bidder on the completion of contract period. The liability towards damage/ replacement shall be limited to 3% (Three percent) of the order value.

16. Goods & Service Tax

- 16.1** All bidders are required to submit their GST number and date in the bid. Bid received from unregistered bidder will not be considered and out rightly rejected.
- 16.2** Bidders are requested to quote their rates without GST. GST will be paid/adjusted/reimbursed to the Successful bidder as per prevailing rates and rules to the extent directly related to the services rendered OR Goods supplied by the Successful bidder under the said contract subject to production of documentary proof and the Successful bidder will mention the GST amount separately in the invoice/bill along with SAC/HSN Code under GST.

17. Payment



- 17.1 The successful bidder shall submit bill after completing the mentioned work in all respect including removal shifting and submitting the old spares, scraps to designated place / main store, cleaning of the location.
- 17.2 Payment shall be done only after completion of total work.
- 17.3 Bill shall be submitted to the office of the Head (Project Planning & Administration) , Kadipani Project with following documents:
- 17.3.1 Duly Certified certificate of completing work.
 - 17.3.2 Check List as per format provided by GMDC.
 - 17.3.3 Any other documents if any as prescribed by GMDC as and when requires.
- 17.4 After above the bills, submitted at the office of DGM (Civil, Maintenance, Purchase)-HO will be processed there considering following deductions.
- 17.4.1 Income tax as per provision of Income Tax Act, and other Taxes (and surcharges) applicable in force from time to time
 - 17.4.2 Cost of any other services provided / material supplied plus 15% administrative charge, if any, by the GMDC.
 - 17.4.3 Liquidated damages,
 - 17.4.4 Other deductions, if any.
- 17.5 100% of the payable amount arrived after considering above deduction, will be paid by office of the DGM (Civil, Maintenance, Purchase), -HO within 30 days of submission of the bill along with its details.
- 17.6 The Successful Bidder shall have no rights to claim any amount without carrying out actual work / supply.

18. **Mode Of Payment**

The mode of payment will be by RTGS.

19. **Statutory Obligations**

- 19.1 That the Successful Bidder shall pay wages and benefits in accordance with the applicable laws and shall not pay less than as notified by the Government Authorities



from time to time and shall maintain the employment records as required under applicable laws.

- 19.2** That the Successful Bidder shall get his own License under Contract Labor (Regulation and Abolition) Act. It shall be binding to get the same renewed from time to time and shall maintain all the records as per the act.
- 19.3** That the Successful Bidder shall be responsible to enroll his employees, deduct, add and deposit in the relevant accounts the contributions as required under the Employees State Insurance Act, 1952 and the Employees Provident Funds and Miscellaneous Provisions Act 1952 and any other enactment's covered under the various applicable labour laws as well as maintain all books of records for the staff and employees deputed by it for this contract such as required under any laws applicable. The Successful Bidder shall also furnish a copy of such statements as documentary proof to the GMDC.
- 19.4** That if the Successful Bidder is not covered under the Employees State Insurance Act, 1952 then it shall be the duty of the Successful Bidder to take appropriate insurance cover under the Workmen Compensation Act and take Group Personal Accident Policy for all the employees deputed at the site.
- 19.5** The Successful Bidder has to issue to the employee's Identity card with their photos and shall also maintain relevant register.
- 19.6** That the Successful Bidder shall give leave/holiday to its workforce as per the provisions of labour laws applicable.
- 19.7** Every person deployed by the Successful bidder must wear safety gadgets and such to be provided by the Successful bidder.
- 19.8** Any statutory clearance, permission required for the work, its completion, commissioning shall be in successful bidder's scope.
- 19.9** That the Successful Bidder would obey with all applicable laws and maintain all such necessary records as necessitated under such enactments.
- 19.10** The Successful bidder shall comply with other statutory provisions of Law. The Successful bidder shall comply with all applicable laws, ordinances, approved standards, rules and regulations, and shall procure all necessary municipal and



governmental permits, licenses and inspection and shall pay all fees and charges in connection with the items covered by the contract. The Successful bidder shall serve GMDC harmless as a result of any in factions thereof. Successful bidder will be solely liable for all non-compliances. The following are some of the major Government of India Acts and Regulations to be complied with by the Successful Bidder. The List is illustrative and not exhaustive.

- The Indian Factories Act of 1948 (63 to 1948) and Amendments and Rules (Amended up to date)
- The Electricity Act, 2003 and rules made there under
- The Minimum Wages Act, 1948
- The Indian Boiler Regulation Act, 1950 and rules made there under
- The Employees Compensation Act 1923 and Amendment Act 2010
- The Payment of Wages Act 1936 and Amendment Act 2012
- Payment of Bonus Act 1965 and Amended up to date
- Contract Labour Regulations & Abolition Act 1970
- Interstate Migrant Workmen (Regulations) Act 1979

19.11 When, any work is performed at night or where daylight is poor or obscured, the successful bidder shall have to provide artificial lights at its own cost, wherever required on high towers. The illumination at the working site should be sufficient to carry out mining operation properly and safely with due approval of Head (Project Planning & Administration) at Kadipani.

19.12 The Successful bidder shall also indemnify the GMDC against any claims, compensations, damages, loss, liquidated damages etc. for breach and / or non-fulfillment of the prevailing Rules and Regulations and other statutory provisions in force from time to time and applicable to the work during the currency of contract.

19.13 If any amount becomes payable by GMDC as a result of any claim or application in terms of the provisions or non-compliance of provision of the any Acts and the Rules and Regulations, By-laws or the Orders made there under, applicable from time to



time, such amounts shall be recoverable from the Successful bidder for which GMDC will not be responsible for any compensation.

20. Performance Guarantee

The successful bidder has to give guarantee of work at least for Twelve months from taking system in service condition.

The Successful bidder shall provide performance guarantee for 10% of the total contract (work order) value on Landed basis inclusive of applicable Taxes & Duties, for One and half year (18 month out of 12 months for defect liability) against the works done / materials supplied by the successful bidder for trouble free performance from the date of commissioning & completion of work.

During the guarantee period, If any problem surfaces, the Successful bidder shall carry out of repairing / replacing the material or carry out work free of cost. All types of expenses for repair, replacement, labour, insurance, statutory etc shall be in Successful bidder's scope.

The guarantee covers all types' causes of non-satisfactory performances except natural calamities.

21. Bankruptcy

If the Successful bidder commits an act of Bankruptcy or goes into liquidation except for construction purposes, or if its business is carried on by a receiver, such receiver, liquidator or any person in whom the contract may become vested shall forthwith give notice thereof in writing to GMDC and in reasonable time during which he shall take all reasonable steps to prevent stoppage of performance of the contract, have the option of carrying out the contract subject to his or their providing such guarantees as may be required by GMDC but not exceeding the value of the work for the time being remaining unexecuted.

In the event of stoppage of performance under the contract, the period of option under this clause shall be decided by GMDC considering the situation, provided that the above option is not exercised, GMDC may terminate the contract by serving notice in writing to the Successful bidder.



The power and provision so reserved to GMDC on taking of the work out of the Successful bidder's hands shall apply as far as they may be when the contract is so terminated.

22. Notice

Written notice shall be deemed to have been duly served if delivered to the individual or to the Successful bidder or to the Signing Authority of the GMDC from whom it is intended, or if delivered at or sent by mail or post, to the last business address known to him who gives the notice.

23. Canvassing Not Permitted

23.1 Bidder should not canvass their offer personally or otherwise by approaching the Chairman or the Member of GMDC. If any Bidder wants to make any representation regarding his offer, he should write to the General Manager (Project) if he desires, but personal and oral representations are not permitted.

23.2 In spite of the above clear instructions, any Bidder is found to canvass his offer or against his competitor's offer through personal approach to the competent authority or the officials of GMDC, their offer will be rejected without assigning any reason and the firm even is blacklisted.

24. Travelling, Living and Other Expenses:

The Contract price shall include all salaries, and wages, all traveling time and expenses, boarding and lodging allowance and medical expenses of all personnel furnished by the Contractor and all payments which the Contractor may have to make in relation to the work, to the laborers and other personnel employed. Further the contract price shall include all taxes and liability in respect of Employee's Compensation Act, Employee State Insurance Act and Employees Provident Fund Act, etc.

25. Measurements:

25.1 The complete execution of the work with supply of Materials and as per scope of work shall be counted for payment. If the work or supply is not completed as per scope of work or supply and any part work or supply is done, then the part work shall not be counted for payment.



- 25.2 The Successful bidder has to submit the material account statement along with the work measurement sheet. Any Invoice without material account statement shall not be processed, this may please be noted.
- 25.3 All the supplied credited materials shall be the property of GMDC.
- 25.4 All the materials to be supplied as per the scope of works and or supply shall be credited to GMDC only.
- 25.5 The successful bidder shall ensure sufficient availability of the consumables to avoid any delay in completion of the work.

26. Non-Fulfillment of Terms and Condition of The Contract

- 26.1 If the Successful bidder fails to carry out the work as per terms and conditions of the contract to the satisfaction of the GMDC, GMDC shall be entitled to forfeit the security deposit paid by the successful bidder. This however, shall not absolve the Successful bidder from his obligation to fulfill the contract. In such event, the GMDC shall have a right to complete and / or to get the work completed at the cost & risk of the Successful bidder and the Successful bidder shall be responsible to pay such cost incurred by the GMDC to complete the work and / or to get the work completed.
- 26.2 Likewise, if the Successful bidder does not fulfill the terms and conditions of the contract and does not carry out the work up to the entire satisfaction of GMDC, GMDC has the right to forthwith terminate the contract at its sole discretion, without assigning any reason, Under such events, the GMDC shall be entitled to forfeit the security deposit paid by the Successful bidder and the GMDC shall have a right to complete the work and / or to get the work completed at the risk and cost of the Successful bidder.
- 26.3 For any reasons, if it is required, the GMDC reserves rights to cancel, terminate, amend and / or alter the contract and / or bifurcate and / or reduce the contract work at any time without giving any notice or reason to the Successful bidder and without incurring any responsibility. For such cases, the Successful bidder shall have to take away his labour,



tools, tackles, machinery, equipment etc. and shall leave the site at once or shall have to carry out the instructions of the GMDC.

27. General Conditions

- 27.1** All the persons of the Successful bidder engaged must wear Helmet and Shoes and other PPEs. As and when required other personal protective wears shall also be provided to them by the successful bidder.
- 27.2** The Successful bidder shall take adequate statutorily prescribed insurance cover for all men and machinery engaged by him/it for performance of the work at site. Any insurance claim brought against the GMDC by an individual or by customers or by any such other persons who suffered damage due to negligence of the Successful bidder or his employees, the same shall be settled by the successful bidder at his cost.
- 27.3** The Successful bidder has to ensure supervision of the work through duly qualified and competent persons and also has to make sure that a responsible Manager/ Engineer full time available on work site to whom GMDC can issue the instruction and who can fulfill such instructions. Successful bidder shall appoint qualified Manpower.
- 27.4** The Successful bidder shall not change the constitution of the firm/name during the currency of the contract without prior approval of GMDC. Upon such change in constitution and/or name, Supplementary agreement to that effect shall be executed and if the SD is submitted in form of BG/FD than fresh BG in the name and/or constitution shall be submitted failing which necessary action as deemed fit by GMDC shall be taken.
- 27.5** All the staff members of the successful bidder shall carry Photo Identity Card while on duty.
- 27.6** The successful bidder shall provide necessary arrangement for transportation of manpower.
- 27.7** All the equipment to be deployed by the successful bidder must be maintained in proper working order and be fitted with all the required safety devices enforced by statutory authority e.g. Audio-Visual Alarms, fire extinguisher etc.
- 27.8** In case of any Central/State Government directives regarding electrical works execution, the same shall have to be strictly adhered to and binding upon the successful bidder for implementation, for which GMDC will not be responsible for any compensation.
- 27.9** The successful bidder shall abide by the provision of the Motor Vehicle Act for machinery. Any consequences arising out of non-compliance of said Provisions will be at the successful bidder's sole risk and cost, for which GMDC will not be responsible for any compensation.



27.10 To meet the exigencies arising out of natural calamities or disaster or during any emergency, GMDC reserves the right to take away any of the equipment's / machineries deployed at the site with a mutually consented rate. A separate agreement will be made to this effect.

27.11 MD-GMDC is authorized to take suitable decision and action in case of requirement to amend / alter the work order conditions / quantities of the works / extension of the work completion period / allotment of additional works / revision of the rates of the work etc. if necessary, in the interest of GMDC.

28. Termination Of Contract

If at any time during the currency of this contract, if any breach occurs due to the reasons attributed to the Successful bidder, GMDC shall be at liberty to terminate this contract without assigning any reasons, whatsoever, for such termination and any losses and/or damages occurring due to such termination shall be borne by the Successful bidder. GMDC shall be entitled to forfeit Security deposits as Liquidated damages.

29. Governing Law

This Tender and subsequent Contract shall be construed and interpreted in accordance with and governed by the laws of India.

30. Jurisdiction

The matter related to any dispute or difference arising out of this Tender and subsequent contract shall be subject to the exclusive jurisdiction of Court at Ahmedabad only.

31. Arbitration

All questions, disputes, differences whatsoever which may at any time arises between the parties to this Tender and subsequent contract in connection with the Tender and subsequent contract or any matter arising out of or in relation thereto, shall be referred to Sole Arbitrator as per the provisions of Arbitration and Conciliation Act, 1996 and subsequent amendment thereto and the venue of arbitration proceedings shall be at Ahmedabad only. The Language of the Arbitration shall be in English only.



32. Completion Of Work

- 32.1** Upon the Successful bidder fulfilling the entirety of its obligations under the Contract to the satisfaction of GMDC and subject to terms and conditions of the Contract, it shall become eligible to apply for a Completion Certificate. The Head (PP&A) or The General Manager (Plant) of the GMDC shall formally issue the Completion Certificate, after verifying from the completion documents and satisfying himself that the Works under the Contract have been completed in accordance with all the provisions of this Contract. The Successful bidder, after obtaining the Completion Certificate shall become eligible to present the final bill for the Works executed by it under the Contract.
- 32.2** Upon completion of Works under the Contract and before the application for the Completion Certificate, the Successful bidder shall clear the workplace of GMDC from all rubbish, dirt, structures, scrap, oily rags etc. Failure to clear the workplace may constrain GMDC to clear the said site at the risk and cost of the Successful bidder.
- 32.3** The Successful bidder shall provide GMDC with any and all documents/records/proofs that may be demanded before issuance of Completion Certificate.
- 32.4** As time is essence of this project, contractor should adhere to duration of contract, except for short fall of raw material in market or delay due to natural calamity. Extension if any may be considered for max 01 month only.

33. Accident and Responsibilities of Bidder

- 33.1** The entire responsibility on account of any accidents, damage or personal injury which may occurred to any of the Successful bidder's vehicles/ equipments or his/its employees or any outside party shall be exclusively that of the Successful bidder and no claim whatsoever shall be entertain by the GMDC on this account. The Successful bidder shall keep the GMDC indemnified from all the consequence.
- 33.2** In the event of any breakdown or accident during the course of any operation, the Successful bidder shall notify the facts to the GMDC Authority, or any other officer immediately present



there of such incidence and shall simultaneously make adequate remedial arrangements on his/its own cost and risk and as per the instruction of the Corporate office Authority.

- 33.3** The Successful bidder shall pay all claims, damages and compensation with cost arising out of or resulting there from to the third party(s) and in case the GMDC would be required to face any proceedings all to pay any amount on the aforesaid account, it shall be deemed to have been discharge on behalf of the Successful bidder, the same amount shall be recovered half-an hour rest interval in between. The Successful bidder shall ensure that the attendance of all the supplied manpower shall be taken through biometric attendance machine.

34. Foreclosure

In case of any necessity arising due to local working conditions or any unforeseen reason not in the control of the GMDC or any reason what so ever GMDC shall be at liberty to Fore close the contract without assigning any reasons or notice there for.

35. Force Majeure

Force majeure is herein defined as any cause which is beyond the control of the Successful bidder or the GMDC as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:

- 35.1** Natural phenomena such as flood, draughts Cyclone, earthquake and epidemics, declaration of war.
- 35.2** Acts of any government, including but not limited to war, declared or undeclared priorities, quantities, embargoes, providing either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such cases.
- 35.3** The Successful bidder will advise, in the event of his having resort to this clause by a registered letter duly certified by the statutory authorities, the beginning and end of the cause of delay, within fifteen days of the occurrence and cessation of such Force Majeure condition. In the event of delay lasting over two months, if arising out of Force Majeure, the contract may be terminated at the discretion of the GMDC.
- 35.4** For delay arising out of Force Majeure, the Successful bidder will not claim extension in completion date for a period exceeding the period of delay attributable to the causes of force Majeure and neither company nor the Successful bidder shall be liable to pay extra costs (like



increase in rates, remobilization, advance, idle charges for labour and machinery etc.) provided it is mutually established that the Force Majeure conditions did actually exist.

35.5 If any of the Force Majeure conditions exists in the place of operation of the Successful bidder even at the time of submission of bid, he will categorically specify them in his bid and state whether they have been taken into consideration in their quotations.

35.6 The Successful bidder or the GMDC shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/ or defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time.



Annexure-A

Instruction to Bidders for Online Tendering

1. All Bidders must submit their bid online through the website <https://gmdctender.nprocure.com>
2. Bidders who wish to participate in online tenders will have to procure / should have legally valid Digital Certificate (Class III) as per Information Technology Act-2000, using which they can sign their electronic bids. Bidders can procure the same from any of the license certifying Authority of India or can contact (n) code solutions- a division of GNFC Limited, who are licensed Certifying Authority by Government of India at address mentioned below at clause 5.
3. All bids should be digitally signed. For details regarding digital signature certificate and related training involved at the below mentioned address should be contacted:

Address:

(n)Procure Cell

(n)Code solutions A division of GNFC

403, GNFC Info-Tower, Bodakdev, Ahmedabad- 380 054 (India)

Tel +91 79- 4000 7300 Fax: +91 79 26857321, Toll Free: 7359021663

E-mail : nprocure@ncode.in

4. Kindly take note that, valid Digital Signature Certificates is a must for all the interested Bidders. Online tendering process is not possible without a valid digital signature certificate.
5. Interested Bidders are also requested to complete their procedure for taking digital signature certificate in respect to filling of application form, supporting documents with necessary fees at least 3 days before last date of tender submission.
6. (n) code solutions reserve the rights to issue digital signature certificate after verification of application forms / supporting documents submitted by Bidder. (n) code solutions is fully authorized to issue digital signature certificate to Bidders.
7. Bidders who have no facility to participate in on-line tenders are requested to contact (n) code solutions for the same.
8. Free vendor training camp will be organized every Saturday between 4.00 to 5.00 P.M. at (n) code solutions-A Division of GNFC Ltd. at address mentioned above. Bidders are requested to take benefit of the same.
9. All the correspondence in respect to training, support or digital signature certificate should be addressed to (n) code solutions directly on the above-mentioned address. In case the Bidders face any difficulty, they may contact the officials of the GMDC or GNFC on the below mentioned details:

a. GMDC:

Contact Person: MANAGER, (Electrical) **GMDC Fluorspar Project**, Village: Kadipani, Tal: Kawant, Dist: Chhota Udepur-391170, Gujarat

E-mail: vmshenekar@gmdcltd.co.in, Website: www.gmdcltd.com

b. GNFC:

Contact Number: 079- 26857316/17/18

E-Mail: nprocure@gnfc.net

Annexure-B



Annexure I.

Finance Department, GR. No.: FD/MSM/e-file/4/2023/4020/D.M.O.

Date: 11/03/2024

(A) Guarantees issued by the following banks will be accepted as SD/EMD on permanent basis:

❖ **All Nationalized Banks**

(B) Guarantees issued by the following Banks will be accepted as SD/EMD for the period up to March 31, 2025. The validity cut-off date in the GR is with respect to the date of issue of Bank Guarantee irrespective of the date of termination of Bank Guarantee.

Sr No	Name of Banks	Sr No	Name of Banks
1	AXIS Bank	19	Kotak Mahindra Bank
2	AU Small Finance Bank	20	South Indian Bank
3	Bandhan Bank	21	Tamilnadu Mercantile Bank
4	City Union Bank	22	Utkarsh Small Finance Bank
5	CSB Bank	23	Ahmedabad Mercantile CO-op. Bank
6	DBS Bank India Limited	24	Nutan Nagrik Sahkari Bank Ltd.
7	DCB Bank	25	Rajkot Nagarik Sahakari Bank Ltd.
8	Equitas Small Finance Bank	26	Saraswat Co-Operative Bank Ltd
9	FEDERAL Bank	27	SVC Co-Operative Bank Ltd.
10	HDFC Bank	28	The Cosmos Co-op Bank Ltd.
11	HSBC Bank	29	The Gujarat State Co-operative Bank
12	ICICI Bank	30	The Mehsana Urban Co-Op. Bank
13	IDBI Bank	31	The Surat District Co-op Bank
14	IDFC First Bank	32	The Surat People's Co. Op. Bank Ltd
15	IndusInd Bank	33	The Kalupur Commercial Co-op. Bank
16	Jana Small Finance Bank	34	Baroda Gujarat Gramin Bank
17	Karnataka Bank	35	Saurashtra Gramin Bank
18	Karur Vysya Bank		

All the eligible banks are instructed to collect the original documents/papers of guarantee from the concerned tendering authority.


(Bhavya Verma)

Deputy Secretary (Budget)

Finance Department

-----XXXXX-----



FORM-PA CHECK LIST OF DOCUMENTS ENCLOSED WITH TENDER

TECHNICAL BID

Sr. No.	Document	Declaration (Strike out whichever is not applicable)
1.	Tender Processing Fee	Yes/No
2.	EMD	Yes / No
3.	Form PA (check list of documents enclosed with tender)	Yes / No
4.	Form PB (Status of the Bidder)	Yes / No
5.	Form PC (CA Certification for Financial Details and work carried out during the last seven years of bidder)	Yes / No
6.	Form PD (Declarations)	Yes / No
7.	Form PE (Undertaking of Genuineness of Document)	Yes / No
8.	Form PF (Undertaking of Indemnity)	Yes / No
9.	Form PG (Site Visit)	Yes / No
10.	Power of Authority to sign the documents (Duly Notarized on Stamp paper of Rs. 300)	Yes / No

PRICE BID

1	Online Price bid submission in Form PP	Yes / No
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FORM-PB STATUS OF THE BIDDER

Particulars	Details
Name of the Bidder:	
Address:	
Registered office:	
For correspondence:	
Telephone No.	
Fax No.	
E-mail Address	
Attested copies of Deeds, Articles of association to be enclosed	
Name & contact number of person holding power of attorney (Attested copy of power of attorney to be enclosed)	
Names of Partners with their Present and permanent address	
Name of Bankers with full address and Telephone No& Bank Account Details (Cancelled Cheque to be enclosed)	
PAN of Bidder	
GST Registration No. of Bidder	
PF Registration No.	
Whether enlisted in other dept., if yes, then furnish the details pertaining to class and the amount qualified to tender	
Was the applicant or its partners or Directors blacklisted in past by any Govt. or any other body.	
Details pertaining to the work incomplete if any	
Details of the litigation, court cases and arbitration either completed or under progress during last 10 years by the GMDC entity or any partner/proprietor of present entity GMDC was associated in any capacity.	

Signature and Stamp of the Bidder



FORM-PC

1. Turnover and Net Worth

On the basis of the **audited books of accounts** produced before us by M/s. _____, we certify that as per the books of account Net worth and Turn Over of the firm M/s _____ are as under:

1.1 Net Worth= Rs. _____ for the Year ended on 31.03.2022.
 Rs. _____ for the Year ended on 31.03.2023.
 Rs. _____ for the Year ended on 31.03.2024.

Average Net Worth Rs. _____

1.2 Turn Over = Rs. _____ for the Year ended on 31.03.2022.
 Rs. _____ for the Year ended on 31.03.2023.
 Rs. _____ for the Year ended on 31.03.2024.

Average Turnover of Rs. _____

2. Details of Work Carried Out During the Last Seven Years by the Bidder (i.e. period from 01.08.2017 to 31.07.2024):

Sr. No.	Description of work with Workplace	Name of client with postal address	Work Order number and date	Contract Period		Actual Quantity worked	Amount without GST of work order	Work experience certificate attached
				From (Date)	To (Date)			
								Yes/No
								Yes/No
								Yes/No
								Yes/No

Signature and Stamp of the Bidder

Signature and Stamp of the CA



FORM-PD

Declaration

(On letter head of the Bidder)

DATE:

To,
Manager (Electrical)
GMDC Fluorspar Project,
Village: Kadipani,
Tal: Kawant,
Dist: Chhota Udepur-391170,
Gujarat

Dear Sir,

I/we here by solemnly declare that

1. Any of our Directors or Partners, jointly or severally and/or individually or our firm/GMDC have not been black listed by the Central Govt. or the State Govt. or its undertakings.
2. We have not put any condition in our offer with respect to Tender No. _____,
3. We have accepted all the terms and conditions, including Annexure, Corrigendum if any, as specified in the Tender Document No. _____ unconditionally.

I/we here by further declare that, if the declaration is found untrue, the GMDC shall be entitled to take any action against us severally and/or individually or our firm/GMDC in this regard in any manner that may be deemed fit by GMDC.

Yours faithfully,

Signature and Stamp of the Bidder



FORM -PE

(Format for Affidavit)

A F F I D A V I T

**Undertaking Regarding Geniuses of Documents
(On Non-Judicial Stamp Paper Of Rs 300/-)**

I/We, _____, Partner/Director/Legal Attorney/Accredited Representative of M/s. _____ solemnly declare that:

1. I/We are submitting Tender for the work _____ against Tender No. _____
2. None of the Partners/Directors of our firm/GMDC is relative of employee of GMDC.
3. All information furnished by us in respect of fulfillment of eligibility criteria and qualification information of this Tender is complete, correct and true.
4. All documents/credentials submitted along with this Tender are genuine, authentic, true and valid.
5. If it is found at any point of time that our documents are not genuine then in that case our tender will be rejected, earnest money deposited by us will be forfeited and we will be debarred from participating in further/future GMDC tenders and/or any action as deemed fit by GMDC may be taken against us, including termination of the contract, forfeiture of all dues including Earnest Money / Security deposit and banning/delisting of our entity and all related persons etc.

**SIGNATURE OF THE BIDDER
WITH SEAL**

Dated



FORM-PF
Undertaking Of Indemnity
(On Letter head of the Bidder)

To,

To,

Manager (Electrical)

GMDC Fluorspar Project,

Village: Kadipani,

Tal: Kawant,

Dist: Chhota Udepur-391170,

Gujarat

Dear Sir,

We M/s. ----- hereby undertake that, we shall at all times, indemnify and keep indemnified that GMDC Limited from any and all liability for damages resulting from or arising out of or in any way connected with the operations covered by the Tender No. _____. We shall be responsible for all risk arising in connection with or on account of the operations covered by the contract covered by the above tender and shall make good all losses and damages arising there from. In case, the GMDC Limited shall incur any cost or expense or suffer any loss on account of any claim demand or course of action brought against us and arising out of the operations covered by the Bidder/tender, the GMDC Limited shall have the power (without being bound to do so) to define, contest or compromise any such claim demand or cause of action. Any amount that may become payable by GMDC Limited and any cost expense etc. that may be incurred by the GMDC Limited in this behalf, shall also be recoverable from us, without prejudice to your other rights.

Yours faithfully,

For -----

(Signature & Stamp of the Bidder)



FORM-PG

Declaration

(On letter head of the Bidder)

Site Visit

We _____ hereby certify that we have fully understood the site condition in respect of Tender No. _____ for all the works mentioned above at _____. We have obtained all relevant details, information, data, existing working conditions, existing industrial environment etc. We have also studied the working conditions as proposed in the tender and availability of power supply, water supply, manpower, machineries, transportation facility etc.

We hereby agree and undertake not to raise any dispute and/or objection at any stage on any ground whatsoever, during the currency of the contract if awarded to us.

SIGNATURE OF THE BIDDER WITH SEAL

Dated



**FORM-PP
PRICE BID FORM
(To be submitted online)**

Sub.: -Design, Supply, Installation, Testing & Commissioning work of PLC Based SCADA system for Plant Automation work at GMDC Kadipani Fluorspar Project.

Sr. No.	Description	UOM	Qty.	Total Amount in RS. (Excluding GST)
1	SITC work of PLC Based SCADA system for Plant Automation work at GMDC Kadipani Fluorspar Project.	SET	1	

Note:

- 1. Quoted Price shall be inclusive of all other Taxes and exclusive of GST.**
- 2. There shall be no Escalation on firm rate of contract and shall remain valid for the entire period.**
- 3. It is mandatory to quote rates for entire job only.**



Please note the following details for Compulsory e-confirmation for Bank Guarantee through ICICI Bank through SFMS under our:

Gujarat Mineral Development Corporation Limited (GMDC)
132 Ft Ring Road, Near University Ground Vastrapur, Ahmedabad.
Bank Name: ICICI Bank Ltd
IFS Code: ICIC0000024
UIC GMDC530265584 for Field 7037 MT760

FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSITE (SD)

(On Non-judicial Stamp paper to be submitted along with submission of bids)

..... (Name of the Bank)
Address.....
Guarantee No.....
A/C Messrs..... (Name of Bidder)
Date of Expiry.....
Limit to liability (currency & amount)
Invitation for Tender No..... Dated..... (Bidding document)
For..... (Name of Facilities)

Subject: Security Deposit Bank Guarantee.

Date.....20

To,
General Manger (____),
Gujarat Mineral Development Corporation Ltd.
132 Ft Ring Road,
Near University Ground
Vastrapur,
Ahmedabad.

Dear Sir,

In consideration of Gujarat Mineral Development Corporation (hereinafter called "GMDC") which expression shall unless repugnant to the subject of context include his successors and assigns having agreed to exempt M/s..... (herein after called "Bidder") from demand under the terms and conditions of "Technical Bid Document" (hereinafter called the said "Bidding Document") issued by the GMDC vide Tender No._____for the work _____

(Name of the facilities) from Security Deposit (SD) of Bid for the due fulfillment by the Bidder of the terms and conditions contained in the said Bidding Document on production of Bank Guarantee for INR

(_____ only) (figure in words).



- 1** We the _____ (Name of Bank) hereinafter referred to as “Bank” having our registered office at _____ (address of Bank) do hereby undertake and agree to indemnify and keep indemnified GMDC to extent of INR _____ (_____ only) (figures in words) against any losses, damage cost, charges and expenses caused to or suffered by or that may be caused or suffered by GMDC by reason of any breach or breaches by the Bidder of any of the terms and conditions contained in the said Bidding Document and unconditionally pay the amount claimed by GMDC on demand and without demur to the extent aforesaid.
- 2** We _____ (Name of Bank) do hereby undertake to pay the amounts due and payable under the guarantee without any demur merely on a demand by you stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by you by reason of any breach by the said Bidder of any of the terms or conditions contained in the said Bidding Document by reason of the Bidder’s failure to fulfill the conditions of said Bidding Document. Any such demand on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding INR _____.
- 3** We _____ (Name of Bank) further agree that GMDC shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of terms and conditions of the said Bidding Document and the extent of loss, damages, costs, charges and expenses caused to or suffered by or that may caused to or suffered by GMDC on account hereof to the extent of the Bid Security required to be deposited by the Bidder in respect of the said document and the decision of GMDC that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges, and expenses caused to or suffered by or that may be caused to or suffered by GMDC shall be final and binding on us.
- 4** We _____ (Name of Bank) further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance on the said Bidding Document and that it shall continue to be enforceable till you certify that terms and conditions of the said Bidding Document have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee. Unless a demand or claim under this guaranteed is made on us in writing on or before the (date) _____ we shall be discharged from all liability under this guarantee.
- 5** We _____ (Name of Bank) further agree with you that you have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document or to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by you against the said Bidder and to forbear or enforce any of the terms and conditions relating to the said Bidding Document and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Bidder or for any forbearance act or omission on your part or any indulgence by you to the said Bidder or any such matter or thing whatsoever under the law relating to sureties would but for this provision have effect of so relieving us.
- 6** It shall not be necessary for GMDC to proceed against the Bidder before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank, notwithstanding any



security which GMDC may have obtained from the Bidder at this time when proceeding are taken against Bank hereunder be outstanding or unrealized.

- 7** We _____ (Name of Bank) further undertake to unconditionally pay the amount claimed by GMDC merely on demand and without demur to the extent aforesaid.
- 8** We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of GMDC in writing.
- 9** This Guarantee will not be discharged due to the change in the constitution of the Bank or the said bidder.
- 10** The Bank has under its constitution power to give this guarantee _____ and _____ Mr. _____ who has signed it on behalf of the Bank have authority to do so.

Yours faithfully

For.....

(Name of the Bank)

Notwithstanding anything contained hereinabove

- (I) Our liability under this Bank Guarantee shall not exceed **Rs** _____ /- (**Rupees** _____ **only**)
- (II) This Bank Guarantee is valid up to _____ (Date).
- (III) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only and only if you serve upon us a written claim or a demand on or before _____ (date).
- (IV) This bank guarantee is operative only when accompanied with SFMS advice from us.

Yours faithfully

For.....

(Name of the Bank)