REQUEST FOR PROPOSAL (RFP)

FOR

SELECTION OF AGENCY

FOR

INSTALLATION OF DE-SLIMING SYSTEM

AT HUS (MK Unit)

ON

ENGINEERING PROCUREMENT CONSTRUCTION (EPC) BASIS

आई आर ई एल
I R E L

Unleashing Values

IREL (India) Limited

(A Govt. of India Undertaking – Dept. of Atomic Energy)

Plot No. 1207, Veer Savarkar Marg, Near Siddhi Vinayak Temple, Prabhadevi, Mumbai- 400028. Website: http://irel.co.in

DISCLAIMER

The information contained in this Request for Proposal document (the **"RFP"** or **"Bidding Document"**) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form, by or on behalf of IREL or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided. The information provided is only for the information and reference of the Bidders.

This RFP is not an agreement and is neither an offer by IREL to the prospective Bidder(s) or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their bid for participation in this RFP (the **"Bid"**). This RFP includes statements, which reflect various assumptions and assessments arrived at by IREL in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for IREL, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Bidder should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. IREL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

IREL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way with qualification of Bidders for participation in the Bidding Process. IREL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.IREL may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that IREL is bound to select and short-list qualified Bids for Price Bid stage or to appoint the Selected Bidder for the Project, and IREL reserves the right to reject all or any of the Bids without assigning any reasons whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by IREL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and IREL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

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1 Introduction

1.1 Background

1.1.1 IREL (India) Limited (Erstwhile Indian Rare Earths Ltd)–Mini Ratna Category-I company, is a Central Public Sector Enterprise (CPSE) of the Government of India under the administrative control of the Department of Atomic Energy. It is the largest beach sand mining & mineral separation company in India and has its operating units at Chavara (Kerala), Manavalakurichi (Tamil Nadu) & Odisha Sands Complex - OSCOM (Odisha).

1.1.2 IREL is presently mining beach sand minerals at the Manavalakurichi (MK) deposit situated in Kanyakumari district of Tamilnadu. The MK deposit, covering mining lease area of 148 Ha with 10-15% Heavy Minerals (HM) such as Ilmenite, Rutile, Zircon, Garnet and Sillimanite. The installed capacity of IREL MK unit is 1,14,600 tons per annum (tpa) of Ilmenite along with other associated minerals.

1.2 Proposed Project

1.2.1 IREL intends to process the raw material from River linking project site in Sathankulam area and Midalam deposit. The raw material (Teri sand) has approximately 10-15% HM content and 10-20% slime content. IREL intends to remove the slime content from the feed sand in Heavies Up-gradation section (HUS) through installation of De-sliming System (the "Project").

1.2.2 The Teri sand shall be fed at HUS @180 to 220tons per hour (tph) and a quantity of 37,500 tons of Teri sand is expected to be fed at HUS per month. The quantity of HUS outputs, i.e HM concentrate and slime cake, shall vary depending on the content in Teri sand.

1.2.3 As part of this endeavour, IREL has decided to undertake installation of the Project on EPC (Engineering Procurement Construction) basis. Now, IREL intends to appoint an agency through this bid process for setting up of the Project on EPC basis.

1.2.4 The role of EPC contractor will include all the following activities, but will not be limited to:

1. Engineering, procurement, construction, installation, erection, testing and commissioning of the project,
2. Formulization of equipment SoPs (Standard Operating Procedures) and adherence to safety norms,
3. Commissioning of the equipment and ensure commercial operation of the Plant within the time frame specified satisfying relevant safety &environmental norms.

   IREL will remain owner of assets and products. IREL will undertake decision-making, monitoring and supervision related to engineering, procurement, erection and commissioning of equipment/ plant.

1.2.5 The bidder shall develop flowsheet for the Project and should have a tie-up with an internationally reputed test-work facility having prior expertise in characterization of Titaniferous Minerals along with associated slimes. On award of contract, the Selected Bidder shall carry out test work for the proposed flow sheet to meet the deliverables and get it validated by test work facility. IREL reserves the right to witness their test work.

1.2.6 It is essential that the project shall achieve the Performance Guarantee parameters defined in Clause 6.2 of **Term of Reference,** for issue of Final Acceptance

1.3 Brief description of Bidding Process

1.3.1 IREL intends to select an agency for awarding the Project through competitive bidding process set out herein.

1.3.2 IREL has adopted a two part bidding process (collectively referred to as the **"Bidding Process"**) for selection of the agency for award of the Project. The process involves qualification of interested parties (the **"Bidder"**), who make the Bid in accordance with the provisions of this RFP. The Price Bids of the Technically Qualified Bidders will be opened for selection of the **"Selected Bidder"**.

1.3.3 The Bidders will submit their Bids in accordance with this RFP provided by IREL along with all other documents, flow sheets etc. (the **"Bidding Documents"**). The Bid shall be valid for a period of not less than 120 days from the Bid Due Date (the **"Bid Validity"**).

1.3.4 IREL shall receive Bids pursuant to this RFP in accordance with the terms set forth herein as modified, altered, amended and clarified from time to time by IREL, and all Bids shall be prepared and submitted in accordance with such terms on or before the date specified for submission of Bids (the "**Bid Due Date**").

1.3.5 The Selected Bidder(the **"Agency"**)shall be responsible for engineering, procurement, construction, erection and commissioning of the Project under and in accordance with the provisions of an agreement (the **"Agreement"**) to be entered into between the Agency and IREL in the form provided by IREL as part of the Bidding Documents pursuant here to and scope detailed in this RFP. The Agreement sets forth the detailed terms and conditions for the Project, including the scope of the services and obligations.

1.4 Schedule of Bidding Process

1.4.1 IREL shall endeavor to adhere to the following schedule

Tender No.	IREL/MK//ET/7/2026-27
Date of publishing of Tender document in IREL and CPP portal	21.08.2026. Interested agencies may view and download the Tender document containing the detailed terms & conditions, free of cost from the website https://www.etenders.gov.in/eprocure/app and https://www.irel.co.in. The bids are to be submitted as per procedure given in this Tender document.
Name of Work	Request for Proposal (RFP) for Selection of Agency for Installation of De-Sliming System at HUS (MK Unit) on Engineering Procurement Construction (EPC) Basis
Type of Tender	Open Tender, Single Stage Two Bid System Two cover System
Tendering Mode: CPP Portal	Public tender (Two cover System) Pre-Qualification Bid Financial Bid
Cost of Tender Document	₹5,900/- (In case bidders download the Tender document from the website then no need to pay TDC)
Earnest Money Deposit (EMD)	₹89,36,200/-
Date & time of Starting of bid	21.10.2026
Last date submission of Pre-bid queries	-
Site visit schedule	17.10.2026
Date of Pre-bid meeting	-
Bid Submission start date	21.10.2026
Date of closing of bid for submission of Bids	26.10.2026, 15.00 Hrs
Date & time of opening of Cover 1	27.10.2026, 15.00 Hrs
Date & time of opening of Financial Bid	Shall be informed separately to the eligible bidders
Declaration of Successful Bidder	To be decided
Issuance of Letter of Intent (LoI)/ Work order	To be decided
Estimated Cost	₹44,68,10,000/- (excl. GST)
Validity of tender	120 days from bid due date
SD/PBG	5% of the contract value
Contact details of tender inviting authority	Shri G.K Chandra Guptan, CM – Tech. (Purchase & Stores) Mobile No. 9003681969 Phone 04651-237255-256 (Extn No. 04651-200402) Email: purchase-mk@irel.co.in IREL (India) Limited Manavalakurichi .PO., Kanyakumari District-629 252

2 Instructions to Bidders

2.1 Mode of Bidding

2.1.1 Bidder shall participate in the Bidding Process as a single company or as a consortium (maximum two members). Certificate of incorporation for the participating entities needs to be submitted along with Bid.

2.1.2 The Indian entity shall be the lead bidder of the consortium.

2.1.3 The Bidder shall include in the Bid details of all major items of supply or services that it proposes to sub-contract while the Selected Bidder may sub-contract part of works after approval from IREL.

2.2 General terms of Bid

2.2.1 No Bidder directly or through its affiliate/subsidiary/holding company shall submit more than one Bid for the Project.

2.2.2 No consortium member shall be part of more than one consortium for participation in Bidding Process nor can any member of consortium participate as a Single Entity separately.

2.2.3 Not withstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement.

2.2.4 Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection.

2.2.5 The Bid and all communications in relation to or concerning the Bidding Documents and the Bid shall be in English language.

2.2.6 The documents including this RFP and all attached documents, provided by IREL are and shall remain or become the property of IREL and are shared with the Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause shall also apply mutatis mutandis to Bids and all other documents submitted by Bidders, and IREL will have the right not to return any Bid, document or any information provided along therewith to Bidders.

2.2.7 The statements and explanations contained in this RFP are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Agency set forth in the Agreement or IREL's rights to amend, alter, change, supplement or clarify the scope of work, the Project to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by IREL

2.3 Conditions of Eligibility of Bidders

The Bidders must read carefully the minimum conditions of eligibility (the "Conditions of Eligibility") provided herein, and shall submit the Pre-Qualification Bid for providing proof of satisfying the same. Bids of only those Bidders who satisfy the Conditions of Eligibility will be considered for evaluation. For determining the eligibility of Bidders, the following shall apply:

2.3.1 The Bidder should be a Company registered in India under Indian Companies Act 1956 or 2013 or a Limited Liability Partnership under the Limited Liability Partnership Act of India, 2008.

2.3.2 A Bidder shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified subject to Clause 2.5.

2.3.3 The Bidder Should meet the Technical & Financial Pre-qualification Criteria as mentioned in Clause 2.4.

2.3.4 Any entity which has been barred by the Central/ State Government/ Public Sector Undertakings (PSUs), or any entity controlled by it, from participating in any project (EPC or otherwise), and the bar subsists as on the Bid Due Date, would not be eligible to submit a Bid

i. A Bidder should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder

ii. Provided, however, that where a Bidder claims that its disqualification arising on account of any cause or event specified in this clause is such that it does not reflect (a) any malfeasance on its part in relation to such cause or event; (b) any wilful default or patent breach of the material terms of the relevant contract; (c) any fraud, deceit or misrepresentation in relation to such contract; or (d) any rescinding or abandoning of such contract, it may make a representation to this effect to IREL for seeking a waiver from the disqualification hereunder and IREL may, in its sole discretion and for reasons to be recorded in writing, grant such waiver if it is satisfied with the grounds of such representation and is further satisfied that such waiver is not in any manner likely to cause a material adverse impact on the Bidding Process or on the implementation of the Project

2.3.5 In case the member of consortium or their subcontractor/supplier is from a country which shares a land border with India, such consortium member/ subcontractor / supplier shall be registered with competent authority as per Rule 144 (xi) of the GFRs 2017 for meeting eligibility

2.4 Pre-Qualification Criteria

Sl. No	Eligibility Criteria
a.	The Bidder shall be a single company or a consortium of maximum two companies. Bidder shall furnish Certificate of incorporation, GST registration certificate, PAN/TIN/TAN
b.	The average annual turnover of the Bidder should not be less than Rs.13.40 Crores (Thirteen Crore Forty Lakhs Indian Rupees) during the last three financial years (FYs) i.e. 2022-23, 2023-24& 2024-25. (Annex-III of Appendix-1)
c.	Net worth of the bidder shall be positive for the last financial year(2024-2025) as per audited balance sheets
d.	The Bidder should have completed at least 1(One) EPC Project (engineering, procurement/supply, construction, erection and commissioning) on lump-sum turnkey basis in any mining or mineral processing industry. The Bidder shall submit Contract copies and Completion Certificates/ final acceptance certificates/commissioning certificates or any other relevant supporting documents in evidence of meeting the above requirement, as per format on Annex-II of Appendix-1 AND The Bidder should have backup letter from an internationally reputed test facility with proven prior expertise in the characterization of Titaniferous Minerals / Mineral Sands, including associated slimes. The successful bidder shall carry out test work after award of contract and get it validated at the said test facility.

Notes:

1. A single bidder must be an Indian company. In case of consortium, the Lead Member must be an Indian company under the Indian Companies Act or Limited Liability Partnership Act and shall meet the entire turnover criteria. Both consortium members must meet the Net Worth Criteria individually. The Technical requirements can be jointly met by the consortium members together.

   The consortium member meeting the technical qualification on the support of their parent /holding company is required to remain as a consortium member till the completion of the project in entirety.

2. Bidder, whether single or part of consortium, may obtain the support of their parent/ holding company to meet the technical qualifications. In such case, the parent/holding company shall provide a letter of authorization and irrevocable support to the Bidder
3. The terms, conditions and liabilities shall be applicable on all consortium members. The Bidder will be required to provide a consortium agreement with defined responsibility matrix and power of attorney of support to the Lead Member.
4. The bidder shall install equipment as per the makes and specification provided in the Technical specification of the tender.
5. The Bidder or any of its key managerial persons should not have any conflict of interest with IREL in the business of mining and mineral separation of beach sand minerals in India.
6. In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect

and the practicing chartered accountant shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 3 (three) years preceding the year for which the Audited Annual Report is not being provided. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

7. In case of any certificates, work orders, contracts, agreements, copies of permits/license/ certificate of registration, documents, declaration, issued in any country other than India are used for proof towards qualification; the same will have to be duly notarized.

2.5 Conflict of Interest

2.5.1 A Bidder shall not have a conflict of interest (the **"Conflict of Interest"**) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, IREL shall be entitled to forfeit and appropriate the Bid Security or Security Deposit, as the case may be, as mutually agreed genuine pre-estimated loss and damage likely to be suffered and incurred by IREL and not by way of penalty for, inter alia, the time, cost and effort of IREL, including consideration of such Bidder's Bid (the **"Damages"**), without prejudice to any other right or remedy that may be available to IREL under the Bidding Documents and/ or the Agreement or otherwise. Without limiting the generality of the above, a Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, unless specifically permitted elsewhere in the RFP documents, if:

a. the Bidder, or its any Associate (or any constituent thereof), and any other Bidder, or its any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, its Associate thereof (or any shareholder thereof having a shareholding of more than 5% (five per cent) of the paid up and subscribed share capital of such Bidder or Associate, as the case may be) in the other Bidder or Associate, is less than 5% (five per cent) of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in sub-section (72) of section 2 of the Companies Act, 2013. For the purposes of this Clause, indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the **"Subject Person"**) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

b. such Bidder, or any Associate thereof receives or has received any direct or indirect

subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any Associate thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder or any Associate thereof; or

c. such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or

d. such Bidder, or any Associate thereof has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Bid of either or each other; or

e. such Bidder, or any Associate thereof has participated as a consultant to IREL in the preparation of any documents, design or technical specifications of the Project.

For purposes of this RFP, Associate means, in relation to the Bidder, a person who controls, is controlled by, or is under the common control with such Bidder (the **"Associate"**). As used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person by operation of law.

2.5.2 A Bidder shall be liable for disqualification and forfeiture of Bid Security if any legal, financial or technical adviser of IREL in relation to the Project is engaged by the Bidder, or its Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the issuance of the LOI or execution of the Agreement. In the event any such adviser is engaged by the Selected Bidder or Agency, as the case may be, after issue of the LOI or execution of the Agreement for matters related or incidental to the Project, then notwithstanding anything to the contrary contained herein or in the LOI or the Agreement and without prejudice to any other right or remedy of IREL, including the forfeiture and appropriation of the Bid Security or Security Deposit, as the case may be, which IREL may have there under or otherwise, the LOI or the Agreement, as the case may be, shall be liable to be terminated without IREL being liable in any manner whatsoever to the Selected Bidder or Agency for the same. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Bidder or it's Associate in the past but its assignment expired or was terminated prior to the date of issuance of RFP. Moreover, this disqualification shall not apply where such adviser is engaged by the Bidder, or its Associate in any work not related to the Project; the Bidder or Selected Party or Agency will however keep IREL informed in any such case(s). This disqualification will not apply where such adviser is engaged by the Agency after a period of 6 (six) months from the date of LoI of the Project or by the unsuccessful Bidders after the issuance of LOI to the Selected Bidder.

2.6 Change in ownership

2.6.1 By submitting the Bid, the Bidder shall also be deemed to have acknowledged and agreed that in the event of a change in control / change in ownership of the Bidder, the Bidder's liability to honor the agreement and complete the Project would be continued.

2.7 Site visit

2.7.1 Bidders are mandated to submit their respective Bids after visiting the Project site and ascertaining for themselves the site conditions, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them.

2.7.2 Bidders are invited to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids for award of the Project.

2.7.3 Interested Bidders shall send a request to IREL for site visit at least one week prior to the site visit date as specified in Schedule of Bidding Process (Ref: Clause 1.4). In case of any foreign national, the form as given in Annex-1 of Appendix-5 needs to be sent at least 15 days in advance. Interested Bidders are requested to check the websites for any change in the dates of site visit, if any.

2.7.4 The Site Visit Request Form is attached in Appendix-5. After receipt of filled and signed Site Visit Request Form, IREL will confirm for site visit to the Bidder.

2.7.5 Two people from IREL: Technical Person and Security Person will accompany the Bidder's team (proposed in the Site Visit Request Form) during the site visit only during the dates mentioned for the Site Visit.

2.7.6 The Bidder shall submit a Declaration of Site Visit signed by the authorized signatory of the Bidder as per the format attached in Appendix-6. Failing which, Bids submitted shall not be considered for further evaluation.

2.7.7 The expenses (Travel, accommodation etc) for Site Visit and attending Pre-bid conference and any other expenses relating to bid preparation will be borne by the Bidder.

2.7.8 IREL shall provide samples to the Selected Bidder for the purpose of carrying out test work and development of process flowsheet(s).

2.7.9 All expenses related to sampling, collection and transportation of samples, test work and design & development of flowsheet will be borne by the Selected Bidder.

2.7.10 IREL at its discretion may accept or reject the proposal of interested Bidder(s) for carrying out the test work for the purpose specified herein.

2.8 Pre-bid Conference

2.8.1 The Site Visit will be followed by Pre-bid Conference for the Project. The date, time and venue of the Pre-Bid Conference will be:

Date and Time: As mentioned in Schedule of Bidding Process (Ref: Clause 1.4)

Venue: **IREL (India) Limited,**
Manavalakurichi,
Kanyakumari District,

TamilNadu629252

Attending the pre bid conference through Video Conferencing is also allowed. The link

shall be provided to interested bidders upon request.

2.8.2 Any queries or request for additional information concerning this RFP shall be submitted in writing by speed post/ courier/ special messenger and by e-mail so as to reach the officer designated below by the specified date.

Mr. O T Antony / Mr. Chandraguptan
DGM-Tech (Production) / CM-Tech (Purchase & Stores)
IREL (India) Limited
Manavalakurichi,
Kanyakumari District, Tamil Nadu - 629252
Email: production-mk@irel.co.in, purchase-mk@irel.co.in

The communications shall clearly bear the following identification/ title:

"Queries/ Request for Additional Information: RFP for Selection of Agency for installation of De-sliming system at HUS, IREL-MK, Tamil Nadu on EPC Basis".

2.9 Clarifications

2.9.1 IREL shall endeavour to respond to the queries no later than fifteen (15) days prior to the Bid Due Date. The responses will be uploaded on IREL website www.irel.co.in or www.eprocure.gov.in/epublish/app.

2.9.2 IREL shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, IREL reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring IREL to respond to any question or to provide any clarification.

2.9.3 IREL may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by IREL shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by IREL or its employees or representatives shall not in any way or manner be binding on IREL.

2.10 Amendment of the RFP

2.10.1 At any time prior to the Bid Due Date, IREL may, for any reason, whether at its own initiative or in response to clarifications requested by Bidders, modify the RFP by the issuance of corrigenda.

2.10.2 Any corrigendum issued hereunder will be in writing and shall be uploaded on IREL website www.irel.co.in or www.eprocure.gov.in/epublish/app.

2.10.3 In order to allow the Bidders a reasonable time for taking an corrigendum into account, or for any other reason, IREL may, in its sole discretion, extend the Bid Due Date.

2.11 Cost of Bid and RFP Document

2.11.1 The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. IREL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.11.2 The Bidders can purchase the RFP document from IREL office at Manavalakurichi by paying a sum of **INR 5000/-** (Rupees Five thousand only) exclusive of GST as the cost of the RFP document, in the form of Demand Draft in favour of IREL (India) Limited, payable at Manavalakurichi issued from any Scheduled Bank in India.

2.11.3 The Bidders can also download the document from IREL website www.irel.co.inor www.eprocure.gov.in/epublish/app. Bidders who download the RFP document online need not submit any amount towards the cost of RFP document along with its bid.

2.12 Acknowledgement by Bidder

2.12.1 It shall be deemed that by submitting the Bid, the Bidder has:

a. made a complete and careful examination of the RFP;

b. Understood the entire scope of work to be carried out under the RFP

c. accepted the risk of inadequacy, error or mistake in the information provided in the RFP or furnished by or on behalf of IREL relating to any of the matters referred to in this Clause; and

d. agreed to be bound by the undertakings provided by it under and in terms hereof.

2.12.2 IREL shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by IREL.

2.12.3 In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of subsistence thereof, including the Project thereby granted by IREL, that one or more of the qualification conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified and shall be liable to be terminated, as the case may be, without IREL being liable in any manner whatsoever. In such an event, IREL shall be entitled to forfeit and appropriate the Bid Security or Security Deposit, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to IREL under the Bidding Documents and/ or the Agreement or under Applicable Law, or otherwise. Further, IREL reserves right to take any other action which it may deem appropriate.

2.13 Verification and disqualification

2.13.1 IREL reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP or the Bidding Documents and the Bidder shall, when so required by IREL, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by IREL shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of IREL thereunder.

2.13.2 IREL reserves the right to reject any Bid and appropriate the Bid Security if: at any time, a material misrepresentation is made or uncovered, or

2.13.3 Such misrepresentation/ improper response shall lead to the disqualification of the Bidder.

2.14 Right to accept/reject any or all Bids

2.14.1 Notwithstanding anything contained in this RFP, IREL reserves the right to accept or reject any Bid and to annul the Bidding Process and reject all Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore.

2.15 Fraud and corrupt practices

2.15.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, IREL may reject a Bid without being liable in any manner whatsoever to the Bidder if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process.

2.15.2 Without prejudice to the rights of IREL under above Clause hereinabove, if a Bidder is found by IREL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, such Bidder shall not be eligible to participate in any tender or RFP issued by IREL during a period of 2 (two) years from the date such Bidder is found by IREL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

2.15.3 For the purposes of this Clause, the following terms shall have the meaning hereinafter respectively assigned to them:

a. "corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of IREL who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOI or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of IREL, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) save and except as permitted under sub clause2.5.2 of Clause2.5, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOI or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOI or the Agreement, who at any time has been or is a legal, financial or technical adviser of IREL in relation to any matter concerning the Project;

b. "fraudulent practice" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

c. "coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

d. "undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by IREL with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

e. "restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

2.16 Ethics in Tendering and Other Business Dealings

2.16.1 IREL is doing its business as per the rules and regulation of the Public Sector Undertaking and other statutory agencies. The business is done in an ethical, rational & impartial manner with good Corporate Governance.

2.16.2 In our endeavour to be more transparent in our dealings and to support our ideology all Vendors, Customers and Business Partners are requested not to provide any gift and /or inducement to any of our employees for securing/being granted favour in dealings with our Company. In assurance of your commitment to the aforesaid, it will be highly appreciated if you fill up, sign and abide by the attached undertaking format in Appendix-

2.16.3 Report of any gifts and /or inducements sought by any employee of the company (IREL) should be immediately reported to any one of the following:

Sri S B Mohanty **Chairman & MD** IREL (India) Limited 1207 VS Marg, Prabhadevi, Mumbai 400 028 Ph.022-24225778 Email: cmd@irel.co.in	**Sri Ajithkumar Vasantrao Sontakke, IOFS** **Chief Vigilance Officer** IREL (India) Limited 1207 VS Marg, Prabhadevi Mumbai 400 028 Ph.022-24221068 Email: cvo@irel.co.in

2.16.4 We assure you those complaints, if any, made by you on the subject will be kept confidential and fair investigation will be conducted and appropriate action will be taken. Similarly, we expect your commitment to the under taking and its violation will have consequences as per prevailing rule of the company.

2.17 Integrity Pact

2.17.1 The Bidder is required to enter into an **"Integrity Pact"** with IREL.

a. The Bidder is required to submit the signed Integrity Pact in the form and manner described in the RFP. The Integrity Pact has to be signed by the authorized signatory of the Bidder

b. In case the Bidder is a consortium, the Integrity Pact shall be signed by all the consortium members.

c. In case of failure to submit the Integrity Pact along with the Bid, duly signed by the authorized signatory, IREL shall have the right to disqualify the Bid.

2.18 Tender/ RFP Documents

2.18.1 This RFP comprises the disclaimer set forth hereinabove, the contents as provided in the appendix and annexure and enclosed herewith, and will additionally include any addenda or corrigendum or clarification issued by IREL in accordance with Clause 2.9 and 2.10.

3 Preparation and submission of the Bid

3.1 Language

3.1.1 The Bid and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Bidder with the Bid may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Bid, the English language translation shall prevail.

3.2 Bid Security

3.2.1 In terms of the RFP, a Bidder will be required to deposit, along with its Bid, a bid security for **INR Eighty Nine Lakh Thirty Six Thousand (89.36 lakhs)**(the "**Bid Security**"). The Bidders will have to provide Bid Security in the form of a bank guarantee acceptable to IREL (the format for Bank Guarantee is provided at Appendix 2). The validity period shall not be less than 150 (one hundred and fifty) days from the Bid Due Date, with an additional claim period of 30 (thirty) days, and may be extended as may be mutually agreed between IREL and the Bidder from time to time. The Bid Security will issued by a Scheduled Bank, in favour of "IREL (India) Limited", payable at Manavalakurichi, Kanyakumari District, Tamil Nadu. In case the Bank Guarantee is issued by a foreign bank outside India, confirmation of the same by any Nationalised Bank in India is required. For the avoidance of doubt, Scheduled Bank shall mean a bank as defined under Section 2(e) of the Reserve Bank of India Act, 1934.

3.2.2 The genuineness of bank guarantee shall be checked by IREL from the issuing bank.

3.2.3 IREL shall not be liable to pay any interest on the Bid Security deposit so made and the same shall be interest free.

3.2.4 Any Bid not accompanied by the Bid Security shall be summarily rejected by IREL as non-responsive.

3.2.5 The Bid Security of unsuccessful Bidders will be returned by IREL, without any interest, within 30 (thirty) days from the LOI issuance to the Selected Bidder.

3.2.6 The Selected Bidder's Bid Security will be returned, without any interest, upon the Agency signing the Agreement and Selected Bidder furnishing the Security Deposit in accordance with the provisions thereof.

3.2.7 IREL shall be entitled to forfeit and appropriate the Bid Security as Damages inter alia in

any of the events specified in the RFP. The Bidder, by submitting its Bid pursuant to this RFP, shall be deemed to have acknowledged and confirmed that IREL will suffer loss and damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid Validity as specified in this RFP. No relaxation of any kind on Bid Security shall be given to any Bidder.

3.2.8 The Bid Security shall be forfeited as Damages without prejudice to any other right or remedy that may be available to IREL under the Bidding Documents and/ or under the Agreement, or otherwise, if

a. a Bidder engages in a corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as specified in this RFP;

b. a Bidder submits false/fabricated documents;

c. a Bidder withdraws its Bid during the period of Bid validity as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and IREL;

d. a Bidder changes the terms and conditions or prices or withdraw his Bid subsequent to the date of opening.

e. A Bidder fails to accept the order when placed or fails to commence supplies/ works/ services/ after declared as Selected Bidder.

f. the Selected Bidder fails within the specified time limit-

   i. to sign and return the duplicate copy of LOI; or

   ii. to sign the Agreement; or

   iii. to furnish the Security Deposit within the period prescribed therefore in the Agreement

g. the Selected Bidder, having signed the Agreement, commits any breach thereof prior to furnishing the Security Deposit.

3.3 Structure of the Bid

The Bidders will prepare their bids in the structure and sequence provided below. In case the Bids are not found as per the required structure, IREL shall have the right to declare the Bid as non-responsive and the Bid shall not be considered for further evaluation. The Bid shall comprise two Parts, namely the Techno-commercial Part and the Financial Part. These two Parts shall be submitted simultaneously.

The following conditions shall be adhered to while submitting a Bid:

i. Bidders should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexure is insufficient. Alternatively, Bidders may format the prescribed forms making due provision for incorporation of the requested information;

ii. Information supplied by a Bidder must apply to the Bidder or its Associate named in the Bid and not, unless specifically requested, to other associated companies or firms;

iii. In case the Bidder is a consortium, all the documents/ information submitted by each member shall be signed and stamped by the authorized signatory of Lead

Member.

Bids comprise two Parts, namely the Techno-commercial Part and the Financial Part, and both parts must be submitted simultaneously online on: https:// eprocure.gov. in /eprocure /app (website) on or before due date and the 'Techno-commercial Part' of the bids will be publicly opened online as per schedule bidding process, in the presence of the bidders' designated representatives and anyone who choose to attend. The "Financial Part" shall remain unopened in the e-procurement system until the second public Bid opening for the financial part. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered. The electronic bidding system would not allow any late submission of bids.

Techno-commercial Bid: The Technical bid will comprise of (Pre-qualification bid and Techno-commercial bid) the following in below mentioned order:

a) Letter comprising the Bid along with particulars of Bidder in Annex-I of Appendix-1

b) Annex-II of Appendix 1: Technical Capacity of Bidder

c) Annex- III of Appendix 1: Financial Capacity of Bidder

d) Annex- IV of Appendix 1: Statement of Legal Capacity

e) Bid Security

f) Power of Attorney(s) as per Appendix 3 of RFP

g) Site Visit Certificate as per Appendix 6

h) Certificate of Registration, Incorporation, along with Memorandum and Articles of association of Bidding entity and its Associate (if applicable)

i) Letter of Support/Authorization from the parent/holding company (if applicable)

j) Consortium agreement with responsibility matrix

k) All documentary proof for the above mentioned Annexes as mentioned in the RFP

l) Signed copy of Integrity Pact as per Appendix 7

m) Undertaking

n) Techno-Commercial Bid according to details given/ requested in Terms of Reference

o) Signed copy of RFP and draft Agreement including all addendum, corrigendum and clarification as a token of acceptance of all the tender terms and conditions

p) Unpriced Price Bid (as per format in Appendix 8) along with unpriced BOQ.

q) Any other document as mentioned elsewhere in the RFP

The Techno-commercial Bid shall be prepared in line with the details given in Terms of Reference and other information sought under this RFP. The Techno-commercial Bid

shall include Bidder's understanding of the project, its proposal for the proposed facilities, and compliance to the scope of work as well as it's adherence to project Implementation Schedule.

Price Bid: This bid will comprise of the Price Bid and filled up BOQs format as per format provided in Appendix 8 of the RFP.

3.4 Price Bid

3.4.1 The Bidder will be required to quote Lump Sum (LS) Price (in INR) as part of the Price Bid.

3.4.2 The Bidder will submit their Price Bids in the format provided at Appendix 8 of the RFP.

3.4.3 The Price Bid should be furnished clearly indicating the bid amount in both figures and words (in Indian Rupees as per format provided) and signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall prevail.

3.5 Bid Due Date

3.5.1 Bids should be submitted before 1500 hours IST on the Bid Due Date in the manner and form as detailed in this RFP.

IREL may, in its sole discretion, extend the Bid Due Date by issuing an Corrigendum in accordance with Clause 2.10 uniformly for all Bidders.

3.6 Validity of Bids

3.6.1 The Bids shall be valid for a period of not less than 120 (one hundred and twenty) days from the Bid Due Date. The validity of Bids may be extended by mutual consent of the respective Bidders and IREL.

3.7 Confidentiality

3.7.1 Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising IREL in relation to, or matters arising out of, or concerning the Bidding Process. IREL will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. IREL may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or IREL or as may be required by law or in connection with any legal process.

4 Bid Evaluation and selection of Bidder

4.1 Opening and Test of responsiveness

4.1.1 The Bid will be opened through online mode on: https://eprocure.gov. in/eprocure/app (website) after submission of the bid at 1530 hours on the Bid Due Date, at the place specified below.

Address for Bid Opening: IREL (India) Limited,

Manavalakurichi,
Kanyakumari District, Tamil Nadu - 629252

Prior to evaluation of Bids, IREL shall determine whether each Bid is responsive to the requirements of the RFP. A Bid shall be considered responsive if:

a) it is received by Bid Due Date (including any extension thereof) as per format prescribed along with all filled up forms, data/ details/ documents requested in this RFP;

b) it does not contain any condition or qualification; and

c) it is not non-responsive in terms hereof.

4.1.2 IREL reserves the right to reject any Bid that is non-responsive and no request for alteration, modification or substitution shall be entertained by IREL in respect of such Bid. Provided, however, that IREL may, in its discretion, allow the Bidder to rectify any infirmities or omissions if the same do not constitute a material modification of the Bid.

4.2 Evaluation of Bids

4.2.1 Following evaluation process will be adopted by IREL:-

- IREL will open the Techno-commercial bid on the Bid opening date.
- After evaluation of Techno-Commercial Bid, IREL will open the Price Bid only of the Technically Qualified Bidders.

4.2.2 Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.

4.2.3 Any information contained in the Bid shall not in any way be construed as binding on IREL, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information. IREL reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons.

4.2.4 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, IREL may, in its sole discretion, seek clarification from the Bidder or exclude the relevant project from Bid evaluation.

4.2.5 In the event that a Bidder claims credit for an eligible project, and such claim is determined by IREL as incorrect or erroneous, IREL shall reject such claim and exclude the same from Bid evaluation. Where any information is found to be patently false or amounting to a material misrepresentation, IREL reserves the right to reject the Bid.

4.3 Selection of Bidder

4.3.1 Subject to the provisions of Clause2.3, the Bidder whose Bid is adjudged as responsive in terms of Clause4.1 and who quotes the lowest LS Price with Taxes shall be declared as the Selected Bidder (the **"Selected Bidder"**).

4.3.2 After selection, a Letter of Intent (the **"LOI"**) shall be issued, in duplicate, by IREL to the Selected Bidder and the Selected Bidder shall, within 7 (seven) days of the receipt of the LOI, sign and return the duplicate copy of the LOI in acknowledgement thereof. In

the event the duplicate copy of the LOI duly signed by the Selected Bidder is not received by the stipulated date, IREL may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Selected Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOI.

4.3.3 The Selected Bidder will be required to submit the Security Deposit as mentioned in the Agreement within a period of twenty one (21) days from the receipt of LOI or at the time of signing of the Agreement, whichever is earlier. The Selected Bidder will have to keep its Bid Security valid for a period of at least thirty (30) days later than the date of submission of Security Depositor verification of Security Deposit by IREL, whichever is later; and extend the validity of its Bid Security appropriately to meet this criteria. In case the Bid Security validity, as requested hereinabove, is not maintained by the Selected Bidder, IREL will have the right to encash the Bid Security of the Selected Bidder. In the event the Security Deposit is not received by the stipulated date, IREL may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as Damages on account of failure of the Selected Bidder to submit the Security Deposit.

4.3.4 After acknowledgement of the LOI and submission of Security Deposit as aforesaid by the Selected Bidder, it shall cause the Selected Bidder to execute the Agreement preferably within a period of twenty-one (21) days from the issuance of LOI or as prescribed by IREL. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

5 Miscellaneous

5.1 General

5.1.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the court in Nagercoil, Kanyakumari District, Tamil Nadu, shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

5.1.2 IREL, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

a. suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;

b. consult with any Bidder in order to receive clarification or further information;

c. qualify or not to qualify any Bidder and/ or to consult with any Bidder in order to receive clarification or further information;

d. retain any information and/ or evidence submitted to IREL by, on behalf of, and/ or in relation to any Bidder; and/ or

e. independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder

5.1.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases IREL, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way

related to or arising from the exercise of any rights and/ or performance of any obligations hereunder and the Bidding Documents, pursuant hereto, and/ or in connection with the Bidding Process, to the fullest extent permitted by applicable law, and waives any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

5.2 Proprietary data

5.2.1 All documents and other information supplied by IREL or submitted by a Bidder to IREL shall remain or become the property of IREL. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. IREL will have the right not to return any Bid or any information provided along therewith.

5.3 Contacts during Bid Evaluation

5.3.1 Bids shall be deemed to be under consideration immediately after they are opened and until such time IREL makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, IREL and/ or their employees/ representatives on matters related to the Bids under consideration.

5.4 Correspondence with the Bidder

5.4.1 Save and except as provided in this RFP, IREL shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid;

5.5 Preference to Make in India

5.5.1 For this procurement, Public Procurement (Preference to Make in India) Order 2017 dated 15.06.2017, 28.05.2018 & 29.05.2019 and subsequent Orders issued by the respective Nodal Ministry shall be applicable. The bidder to provide certificate for minimum 50% and 20% local content required for qualifying Class 1 and Class 2 Local Supplier respectively.

5.5.2 The Public Procurement (Preference to Make in India) PPP_MII order 2017 wrt prescribed local content is applicable for procurement of all good, service and works.

Verification of local content:

5.5.3 The 'Class-I local supplier'/ 'Class-II local supplier' at the time of bidding are required to indicate percentage of local content and provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. They should also submit details of the location(s) at which the local value addition is made.

6 Terms of Reference

6.1 Scope of Work

6.1.1 The scope of work shall broadly cover detailed engineering, procurement, fabrication, manufacture, inspection, transportation, insurance, storage, handling, dismantling & removal of debris, construction, installation, erection, testing, commissioning, stabilization and demonstration of guarantee parameters of the proposed system, equipment and associated facilities as covered in the following clauses, for the various jobs related to technological/ mechanical, civil, structural, electrical and instrumentation works to be executed.

6.1.2 Battery Limits

The Battery Limits for the proposed circuits are given as following:

Particular	Start	End
Screen for removal of Trash	Discharge of belt conveyor BC12 Electrical: Power supply starts from MCC 2H at HUS	Undersize fraction output into the existing RCC constant pulp density tank (CPD) and Oversize fraction into the rejects collection pit. Electrical: Upto testing and commissioning of all drives
Slime removal system for feed to HUS,	From undersize fraction of the Screen Electrical: Power supply starts from new MCC5H at HUS	Ends with feed to rougher Spiral distributors and slime contained water to thickening stage Electrical: Up to testing and commissioning of all drives
Slime removal system for HUS output	From HUS output i.e. from P12A pump discharge Electrical: Power supply starts from new MCC5H at HUS	Ends with outlet from scrubber discharging to existing hydrosizer feed well. Electrical: Up to testing and commissioning of all drives
De-watering, de-sliming in tailing stream	From HUS tailing i.e. tailing line from P23 & P23A pump discharge	Ends with outlet from hydrocyclones; underflow at tailing yard and overflow to thickening stage
Pumping Station for process water from settling pond	From suction point of Water pumps Electrical: Power supply starts from new MCC7H at HUS	Ends with process water pipeline terminating at CPD tanks and spiral distributor Electrical: Up to testing and commissioning of all drives
Thickening, dewatering and water recovery system	From collection of process overflow Electrical: Power Supply from new MCC7H at HUS	Ends with recovery of clear water which discharges to pond for reuse and discharge of slime in cake form to designated area through belt conveyor along with clear filtrate water to pond for reuse Electrical: Up to testing and commissioning of all drives

6.1.3 The Selected Bidder Scope of Work shall include but not limited to

a) Study of Scope of Work and flow sheets and site visit to understand the site condition, assessment of the quality, quantity as well as criticality of the work to be executed

b) Detailed engineering for the implementation of the scope of work

c) Preparation of equipment list /items list and specification for procurement of items in line with IREL's requirement and conditions

d) Preparation of general lay out drawings

e) Preparation of equipment lay out study as per equipment specification, space required for installation, clearances required, foundation details and procedure of installation.

f) The equipment indicated in this section is only indicative. The Bidder shall work out the actual list of equipment with quantities as per the offered design and bring out in the offer

g) Preparation of schedule of civil works to be executed with details of measurement drawings of building and design details

h) Preparation of electrical load list and distribution of feeders to different panels

i) Design of the electrical layout, electrical system based on the requirement of the plant including Preparation of cable schedule and laying diagram, earthing schedule and laying of flat details, lighting schedule, all the electrical equipment and accessories schedules, motors and drives with details.

j) Preparation of piping lay out, schedule of pipelines, pumps, motors and drives taking into consideration that all pumps shall be of specified make and all accessories of pipeline installation and connection facility to pumps.

k) Preparation of schedule of execution of the various activities.

l) Preparation of safety plan, safe operating procedure during execution of project and plant operation.

m) Execution of supply, installation and commissioning activities for civil, mechanical, process, electrical, instrument works so as to provide satisfactory operation and performance of the expanded plant.

n) Preparation of testing and commissioning schedules and procedures.

o) Any project monitoring activity/ other activities incidental and ancillary to the satisfactory performance of the project.

p) The scope of work mentioned in this chapter is a broad one but details mentioned elsewhere in this document shall also form a part of total scope of work. The scope of work presume an indicative process for slime removal which includes equipment such as Screen, Hydrocyclones, Attrition scrubber and slime handling system consisting Thickener clarifier and filter press unit. However, Bidders can modify and add value to the flow sheet through test work and validation by an agency of international repute.

6.1.4 Engineering

a) The Bidder is required to develop suitable layouts for the circuit within the available space. The bidder shall also develop their layout in such a way that the incoming, outgoing and in-plant slurry and water pipelines length are minimized. Layout shall be compact and optimized so that length of electric cables, pipe work, drainage system etc are kept at the minimum without sacrificing the comfort of operational and maintenance requirement.

b) The Selected Bidder shall submit 1 (One) set of drawings and documents for approval of IREL and the approved drawings shall be submitted in 6 (six) sets as follows but not limited to:

   i GA and sectional drawings for equipment and systems with overall and relevant dimensions and complete bill of materials

   ii Quality assurance plan (QAP) for all equipment

   iii Submission of all load data of the equipment

   iv General arrangement of Motors, control panels, motor control centers, central control desks, etc.

   v Design calculations for selection and sizing of all equipment

c) Following shall be submitted in one set of Pen drive, one set of reproducible and six (6) sets of prints along with supply of equipment:

   i All drawings approved/ accepted for reference by IREL

   ii List of mandatory spare/ fast-wearing parts with detailed drawings, specifications, bill of material, material composition, unit-weight and manufacturer's catalogue

   iii Name of manufacturers and part number for all electrical, electronic, instrumentation, automation, mechanical and structural components with technical catalogue

   iv Operation and maintenance manuals

   v Performance test certificates

   vi Instruction for assembly, erection, testing and commissioning of equipment in English language.

   vii Un-priced purchase orders for bought-out items

d) Complete set of "As-built" drawings (on CAD software) incorporating all changes that might have taken place during execution in two sets of pen drives, one set of reproducible and six(6) sets of prints shall be submitted before issue of Final Acceptance Certificate by IREL.

6.1.5 Structural

a) The Selected Bidder shall prepare all GA/ Structural design drawings and shall obtain IREL's approval on them (after incorporating IREL's comments/ observations, if any). Design drawings shall be submitted for approval while design calculation shall be under reference category only. Quantity of structural work involved shall be indicated in design drawings.

b) Approval of the design drawings means that they are checked for the general conformity with the engineering requirement and applicable specifications covered in ToR. Selected Bidder shall, however, remain fully responsible for the completeness of job, correctness of his design, adequacy of structural sections used and successful implementation and satisfactory running of the plant and structures under his scope of work.

c) Before starting the work Selected Bidder shall prepare structural design criteria and get it approved by IIT/NIT/SERC/WAPCOS before submitting to IREL. The design work for structures shall be guided by the approved design criteria.

d) Soft copies of "as-built" drawings shall be submitted to IREL after the completion of erection for future reference

6.1.6 Electrical

a) Basic and detailed engineering drawings & documents for approval/ reference of IREL. The Selected Bidder shall submit the drawings/ documents for approval/ reference of IREL before commencing manufacturing/ procurement of equipment:

i General Arrangement drawings of all equipment showing all dimensions, plan, side view and front & back view with doors closed and opened.

ii Single Line Diagrams of LT distribution.

iii Power & Control Schematic Diagrams with control write-up.

iv Drawings of AC drive system, MCC, UPS, and other equipment as per scope.

v List of I/Os

vi Logic diagram and software for PLC block diagram.

vii Equipment layout drawings in all electrical rooms.

viii Internal wiring diagrams showing complete details of internal wiring of all component items.

ix Terminal board connection diagrams.

x Cable layout & cable route layout drawings. Cable schedule & termination drawing

xi Power and electronic earthing scheme

xii Drawing for lightning protection

xiii Bill of Materials with ratings, type, make and quantity.

xiv Relay setting calculation and Relay co-ordination chart

xv Speed-torque characteristic of all motors and respective driven equipment.

xvi Bill of material of all electrical equipment

xvii Quality Assurance Plan of various manufacturers of electrical equipment.

xviii Technical specification/ data sheet of all equipment

xix Test certificates

xx Suppliers'/ vendors' catalogue/ technical literature

xxi As built drawings in softcopies and hard copies

6.1.7 Civil works

a) The Selected Bidder shall prepare all GA/layout/construction/ design drawings and shall obtain IREL's approval on them (after incorporating IREL's comments / observations if any). Design drawings shall be submitted for approval while design calculation shall be under reference category. Quantity of structural work involved shall be indicated in design drawings.

b) Approval of the design drawings means that they are checked for the general conformity with the engineering requirement and applicable specifications covered in ToR. Selected Bidder shall, however, remain fully responsible for the completeness of job, correctness of his design, adequacy of structural sections used and successful implementation and satisfactory running of the plant and structures under his scope of work.

c) Before starting the work, selected Bidder shall prepare structural design criteria and get it approved by IIT/NIT/SERC/WAPCOS before submitting to IREL. The design work for structures shall be guided by the approved design criteria.

d) The following are to be approved before start of work: Structures of screen, de-sliming equipment, scrubber, overhead pipe conduit, sump/pit for water pumps, electrical MCC rooms, standalone structures, slime thickener & filter press foundation & structure.

e) Soft copies of "as-built" drawings shall be submitted to IREL after the completion of erection for future reference.

6.1.8 Approval of drawings

The drawings are to be approved by the Engineering in charge of the contract or any person authorized by the Project In charge of IREL, from time to time or specific to any of the requirements.

6.1.9 Activities Prior to Engineering: Within 30 (thirty) days of acceptance of order, the Agency shall:

a) Appoint a SPOC (Specific Point of Contact) who will represent the Agency and shall be responsible for all activities under the Scope of Work

b) The successful bidder shall prepare both basic and detailed engineering work, followed by the execution of erection of the necessary infrastructure and equipment to augment the existing HUS plant with the new slime removal and disposal facility

c) A typical approach to this project will involve the sequential completion of the following tasks to ensure the proper implementation and integration of the slime removal system,

   a. Finalisation of layout as per the Flowsheet validated by the successful bidder.
   b. List of proposed equipment with broad specifications.
   c. Mass and Water Balance
   d. PFD and P&ID Development
   e. Plant Layout for Brownfield Project
   f. Water Recovery System design with disposal of slime cake in an environmentally sustainable manner
   g. Basic & Detailed Engineering for the scheme
   h. Plant Layout of Water Recovery System
   i. Erection & Commissioning
   j. PG Test

d) Undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with the Agreement; and

e) Submit to IREL an **L-3 level** Implementation Plan for execution of all the activities under scope of work, and giving the following details:

   i **Part I** Agency's organisation for the Project, the general methods and arrangements for Engineering, Quality Assurance Plan including engineering quality plan and key personnel of the Agency.

   ii **Part II** Programme for completion of scope of work covering all major Project Milestones within the time period of 14 months specified for the complete project.

f) During the progress of the project, Agency has to review the progress of the project fortnightly and submit the latest revised programme, whenever the previous programme is inconsistent with the actual progress or with the Agency's obligations, without effecting the final schedule and keeping the baseline unchanged, by adopting suitable steps to compensate the delay.

g) For the avoidance of doubt, the Agency acknowledges and agrees that IREL/ IREL's PMU unit may, within a period of 15 (fifteen) days of receipt of the Implementation Plan, convey its comments to the Agency stating the modifications, if any, required for compliance with the provisions of the Agreement

h) Upon obtaining the comments, the Agency shall carry out such modifications, to the extent required for conforming to the provisions of the Agreement without additional cost.

6.1.10 The Agency shall develop /undertake system design, detailed engineering, preparation and finalization of technical specifications, bills of quantities (BOQ), functional guarantees, requirement of spares, erection, commissioning and quality requirement, etc., for Project and systems including all process, mechanical, electrical, instrumentation and control system, civil works etc. as required to execute the Project

6.1.11 The Agency shall, during the stage of design & detailed engineering, ensure energy and resource conservation through optimization of parameters like specific consumption of power, water and consumable such as flocculant etc

I. Process/Mechanical/ Technological equipment/ items

1. The scope of work shall cover engineering, fabrication, , procurement, assembly, inspection & testing at manufacturer's works, painting, packing, transportation, supply, unloading, storage & unpacking at site, erection, testing, trial run, commissioning and demonstration of performance guarantee parameters of technological/ mechanical / process equipment facilities and equipment as envisaged for installation of screen for trash removal, slime removal system for feed to HUS, slime removal system for HUS output, de-watering, de-sliming of tailing stream, pumping station for process water, slime thickening, dewatering and water recovery system. The performance parameters shall be verified by IREL lab.
2. All work envisaged in this clause shall be carried out by Selected Bidder based on the details furnished in this ToR. The Selected Bidder shall prepare all necessary general arrangement drawing including fabrication /erection drawing of above proposed plants & facilities.
3. The Selected Bidder shall submit the drawing /document for approval and reference of IREL based on the list to be discussed and mutually agreed upon.
4. The Broad scope of work is as mentioned below:
    a. Design, Engineering and installation (as described in details scope below) of equipment for de-sliming system.
    b. Engineering, Supply, installation and commissioning of pipelines i.e. HDPE and MS/ G.I., Wire inserted rubber hoses, bends, short pieces, PU lined short pieces, nuts and bolts etc.
    c. Fabrication of tanks with flanges, outlets & inlets, etc and erection of structure & foundation for equipment.
    d. Erection of equipment, pipelines, tanks, connection of pipe lines, motors, pumps to the system, connection of water lines etc.
    e. Supply of all gauges, tools & tackles, measuring instruments required for smooth operation and maintenance of the complete units.
    f. Demonstration and establishment of guarantee parameters for the offered equipment as elaborated in this document.
    g. Obtaining statutory clearances from Government bodies wherever necessary.
    h. For purpose of inventory control, mechanical/ electrical items and components of all equipment shall be designed so as to ensure inter-changeability, to the extent possible.
    i. Any other item necessary for successful commissioning and achieving guarantee parameters will also be under the scope of work of the Selected Bidder and shall be provided by the Bidder without any extra cost and within the time Schedule.
5. It is for information and necessary action that:

a. The designed capacity of technological units will be as per manufacturer standards on rated capacity

b. Supply of suitable holding capacity MS (Mild Steel) collection tanks for handling of slurry, lined with abrasion resistant materials/ rubber lined /PU lined / connector (as applicable), as per process requirement. The tanks shall be provided with external and internal ladders to facilitate upkeep of the tank. The tanks shall also be provided with suitable drain valve.

c. The water system shall be designed to minimize the make-up water requirements. All the pumps shall be provided with intake water tanks (pump boxes) of at least 2 minute holding capacity.

d. All related piping & fitting required for the proposed plants. Isolation valves shall be considered at the tapping point and in each subsequent branching

e. All provisions required for collection of samples for process monitoring to assess the performance.

f. Rubber lining of minimum 6 mm thickness has been considered for all boil box of slurry handling tanks

g. The make-up water for the process water shall be provided from existing settling pond.

h. All related pipe works for slurry and water distribution as per system requirement.

6. Construction Methodology and Sequence of Erection

   The Bidder shall submit the construction methodology to be adopted by the bidder with respect to space management, erection sequence, testing and commissioning within 15 days from the approval of flowsheet"

Screen for trash removal

7. The proposed screen for trash removal system shall consist of wet vibrating screen of 250 tph capacity, as per technical specification, suiting to the existing concrete slurry tank for screen underflow collection. The feed material to the trash removal screen is Beach sand mineral's ore, having particle size distribution as below

Size(in microns)	Wt% Retained	Cumulative %
1680	0.37	0.37
850	0.92	1.29
600	3.90	5.19
425	7.66	12.85
300	20.89	33.74
212	25.11	58.85
150	11.13	69.98
106	5.75	75.71
75	1.84	77.55
45	2.41	79.97
-45	20.03	100.00

8. The scope of supply will include but not limited to the following along with any other material/work required for the satisfactory implementation of the flow sheet attached:
    a. Design and supply of wet vibrating screen of 250 tph for trash removal, along with accessories such as collection chutes, spray water pipes, drive motor, bends, nut& bolt etc., as per requirement of site.
    b. Dismantling of the existing trommel screen and chutes, structures etc associated with trommel.
    c. Dismantling of existing Mixing Chamber. Supply, installation and commissioning of rubber lined Mixing Chamber along with chutes, structures etc. is in the scope of the agency and agency shall refer to the existing belt conveyor for execution of the same.
    d. Installation and commissioning of the vibrating screen, connecting the inlet and outlet chutes, platforms for access including modifications to existing platform.
    e. Supply of all required material including steel, towards installation and commissioning of the screen as per technical specification, with all accessories for satisfactory performance. Design of screen is in the scope of Agency and Agency shall consider mixing chamber outlet chute, dimension of RCC tank (Tank 1) in operation for collection of screen undersize fraction and oversize collection pit.
    f. Design and supply of Electrical motor(s) as per technical specification and make specified for the above drives make: Siemens, ABB, CG, Kirloskar or equivalent.
    g. The Bidder shall asses the requirement of dismantling/ modification/ installation during site visit
    h. Supply and installation of all spray water pipe lines along with valves
9. Shutdown of HUS operation required for erection of Screen and Mixing chamber shall be notified by the bidder to IREL, accordingly a total of 5 days shutdown shall be provided for erection and commissioning of Screen and Mixing chamber, subsequent to which the Screen shall be integrated with HUS operation.

<u>Slime removal system for feed to HUS, HUS output & HUS tailing</u>

10. The scope of Supply and installation and commissioning will include but not limited to the following along with any other materials required for the satisfactory implementation of the indicative flow sheet:
    a. De-sliming equipment of rated input capacity suitable for the beach sand minerals classification matching to mineral size analysis and specific gravity of materials in the range of 2.65 – 5.0, complete with all accessories.
    b. Design of de-sliming equipment is in the scope of the Agency and Agency shall refer to the existing CPD tanks at site.
    c. Supply of slurry pumps of required capacity for handling sand slurry at designed pulp density (PD) and a static head as per site condition.

d. Supply of Electrical motor of required size as per technical specification mentioned and make specified

e. Design and selection of slurry pump and pipelines is in the scope of the Agency and Agency shall refer to the existing CPD tanks at site for installation of the pump.

f. Installation and commissioning of pump and motor system for feeding to De-sliming equipment, complete in all respects including short pieces, bend socks etc. Any other materials required for the successful installation and commissioning of the pump is also part of the scope.

g. Supply installation and commissioning of HDPE pipes and MS wire inserted flexible hoses of suitable size as per design along with all accessories like bends, tees, valves, nut and bolts for different inter-connection. The scope includes supply of all accessories suitable to the site including and not limited to bends, pipe with flange, short pieces, nut and bolts, etc.

h. Design of overhead pipe line(GI/MSRL pipes) of suitable size for slime contained process water, Supply and installation and commissioning of GI/MSRL pipes along with all accessories like bends, tees, nuts and bolts for different interconnection and to collect the overflow water, direct it to the system for thickening& dewatering of slime and water recovery.

i. The Bidder shall assess the requirement of dismantling/ modification/ installation during site visit

Pumping Station for process water:

11. The scope of Supply and installation and commissioning will include but not limited to the following along with any other materials required for the satisfactory implementation are also in the scope of Agency:

12. The scope of design, engineering, Supply and installation and commissioning will include but not limited to the following:

    a. Three centrifugal water pumps of suitable capacity each for process water, with all its accessories as per detail specification and specified make enclosed, complete with all accessories like water flow meter, pressure gauge, butterfly/gate valve before suction, etc.

    b. Installation of the pumps shall be below the water level with positive suction of at least 1.5 m

    c. Supply of Electrical motors of different ratings of required capacity as per technical specification mentioned and make specified

    d. Installation and commissioning of pump and motor system with VFD complete in all respects including short pieces, bends etc. Any other materials required for the successful installation and commissioning of the pump is also part of the scope

e. Design of water header line of Schedule 40 pipes and suitable size to provide makeup water to all tanks and all branching lines to be made with suitable size GI seamless pipe, Supply and installation and commissioning of all GI pipes along with all accessories like bends, tees, valves, nut and bolts for all tanks as per instruction of EIC.

f. The following aspects shall be considered for designing and installation of water headers:

- two water pumps shall be in operation and one shall be a standby pump.
- discharge of the water pumps shall be interconnected such that any two of the pumps in operation should supply water to individual/common header.
- Each header shall be equipped with an electromagnetic flow meter at the vertical position of the pipe along with remote display of flow rate in the control room.
- all header pipes shall be sand blasted to a finish of SA2 ½ and painted with Epoxy primer followed by two coats of epoxy coal tar black paint.
- Header line shall be laid underground at road crossing & elevated to the distributor level with proper foundation, support and clampings.
- Flanged joints shall be as per BS10 table D with rubber gasket.
- Branch pipes shall be provided to CPD tanks P1, P1B, P2, P10, P22 and rougher spiral distributors

g. Supply, installation and commissioning of motorized gate valves at each water pumps immediate discharge and suitable valves & bellows at pumps' suction.

h. Supply, installation and commissioning of 2ton EOT/Monorail crane above the water pumps to handle the maintenance of pumps, motors and valves in the pumping station along with load testing by the competent Engineer as per Factories Act 1948

i. Supply, installation and commissioning of a sump pump of suitable capacity for draining.

j. The Bidder shall asses the requirement of dismantling/ modification/ installation during site visit.

<u>Slime thickening, dewatering and water recovery system</u>

13. The scope of Supply and installation and commissioning will include but not limited to the following along with any other materials required for the satisfactory implementation are also in the scope of Agency.

14. The scope of design, engineering, Supply and installation and commissioning will include but not limited to the following

a. Automated PLC based thickener/clarifier of suitable size to handle the process water overflow from De-sliming equipment and tanks in HUS, complete with all accessories such as platform/bridge, collection launder, flocculation tank, rake & impeller drive etc, as per the site conditions at Pond (dimension must be limited to site condition).

b. Design of thickener/clarifier feed well shall take into consideration that two fractions of overflow (Stream-1 is the overflow from De-sliming equipment and Stream-2 is the process overflow from CPD tanks) are to be accommodated.

c. Design, supply, installation and commissioning of suitable slurry pump of and drive rating, with automatic level control and VFD to handle process overflow water from HUS circuit (Stream-2), so as to prevent contamination of process water available in pond.

d. Deign, supply, installation and commissioning of feed dosing system for bio-degradable environmental friendly Flocculant addition and sludge pumping system complete with all accessories

e. Supply of Bio-degradable, environmental friendly Flocculant for 12-months of thickener operation as per technical specification

f. Filtration system shall be included for processing of filtrate water from filter press, if required, to achieve the performance guarantee parameters.

g. Automated PLC based Filter press system of suitable capacity for handling the sludge output of thickener, complete with all accessories such as transfer pumps, belt conveyors to transfer the cake to designated area, cleaning system etc as per site conditions.

II. Civil

1. The scope of work for the Selected Bidder includes design, engineering, supply of labour & materials, transportation, dismantling as per requirement, necessary site preparation, earth work, cofferdam, dewatering, earth filling, construction of Buildings, foundations of equipment, pipe support foundation, frameworks, staircases retaining wall etc wherever required with tools, tackles complete as required for foundation of trash removal screen, slime removal system from feed to HUS prior to processing in spiral, slime removal system from output of HUS, de-watering & de-sliming in tailing stream and pumping station with control room for process water at settling pond in HUS, Thickening, dewatering and water recovery system as per major scope of works under the clauses below complete.
2. Any dismantling work, if required, will be carried out with due permission from IREL.
3. The major new Construction & Modification (wherever applicable) works will include but not limited to the following:

   a. Site clearance after removing all bushes, shrubs, uprooting stubs, clearing of Slime from pond, pipelines, any other scrap materials like cables, pipes, debris etc; area survey of the proposed area of construction including site survey, area cutting/leveling & area development.

   b. Slope stabilization (wherever required) and RCC framed Electrical MCC and control room as per requirement.

   c. RCC foundations, including plinth beams for Structural steel building shed for proposed circuit/ plant including RCC floor on boulder soling, floor finishes, cable & pipe trenches, etc will be as per design report to meet the requirement of site.

d. Construction of RCC foundations for the equipment foundations as per the flow sheet/ technological requirements inside the proposed system. Moreover, the foundation/pedestals for the Structural supports/columns for structural platforms and Brick enclosures for store Room etc shall be constructed as per technological requirement.

e. Construction of RCC framed foundations/ modification of existing foundation as per process/technological requirement for installation of trash removal from feed to HUS, slime removal from feed to HUS prior to processing in spiral, an Attrition scrubber for slime removal from output of HUS, de-watering & de-sliming in tailing stream and pumping station with control room for process water at settling pond in HUS.

f. Construction of RCC foundations/pedestals for the pipeline/ launder wherever required.

g. RCC work for various equipment foundations & facilities as per technological requirement.

h. RCC foundation for structural steel trestles for pipeline supporting structural steel trestles & pipeline saddle.

i. The Electrical control Room, MCC room & different enclosures for pumping station with control room for process water at settling pond and control cabin for thickener & filter press in HUS shall be as per technological and process requirements and painting/finishing/ water proofing to be provided by EPC contractor that specifies the best solution prevailing in market. For false flooring, ceiling, door, window & ventilators- innovative solutions shall be offered

4. The scope of Civil works of Selected Bidder is not limited to the major items of civil works as elaborated above but includes all civil works required, within the battery limits, for the successful completion of the project.

5. All construction equipment required for execution of the work shall be arranged, procured & hired by Selected Bidder at his own cost along with operations, skilled & semi-skilled personnel. The Selected Bidder shall also furnish a list of construction equipment to be deployed by him.

6. The Selected Bidder shall furnish requirement of construction water & power based on daily peak requirement, average requirement & lean requirement throughout in course of execution of the project. Construction water & power shall be provided by IREL at a single point each for site works, at the boundary of battery limit. The Selected Bidder shall make his own arrangement to tap and lay necessary piping, cables, wiring etc from the source to the user points.

<u>Screen for trash removal</u>

7. All civil works to be done taking into account CPWD latest standards and factoring seismic zone as per specification enclosed.

8. Scope of Selected Bidder for civil works will include but not limited to the following:

   a. The foundation of the support structure for screen mounting & mixing chamber shall be done on the periphery of the existing RCC circular tank of P1.

b. Design of foundations is in the scope of the agency and site conditions are to be taken into considerations during design.

c. RCC foundation and support of the vibrating screen to be done without causing any damages in the existing nearby structure. Agency shall carry out detail study and specify the suitable location of foundation and structure to access the scope of the work.

d. Design and construction details of drawing to be submitted by the bidder.

Slime removal system for feed to HUS, HUS output & HUS tailing

9. The scope of Selected Bidder for civil works will include but not limited to the following:

   a. Design and construction of RCC foundation & column, shed of de-sliming equipment and supporting structure for overhead pipe line to be done as per requirement of site for the completion of the work and details of the same are to be submitted.

   b. Agency shall carry out detail study and specify the suitable location of foundation and supporting structure to access the scope of the work.

   c. Design and construction details of drawing to be submitted by the bidder.

Pumping station for process water

10. The scope of Selected Bidder for civil works will include but not limited to the following:

    a. Design & construction of RCC structure for process water pumping station and water header pipeline support to be done as per requirement of site for the completion of the work and design is in the scope of Agency.

    b. Design & Construction of MCC room for slime removal system and pump station to be done as per requirement of site for the completion of the work

    c. Modifications in the existing culvert, channel etc, to accommodate the required flow rate and settling pond boundary with necessary supporting structures.

    d. Agency shall carry out detail study and specify the suitable location of pump station and MCC rooms to access the scope of the work.

    e. Design and construction details of drawing to be submitted by the bidder

Slime thickening, dewatering and water recovery system

11. The scope of Selected Bidder for civil works will include but not limited to the following:

    a. Design and construction of RCC thickener tank as per requirement of site for the completion of the work

    b. RCC foundation, shed and control cabin for filter press system to be done at HUS.

c. "Modifications in Pond-1 to ensure process overflow from HUS circuit (Stream-II) shall not contaminate the process water available in settling pond and isolation of the equipment location by construction of RCC retaining wall."

d. Shall carry out detail study and specify the suitable location of foundation to access the scope of the work.

e. Design and construction details of drawing to be submitted by the bidder.

12. Any other work not specifically mentioned but required for completeness of the job considering Technical / Technological aspects shall be included in the scope of work for the Bidder.

General

13. The scope for structural steel work shall include complete design, preparation of drawings, supply of all materials, fabrication, testing, erection, painting, of all steel structures for all installations. This includes:

14. Preparation and supply of design criteria and calculation (including load data, insert details if any, details of base plate, shear key if any, foundation bolts and any information necessary for RCC work), list of drawings, design drawings, fabrication drawings with bill of material for steel structures / sheeting / glazing etc.

15. Supply of all materials, fabrication with own tools and tackles, painting, transportation, delivery and storage at site of all fabricated steel structures, sheeting/glazing, bolts, fixtures, all consumables including handling equipment, labour etc. complete in all respects.

16. Erection of fabricated structures (with own tools, tackles, labour, cranes, handling equipment and any staging or false work required for erection), aligning, fixing, bolting/welding, leveling etc

17. Painting of all structural steel work

18. Inspection, testing and commissioning of all steel structures

III. Electrical

1. The scope of work shall include design, engineering, testing, supply, erection and commissioning of electrical system of proposed screen for trash removal, slime removal system for feed to HUS, slime removal system for HUS output, slime thickening, dewatering & water recovery system and pumping station for process water.

2. The scope of services of the Bidder includes:

   a. Detail engineering based on basic input given in the TOR.

   b. Sizing & selection of equipment/ components

   c. Technical services relating to planning, procurement, inspection, expediting, packing, storing

   d. Technical construction, project management

3. Assistance in obtaining clearance and approval from DGMS statutory authorities, if required, before charging the electrical equipment of the installation shall form an important part of the scope of work under this specification. All necessary modifications to the proposed scope and technical specification shall be with the consent of EIC.

Screen for Trash removal

4. The Selected Bidder scope shall include but not limited to Supply, installation and commissioning of:
    a. Supply, installation and commissioning of drive motor of suitable rating for the vibrating screen
    b. Laying and termination of suitable size (Al or Cu) conductor armored power cable and Cu conductor armored control cables as per requirement of the drive from MCC3H. This includes the supply of cables, cable ties, cable identification mark, sockets, glands etc and the fixation of the same as per requirement
    c. Push button stations (IP64) as per specification including frame/foundation work, and termination of cable with supply of sockets, glands, etc as required at site. All nut bolt accessories required for the satisfactory performance of the system in included in the scope of Agency
    d. Suitable width min FRP cable tray ladder type as per specification at site. This includes the supply of structural steel and fabrication of supports and brackets as per requirement of site for installation of cable trays as per the standard specification enclosed.
    e. Physical double earthing for the drive motor as per IS 3043 by flexible copper cable with both sides socketed from the nearby flat.

Slime Removal system for feed to HUS and HUS output

5. The Selected Bidder scope shall include but not limited to Supply, installation and commissioning of:
    a. Supply, installation and commissioning of drive motors of suitable rating for the de-sliming equipment.
    b. Design, Supply, installation and commissioning of MCC6H at desired location with termination of all power and control cables with supply of sockets, glands, termination kit indoor/outdoor etc as required at site. All fasteners, accessories required for the satisfactory performance of the system in included in the scope of Agency.
    c. Laying and termination of suitable size Aluminium conductor armoured power cable as per requirement to MCC6H. This includes the supply of cables, cable ties, cable identification mark, sockets, glands etc and the fixation of the same as per requirement
    d. Laying and termination of suitable size (Al or Cu) conductor armoured power cable and Cu conductor armoured control cables as per requirement from MCC6H to the drives. This includes the supply of cables, cable ties, cable identification mark, sockets, glands etc and the fixation of the same as per requirement.

e. Push button stations (IP64) for all drives as per specification including frame/foundation work, and termination of cable with supply of sockets, glands, etc as required at site. All nut bolt accessories required for the satisfactory performance of the system in included in the scope of Agency

f. Physical double earthing for drive motor as per IS 3043 by flexible copper cable or bare copper wires with both sides socketed from the nearby flat.

g. Suitable width min FRP cable tray ladder type as per specification at site. This includes the supply of structural steel and fabrication of supports and brackets as per requirement of site for installation of cable trays s per the standard specification enclosed.

h. Electrical insulating mats-1m x 3m -2nos

i. Fire extinguishers for the MCC room as per requirement and design in consultation with our fire department.

Pumping Station for process water

6. The Selected Bidder scope shall include but not limited to Supply, installation and commissioning of:

   a. Supply, installation and commissioning of drive motors of suitable rating for the water pumps for process water, motorized gate valves, sump pump and EOT/Monorail crane.

   b. Design, Supply, installation and commissioning of MCC7H at suitable location with termination of all power and control cables with supply of sockets, glands, termination kit indoor/outdoor etc as required at site. All fasteners, accessories required for the satisfactory performance of the system in included in the scope of Agency.

   c. Laying and termination of suitable size (Al or Cu) conductor armoured power cable and Cu conductor armoured control cables as per requirement from MCC7H to the drives. This includes the supply of cables, cable ties, cable identification mark, sockets, glands etc and the fixation of the same as per requirement.

   d. Push button stations (IP64) for all drives as per specification including frame/foundation work, and termination of cable with supply of sockets, glands, etc as required at site. All nut bolt accessories required for the satisfactory performance of the system in included in the scope of Agency

   e. Physical double earthing for drive motor as per IS 3043 by flexible copper cable or bare copper wires with both sides socketed from the nearby flat.

   f. Suitable width min FRP cable tray ladder type as per specification at site . This includes the supply of structural steel and fabrication of supports and brackets as per requirement of site for installation of cable trays s per the standard specification enclosed.

   g. Electrical insulating mats-1m x 3m – 2nos

   h. Fire extinguishers for the MCC room as per requirement and design in consultation with our fire department

Thickening, dewatering and water recovery system

7. The Selected Bidder scope shall include but not limited to Supply, installation and commissioning of:
    a. Supply, installation and commissioning of drive motors of suitable rating for the thickener rake, sludge impeller, Flocculant dosing system, Stream-2 slurry pump etc.
    b. Supply, installation and commissioning of drive motors of suitable rating for the Filter press feeding pump, hydraulic system, belt conveyors etc.
    c. Laying and termination of suitable size (Al or Cu) conductor armored power cable and Cu conductor armored control cables as per requirement, from MCC7H to thickener and filter press system PLC based control panels. This includes the supply of cables, cable ties, cable identification mark, sockets, glands etc and the fixation of the same as per requirement
    d. Supply, installation and commissioning of PLC based SCADA system for overall control of the thickener and filter press system. The system shall be mainly used for monitoring/controlling the plant operation, sequential operation of motors, safety interlocks, alarm annunciation & data acquisition purpose
    e. Push button stations (IP64) as per specification including frame/foundation work, and termination of cable with supply of sockets, glands, etc as required at site. All nut bolt accessories required for the satisfactory performance of the system in included in the scope of Agency.
    f. Suitable width min FRP cable tray ladder type as per specification at site. This includes the supply of structural steel and fabrication of supports and brackets as per requirement of site for installation of cable trays s per the standard specification enclosed.
    g. Physical double earthing for the drive motor as per IS 3043 by flexible copper cable with both sides socketed from the nearby flat.

IV. Instrumentation

1. The proposed equipment of Slime Removal system for feed to HUS and HUS output control panels shall be PLC compatible.
2. The proposed slime thickening, dewatering and water recovery system shall be operational using a PLC based SCADA system compatible to the existing 'Phoenix Contact' make PLC available at HUS control room as well as these two can be connected together to provide all the information at the control room. It is proposed to be provided with latest Instrumentation & Control (I&C) system adequate for efficient operation as well as monitoring of the system from a centralized control room. Remote operation, monitoring and intelligent control from central control room has been envisaged.
3. Major control and measurement parameters considered are as per the following:
    a. The proposed instrument installations cover the following:

b. PLC based SCADA system is envisaged for overall control of the thickener and filter press system. The system shall be mainly used for monitoring/controlling the plant operation, sequential operation of motors, safety interlocks, alarm annunciation & data acquisition purpose.

c. Flow transmitters are to be provided for process water flow measurement.

4. List of Measurements & Controls

The measurements & controls shall include, but not limited to, the following, in general:

a. Measurement of pressure of water at header.
b. Measurement & signaling (high & low) of level of water in sumps with interlocking of pump operation.
c. Measurement & signaling (high & low) of level of solid ores in the thickeners.
d. Measurement & signaling (high & low) of level of water in the thickeners.
e. Any other measurement as required for simple, better & economic operation of the process.

Thickening, dewatering and water recovery system

1. Following are the scope of work activities for the proposed plant:

i. Design, Supply, installation and commissioning of the

- PLC based SCADA system as per the specification enclosed
- UPS system as per the specification enclosed (UPS for instrumentation as well as emergency lighting is covered under the scope)
- Cables and profibus Communication cables and cable tray as per the specification enclosed
- Air-conditioning system as per the specification enclosed
- Display screens as per the specification enclosed.

ii. Supply, installation and commissioning of the complete system approved with required wiring, termination and interlinking to existing PLC system for control of operation and process data monitoring as per the specification enclosed.

iii. The PLC based SCADA system shall have separate modules/screens for status display of the following:

2. Clarifier/Thickener control system
3. Flocculant dosing system
4. Level control of clarifier/thickener
5. Control of Feed pump to filter press
6. Pneumatic control of filter press.
7. Conveying system of Slime cake.
8. Alarm Log
9. Historical data logging

V. Technical Specification of Process Equipment Part

General Scope for Process Equipment

1. Following is the general scope for all process equipment under scope of work of the Agency:
    a. Supply, installation and commissioning of all the equipment.
    b. The Agency has to ensure that all the equipment meet the specification mentioned herein.
    c. The Agency has to procure the equipment of specific make, if any mentioned in the specification.
    d. It is the sole responsibility of the Agency to obtain the desired parameters of the equipment
    e. Party has to provide the safe operating procedures during installation and operation.

The Technical Specification of the Process Equipment are given below.

Trash Screen

1. The scope of work includes supply of one number of Trash Screen along with its accessories including installation and commissioning as per the technical specification mentioned below:
    a. "Make and manufacture: The manufacturers of trash screen shall be from reputed one who has executed supply of trash screen to **mining industry** as proposed for supply. Copy of PO and completion certificate for the same towards proof has to be submitted."
    b. Specification:
        i. Make: Metso/ FLSmidth/ WEIR Minerals/Equivalent
        ii. Type of wet vibrating screen: High Frequency linear stroke vibrating motion, Horizontal type
        iii. Quantity: 01 number
        iv. Materials to be handled: Slurry of highly abrasive Beach Sand minerals.
        v. Capacity: 250 tonnes/ hour dry solid.
        vi. Feed % of solid: 20-35 %
        vii. Bulk density of material: 2.6 t /cu.m.
        viii. Grain size: desired feed materials size will be 75 to 600 micron (Maximum).
        ix. Moisture: Wet.
        x. Temperature: Ambient.

c. Screen Details:
   i. Welded and bolted steel structure made from killed steel plates and sections (Size of the screen should be of suitable for the existing RCC tank which shall collect the under size fraction).
   ii. The screen is to operate in open condition.
   iii. Screen media: Pin and sleeve mounting type steel reinforced polyurethane deck of 1' x 1'.
   iv. Aperture in the screen panel: 3 – 3.5 mm, square aperture
   v. Type of motion: Linear.
   vi. Screen deck frame and beams are to be protected from abrasion wear using cured rubber.
   vii. Side walls made of 8 mm MS plate with rubber lining and sufficient stiffeners are to be given for long reliable services life.
   viii. Feed box with rubber lining is to be provided for proper distribution of feed material across the total width of the screen deck.
   ix. Under size fraction hopper should be rubber lined.
   x. Trash material discharge chute should be rubber lined.
   xi. The throughput shall distribute over the complete screen deck area.
   xii. The mineral sand with maximum water will pass through the screen and report at the undersize hopper. The coarse material like small pebble's, shells, grass and roots etc will discharge over the complete width of the screen with minimum water
   xiii. The screen shall be built to stand the impact of stones/lumps of size 150mm that may report in the feed occasionally
   xiv. Spare panels of equal numbers required for one time replacement shall be supplier along with screen.

2. Screen mounting and drive:
   a. The vibrating screen should be vibration- isolated and installed via rubber buffer at proper down slope in order to achieve the required performance.
   b. Support legs are to be designed properly considering the wet operation, corrosive environment.
   c. Drive (Linear Motion): suitable drive system is to be designed and provided in the vibrating screen considering wet operation.
   d. Power supply: 415 V, 3 Phase 50 Hz.
   e. Spray water nozzle: required water header fitted with spray nozzles is to be provided in the machine and terminated at the machine end with a flange having dimension as per BS-10 table D. inner connection to the header of the spray nozzles has to be done by the bidder. MOC of the spray nozzles should be SS 304 and preferably they should be replaceable.

f. The detailed GA drawings have to be submitted by the bidder.

Hydrocyclones

Make and manufacture: The manufacturers of hydrocyclones shall be from reputed one who has executed supply of hydrocyclones of minimum the same capacity to mineral sand industry as proposed for supply. Copy of PO and satisfactory completion certificate for the same towards proof has to be submitted.

1. The scope of work includes supply, installation and commissioning of hydro cyclones along with accessories as per the technical specification mentioned below:
2. The general duty conditions of de-sliming hydro cyclones for Mineral Separation plant are given below:

Sl. No.	**Description**	
1	Make	Metso/ FLSmidth / Weir Mineral/Equivalent
2	Feed material	Beach sand minerals
3	Type of Feed	Sand slurry
4	Type of Cyclone	De-sliming
5	Quantity	As per design
6	Feed	
	- Solid loading rate,t/hr	As per design
	- Slurry, m3/hr	As per design
	- Pulp Density (% Solids)	As per design
	- Specific gravity	2.8-3.0
	- Slurry Density, tons/Cu.m	1.2
7	Desired Under Flow	
	- Solid loading rate, tph	As per design
	- Slurry, m3/hr	As per design
	- Pulp Density (% Solids)	70.0
	- Specific gravity of solid	3.0
	- Slurry Density, tonnes/m3	1.9-2.1
8	Desired Over Flow	
	- Solid loading rate, tph	Nil
	- Water, m3/hr	As per design
9	Cyclone MOC	MS casing with replaceable rubber liners
10	Preferred Lining	Liners should be molded replaceable liners having 50 Shore A hardness
11	Cyclone slurry Inlet	Curved or spiral entry for Laminar flow
12	Feed temperature,0C	Ambient
13	Cluster and Its components	The clusters consist of manifold, overflow and underflow launders, Pressure gauge/transmitter, and Isolation valves for each cyclone in the cluster assembly. All wetted parts must be hot vulcanizations with natural rubber of 3mm thickness.
14	Feed Particle Size	
	Size (in microns)	Weight % Retain

	600	1.34
	425	7.86
	300	25.08
	212	22.02
	150	12.88
	106	7.70
	75	2.28
	45	0.81
	-45	20.03
15	Simulation data	The Bidder shall have to submit the expected performance of hydrocyclone cluster/ hydrocyclone based on simulation data considering the feed particle size distribution, solids recovery percentage in both overflow and underflow.

3. Equipment Particulars

a) The sand slurry is highly abrasive in nature and the material of construction/sizing should be suitably selected.

b) Size of the cyclone shall be selected to ensure optimum pressure drop and efficiency. Each cyclone shall include, but not limited to the following:

c) Tangential wrap around or curved entry, cylindrical upper section, conical lower section, a differential gauge pressure to measure pressure drop across the unit and flow directing devices shall be provided.

d) A pressure gauge shall be mounted to the top of the feed distributor.

e) The manifold design shall be convenient for removal of any hydro cyclone without disturbing other hydro cyclones or disassembling the manifold system

f) An individual isolating valve shall be provided for each hydro cyclone.

g) Necessary supporting arrangements for the feed distributor, hydro cyclones, overflow and underflow collection launders shall be provided along with the manifold assembly.

The proper design & selection of slurry distribution including slurry distribution pipe lines other equipment and all connected accessories are within the scope of work.

Slurry holding CPD tank

1. The scope of work includes supply of slurry holding CPD tanks along with its accessories including installation and commissioning as per the technical specification mentioned below:

a) Material of construction of the CPD tanks shall conform to IS 2062/2011 and of minimum 8mm thick plates

b) Tanks shall be of suitable holding capacity equivalent to minimum 2 minutes of the respective pump's flow rate.

c) All wetted parts of the tanks shall be rubber lined by hot vulcanization/PU lined(minimum 6mm thick) including the boil box

d) Tanks shall include pump suction & drain nozzles and overflow launder

e) Platform, handrails and approach ladder to be provided to facilitate upkeep of the tank

f) The detailed GA drawings have to be submitted by the bidder.

Scrubber

1. Scope of work includes supply including accessories along with installation and commissioning as per the technical specification mentioned below

Attrition Scrubber	Parameters
Make	Metso/ FLSmidth/Equivalent
Capacity	35 tph
Duty	Removal of coated slime content
Feed concentration	Minimum 65%
Feed hydrocyclone	De-watering type
No. of Cell	02 or as per design
Tank MOC	Carbon Steel with rubber liner(6mm)
Electrical motor specification	IE-3; VFD Compatible, 415 V; 4 pole ; 50 Hz ; IP 55
Control Panel	PLC compatible Panel with VFD of make Danfoss/ Schneider/ L&T/ Fuji
Make of Electrical motor	ABB/ Siemens/ Crompton Greaves
Working Volume	As per Bidder's Design
Retention Time	As per Bidder's Design
No. of impeller/cell	As per Bidder's Design
No. of blades/cell	As per Bidder's Design
Motor(s) Rating	As per Bidder's Design
Tank Detail	As per Bidder's Design
Operating speed	As per Bidder's Design

The equipment shall have provision for flushing to enable smooth restarting subsequentto power failure.

Process Water Pumping Station

1. Scope of work includes supply of water pumps including accessories along with installation and commissioning as per the technical specification mentioned below

Item	Details
Type	Horizontal split casing, Centrifugal
Flow rate	As per design
Total Head	30m
Make	Kirloskar/ Weir/ KSB/ Warman/ Sulzer/ Flow Serve / Wilo.
Minimum continuous flow at reduced speed	350 cu.m/hr for 30m head

Water Header	GI seamless pipes

2. Water Header pipes shall be GI Pipes conforming to IS:1239 PART-1(2004)/ IS:3589, Medium(Class-B) and Slip on flange, Material: Mild Steel, machined and drilled, as per ANSI, B16.5 CLASS 150, Fittings – Equal TEE & Butt weld Elbow (90 degree) as per ANSI, B16.9

Thickener/clarifier& Filter Press

1. The scope of work includes design, supply, installation and commissioning of thickener/clarifier as per the following duty conditions
    i. Feed rate to thickener/clarifier: As per design
    ii. % solid in feed: 2 to 3.5 % w/w
    iii. Specific gravity: 2.8
    iv. Size of solid in under flow: less than 45µ
    v. Temperature of slurry: Ambient
2. Design, supply, installation and commissioning of the thickener/clarifier complete with all electrical, instrumentation, cabling, control panel, mechanical drives, and structural work etc. required for clarifier
    i. The thickener system shall include a mixer for dosing the feed, feed well, bridge, rake lift assembly, hydraulic system, PP filter cloth, automatic filter plate shifting
    ii. The filter press structure / body shall be of Carbon Steel, Q345 and sand blasted to Sa2½ grade, painted with one coat of zinc rich primer and two coats of high build smoke grey epoxy finish paint to withstand corrosive atmosphere.
    iii. Heavy duty rake & rake drive mechanism, facility of auto lifting of rake on event of high rake load
    iv. Electronic torque indicator of rake with data logger for torque
    v. Rake high lift and lower down limit switch with trip facility of lifting/lowering motor
    vi. Facility for manual lifting and lowering of rake on event of failure of rake lifting mechanism
    vii. Alarm for high torque of rake in field as well as in control room
    viii. Non-contact type instrument to measure & display bed level of clarifier
    ix. Instrument to measure & display bed mass of clarifier, shall be installed in the flat bed portion of the clarifier nearer to cone
3. Online turbidity meter installed at the discharge of peripheral launder to measure & display clarity of overflow liquor in ppm/NTU with digital display

4. Scope of work includes supply, installation and commissioning of filter press along with fully automated accessories like bomb door & drip tray, plate shifter, cloth washer, core blowing, plate shakeretc and plate changing facility as per the technical specification mentioned below

S. No	Item		Details
1	Slurry Feeding		Centre of the feed plate
2	Type of Plate		PP (pure virgin) Recessed Top
2	No. of recessed plated		As per bidder's design
4	Plate Size		1500 x 1500 minimum
5	Pressure	Feed	8 bar min.
		Squeeze	20 bar min.
6	Filter Area		As per bidder's design
7	Filter Plate		As per bidder's design
8	Make		METSO/FLSmidth/Equivalent

Slurry Pumps

The scope of work includes supply of pumps along with its accessories including installation and commissioning as per the technical specification mentioned below:

Sl No	**Description**
1	Heavy duty Slurry Pump model, fitted with expeller type sealing arrangement Scope of offer: Bare shaft Pump, split casing type along with all required accessories and automatic lubrication system **MOC:** Impeller(5 vane closed) - Polyurethane having shore A hardness 80 Expeller - Alloy steel having core hardness more than 600 BHN Expeller ring - Natural rubber having shore A hardness 50 Frame Plate liner, Cover Plate liner& throat bush: Polyurethane Frame Plate, Cover Plate, Bearing Housing& Base –SG Iron Orientation: As per site condition

Make**:** Weir Minerals/ Metso/ FL Smidth

Note:

GA drawing of pump has to be provided by the bidder.

Bidder has to provide maintenance manual, spare parts list and curve along with the supply of material.

Motors

The scope of work includes supply of Motors as per the make mentioned below along with its accessories including installation and commissioning as per the technical specification mentioned below. The design of the ratings of the motor shall be 20 % higher than the required size.

The scope of work includes supply of totally enclosed fan cooled squirrel cage induction motor with enclosure confirming to protection IP 55 foot mounted (B3) continuously rated (S1) suitable for 415 volts +/- 10%, 3 phase, 50Hz +/- 5 % frequency, AC supply ambient temperature 45 degree minimum class F insulation with temperature rise limited to Class-B and altitude less than 1000 M above MSL confirming to IS:12615:2011 with its latest amendments of the following KW and RPM compliance to IE3 for efficiency. All motors DE roller bearing and to be provided with space heaters. Terminal box should be on the top of the motors.

Make: Crompton Greaves/ Siemens/ ABB/ Bharat Bijlee/ Kirloskar.

HDPE Pipes

The scope of work includes supply of HDPE Pipes along with its accessories including laying, installation and commissioning as per the technical specification mentioned below:

Make and manufacture: The manufacturers of shall be reputed one who has executed supply of HDPE Pipes of the maximum size during last two years as specified below. Copy of PO for the same towards proof has to be submitted.

S. no	**Specification**	**Pipe OD**	**Length of pipe**	**Grade**	**Working pressure Kg/cm^2**	**Minimum Length required in m**
1	HDPE Pipes with long neck ends and GI slip on flanges at both ends for Slurry feeding to Stager-I	As per design	6 metre	PE 100	10	30
2	HDPE Pipes with long neck ends and GI slip on flanges at both ends for Slurry feeding to spiral from tank-I (bypass arrangement)	As per Design	6 metre	PE 100	10	72
3	HDPE Pipes with long neck ends and GI slip on flanges at both ends for slurry feeding to Stage-II	As per Design	6 metre	PE 100	10	18

4	HDPE Pipes with long neck ends and GI slip on flanges at both ends for slurry feeding to Stage-III	As per Design	6 metre	PE 100	10	100
5	HDPE Pipes with long neck ends and GI slip on flanges at both ends for handling slurry output of attrition scrubber	As per Design	6 metre	PE 100	10	12
6	HDPE Pipes with long neck ends and GI slip on flanges at both ends for handling process overflow (stream-II)	As per Design	6 metre	PE 100	10	90
7	HDPE Pipes with long neck ends and GI slip on flanges at both ends for thickener and filter press system	As per Design				

Note:

i. Material of the flange should be as per IS 226 and hot dip galvanizing as per IS 2629:1985
ii. The HDPE pipe shall be used for carrying highly abrasive and corrosive sea sand minerals in slurry form.
iii. Pressure testing of pipe should be carried out as 1.5 times the working pressure on random basis on pipes selected by IREL representative at your works and material test certificate should be submitted along with the material.
iv. Pipe should be made of 100 % virgin material and MTC of the raw materials to be submitted to IREL.
v. The above quantities are tentative only. Successful Bidder to finalize the exact quantity required.

Wire Inserted Hoses

The scope of work includes supply of Wire Inserted Rubber (WIR) Hoses along with its accessories including installation and commissioning as per the technical specification mentioned below:

Make and manufacture: The manufacturers of WIR Hoses shall be reputed one who has executed supply of WIR Hoses of the maximum size as specified below during last two years. Copy of PO for the same towards proof has to be submitted.

Sl. No.	Description	Details	ID & Minimum Length Required in m
1	Wire inserted rubber hose with rubber lined inbuilt metallic flanges on both ends. ID (mm) :125 mm/150mm/ 200mm Length :6000 mm Working pressure (kg/cm2):06 Testing pressure (kg/cm2):09 Bending radius (mm):600 No. of plies/braids of the hoses: as applicable to the pressure rating Flange details Outer diameter (mm):260/310/380 PCD (mm):212/274/324, Hole diameter (mm):18/18/18 No. of holes:08 for all Thickness (mm):20 for all	The hoses will be used for carrying highly abrasive and corrosive sea sand minerals in slurry form. Inner tube shall be 8mm thick of soft gum natural rubber of shore hardness $45^0 \pm 5^0$ shore'A' hardness. It shall be seamless and continuous from one flange to other flange. Rubber hose shall be reinforced with nylon cord of high tensile strength and high tensile steel wire for light weight and high flexibility. An EPDM rubber outer cover of 02 (two) mm thickness shall be provided for sea weather resistance. Galvanized back up flanges of 8 mm thickness shall be provided for all the inbuilt flanges. Testing of hoses shall be carried out for working pressure, testing pressure and bending radius as mentioned below. Test certificate shall be furnished along with the hoses. Working pressure = 6 kg/cm^2 Testing pressure = 9 kg/cm^2 Bending radius = 1300 mm	As per design

Note:

i. Inner tube shall be of 8 mm thickness continuous.
ii. Inside of the coupling shall be of knurled type for the firm grip of the hose.
iii. Hose outer surface may be plain.
iv. Pre dispatch inspection may be carried out at party's work before dispatch as per inspection clause of tender.

Valves

The scope of work includes supply of valves of reputed make along with its accessories including installation and commissioning as per the technical specification mentioned below:

Ball Valves:

Sl. no	Description	Numbers
1	Lever operated three piece design full bore screwed end stainless steel ball of Size : 15 mm	As required
2	Lever operated three piece design full bore screwed end stainless steel ball of Size : 25 mm	As required

Technical Specification:

i. MOC: Body: ASTM A 351 GRCF8M/SS 316
ii. Ball: SS316
iii. Seat and seal: PTFE
iv. MFG Standard: BS5351
v. End connection: screwed end to BSP (F)
vi. Hydro test pressure: Body-30 kg /s q.cm Seat-20 kg / sq.cm.

Gate Valves:

Sl. No.	Description	Numbers
1	Gate valve 40 mm Body material Stainless steel female thread at both end.	As required
2	Manual wheel operated knife edge gate valve DN 100 (4")	As required
3	Hand Lever copper steel with locking arrangement knife gate valve DN 150 (6")	As required

Technical Specification:

Model	64 UC, Unidirectional knife valve.
Application	Highly abrasive slurry or sand & water
Operating Pressure	10 Kg/cm2
Flange Holes	ANSI B 16.5
Body	ASTM A216 Gr. WCB
Gate:	ASTM A240 SS316
Yoke	ASTM A216 Gr WCB / IS2062
Stem	SS410

Miscellaneous

Welding:

1. All welding work shall confirm to IS-816 and the welding electrodes shall conform to IS-814 and IS-1395
2. The tolerances of fabrication of steel structures shall be in accordance with IS: 7215
3. All the welds shall be continuous fillet weld. The weld metals deposited shall be free from cracks, slag inclusion, porosity, cavities and other deposition fluids.

Painting – All steel structural shall be abrasive blast cleaned to a standard equivalent to Sa2½ and be painted with primer, intermediate and finish coats suitable for C4 / C5 corrosion category as per ISO12944 depending on equipment location (sheltered or exposed)"

The above-mentioned equipment's are tentative and indicative in nature only. The bidder has all the liberty to install the equipment as per their choice with an ultimate goal to achieve the deliverables of the project as per the RFP.

VI. CIVIL SPECIFICATIONS IN GENERAL

1. The works to be carried out by the Contractor for design, dismantling, Supply, erection, commissioning, repair, testing etc of Civil related works of the contract shall include, but not be limited to the following;
   i) Specifications of materials and workmanship shall be as described in the Latest Central Public Works Department Specifications (CPWD Specifications) including amendments, unless otherwise specified. These CPWD Specifications shall be deemed to form part of this Contract. The Contractor shall procure and maintain copies of the CPWD Specifications at site for reference.

   ii) For works where no specification is laid down in the Contract as aforesaid, such works shall be carried out in accordance with the specifications decided by the Engineer-in Charge. The specification mentioned in relevant area shall also form part of technical specification.

   iii) The specifications submitted by EPC contractor for civil works shall be supplementary to the specifications contained in the CPWD specifications / specification. Where at variance, these particular Specifications shall take precedence over the provisions in the CPWD Specifications/ specification

   iv) The Cement required for the entire project work shall be under contractor's scope and all the rates for item involving cement as ingredient must be quoted inclusive of cost of cement. Only Ultra Tech, Dalmia, Ramco, ACC cement confirming to IS: 1489 (Part-I Fly ash based) shall be allowed to be used for work. Contractor has to produce relevant Test and batch certificate from cement manufacturer's for the cement brought to site. Only current batch of cement (at best two months old) shall be allowed to be used for work. Proper and safe custody and storing of cement at site shall be the responsibility of contractor.

   v) The design mix for minimum M30 Grade for RCC works has to be prepared by the Agency. (Grade of concrete with cement content will be decided based on exposure condition).

   vi) Supply of Reinforcement steel (only TATA/RINL/SAIL/JSW Steel make HYSD steel confirming to IS: 1786), structural steel (only TATA/RINL/SAIL/JSW Steel make confirming to IS: 2062), to be used for work is under the scope of contractor and should be quoted accordingly. The diameter of the reinforcement steel and spacing shall be as per standard and taking into consideration of the total load.

vii) The security and safe custody of materials brought to site shall be responsibility of the contractor till handing over to IREL.

viii) In General Excavation work will be measured as per size of foundation and no extra payment will be made for working space, safe slope etc. and should be quoted accordingly.

ix) During excavation for foundations if water ingression persists the water has to be removed and proper care to be taken.

x) Earth work in Excavation below ground level for all kinds of works in all types of soil except soft rock and hard rock for all depth up to and inclusive of 3.5m including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, leveling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead and lift as per site requirement , as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting.

xi) The foundation has to be designed and made in such a way that it should not harm the existing foundation s nearby. Adequate gap as per the design has to be maintained between the existing / new foundations. Safe clearance from existing foundation has to be maintained, as per instruction of EIC.

xii) RCC structures and foundations shall be of M30 grade design mix concerte unless otherwise mentioned in the contract.

xiii) All PCC works shall be of 1:2:4 (M15) Ratio unless otherwise mentioned in the contract.

xiv) All Brick work shall confirm to 1:6 Grade unless otherwise mentioned in the contract.

xv) All Plastering shall confirm to 1:4 Grade unless otherwise mentioned in the contract.

xvi) All test as required for confirming the quality of the civil works such as done has to be made as per QAP submitted by EPC contractor.

xvii) Seismic zone, Cyclonic effect for IREL has to be taken care for all designs.

xviii) All the buildings have to be designed for structural stability confirming to relevant IS codes.

xix) All tests to be carried out for ascertaining the quality of the work has to be done as per the relevant standards.

xx) Proper Ventilation has to be maintained in all the buildings.

xxi) Electrical Buildings has to be made considering the electricity rules latest amendment.

xxii) Insert plate has to be made at each columns of minimum 200 mm x 200 mm size and the insert plate shall be in same level of the plastering.

2. Note

   The Following points have to be considered during designing the plant.

   a. All PCC shall be of minimum M 15 Grade however if higher strength is required as per the design/ drawing the bidder has to prefer the higher grade PCC.

   b. All RCC shall be minimum design mix concrete - M30 grade however if higher strength is required as per the design/drawing the bidder has to prefer the higher grade RCC.

   c. Structural stability wind load has to be calculated as per IS 875 (Part.III) with its latest amendments as plant is situated in a cyclonic prone Area.

   d. Seismic design has to be as per IS: 1893 Part:IV.

   e. Reinforcement Steel has been considered as Fe 500D However the Agency has to carry out the corrosion rate analysis and consider higher grade if required as per the design. Type of reinforcement to be considered to satisfy ductility and corrosion effect.

3. PCC:

   Scope of work: The general PCC works to be carried out by the Contractor, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

   a. All PCC shall be of M 15 Grade.

   b. Earth work in Excavation below ground level for all kinds of works in All types of soil except soft and hard rock for a depth including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, leveling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead & lift as per site requirement , as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting. Excavation measurement shall be given strictly as per size of foundation only. No allowance for working space, side slope shall be given.

   c. Backfilling with Excavated Soil & Ash below ground level for all kinds of works in All Types of soils and dressing of sides in slopes leveling grading and ramming of bottoms dewatering of accumulated water from any source and keeping the surface dry.

   d. Preparing bed for PCC including cutting of bushes, small trees, cutting of earth, filling, compacting with roller up to 100mm depth with compaction as per instruction of EIC.

4. RCC:

   i) The general RCC works to be carried out by the Contractor, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

ii) Works to be done: All RCC decided by EPC contractor will be done as per specifications given by him.

iii) All RCC Shall be minimum grade of design mix M30, unless otherwise mentioned. Following are the some of the major works to be carried out by RCC but any other RCC work mentioned in the scope of work and also required for the satisfactory performance of the project activity are also to be covered in the scope of the work

a. HUS - all foundation including Foundations for vibrating screen, hydrocyclones cluster and elevated pipe line support, attrition scrubber, pump station and MCC building, thickener & filter press etc.

b. HUS - all works including Beams, columns, foundations of elevated pipe line at hydro cyclone cluster.

c. HUS - all works including Beams, columns, and foundations of MCC building. The building size approx. is 8 m x 6 m.

iv) Earth work in EXCAVATION below ground level for all kinds of works in All types of soil except soft and hard rock for all depth including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, levelling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead & lift as per site requirement, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting. Excavation measurement shall be given strictly as per size of foundation only. No allowance for working space, side slope shall be given.

v) Backfilling with excavated soil &ash below ground level for all kinds of works in All Types of soils and dressing of sides in slopes leveling grading and ramming of bottoms dewatering of accumulated water from any source and keeping the surface dry.

vi) Providing and laying Reinforced Cement Concrete of minimum grade of design mix M30for the building foundations (minimum Cement content shall be as per the EPC contractor Specifications) leaving pockets, recesses, vibrating, tamping, curing, testing (for leak-proofness) and rendering (if required to give smooth and even surface) in foundations, walls , beams, buttresses, columns, piers, slabs, tunnels, basements, storage bins, reservoirs etc. including cement wash (if no other surface application is specified) including the cost of Reinforcement, Shuttering and specified admixtures, all complete as specified and directed. All materials including cement to be supplied by the bidder.

vii) Supplying and placing in position HIGH YEILD STRENGTH DEFORMED STEEL BARS REINFORCEMENT of Grade Fe500D TMT conforming to IS: 1786, for RCC work including transporting the Steel, straightening, cleaning, de-coiling, cutting, bending to required shapes and lengths as per details, binding wire at every intersection, supplying and placing with proper cover blocks, supports, chairs, overlaps, welding, spacers, fan hooks etc. for all heights and depths etc. all complete as directed. Supply of all the materials is in the scope of the party.

viii) Precast elements: Manufacturing, transporting, supplying and erecting in position Reinforced Cement Concrete PRECAST ELEMENTS such as columns, beams, cover slabs, lintels, louvers, fins, shelves etc. of minimum grade of design mix concrete M30 with 20mm and down size graded crushed stone aggregates/gravel, for all leads, levels, shapes and thickness including all moulds, shuttering and centering, vibrating, tamping, curing, chamfering wherever required, finishing the top surface with cement mortar 1:3 (1 Cement : 3 Sand) to give a smooth and even surface, or nonskid finish as specified, providing lifting hooks, metal inserts, making holes pockets, (only M.S. inserts to be measured & paid) separately) transporting to site, erecting, leveling, aligning and fixing in position with cement mortar 1:3 (Cement : 3 Coarse Sand), breaking bricks and/or concrete surfaces and making good the same etc. all complete (excluding the Cost of Reinforcement) and as directed. All materials including cement supplied by the contractor.

ix) Testing of RCC as per QAP mentioned by EPC contractor as per relevant IS / BS Standards towards curing of concrete cube for compressive strength for 7 days and 28 days curing, mix design and slump test.

5. Flooring Works:
   i) The general Flooring works of minimum grade of design mix concrete M30to be carried out by the Contractor, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

   ii) Major Works to be done including the following but not limited to

      a. HUS - all base flooring for vibrating screen, hydrocyclones cluster and elevated pipe line support, attrition scrubber, pump station, MCC building, thickener & filter press etc.

   iii) Earth work in EXCAVATION below ground level for all kinds of works in All types of soil except soft and hard rock for all depth including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, leveling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead & lift as per site requirement, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting. Excavation measurement shall be given strictly as per size of foundation only. No allowance for working space, side slope shall be given.

iv) Backfilling with Excavated Soil & Ash below ground level for all kinds of works in All Types of soils and dressing of sides in slopes leveling grading and ramming of bottoms dewatering of accumulated water from any source and keeping the surface dry.

v) Flooring with hardener topping as per EPC contractor specification. Minimum52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix: 2 graded stone aggregate 6 mm nominal size) by volume, hardening compound mixed as per manufacturers specifications complete.

vi) Testing of RCC as per as per QAP mentioned by EPC contractor relevant IS / BS Standards towards curing of concrete cube for compressive strength for 7 days and 28 days curing, mix design and slump test.

6. BRICK WALL:
   i) The general Brick wall works to be carried out as per EPC contractor specification, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

   ii) Works to be done:

   iii) HUS – vibrating screen, hydrocyclones cluster and elevated pipe line support, attrition scrubber, pump station and MCC building, thickener, filter press etc

   iv) All Brick wall shall be of 1:6 Grade unless otherwise mentioned.

   v) Providing and laying Brick work with bricks of minimum crushing strength 10 N/mm2 in foundation and plinth in cement mortar 1:6 (1 Cement : 6 coarse sand) at all heights below and above plinth level including the cost of materials, labour, scaffolding/ staging, sampling & testing, soaking of bricks, cutting and laying of bricks, providing recesses, making openings of any shape & size, finishing the joints flush below ground level and raking out the joints above ground level, sealing the gap between masonry and soffit of beam/slab, embedding the fittings & fixtures, curing, etc. all complete as per EPC contractor specifications.

7. PLASTERING:
   i) The general Plastering works of 1:4 Grade to be carried as per EPC contractor specification, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

   ii) Works to be done:

   a. HUS – vibrating screen, hydrocyclones cluster and elevated pipe line support, attrition scrubber, pump station and MCC building, etc.

   iii) Providing and applying cement plaster, 12 mm thick/15 mm thick 1:4 ,at all surfaces except ceiling at all levels including surface preparation, staging, scaffolding roughening, finishing the surfaces, curing etc. complete .

iv) Providing and applying cement plaster, 6 mm thick 1:3, at all surfaces of ceiling at all levels including surface preparation, staging, scaffolding roughening, finishing the surfaces, curing etc. complete

8. Dismantling Works:

This covers the general requirements of items involved in dismantling works. The dismantling work of the various civil and structural construction where the foundation, sump and MCC building of HUS area is to be constructed is required to be done and the debris are to be removed for providing level and clear site for work. The dismantling involves both manual as well as mechanical method of execution of work.

a. Breaking and chiseling by manual as well as mechanical means without damaging any of the installations in the area

b. Shifting of debris to another location shown by EIC around a distance of 500 m.

c. Required scaffoldings, equipment have to be arranged by the Agency.

d. Proper care has to be taken that the adjacent buildings/ equipments/ structures are not damaged due to the dismantling works.

e. Repair works if any required for the buildings and structures. (This covers various RCC as well as plastering work specified in the HUS area damaged structures along with other works needed for the completion and good look of the working area)

f. Plastering works if any required. (This covers various RCC as well as plastering work specified in the HUS area damaged structures along with other works needed for the completion and good look of the working area)

9. Reclamation Tank/RCC sump:

i) The design shall be totally RCC

ii) The RCC sump-1no at HUS – (Size and design shall be decided by EPC contractor to meet the requirement) (However Size and design decided by EPC contractor to meet the requirement may be considered by EIC).

iii) Technical Specifications & Special Conditions:

a. Earth work in EXCAVATION below ground level for all kinds of works in All types of soil except soft and hard rock for all depth including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, leveling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material a lead & lift as per site requirement, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting. Excavation measurement shall be given strictly as per size of foundation only. No allowance for working space, side slope shall be given.

b. Backfilling with Excavated Soil & Ash below ground level for all kinds of works in All Types of soils and dressing of sides in slopes leveling grading and ramming of bottoms dewatering of accumulated water from any source and keeping the surface dry.

c. Preparing bed for PCC including cutting of bushes, small trees, cutting of earth, filling, compacting with roller up to 100mm depth with compaction as per instruction of EIC.

d. Providing, mixing, tamping, placing, consolidating and curing Plain Cement Concrete (M-20) using Cement confirming to IS: 456 with necessary slopes as specified for foundations, grade slabs, ramps, sills, copings, etc.

e. Providing and laying Reinforced Cement Concrete of GRADE M-30 as per the design mix for the building foundations (minimum Cement content shall be as per the design mix for M30 Specifications) leaving pockets, recesses, vibrating, tamping, curing, testing (for leak-proofness) and rendering (if required to give smooth and even surface) in foundations, walls , beams, buttresses, columns, piers, slabs, tunnels, basements, storage bins, reservoirs etc. including cement wash (if no other surface application is specified) including the cost of Reinforcement, Shuttering and specified admixtures, all complete as specified and directed. All materials including cement to be supplied by the bidder.

f. Testing of RCC as per as per QAP mentioned by EPC contractor, relevant IS / BS Standards towards curing of concrete cube for compressive strength for 7 days and 28 days curing, mix design and slump test.

g. Supplying and placing in position high yield strength deformed steel bars reinforcement of Grade Fe500D TMT conforming to IS:1786, for RCC work including transporting the Steel, straightening, cleaning, de-coiling, cutting, bending to required shapes and lengths as per details, binding with 18 SWG black soft annealed binding wire at every intersection, supplying and placing with proper cover blocks, supports, chairs, overlaps, welding, spacers, fan hooks etc. for all heights and depths etc. all complete as directed. Supply of material is in the scope of the party.

h. The inside and top edges of the tanks/sumps to be plastered: cement plaster shall have to be applied for thickness of 12mm thick at 1:4 ratio including surface preparation.

10. Painting Works

a. The general Painting works (inside and Outside) to be carried out by the Contractor, unless otherwise specified elsewhere in the contract, shall include, but not be limited to the following;

b. Works to be done:

i. HUS- MCC building.

c. All the steel Structures has to be sand blasted (Nearing to white metal) and painted with a single coat of red primer CRB base soon after sand blasting and prior to start of fabrication work. After completion of steel structural construction work 4 coats for CRB / 3 coats of paint for Epoxy has to be painted to all fabricated structural without any exception as per the DFT mentioned in the table below.

Description	DFT in microns
1) CRB base Primer Red (1 coat)	35 - 40
2) CRB based Zn. Phosphate Primer (1 coat)	35 - 40
3) CRB based MIO (1 coat)	90 - 100
4) CRB Finish	35- 40
(or)	
1) Epoxy based primer (1 coat)	35 - 40
2) Epoxy based MIO (1 coat)	75 - 90
3) Coal Tar Epoxy Finish (1 coat)	90 - 100

11. Civil Buildings:

i) New work (two or more coats) over and including water thinnable priming coat with cement primer

ii) New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @2.20kg/10 sqm.

iii) Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.

iv) Wall painting with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre of approved brand and manufacture, including applying additional coats wherever required to achieve even shade and colour. (Two Coats).

v) The painting of civil building will be decided by EPC contractor which will provide desirable finishing work and obtain approval of IREL for execution.

12. Drain:

i) Drain has to be decided by EPC contractor duly Engineering based on expected discharge. Drain has to be made of RCC.

ii) Various electrical MCC cabin and control room HUS

iii) Complete design and approval of the drawings of the civil structures are in the scope of party complying to the wind load condition and seismic zone condition applicable. The following are some of the points to be included in the scope for the design of the buildings. The design is to be checked by a Charter Engineer. The tentative drawings of the building (Lay out and different views) to be submitted.

iv) The major scope of work involves but not limited to excavation, PCC, foundation, refilling, beams and columns, brick works, grils, windows and doors, shutters, staircases, insert plates in columns and beams, roof casting, flooring, RCC works, plastering, Aluminum glass windows, cutout for the cable in and out, drains for oil pit, cutouts for exhaust fans, concealed wiring provision, ceiling fan fixing, double door for each room etc whose technical specification has already been explained. The space and floor detail has been explained.

a. The detail floor area is mentioned in the tentative drawings.
b. Stair case is to be provided to all the floors including the roofs on both sides
c. All the floors for control room shall be plastered with necessary finishing
d. Floors shall have cutouts and drains in the ground floor for cable entry as per instruction of EIC
e. Insert plates shall be placed on the columns for facilitating welding at height difference of 1m and the face shall match the surface.
f. Day lighting, ventilation and functional requirement to be decided by EPC contractor as per relevant codal provision & statutory requirement. (Indian standard code IS-3103, 2440 & SP-32).
g. Holes for exhaust fan to be provided
h. For rooms concealed wiring provision and ceiling fan fixing p[provision shall be there
i. All the doors to the rooms shall be of MS steel
j. On side of each PANEL ROOM shall have shutter provision of r inserting nd removal of panels of appropriate bigger opening
k. Parapet wall to be provided above each of the control room top floor and all the windows shall have adequate roof of RCC coverage/extension to avoid rain entry
l. Each of the rooms shall have double entry

VII. TECHNICAL SPECIFICATION OF ELECTRICAL PART

1 Electrical Specification in General

1.1.1 The specifications furnished in the tender is of general nature only and it is the responsibility of the bidder to design, supply, install, commission and put in operation of the equipment and services required for the satisfactory performance of the installation. All the items of equipment required for the safe and satisfactory operation of the installation shall be supplied and installed by the bidder. In the absence of any technical specification of any component, the applicable IS code, NEC code, Indian Electricity Act and Rule, IEC code shall be applicable only with the consent of IREL.

1.1.2 The intent of this specification is to define the scope & requirements for the design, manufacture, supply, installation, testing and commissioning of the electrical equipment /systems like.

a) LT Power & Control cables,
b) Motor control centers,
c) Capacitor banks,
d) Plug and sockets, Push button stations,
e) Cable trays,
f) Insulation mats
g) Miscellaneous items like gland, socket, junction box, pvc conduit, cable joint kit etc
h) Cabling,
i) Internal electrification,
j) Electrical earthing,
k) Lighting,

1.1.3 Cables Technical Specifications

a) LT 1.1kV grade cables:
   i Power cables for use on 415 V system shall be of 1.1kV grade,
   ii Aluminum conductor for higher capacity motors power cables, 1.5 sq.mm 4 core control cable for remote switch, and Copper conductor (for 2.5sqmm 3core lighting cables),
   iii Stranded/multi strand,
   iv XLPE insulated, PVC sheathed,
   v Round GI wire armoured and overall PVC sheathed,
   vi As per IS: 7098 (Part I) amended up to date.
   vii The cross section and size of cable conductors shall be as per specification
   viii Colour of the outer sheath shall be Black.

ix Manufacturers Routine Test reports/ test certificates (Type test report may also be submitted) shall be submitted for all supplied cables.

x All cables shall be ISI marked.

xi All conductor insulation shall have distinct colour code(R, Y, B, N) as per IS and marking on the cables to be provided along with length identification marks in meters

xii The design and construction of 1.1kV XLPE Cable shall be of Cable Code A2XFY-2XFY or A2XWY-2XWY for smaller size cable.

xiii Make of cables: Gloster, Havells, Torrent, Universal, CCI, Polycab.

b) Control Cables

i Control cables for use on 415 V system shall be

ii FRLS type 1100 volts grade,

iii copper single conductor, PVC insulated, PVC sheathed,

iv GI round wire armoured and overall PVC sheathed

v Strictly as per IS: 1554 (Part I) amended up to date.

vi The design and construction of Control Cables Cable shall be of Cable Code YFY.

vii The size of these cables shall be 2.5 Sq.mm, 4core.

viii All cables shall be ISI marked

ix All conductor insulation shall have distinct colour code as per IS and marking on the outer sheath of cables provided along with length identification marks in every meter throughout the length

x Conductor insulation shall have identification no (1, 2, 3, ---9 at every 1meter distance)

xi Make of cables: Finolex, RR, Lapp, Havells, Gloster, poly cab, universal

xii Manufacturers Routine Test reports/ test certificates (Type test report may also be submitted) shall be submitted for all supplied cables.

c) Note:

i Party has to make detail schedule of the various cables to be used, size, type as per technical specification, length of cable etc and accordingly action to be taken.

Tentative Cable Schedule

Sl no	Cables		Size& No of cores		cu/al	approx length in meter
	From	To				
1	MCC5H	MCC6H	400 sq.mm	3.5c	ALUMINIUM	25
2	MCC6H	P1A motor	As per Design	3.5c	ALUMINIUM	25
3	MCC6H	P1B motor	As per Design	3.5c	ALUMINIUM	15
4	MCC6H	P2A motor	As per Design	3.5c	ALUMINIUM	25
5	MCC6H	P2B motor	As per Design	3.5c	ALUMINIUM	25
6	MCC6H	Attrition Scrubber Drives	As per Design	3.5c	ALUMINIUM	45*2
7	MCC6H	Stream-II pump motor	As per Design	3.5c	ALUMINIUM	150
8	MCC7H	Water Pumps	As per Design	3.5c	ALUMINIUM	20*3
9	MCC7H	EOT	As per Design	3.5c	ALUMINIUM	20
10	MCC7H	Vertical Pump motor	As per Design	3.5c	ALUMINIUM	20
11	MCC7H	Motorized Gate Valves	As per Design	3.5c	ALUMINIUM	15*3
11	MCC7H	Thickener & Filter Press system	As per Design			

1.1.4 MCC Technical Specifications

a) Scope of work: Design, engineering, supply, installation, testing and commissioning of the following

i 1 nos MCC of Slime removal system

ii 1 nos MCC of Pumping station, thickener & filter press

b) General

Sl No	Description	Incomer	Bus Coupler	Control Transformer	TENTATIVE Outgoing Feeders	Power Outlets	Bus Duct
1	**MCC-6H of Slime Removal system**	630A MCCB	----	2KVA-1no 415/110 AC	04 nos motor control feeders with VFD and 2 nos of FASD – Rating as per bidder's design	1nos 250A	----
2	**MCC-7H of Pumping station, thickener & filter press**	800A MCCB	-----	2KVA-1no 415/110 AC	03 nos motor control feeders with VFD for Process water pumps, 03 nos of feeders for motorized gate valves, 01 feeder for EOT	2nos 400A	-----

					crane, 01 feeder for vertical pump (sump) for draining water spillage, 01 no of FASD for spare and 2 nos of 400ASDF – Rating as per bidder's design		

c) Components of Panels

DESCRIPTION	**INCOMERS**	**BUS COUPLER**	**MOTOR OUT GOING FEEDER**	**POWER OUTLET**	**CONTROL TRANSFORMER FEEDER**
MCC-6H of Slime Removal system	MCCB, external handle for operation, Internal Wiring, On ,Off, Trip Status, RYB Indication of Incoming Power, Voltmeter Digital With Three Phase Selector Switch, Ammeter Three Phase With Selector, Digital Analyzer, Emergency Off Push Button, MCB, Contact Points ,Terminal Blocks	-----	MCCB with extended handle, Contactor, SPP, OLR, Aux Contactor as per the Enclosed Control Ckt, Control MCB, Internal Wiring, On, Off & Trip Indication, Selectror Switch, Digital Ammeter for Three Phase	MCCB with extended handle, Internal Wiring, On, Off & Trip Indication	MCCB with extended handle, Internal Wiring, On, Off & Trip Indication, Digital Ammeter for Three Phase
MCC-7H of Pumping station, thickener & filter press	MCCB, external handle for operation, Internal Wiring, On ,Off, Trip Status, RYB Indication of Incoming Power, Voltmeter Digital With Three Phase Selector Switch, Ammeter Three Phase With Selector, Digital Analyzer, Emergency Off Push Button MCB, Contact Points ,Terminal Blocks	-----	MCCB with extended handle, Contactor, Spp, OLR, Aux Contactor As per the Enclosed Control Ckt, Control MCB, Internal Wiring, On, Off & Trip Indication, Selector Switch, Digital Ammeter for Three Phase	MCCB with extended handle, Internal Wiring, On, Off & Trip Indication	MCCB with extended handle, Internal Wiring, On, Off & Trip Indication, Digital Ammeter for Three Phase

d) This specification covers Design, fabrication, supply and installation of Motor Control Centre(MCC).

e) The supply should be complete in all respect and any equipment or accessories not covered in this specification but essential for proper design, operation and maintenance of MCC covered under this specification shall be included.

f) Where found necessary, IREL reserves the right of selecting the manufacturer of Electrical equipment, instrument and controls or any other specified items in the interest of standardization and you shall supply equipment of particular make, if so required.

g) STANDARD

i All equipment shall be designed, assembled and tested in accordance with latest standards of Indian standards institution wherever available, in cases where suitable Indian standards are not available, generally acceptable codes and practices shall be adopted.

ii The MCC should confirm to the latest Central Electricity Authority Regulations 2023 as regards safety, earthings and other essential provisions specified therein for the installation and operation of electrical plants.

iii All exposed surfaces shall be painted as per details provided in technical specification.

iv All equipment shall comply with the statutory requirements of the Government of India and State Government of Tamil Nadu. The equipment and installation shall also confirm to the provisions of statutory and other regulations in force such as the Indian Factories Act, Indian Mines Act etc. Approval of drawing and or installation by the statutory authorities should be arranged and any changes required by the same authorities shall be made by you at no extra cost.

h) Construction & Other General Requirements of the various Switchboards/Panels

i Motor Control Centre (MCC)

1 The panels shall be freestanding, modular, multitier construction made out of minimum 2 mm CRCA sheet, and shall be in 02(two) parts.

2 The switchboard shall be in cubicle design (each feeder components are housed in individual cubicle) and fully compartmentalized having total segregation between each feeder, Bus bar & Cable Chambers. The incomer and outgoing cable entry (outgoing cables) shall be from the bottom. The design shall permit for extension of switchboard at both the side. NOTE: Motor Control Centre should be Front and back Loading

3 Structures including doors and panels shall be capable of withstanding the internal pressure created by faults within the structure (equal to the maximum fault-current rating for a specified duration) without to the operating personnel. The minimum standard required is detailed in IS 3427. Doors shall be provide with stiffeners to avoid buckling/bending during operation.

4 Structures shall be provided with barriers to prevent the transfer of ionized gases between compartments except busbar chambers.

5 Outgoing feeder units shall be arranged in tier formation. Incomer and bus bar coupler shall be located in non-tiered separate cubicle.

6 Direct access or accidental contact with the busbar and primary connections shall not be possible. All aperture and slots shall be protected by baffles to prevent accidental shorting of busbars by the entry of maintenance tools. To provide a tight seal between cubicle and insulating panels shall be provide for busbars crossing from one cubicle to another.

7 Extra protection covers (See thro' acrylic cover) removable providing access to live power equipment /circuit shall be provided with tool operated fasteners to prevent unauthorized access.

8 One metal sheet shall be provided between two vertical sections running to the full height of the switch gear except for the horizontal busbar compartment. However each shipping section have metal sheet at both ends.

9 Adequately designed supporting structure shall be provided for the complete enclosure system, to attain the structural rigidity of the board. Front panels shall be made rigid, with stiffeners as necessary. Board shall be extendable at both ends.

10 It shall be provided with hinged doors on the front with necessary handles and earthed using flexible copper conductor. The doors shall be provided with neoprene gaskets. Suitable channel base frame should be provided for the panel board.

11 Detachable gland plates of 3mm thick shall be provided at the bottom of the panel for cable entry, suitable for the termination of cables with compression type glands to the sizes as specified. Adequate space should be provided in the cable chamber for safe bending and termination of cables.

12 The enclosure shall be provided with lifting hooks, supporting legs and double earth terminals with double washers.

13 The switchboard shall be in cubicle design (each feeder components are housed in individual cubicle) and fully compartmentalized having total segregation between each cubicle. Suitable cable and bus bar alleys as well as separate metering and relaying compartments shall be provided. All components of the switchboard shall be approachable from front. The Bus bar chamber cover should be bolted type. The maximum operating handle/push button height of any feeder should not be more than 1800 mm with reference to panel bottom. Supporting arrangement for dressing of power and control cables in cable alleys also shall be provided. The front operable/lockable door shall act as a cover for the switchboards. The bus bar should be extendable at both ends. No bus bar should be protruded in the cable alley. The cable chamber have suitable size for terminating required number of cables without difficulty. Suitable control transformer (110V AC) shall be provided with in the panel for energising the control and protection circuits.

14 Corrosion Protection & Powder coating

15 All metal sheets shall undergo 7 tank metal treatment, thorough de rusting-rinsing-degreasing-rinsing-phosphating-rinsing and then Passivation. All metal surfaces shall be thoroughly cleaned and degreased to remove all scales, rust, grease and dirt. Fabricated structures shall be pickled and treated to remove any trace of acid. The under surface shall be made free from all imperfections before undertaking powder coating.

16 Supplier shall obtain details of approved colour from the Engineer-in-charge before powder coating.

17 Panel finish shall be free from imperfections like pin holes, run-off paint, etc.

18 All unpainted steel parts shall be cadmium plated or suitably treated to prevent rust, corrosion, etc

ii Bus bar sizing, connection and supports:

1 The bus bars shall be made from high conductivity aluminium. The bus bars and supports shall be capable of withstanding the rated and short circuit current Minimum size of main power bus bars shall be of incomer switch rating and interconnecting bus bar to feeders should be rated to switch rating. The current carrying capacity of aluminium bus bar should be considered as per standard.

2 The bus bars shall be provided with heat shrinkable PVC insulating sleeve. Supports for bus bars shall be made of suitable size cast resin ribbed insulators and these should be adequate in number so as to avoid any sag in the bus bars. (Hylam supports should not be used)

3 Minimum clearance between phase to phase shall be 32mm and that between phase to neutral/earth shall be 26 mm for 415V panel.

4 The bus bar sizing details and design shall be submitted to the engineer in charge for verification.

iii Power Connection:

1 For power interconnections within the panel board

2 Rigid Copper conductor, with PVC insulation, of adequate cross section i.e., current carrying capacity not less than the outgoing switch rating shall be used. To prevent accidental contacts, all exposed live portions of interconnecting bus bars and all terminals also shall be shrouded. Provision for clamping the cables inside the cable alley should be provided. Standard colour code of red, yellow and blue for phases and black for Neutral to be followed for all bus bars/conductors.

3 Wiring for all controls, protection, metering, signalling, etc. inside the switchboard shall be done with 650 volts grey colour HFFR (Halogen free fire retardant) copper conductor cables. Minimum size of these conductors shall be 2.5 Sq.mm. Control wiring to components fixed on doors shall be flexible type.

4 The complete panel would be sub-divided into different sections and each section shall have its own control circuit with MCB and indication. All control wiring should be provided with necessary cable sockets/ lugs at both ends. Conductors shall be terminated using compression type lugs. Each termination shall be identified at both the ends by PVC ferrules. The identification termination numbers should match with those on the drawings.

iv Components of switch boards

1 The panel shall be provided with MCCB's, fuses, meters, relays and instruments, MCCB, contactors, over load relays, SPP, Auxilliary contactor, internal wiring etc. The switchgears should be positioned inside the panel board as per manufacturer's standards.

v Moulded Case Circuit Breakers.

1 Moulded case circuit breakers (MCCBs) shall be incorporated wherever required and shall be of extra current limiting type and preferably double break. MCCBs shall confirm to IS 13947-1/IEC 60947-1 for general rules and IS 13947-2/IEC 60947-2 for circuit breakers in all respects. MCCB shall be suitable for isolation as per standard, single phase 240V or three phase 415 V, 50Hz, AC supply.

vi Construction:

1 The MCCB case & cover shall be made of high strength heat resistant and flame retardant thermosetting insulating material.

2 The operating handle shall be quick make, quick break trip free type. The operating handle shall have suitable 'ON','OFF','TRIPPED' indicators.

3 In order to ensure suitability for isolation complying with IS13947-2/IEC 60947-2, the operating mechanism shall be designed such that the toggle or handle can only be in 'OFF' position.

4 Three phase MCCBs shall have a common operating handle for simultaneous operation and tripping of all the three phases.

vii Rating & Breaking Capacity:

1 The rating of the circuit breaker shall be as per the drawings and schedule of quantities.

2 The MCCB shall have Service Breaking Capacity (Ics) equal to Ultimate Breaking capacity (Icu). The contractor shall be provided the MCCB with same kA rating or nearest higher rating as mentioned in the Schedule of quantities.

viii Protection:

1 All outgoing Moulded Case Circuit breakers of 160A and above shall have microprocessor based trip unit with adjustable overload protection from 40% to 100% of the nominal current (In). The short circuit protection should be adjustable from 2 to 10 times the rated current (Ir). MCCB's below 160A Rating shall be of thermal magnetic type with adjustable overload protection.

2 630A MCCBs shall have fault indication of (O/C, S/C and E/F).

3 The MCCBs shall be possible to fully co-ordinate the over-load & short-circuit tripping of the circuit breakers with the upstream and downstream circuit breakers to provide Total Discrimination.

4 MCCB should have the flexibility of connecting the load either on the top or on the bottom side without deration.

ix Accessories:

1 MCCBs shall be provided with the following accessories and all these devices shall be fixable at site. The accessories shall be separated from Power circuit. Preferably the Shunt trip release and under voltage release shall be snap-in type and fitted with terminal blocks. Shunt trip Auxiliary switch. Extended rotary Handle.

x Digital panel meters

1 Digital panel meters with provision to read and meter various parameters such as R-Y-B voltages and currents, kW, kWH, power factor and frequency shall be provided for the Panels

xi Motor control switch gear components:

1 Each of the motor control outgoing feeder shall have required MCCB, contactor, OLR, SPP, auxiliary contactor, MCB, internal wiring, etc as per type -2 co-ordination requirement and minimum size mentioned in the table. The rating of the OLR may be changed based on the requirement at the time of finalization of load or motors.

xii Measuring instruments

1 These shall be of square pattern having dimensions of 96x96 mm flush mounting type. Instruments like ammeter, Voltmeter, frequency meter etc. and instrumental transformers/ transducers etc. are also included in the scope of supply.

2 All AC meters shall be of class 1 accuracy.

3 Voltmeter shall be suitable for direct line connection. Voltmeters shall be connected through MCB's only.

4 All voltmeters shall be provided with selector switches.

5 Ammeters shall be CT operated and with selector switch as specified in the Drawing.

xiii Indicating Lamps

1 Panel mounting indicating lamp shall be wide band LED type with minimum 22mm diameter and its operating voltage shall be 240V ac. The colour of the lamp as per standards. Breaker On/OFF and tripped indication lamps (LED Type) and R,Y,B indication lamps shall be provided for each feeder (Incoming & outgoing feeders).

xiv Earthing

1 Two independent earthing points shall be provided outside the panel near bottom and these shall be inter-connected with suitable earthing bus bars. The size of Earthing Strips shall be according to the earth fault current /KA ratings and meeting the Electrical Inspectorate rules and regulations.

xv Name plates

1 Switch board shall be provided with danger plate and nameplates for all incoming and outgoing feeders. These nameplates shall be of PVC (black colour base & white letters engraved) screwed to panel. PVC identification ferrule numbers shall be used for all internal wiring. The nameplate shall contain the following information.

2 Panel Board Identification name & number

3 Feeder name.

4 Switch/ fuse rating.

5 Switchboard Normal Current/Voltage rating

6 Short Circuit KA rating

xvi Supports

1 Bus bars shall be rigidly fixed to the supports, of SMC/DMC solid block type base. Busbars shall be firmly held within the slots in sheet type supports, which in turn shall be rigidly fixed to the chamber.

xvii Tests

1 All routine tests as per relevant codes and standards shall be conducted on the switchboards/components. Test reports and test certificates shall be submitted for the same. Purchaser/Purchaser's representatives shall have the right to inspect the progress of work, quality of materials used/ workmanship and to witness the Routine tests after completion of work at the premises of the manufacturer. The manufacturer shall give at least 15 days advance information to client about the manufacturing and Routine tests plan so that Purchaser can attend the same.

Routine tests may comprise:

1.a Functional tests

1.b Mechanical operating of circuit breaker

1.c Calibration of releases of circuit breaker

1.d Dielectric withstand of circuit breaker

xviii Requirements for Drawings/Documents & Approvals

1 The drawing showing general arrangements and detailed wiring diagram for the Panels shall be submitted to the Engineer-in-charge for approval, prior to manufacture and the same shall be got inspected, prior to despatch to project site. The complete switchboard and its component shall conform to Indian Electricity Rules, Relevant IS and meeting the regulations of Tamil Nadu State Electrical Inspectorate.

2 The following minimum drawings and documents shall be submitted:

S.I.No	Description	For Review	Final A built
1	General Arrangement with dimension details, bus bar sizes, construction details etc	Required	Required.
2	Single line schematic	Required	Required
3	Detailed Control schematic, metering & Protection details	Required	Required
4	Test reports/ Test certificates	Required	Required
5	Catalogues/manuals of panels &components	Required	Required
6	Relay setting calculation and setting details	Required	Required.
7	Internal wiring details of brought out items	Required	Required
8	Interlock and inter panel wiring	Required	Required
9	Make, type and fixing details of components	Required	Required
10	Terminal wiring diagram	Required	Required

1.1.5 CABLE TRAYS

i Ladder type FRP cable trays & supports shall be provided to withstand the highly corrosive atmosphere prevailing at site. The rate for cable trays shall include rate for cable trays, all required accessories, supports etc. complete.

ii FRP Ladder type Cable tray with FRP coupler plates and SS 304 fasteners, Size: 300mm x 75mm x 4mm thick, side rail: FRP channel 75mm x (25/30)mm x (3/4)mm thick, rung spacing: 300mm, MOC: Resin (Polyester-Isophthalic or Vinyl ester), FR & UV stabilized, length: 3000mm, colour: Grey/Yellow

iii Plug And Socket Assembly

1 Metal enclosed 32A three phase with neutral plug &socket: Complete with plug, socket ,3P MCB 32A complete with all internal wiring. The enclosure shall be metal sheet steel with provision of earthing. Enclosure shall be IP54, Make: L&T, Siemens, Legrand, Schneider

2 Metal enclosed 63A three phase with neutral plug &socket: Complete with plug, socket ,3P MCB 63A complete with all internal wiring. The enclosure shall be metal sheet steel with provision of earthing. Enclosure shall be IP54, Make: L&T, Siemens, Legrand, Schneider

b) Metal enclosed 100A three phase with neutral power outlets

i complete with ISOLATOR 3P MCB 100 A complete with all internal wiring. The enclosure shall be metal sheet steel with provision of earthing. Enclosure shall be IP54 with top and button gland fixing plates

ii Make: L&T, Siemens, Legrand Schneider

1.1.6 Push Button Stations

a) On push button (two Nos: NO contacts wired to terminal box) with Green button and Off push button (Lockable in off position) and having two NC contacts wired to terminal box with Red colour shall be provided. The material of construction of push button enclosure shall be cast Aluminium alloy (LM6)/cast iron/thermo-setting plastic. Degree of protection shall be IP 65 weather proof. The push button station shall be suitable for wall mounting or plate mounting or pedestal.

b) Push button enclosure shall be earthed and terminated to earthing terminal in duplicate. Provision to indicate motor / Equipment tag number on the push button station. Cable gland entry openings shall be provided in duplicate suitable for 9C 2.5 Sq.mm. Cable. Blanking plugs shall be provided as part of push button station. All screws provided for fixing shall be of SS electro galvanised or cadmium plated. Two numbers of integral earthing stud shall be provided for each push buttons.

c) Insulation mat

i 11kv confirming to IS: 15652/2006 with its latest amendments. Application: to be used in front of electrical panels. Made out of dielectric elastomer having elastic property either from natural or synthetic material.

ii SIZE : 3000MM X 1000MM X 3MM thick, Abrasive surface, Black/red in colour, I water , moisture and fire retardant marked

iii Fire extinguishers

iv Supply and fixing of carbon-dioxide extinguisher of ISI marked 4.5 Kg capacity made of high pressure seamless steel cylinder (CCE marked) complete with wheel type valve with one meter long braided high pressure discharge hose complete in all respects including initial fill with CO2 gas.

1.1.7 Specification Of Miscellaneous Items

a) Aluminium and copper crimping sockets (MAKE: DOWELS, JAINSON)

i Suitable size cable crimping sockets to be used for termination of Aluminum/copper cables using cable socketing/crimping machine. Cable Connectors

ii Cable connectors, lugs/sockets, shall be of copper/Aluminium alloy, suitably tinned, soldering less, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control or connection to instruments, etc.)

b) Cable Glands:

i Single compression heavy duty brass cable gland with nickel plating finish complete with all accessories of sizes specified in the bill of quantity

ii Double compression heavy duty brass cable gland with nickel plating finish complete with all accessories sizes specified in the bill of quantity

iii Glands must be of reputed make andISI marked.

iv Cable glands shall be of heavy duty, made of brass, Chrome plated and approval is to be obtained from EIC for final acceptance. These shall have a screwed nipple with conduit electrical thread and check nut. These shall be suitable for armoured/ unarmoured cables as per requirement.

c) Cable Connectors

i Cable connectors, lugs/sockets, shall be of copper/aluminium alloy, suitably tinned, soldering less, crimping type. These shall be suitable for the cable being connected and type of function (such as power, control or connection to instruments, etc.)

d) Cable Indicators

i These shall be self-sticking type and of 2 mm thick aluminium/copper strap for overall cable. PVC identification numbers, ferrule shall be used for each wire.

e) GI flat

i GI flat galvanization shall be carried out by Hot dip galvanization process Galvanization thickness 86micron minimum or 610gms/sqm minimum

ii Test certificate towards galvanization thickness from government recognized test

iii laboratory to be provided. Size of the GI flats to be supplied as follows: 100mm X 10mm, 50mm X 60mm, 25mm x 4mm

f) Thermo plastic junction boxes: IP65,

i size: 98 X 98 X 61 MM

ii with metric knockout for cable entry 5pole terminals up to 4sqmm

iii with 3nos of Brass single compression glands

iv Make : Hensel, Rittal, L &T, or equivalent

g) HT Cable jointing kit size:

i End termination joint, indoor door use suitable for 11kv(E) 3Core 185 SQMM GI Strip armoured cable inside panel Test and Guaranttee certificate for 12 months of use to be provided.

ii Make of material: Raychem, 3M, Multi-pressing/Multishrink

h) PVC Conduits.

i All rigid conduit pipes shall be of PVC and be ISI marked. The wall thickness shall be not less than 1.6 mm for conduit up to 32 mm dia and not less than 2 mm for conduits above 32 mm dia

i) GI Conduits

i All rigid conduit pipes shall be of GI and be ISI marked. The wall thickness shall be not less than 1.6 mm for conduit up to 32 mm dia and not less than 2 mm for conduits above 32 mm dia

j) Supply of danger boards:

i 11kv of size 225mm x 300mm(height x width) x 2mm thick MS/AL plate. Red and white painted with skull - Danger mark in white. Voltage and danger written on Tamil, English and Hindi. (10NOS)

ii Supply of danger boards: 440v of size 225mm x 300mm (height x width) x 2mm thick MS/AL plate. Red and white painted with skull - Danger mark in white. Voltage and danger written on Tamil, English and Hindi. (10NOS)

1.1.8 Installation And Commissioning Of Equipments

a) Scope of party includes, installation, supervision of the installation of the items at the designated positions, energization, getting permission for energization from Competent Authority and commissioning of the complete system.

b) The electrical equipments i.e. LT panel, lighting Distribution boards, MCC, control desk, change over switch , miscellaneous items, cabling etc are to be placed at the appropriate position.

c) After positioning of the equipments all the connections of cables, earthing, glanding, socketing, end termination etc required for the satisfactory operation of the equipments to be carried out by the bidder

d) After completion of the connections the testing of the equipments before energization of the equipment shall have to be carried out by the Agency.

e) The various tools, calibrated testing equipments, etc required for testing of the equipments are in the scope of the Agency.

f) LT Panels, bus duct, lighting distribution board & capacitor bank APFC panels installation and commissioning

i The electrical panels shall be installed at the desired location confirming to IS standard applicable for low voltage and medium voltage switchgear panels with its latest amendments

ii Switchgear panels alignment and leveling to be checked on their base channels as per the instructions of the Engineer-in-charge.

iii The earth bus shall be made continuous throughout the length.

iv Loosely supplied relays and instruments shall be mounted and connected on the switchgear. Wherever the instruments and relays are supplied separately, they shall be mounted only after the associated control panel have been erected and aligned.

v After erection the switchboard shall be inspected for dust and vermin proofness. Any hole, which might allow dust or vermin etc. to enter the panel, shall be plugged suitably at no extra cost.

vi The Contractor shall fix the cable glands after drilling the bottom top plates of all switchboards with suitable holes at no extra cost. All the required cables and wires are to be suitably terminated using glands and sockets.

vii Testing

1 The Contractor shall perform operating tests on all switchgear and panels to verify operation of switchgear/panels and correctness of the interconnections between various items of the equipment. This shall be done by applying normal ac or dc voltage to the circuits and operating the equipment for functional checking of all control circuits, e.g. closing, tripping, control interlock, supervision and alarm circuits. All connections in the switchgear shall be tested from point to point for possible grounds or short circuit.

2 All electrical equipment alarms shall be tested for proper operation by causing alarms to sound under simulated abnormal conditions as applicable

3 The Contractor shall arrange testing and calibrations of relays. The testing equipment including primary and secondary injection sets (if required) etc. shall also have to be arranged by the Contractor. Payment for above work shall be deemed to have been included in the erection of switch boards/control panels.

4 Insulation resistance tests shall be carried out by following rating meggers:

4.a Control circuits up to220V : by 500 Vmegger

4.b Power circuits, bus bars, connections Up to 1.1kV : by 1000Vmegger

5 Before electrical panel is energised, the insulation resistance of each bus shall be measured from phase to ground. Measurement shall be repeated with circuit breakers in operating positions and contact open. Before switchgear is energised, the insulation resistance of all DC control circuits shall be measured from line to ground.

6 The following tests shall be performed on all circuit breakers during erection:

Contact alignment and wipe shall be checked an adjusted where necessary in accordance with the breakers manufacture's instructions.

6.a Each circuit breaker shall be closed manually and its insulation resistance measured from phase to phase and phase to ground before erection.

6.b All adjustable direct acting trip devices shall be set using values given by the Engineer-in- charge/manufacturer.

6.c Before switchgear is energised the following tests shall be performed on each circuit breaker in its test position.

6.d Close and trip the circuit breaker from its local & remote control switch, push button or operating handle. Switchgear control bus may be energised to permit test operation of circuit breaker with AC closing with prior permission of the Engineer-in-charge.

6.e Trip breaker either manually or by applying current or voltage to each of its associated protective relays.

6.f Before switchgear is energised, the test covered above shall be repeated with each breaker in its normal operating position.

6.g All electrical equipment alarms shall be tested for proper operation by causing alarms to sound under simulated abnormal conditions.

6.h After supply and installation of complete project or a particular building/area, the contractor shall carry out following tests before switching on the power to installation and the results shall be recorded and submitted to the engineer-in-charge. If results are not satisfactory/as per the standard, the contractor shall identify the defects/short coming and -shall rectify the same. Nothing extra shall be paid for carrying out these tests and contractor has to arrange all necessary instruments.

viii Insulation resistance to earth

1 This to be measured with all fuse links in place all switches on all lamps and appliance in position by applying a voltage not less than twice the working voltage (subject to a limit of 500V). Insulation resistance of the whole or any part of the installation to earth must not be less than 50 Mega ohms divided by the number of outlets (points and switch positions) except that it need not exceed 1 Mega ohm for the whole installation.

ix Insulation resistance between conductors

1 Test to be made between all the conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or neutral or the other pole or phase conductors of the supply. For this test, all lamps shall be removed and all switches put on. The result of the test must be 50 Mega ohms divided by the number of outlets (point and switch positions) but need not exceed one Mega ohm for the whole installation.

x Polarity of single pole switches

1 Test shall be made to verify that all non-linked single pole switches are on phase conductor (Live) and not on the neutral or earthed conductor.

2 Joint inspection and testing report to be produced by the contractor.

xi Cabling

1 Cable network shall include power, control and lighting cables, which shall be laid in underground trenches, Hume pipes, open trenches, cable trays, GI pipes, or on building structure surfaces as detailed in the relevant drawings, specifications and Cable schedules or as per the Engineer-in-charge's instructions. Supply and installation of cable trays, GI pipes/conduits, cable glands sockets at both ends, isolators, junction boxes, remote push buttons stations, etc. shall be under the scope of the Contractor.

2 General requirements for handling of cables

Before laying cables, these shall be tested for physical damage, continuity absence of cross phasing, insulation resistance to earth and between conductors. Insulation resistance tests shall be carried out with 500/1000 volt Megger.

2.a The cables shall be supplied at site, wound on wooden drum as far as possible. For smaller length and sizes, cables in properly coiled form can be accepted. The cables shall laid by mounting the drum of the cable on drum carriage. Where the carriage is not available, the drum shall be mounted on a properly supported axle, and the cable laid out from the top of the drum. In no case the cable will be rolled on, as it produces kinks, which may damage the conductor.

2.b Sharp bending and kinking of cables shall be avoided. The bending radius for insulated and sheath armoured cable shall not be less than 10 D Where 'D' is overall diameter of the cable.

2.c While drawing cables through GI pipes, conduits, RCC pipe, ensure that size of pipe is such that, after drawing cables, 40 % area is free. After drawing cable, the end of pipe shall be sealed with cotton/bituminous compound.

2.d Armoured cables shall never be concealed in walls/floors / roads without GI pipes, conduits RCC pipes.

2.e Joints in the cable throughout its length of laying shall be avoided as far as possible and if unavoidable, prior approval of site engineer shall be taken. If allowed, proper straight through epoxy resin type joint shall be made, without any additional cost.

2.f Cable shall be neatly arranged in the trenches/trays in such a manner so that criss-crossing is avoided and final take off to the motor/switchgear is facilitated. Arrangement of cables within the trenches/trays shall be the responsibility of the Contractor.

2.g All cable routes shall be carefully measured and cable cut to the required lengths and undue wastage of cables to be avoided. The routes indicated in the drawings are indicative only and the same may be rechecked with the Engineer-in-charge before cutting of cables. While selecting cable routes, interference with structures, foundations, pipeline, future expansion of buildings, etc. should be avoided.

2.h All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of all PVC insulated cables shall be taped with an approved PVC or rubber insulating tape. Use of friction type or other fabric type tape is not permitted. Lead sheathed cables shall be plumbed with lead alloy.

2.i Wherever cable rises from underground/concrete trenches to motors/switchgears/push buttons, these shall be taken in GI pipes of suitable size, for mechanical protection up to 300 mm distance of concerned cable gland or as instructed by the Engineer-in-charge.

2.j Where cables pass through foundation/walls of other underground structures, the necessary ducts or openings will be provided in advance for the same.

2.k However, should it become necessary to cut holes in existing foundations or structures the electrical Contractor shall determine their location and obtain approval of the Engineer-in-charge before cutting is done.

3 Installation of Cables

Utmost care shall be taken to avoid scratches, kinks and cuts on the conductor while transporting the cables to site or during installation. Suitable inhibiting grease shall be liberally applied to bare conductors, wherever they exist.

3.a The junction boxes, cable end boxes etc. wherever required to be provided shall have sufficient wiring spaces with regard to the sizes of cables indicated in the drawings. Wherever required, the items to be supplied for electrification shall be complete with requisite type of cable glands, cable boxes, termination etc. and other accessories which are necessary for the satisfactory installation/operation of the installations as per relevant statutory rules and regulations.

3.b Installation of all cables should be as per E.I. Standards. Fuses should be graded properly and should be selected based on the rating of cables. The cables shall be laid in trenches/overhead racks wherever available. The cables from cable trenches to the switcher shall be buried (as per standard practices and or taken through GI pipes to 1.2 m above ground/racks floor level. The cables taken over racks/ walls/ columns/ trusses shall be properly clamped using suitable clamps of 16 SWG 1/4 hard or 3/4 hard sheet, the width varying from 12.5 to 25 mm at intervals of 750 mm. 225 mm minimum horizontal inter axial spacing shall be maintained when more than one cable is laid in same trench. Suitable and permanent type of cable markers is to be provided indicating the route and position of joints of cable. Loops should be provided at either ends of the cable. Identification tags should be provided for each cable in the trench at a distance of 3metres.

3.c Supply and installation of danger notice boards, where required, and other provisions under the statutory rules and regulations shall be included in the scope of this work.

3.d The Contractor has to provide materials and carry out the wiring work including earthing according to IS 3043 unless otherwise specified and get it approved before using for work, by the authorised engineer of the Purchaser.

3.e Sufficient number of earth pits shall be provided, if found necessary and inter- connected so as to have the resistance of the earthing installations not more than 1 ohm. In case the soil resistivity is found to be very high, a high sensitive relay may be used to co-relate the relay setting with high earth resistance.

3.f The complete installation work shall be conforming to complying with the Indian Electricity Rules and to meet the approval of the State Electrical Inspector etc. Installation of all switchboards and distribution boards should be in conformity with Rule 51(1)(c) of I.E.R.1956.

3.g The cable terminations and earth terminations, wherever required, shall only be using compression type cable glands and suitable lugs.

3.h All the materials to be supplied for this work shall be got approved by the concerned engineer at site.

3.i The work will be considered complete only if the following tests are conducted, by the contractor at his own cost, satisfactorily in the presence of the site Engineer and are:

3.j Insulation test, Earth resistance test and Continuity test

4 Laying of Cables (underground system)

Cables shall be so laid in ground that these will not interfere with other underground structures. All water pipes, sewage lines or other structures, which become exposed by excavation, shall be properly supported and protection from injury until the filling has been rammed solidly in places under and around them. Any telephone or other cables coming in the way are to be properly shielded diverted as directed by the Purchaser.

4.a Cables shall be laid at minimum depth of 750 mm in case of LT & 1200 mm in case of HT, from ground level. Excavation will be generally in ordinary alluvial soil. The width of the trench shall be sufficient for laying of required number of cables.

4.b Sand bedding 75 mm thick shall be made below and above the cables. A layer of bricks (full size) shall be laid on the edge, above sand bedding on the sides of cables and a flat brick to cover cable completely. More than one cable can be laid in the same trench by providing a brick on edge between two cables. However the relating location of cables in trench shall be maintained till termination. The surface of the ground after back filling the earth shall be made good so as to conform in all respects to the surrounded ground and to the entire satisfaction to the Engineer-in-charge.

4.c For all underground cables, route markers should be used.

4.d Separate cable route markers should be used for LT, HT and telephone cables.

4.e Route markers should be grounded in ground with 1:2:4 cement concrete pedestal size 230 x 230 x 300 mm.

4.f Cable markers should be installed at an interval not exceeding 50 M along the straight routes of cables at a distance of 0.5 M away from centre of cable with the arrow marked on the cable markers plate indicating the location of cable. Cable markers should also be used to identify change in direction of cable route and for location of every joint in underground cable.

4.g RCC Hume pipes for crossing road in cable laying shall be provided by Contractor as per BOQ.

4.h RCC Hume pipe at the ends shall be sealed by bituminous compound after laying and testing of cable by electrical Contractor without may extra charge.

5 Laying of Cables in Cable Racks

Cable Racks to be used for cables laid indoors except for single cables. The cable racks shall be of ladder type and as specified in technical specification and schedule of items. The cable racks shall be of adequate strength to carry the weight of cables without sagging. Cable tray supports shall be at intervals of not less than 2.5m.

5.a Cables shall be fixed in cable trays in single tier formation and shall be clamped with aluminium flat clamps and galvanised bolts/unit.

5.b Earthing flat/wire can also be laid in cable tray along with cables.

5.c After laying of cables minimum 20 % area shall be spare.

5.d The entire cable entry opening in the wall/ceiling of the buildings shall be properly sealed with cable entry blocks.

6 Termination and Jointing of Cables

Use of Glands

6.a All PVC cable up to 1.1 kV grade, armoured or un armoured shall be terminated at the equipment/junction box/ isolators/push buttons/control accessories, etc. by means of suitable size compression type cable glands armour of cable shall be connected to earth point. The Contractor shall drill holes for fixing glands wherever necessary. Wherever threaded cable gland is to be screwed into threaded opening of different size, suitable galvanised threaded reducing bushing shall be used for approved type.

6.b In case of termination of cables at the bottom of the panel over a cable trench having no access from the bottom, a close fit holes should be drilled in the bottom plate for all the cables in one line, then bottom plate should be split in two parts along the centre line of holes. After installation of bottom plate and cables with glands, it shall be sealed with cold sealing compound.

6.c Use of Lugs/Sockets

6.d All cable leads shall be terminated at the equipment terminals, by means of crimped type solder less connectors unless the terminals at the equipment ends are suitable for direct jointing without lugs/sockets.

6.e The following is the recommended procedure for crimped joints and the same shall be followed:

I. Strip off the insulation of the cable end with every precaution, not to severe or damage any stand. All insulation to be removed from the stripped portion of the conductor and ends of the insulation should be clean and square.

II. The cable should be kept clean as far as possible before assembling it with the terminal/socket. For preventing the ingress of moisture and possibility of re-oxidation after crimping of the aluminium conductors, the socket should be fitted with corrosion inhibiting compound. This compound should also be applied over the stripped portion of the conductor and the palm surface of socket.

III. Correct size and type of socket/ferrule/lug should be selected depending on size of conductor and type of connection to be made.

IV. Make the crimped joint by suitable crimping tool.

V. If after crimping the conductor in socket/lug, same portion of the conductor remains without insulation the same should be covered sufficiently with PVC tape.

6.f Dressing of Cable inside the Equipment

6.g Laying of Cables on Building Surface/Structure

6.h Laying of Cables under Floors

6.i Laying of Cable in Masonry Trenches

6.j All the cable laying shall be as per IS 1255 with its latest amendments in case not specifically mentioned

7 Cable Indicators

These shall be self-sticking type and of 2 mm thick aluminium/copper strap for overall cable. PVC identification numbers, ferrule shall be used for each wire

1.1.9 Earthing and Lightning Protection Systems.

a) Scope of this specification covers the requirements for the Earthing and Lighting systems.

i Contractor's scope shall include earthing system of the entire electrical installation & lightning protection. The earthing & Lightning Protection system shall be as per relevant IS codes and as per statutory rules and regulations. Apart from the equipment protective earthing system covering the earth electrodes, interconnection networks, neutral and body earthing of transformers, switchgear body earthing , motors etc, the complete noncurrent carrying metal parts & structures, cable trays etc. in the plant shall be earthed in duplicate using suitably sized earth strips meeting the IS codes and relevant standards.

ii Earthing, Electrodes, Interconnections and Equipment Earthing.

iii The earthing system followed shall be as per earthing layout diagram, schedule of requirements and conforming to IS 3043.

iv The philosophy of Earth pits and interconnections shall be as below:

1 Plate Earth electrodes/pipe electrodes shall be used for earthing of Transformers and LT Panels.

2 Lightning Protection shall be done by using GI Pipe earth electrode.

3 Earthing System in each plant shall be formed as ring interconnecting earth electrodes and this earthing system shall be connected to IREL's existing earthing system in duplicate. Actual point of interconnection to be identified during execution.

v The following points may be noted while executing the earthing work:

1 Pipe electrode shall be buried in the ground vertically with its top not less than 20cm below the ground level. The installation shall be carried out as directed by the engineer in charge.

2 Plate electrode shall be buried in ground with its face vertical, and its top not less than 2m below the ground level. The installation shall be carried out as directed by the engineer in charge.

3 When more than one electrode is to be installed the distance between the pipe electrodes shall be 5m and that between plates shall be 8m.

b) Earthing Conductor: The earthing conductor (protective conductor from earth electrode up to the main earthing terminal/earth bus, as the case may be) shall be of the same material as the electrode, viz. GI, and in the form of wire or strip as specified. Protective (Earth continuity/Loop earthing) Conductor). The material and size of protective conductors shall be as specified by the IREL. Unless otherwise specified, GI conductor should be ordinarily used as protective conductor for substation and external lighting earthing and copper for all other areas.

c) Location for Earth Electrodes: Normally an earth electrode shall not be located closer than 1.5 m from any building. Care shall be taken to see that the excavation for earth electrode does not affect the foundation of the building; in such cases, electrodes may be located further away from the building, with the prior approval of the Engineer-in-charge.

d) Protective (Loop earthing/earth continuity) Conductor:

i Earth terminal of every switchboard in the distribution system shall be bonded to the main earth bus.

ii Two protective conductors shall be provided for a switchboard.

iii A protective conductor shall securely connect the earth connector in every distribution board (DB) to the earth bus.

iv All metallic switch boxes and regulator boxes in a circuit shall be connected to the earth connector in the DB by protective conductor.

v Provision should be given for the testing of earth electrodes by connecting a group of rod driven electrodes to the main earth grid through a bolted link adjacent to the electrodes in a sunken concrete box. Simpler disconnecting arrangements are not acceptable.

vi All non-current carrying metallic parts, vessels, structures, cable trays, supports, stockyards, shall be earthed and interconnected to the earth bus.

e) Marking:Earth bars/terminals at all switch boards shall be marked permanently, either as E or as Main earth terminal shall be marked "Safety Earth – Do Not Disconnect".

i Lightning protection lied structure against lightning" shall be followed.

ii The size and number of earth electrodes, interconnection strips and conductor sizes shall be suitably designed.

f) Principal Components:

i The principal components of a lightning protective system are:

1 Air terminations

2 Down conductors

3 Joints and bonds

4 Testing joints

5 Earth terminations

6 Earth electrodes.

g) Materials: The materials of air terminations, down conductors, earth termination, etc. of the protective system shall be reliably resistant to corrosion, or be adequately protected against corrosion. All air terminations and down conductors shall be of GI.

h) Air terminations**:** Air termination networks may consist of vertical or horizontal conductors, or combinations of both. For the purpose of lightning protection, the vertical and horizontal conductors are considered equivalent and the use of pointed air terminations, or vertical final is, therefore, not regarded as essential. A vertical air termination, where provided, need not have more than one point, and shall project at least 30 cm, above the object, salient point or network on which it is fixed. For a flat roof, horizontal air termination along the outer perimeter of the roof shall be used. For a roof of larger area a network of parallel horizontal conductors shall be installed. No part of the roof should be more than 9 m from the nearest horizontal protective conductor. Horizontal air terminations should be carried along the contours such as ridges, parapets and edges of flat roofs, and where necessary, over flat surfaces, in such a way as to join each air termination to the rest, and should themselves form a closed network.

i All metallic projections including reinforcement, on or above the main surface of the roof which are connected to the general mass of the earth, should be bonded and form a part of the termination network. If portions of a structure vary considerably in height, any necessary air terminations or air termination network for the lower portions should be bonded to the down conductors of the taller portions, in addition to their own conductors.

i) Down Conductors: The number and spacing of down conductors shall be suitably designed.

1.1.10 Fixing of cable trays:

a) The supplied cable trays are to be fixed on the structural as per instruction of EIC or drawing provided to the Agency. The cable tray lay out and the cable schedule after completion of cable laying to be provided .The cables laid for different purpose shall have an identification tag attached at both end for easier identification and tracing of the cables. At interval of 1meter approximately the cable trays shall be supported.

b) Motor Power Supply and Energization Including Testing:

i Power supply connection to the motors by proper socketing and glanding

ii Double Earthing connection to the motors

iii Meggering of the motor before connection

iv Control testing of the motor before connection

v Direction of rotation testing of the motor, setting of overload

vi No load test running of the motor, checking for single phasing

vii Test report of each of the motor drive

c) Installation of the Various Miscellaneous Items

i The specification of various miscellaneous items are mentioned in the technical specification and they shall be of the same quality as mentioned and shall be used during execution of various electrical works.

ii Installation of the rubber mats-issue of material transportation to site and laying as per instruction of EIC

iii Installation of CO2 fire extinguisher-issue of material transportation to site and laying as per instruction of EIC on appropriate supports fabricated by himself. numbering and indication mark fixing

d) List of approved Makes of Equipment and Materials

i The scope of this section covers the recommended makes of equipment, material components.

ii The makes of material offered by the contractor shall be one of the recommend makes The makes of material recommended are exhibited in respective section. The offers shall be strictly on the basis of the makes recommended.

iii Where specified make and model nos. are indicated in the specification/ schedule of requirements/drawings, the bidder should quote for the same items. Contractor shall get approval from Client before proceeding with procurement. Further if any other make of cables, cable glands, sockets are proposed by party then acceptance of the same is in the sole discretion of IREL and after approval of EIC. Mere supply of any make of material by any supplier in past to IREL in some particular order cannot be claimed as the accepted brand of material for supply in this contract.

1	Indicating lamps LED type		L & T, Siemens, Technic, Schneider, ABB & equivalent.
2	Cables		
	a. MV cables		Gloster, Nicco, Havells, Torrent, Universal, CCI, Polycab, KEI, equivalent.
	b. Control cables		Finolex, RR, Lapp, Havells, Nicco, Gloster, poly cab, KEI, universal, or any reputed make subject to approval of EIC/Consultant
3	660/1100 V grade PVC insulated single core unsheathed wire with copper conductor		Gloster, Havells, poly cab, Finolex or any reputed make subject to approval of EIC/Consultant .
4	Indicating Instruments		AE, Meco, Rishab,Conzerv, Schneider
5	Push button station		L & T, Siemens, ABB, Schneider, Ex-Protecta, FCG, Baliga
6	Capacitor		ABB, EPCOS, L&T, Shreem
7	Contactor, Timer and overload relays		L&T, Siemens, Schneider, ABB,
8	Conduits		Any make with ISI mark
9	High voltage insulation mat (PVC insulated electrical make)		Any make with ISI mark
10	Modular switches	-	Crab tree, Siemens, ABB, , Legrand, L&T,Schneider
12	MCB		Hager, Schneider, ABB, Legrand, Siemens, BCH
13	MCB DB		Legrand, ABB, Siemens, Schneider, BCH

14	ELCB + MCB (RCBO)		Legrand, Siemens, Schneider, ABB, Hager, BCH
15	Selector switches		Essen, Kaycee Switron, Reco, L & T
16	Fuse/Fuse Carrier		L & T, Schneider, Siemens, ABB, BCH
17	Cable glands		Lapp kabel, Baliga, Gripwel, HMI, Denson, Multipressings, Yamuna Gasses

Statutory Approval: All the designs, supplies, installation, testing, and commissioning works shall be carried out complying to Indian Electricity Rules and act as amended up to date. Contractor's scope shall include providing all required information, reports, data and full assistance towards compliance of any statutory requirement prevailing in India and approval of competent authority if required and any modification are needed in the power distribution scheme, the same shall be incorporated suitably and the supply, installation, testing and commissioning shall be meeting all such requirements from Electrical Inspectorate. The scope includes obtaining approval from DGMS(Electrical) towards energization of the electrical installations

VIII TECHNICAL SPECIFICATION OF INSTRUMENTATION PART

1 Instrumentation Specification In General

1.1 Electro-Magnetic Flow meter

a) Size of Flow Meter: As per design requirement.
b) Make: Yokogawa/ABB/E&H/Khrohne/SIEMENS.
c) Application: To measure process water flow
d) Type: Remote model.
e) Electrode material: Tungsten Carbide.
f) Flow Tube Lining: Poly Urethane (PU)
g) Type of Flow meter: Flange Type.
h) Flow Range: As per requirement
i) Construction: tube material: SS 304/SS316.
j) Excitation: Dual frequency
k) Accuracy: Minimum +/- 0.5% of Reading
l) Flow pressure: 6 kg/cm2
m) Ambient Temp.: Maximum 45degree centigrade.
n) Transmitter: remote type.
o) Transmitter Output: 4 to 20mA (Isolated)
p) Source Voltage: 80-264 VAC,50 Hz

q) Display: 7 segment LCD, Back light

r) Earthing ring on both sides of flow tube,

s) Facility for Converter: Auto zero adjustment, Totalization display, Variable damping (From 0.1 sec) test output, Self test, high low limit alarm, flow direction selection, Lighting protection, empty pipe detection, Eng. Unit display, Self calibration facility.

t) Enclosure:

i Enclosure should be IP-65

ii Painting – Epoxy paint.

u) Any special cables required for interconnecting different signals from panel to field Instruments at a max. Length of 10 meters is to be considered in the offer.

v) Technical Manual: Party should provide original Manuals describing Installation, testing, calibration, operation and maintenance, fault finding analysis.

w) Party should submit detail Technical literature along with quotation for technical Scrutiny.

x) Calibration certificate of the flow meter to be provided by the party during supply.

y) Installation & Commissioning:

i Supervision of installation & commissioning is to be done by the party

z) NOTE:

i Party is to submit quotation for the total system with detail technical literature and GA drawing with break up prices. In absence of these details quotation will not be considered for technical scrutiny.

ii Party is to submit their credential along with documentary evidences.

iii All cables required to interconnect different units of the system should be considered.

1.1.2 PLC System:

a) Scope of work: The scope of work includes supply of PLC along with accessories as per the technical specification mentioned below:

b) PC cased SCADA/HMI.

c) Our requirement: The PLC control hardware shall be installed at location with proximity to the thickener and filter press. The communication shall be PC compatible with Ethernet protocol (RJ45 connection) for ease of integration.

d) Scope of Work:

i The detail engineering, Installation, commissioning and testing and handing over is to be done you. PLC control panel shall be installed in a control cabin at suitable location.

ii Development of PLC Program, Development of SCADA/HMI, Integration of Existing PLC to New PLC hardware. The Ladder Logic of PLC and HMI to be followed as per existing PC Based control system.

iii Backup of PLC Program as well as operator station HMI program will be taken and saved on Pen drives/CD as applicable.

iv Engineering Modifications, if any shall be carried out and changes should be properly documented in both soft & hard formats.

e) The total system supply , Installation, commissioning, Detail engineering , PLC & SCADA/HMI Programming as per our requirement, Integration with existing PLC, testing along with plant commissioning activities and final handing over is your scope. If required any modification of plant requirement during commissioning is to be done by the agency.

f) PLC and SCADA/HMI shall be of reputed make like Siemens / Schneider / ABB /Yokogawa/Emerson/Allen Bradley/Honeywell with License issued in IREL's name.

g) Spare I/O modules (6 nos each) to be provided along with PLC.

h) HMI shall be minimum 19" size.

1.1.3 UPS

a) Scope of work: The scope of work includes supply of UPS System along with suitable accessories essential to provide 30 minutes backup for the PLC system at maximum.

1.1.4 Cable tray:

a) As per the cable tray dimensions given in electrical section.

1.1.5 Cables

a) 3 Core x 1.5 sq.mm of 1.1 kV grade PVC insulated PVC sheathed Flexible copper cable Confirming to IS: 694-1990 or its latest version in 100 metre coil.

b) Make: Finolex, L&T, Polycab, Rhino,

c) Items shall have minimum guarantee/ warrantee for a period of 12 months from the date of supply.

d) For 3 core cables colour of insulation shall be red, black, yellow or green.

1.1.6 Air Conditioning:

a) As per the latest design.

1.1.7 Computers and furnitures

a) As per the latest design and model.

1.1.8 Display Screen:

a) Item: LED Monitor For HMI/SCADA system.

b) Minimum Specification:

i Video Features: LED Type, UHD, Screen size: 139 cms, Resolution: 3840 X 2160

ii Response Time: 8ms, viewing angle: H178/V178.

iii Audio Features: Built-in speaker, Sound Output: 2 X 10 W, Surrounding sound, Balance, Bass, Treble.

iv Convenience Features: Auto channel search, Sleep timer, USB clone.

v Input/output: HDMI – 4 nos., Component, Composite, RF Input, USB Port: 1 no

vi Power Supply: 100 V AC to 240 VAC, 50 Hz,

vii Accessories: Wall mounting Kit, Connecting cable from PC to monitor (30 mtrs.), Remote & Batteries.

viii Warranty: Minimum 1 year from date of installation.

ix Make: Sony / LG / Samsung/Haier/Panasonic.

x Note:

1 The above LED monitor will be used for remote monitoring of HMI/SCADA screen at HUS control room. The LED monitors will be connected parallel to the HMI/SCADA for viewing the same screen on both. Any additional item required for installation of Monitor the same should be provided free of cost.

2 Party has to install the monitor & commission as per the above requirement free of cost.

Party should submit authorized dealership certificate for the item along with the quotation

6.2 Performance Guarantee

1 Performance guarantee tests shall be carried out on the equipment as proposed in the flowsheet to be provided by the successful bidder for 100% of the specified capacity and desired output.

2 Performance Guarantee Test (PGT) shall be carried out by the Selected Bidder on completion of integration of the de-sliming system with HUS. Selected Bidder shall demonstrate the performance of de-sliming system for a minimum period of 120 hours of continuous operation at a throughput of 180-220 tph in HUS, through meeting the following process deliverables

a) Free slime content in HUS concentrate should be less than or equal to 0.5%.

b) Free slime content in HUS Tails should be less than 1.0%.

c) Recycled process water from thickener/filter press shall be clear with less 1000ppm of Slime particles.

d) The filter cake generated shall have moisture content of 30% maximum.

3 Performance Guarantee Test (PGT) shall be carried out by the Selected Bidder in presence of the IREL only after the offered equipment supplied have operated satisfactorily as per the operating parameters given in the technical specification.

4 During operations of the equipment at no load and at full load, performance of all the drive shall be checked in respect of current drawn by the motors, temperatures rise, vibrations, gear box noise and its heating, bearing heating etc. with respective rated values.

5 The Electrical & automation system along with all its auxiliaries installed under the subject package is deemed to have cleared the PG test if performance of the equipment and system and subsystem is found satisfactory.

6 The Selected Bidder shall submit to the IREL a mutually agreed upon Procedural Protocol with details of the Performance Guarantee (PG) Test, PG Test Procedures and PG Test Schedules for the demonstration of Performance Guarantee.

7 Supervision and responsibility for PGT shall lie with the Selected Bidder.

8 During the PG test, if there are interruptions because of the reasons attributable to IREL, the duration of PG test shall be extended by the duration of interruptions to enable PG test for 5 days. However, if during the test runs, there is an interruption exceeding 1 hour due to reasons attributable to the Selected Bidder, e.g. Equipment breakdown, resource mobilization etc. the PG test will be discontinued. The PG test shall be repeated by the Selected Bidder on mutually decided date by both the parties

9 If even with two repetitive tests, the performance values are not reached for reasons attributable to Selected Bidder, he shall undertake at his own cost such modification or replacement as are considered necessary to obtain the performance values stipulated in this ToR & guaranteed by him. The responsibility to demonstrate performance guarantee values shall continue to remain with the Selected Bidder till the PG parameters are successfully established

6.3 Implementation Period

1 The Selected Bidder shall complete the commissioning of all proposed installations/ circuits & associated facilities in this ToR including 2 months of operation and maintenance assistance within a period of fourteen (14) months from the effective date. Level-II Network shall be updated monthly by the Selected Bidder and detail status/ delay analysis reports shall be submitted to IREL along with the Monthly Progress Report

6.4 Payment Terms

1. The Agency shall raise an invoice for each of the Project Milestone completed as per master network and in accordance with Billing Schedule, and shall submit the same to IREL in accordance with Clause mentioned below;
2. Each bill/ invoice shall state the amount billed and be accompanied with progress report for each milestone and any other supporting documents as required and finalised with IREL.
3. The Agency shall reimburse IREL all costs, charges, damages or expenses which IREL may have paid or incurred, if and to the extent to which the Agency is liable under this Agreement to pay upon written request of the Engineer-in-Charge, failing which such

costs, charges, damages or expenses shall be deducted by IREL from any money due or becoming due by IREL to the Agency under this Agreement or any other Agreement failing which such amounts shall be considered as debt from the Agency to IREL and shall be recoverable accordingly.

4. Agency shall validate the flow sheet as per tender and same needs to be approved by IREL. Payment of **five percent 5% of total Price Schedule will be released for finalizing flow sheet after the same is accepted and approved by IREL.**
5. Payment of **five percent (5%) of Price Schedule shall be released on submission of detail design & engineering data** for the facility of the De-sliming system and accepted by IREL.
6. Payment of **sixty percent (60%) of Price Schedule shall be released towards progressive payments for Supply of Plant & Equipment and building steel**. Invoicing for progress payments will be made in RA Bills with minimum value of each bill to be INR 2 Crore or as per the billing schedule to be submitted by the Successful Bidder against milestones to be mutually discussed and approved by IREL
7. Payment of **ten percent (10%) of Price Schedule shall be released upon completion of Erection of Plant & Equipment and building Steel structures**.
8. Payment of **ten percent (10%) of Price Schedule shall be released upon completion of Commissioning & PG Test and supply of O & M spares.**
9. Payment of **ten percent (10%) of Price Schedule shall be released upon issue of the Final Acceptance Certificate.**
10. Ninety five percent (95%) of the payment, towards each invoice raised, and 100% of payment of taxes and duties on submission of documentary evidence, shall be made by IREL within thirty (30) days after verification of the documents submitted by the Agency and by conducting physical inspection of the site as mentioned in the documents submitted with the invoice.
11. Liquidated Damages to be deducted shall be adjusted in the current invoice or next following invoice raised, as may be applicable;
12. All interim payments as per Paragraph 6 above, be regarded as progress payments against the final payment only and not as payment for Works completed and shall not preclude defective / imperfect / incomplete facilities to be removed. It will not be considered as an admission by IREL of the due performance of the Agreement, or any part thereof by the Agency nor shall it preclude, determine or affect in any way the powers of IREL under these conditions or in any way vary or affect the Agreement
13. The remaining five percent (05%) payment for each Project Milestone (the "Retention Money") shall be made after issuance of "Final Acceptance Certificate" by IREL and submission of Performance Bank Guarantee, as per the format attached in Annexure-II of Draft Agreement by the Agency from any scheduled bank of India in accordance with the terms and conditions mentioned in this Agreement;

Liquidated Damages

14. In case of delay in achieving Works Completion Date, Liquidated Damages as mentioned below shall be applicable.

15. Liquidated Damages (LD) against delay in achieving Works Completion Date.

Liquidated Damages (LD) shall be levied where reasons are attributable to Agency for delays in execution of this Agreement. LD shall be levied @0.5% per week or part thereof on the Agreement Value for each week of delay in achieving Works Completion Date; subject to a maximum of 10% of the total Agreement Value

6.5 Format for Price Bid

Format for Price Bid

Name of Project:

Name of Bidder:

IREL shall pay the Bidder Lump Sum (LS) basis as below:

Price Schedule – (Package Lump Sum (LS) Charges)

Sl. No.	Particulars	Unit	Value in INR
1	Fees for validation/ Development of flowsheet, Design & Engineering, Supply & erection of Equipment as per billing schedule, installation & commissioning, performance test, operation & maintenance assistance and final acceptance of de-sliming system with supply of O & M spares	LS	
2	GST charges		
3	Total Price		

Total Price with Taxes (in words):

Indian Currency (in words):

Signature and Seal of Bidder

Name

Designation

Date

Place

Notes:

a) The Bidder will be responsible to complete the entire scope of work as brought out in the RFP and Agreement without any price addition.

b) Only the lump sum price total quoted along with various taxes and levies will be

considered for comparison between various bidders. Break up for detailing if any, will not be considered for comparison.

c) The price quoted shall remain firm during the execution period of the contract. No requests for change of price will be allowed for whatsoever reasons. The final billing schedule shall be finalized on mutual discussion between IREL and the successful bidder.

d) In case of difference in amount in words and figures, amount in words will prevail.

e) In case the Price Bid is not as per the format and directions provided in the RFP, the same shall be termed as non-responsive and shall be liable for rejection by IREL and shall result in forfeiture of the Bid Security.

f) In case any conditional Price Bid is submitted by the Bidder, IREL shall have the right to reject the Price Bid and forfeit the Bid Security.

g) The fees and Tax should be mentioned separately as indicated in the price bid structure. In case any amount towards tax is not mentioned, then the price quoted will be considered taking the fees inclusive of tax into consideration.

6.6 Billing schedule

The successful bidder shall raise bills as per the billing schedule mutually decided by both IREL and the successful bidder based on the discussion during the execution of the work order/ agreement subject to certification of work and compliance with all contractual and statutory requirements.

6.7 Special Conditions of the Contract

1 Spares/ Consumables/ Miscellaneous item

1.1 The essential spares – for 1 year of Operation &Maintenance.

The bidder shall Supply essential O & M spares required for continuous operation of the equipment for One year. Spares shall be supplied for all items found essential, before commencing the commissioning of the project. Spares for all pumps, impellers, rake, filters, filter media, valves, diaphragm etc. which shall be standardized with existing plant & machinery.

1.2 Consumables, First fill and commissioning chemicals and spares

The bidder shall include in his tender the specifications including equivalent brand names, and quantities and itemized prices for all consumable materials like chemicals, oil, grease required during start-up, commissioning, first fill and consumables required for 1 year. This shall be deemed to be part of the scope.

2 Operation & Maintenance of the modified plant need to be demonstrated by the contractor as follow

2.1 Operation Assistance

During the 2 months period after commissioning, the bidder shall give training to Engineers, Operators and Technicians on the Operation & Maintenance aspects. In the performance establishment period, the bidder shall depute competent technical person round the clock for Operational assistance (at least one person in every shift).

2.2 Maintenance Assistance

For Maintenance assistance, the bidder shall have a competent technical person at site from 9 AM to 5 PM & upon call during off time, till completion of O & M assistance period (2 months). The technical person should be competent enough to handle the glitches as well as advise IREL staff rectifying the fault and provide training to IREL Maintenance staff

6.8 General Conditions of the Contract

This document shall accompany and be a part of the tender. General conditions of procurement shall include the following clauses:

Sl. No.	PARTICULARS
1.0	Definitions
1.2	Singular & Plural
1.3	Clause Headings or Marginal Notes
1.4	Specification
1.5	Engineering-In-Charge
2.0	Assignment and Subletting

3.0	Extent of Contract
4.0	Contract Documents
4.1	Custody of Drawings
4.2	One Copy of Drawings to be Kept on Site:
4.3	Further Drawings and Instructions
5.0	Contract Agreement
6.0	Modification in Contract
7.0	Use of Contract Documents And Information
7.4	Contract to Inform Himself Fully-
7.5	General Information
7.6	Standards
7.7	Priority of Contract Documents
7.8	Special Conditions Of Contract:
8.0	Patent Infringement
9.0	Indemnities
9.1.1	Contractor Indemnities for Liabilities
9.1.2	Contractor Indemnification for Taxes
9.1.3	Indemnification by Sub-Contractor/Vendor
9.1.4	Payment of Amounts Under This Clause
9.1.5	Permits and Certificates
9.1.6	Mechanics Lien
10.0	Work tube to the Satisfaction Of Engineer:
11.0	Programme to be Furnished:
12.0	Contractors Superintendence:
13.0	Contractor's Employee:
14.0	Extra Supervision on Work:
15.0	Setting-Out of the Works
16.0	Use of Explosives
17.0	Care of Works
17.1	Excepted Risks
18.0	Use of Land & Buildings
19.0	Damages to Persons And Property
20.0	Accident or Injury To Workmen
21.0	Workmen's Compensation Act
22.0	Giving of Notice And Payment Of Fees
22.1	Compliance With Statutes Regulations Etc.
23.0	Fossils Etc.:
24.0	Patent Rights & Royalties
25.0	Interference With Traffic Adjoining Properties
26(A)	Extraordinary Traffic:
26(B)	Water borne Traffic:
27.0	Opportunities for Other Contractors:
28.0	Supply of Plant, Material And Labour:
29.0	Delay in Obtaining Materials By The Employer
30.0	Site Clearance on Completion Of Work
31.0	Return of Surplus Materials
	Work Material And Plant

32.0	Quality of Material & Workmanship and Tests:
33.0	Access to Site
34.0	Inspection, Testing And Expediting:
35.1	Examination of Work Before Covering Up
35.2	Un covering & Making Openings
36.0	Removal of Improper Work & Materials
37.0	Default of Contractor In Compliance
38.0	Suspension of Work:
39.0	Suspension Lasting more than 90Days
40.0	Issue of Other Materials From IREL Stores
	Commencement Time And Delays
41.0	Commencement of Work
42.0	Way Leaves Etc.
43.0	Time for Completion
44.0	Extension of Time for Completion
44.1	Time Extension of Contract
45.0	No Night or Sunday Work:
46.0	Rate of Progress
47.0	Liquidated Damages for Delayed Execution of Contract
48.0	Force Majeure
49.0	Certificate of Completion Of Work
50.0	Maintenance and Defects
50.1	Definition of Period of Maintenance
50.2	Execution of Works of Repair Etc.
50.3	Cost of Execution of Works of Repair Etc.
50.4	Remedy on Contractor's Failure to Carryout
51.0	Contractor to Search
52.0	Alterations, Additions and Omissions
52.1	Variations
53.1	Valuation of Variations
53.2	Power of Engineer to Fix Rates
53.3	Claims
53.4	Extra Item
54.0	Property in Materials:
54.1	Materials Obtained from Dismantlement& Excavation Etc
54.2	Relics, Gold, Silver Found in or upon the Site:
55.0	No Approval by Vesting:
	Measurement
56.0	Quantities
57.0	Works to be Measured
58.0	Mode of Measurement
59.0	Payment for Work Done
59.2	Bill to be Submitted Monthly
59.3	Bills to be On Printed Forms
59.4	Retention Money
59.5	Set-Off

59.6	Deductions from Contract Price
59.7	Taxes Applicable To Contractor's Manpower, Turn over, Equipment Etc.
60.0	Approval by Maintenance Certificate
61.0	Maintenance Certificate
61.1	Cessation of Employer's Liability
61.2	Unfulfilled Obligation:
62.0	Urgent Repairs
63.0	Resolution of Disputes/Arbitration
63.4	Arbitration:
63.5	Jurisdiction
64.0	Acts of Parliament, Local And Other Authorities and Bye-Laws:
64.1	Complying with Regulations
65.0	Breach of Terms, Suspension And Termination
65.1	Breach of Terms
65.2	Suspension
65.3	Temporary Suspension
65.4	Event of Default
65.5	Recourse to Event Of Default
65.6	Termination due to Contractor Event Of Default
65.7	Payment upon Termination
65.8	Disputes about Events of Termination`
66.0	Limitation of Liability
67.0	Method of Blacklisting Vendors
68.0	Secrecy
69.0	Labour
70.0	Returns of Labour
71.0	Labour License:
72.0	Woman Labour
73.0	Employment of Children
74.0	Entry Pass
75.0	Safe Custody of Entry Pass
76.0	Liability for Accidents And Damages
77.0	Safety Clauses
78.0	Insurance
79.0	General
80.0	Earnest Money Deposit (EMD)
81.0	Security Deposit (Performance Security) Or Performance Bank Guarantee
82.0	Retention Money
83.0	Refund of SD And Retention Money
84.0	For feature of SD & Retention Money
86.0	Ethics In Tendering & Other Business Dealings
87.0	Undertaking

General Conditions of Contract

1.0 Definitions:

In the contract (as here in after defined), the following "words" and "Definitions" expression shall have the meaning hereby assigned to them except where the context otherwise requires:

a) **"Employer"** means IREL (India) Limited (IREL) havingitsregisteredofficeatPlotNo.1207, Veer Savarkar Marg, Near Siddhi Vinayak Temple, Prabhadevi, Mumbai- 400028. The term Employer includes successors, assigns of IREL.

b) **"Contractor"** means the person or persons firm or company whose tender has beenacceptedbytheEmployerandincludestheContractors"personalrepresentatives, successors and permitted assignees.

c) **"Engineer"** means the representative of IREL or the other Engineer appointed from time to time by the Employer and notified in writing to the contractor to act as Engineer for the purposes of the contraction place of the said representative.

d) **"Engineer's Representative"** means any resident engineer or assistant of the Engineer oranyotheremployeeoragentappointedfromtimetotimebytheEmployerortheEngineerto perform the duties set forth in Clause 1.5 hereof and whose authority shall be notified in writing to the Contractor by the Engineer.

e) **"Work"** shall mean and include all works specified or set forth and required in and by the specifications, drawing and schedule here to annexed or to be implied there from or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings (being in conformity with the original specification, drawing and schedule)and also such additional instructions and drawings not in conformity as aforesaid as shall from time to time, during the progress of the work hereby contracted for, be supplied by the Employer.

f) **"Contract"** means the Invitation to tender, Instructions to Tenderers, General Conditions of Contract, Special. Conditions of Contract, Specifications, Drawings. Tender Schedule showing approximate quantities, quoted rates and amount against each item, Time Schedule, Letter of Intent/Award, Tender and Contract agreement.

g) **"Contract Price** "means In the case of Lump sum Contracts, the price payable to the Contractor as mentioned in the Contract for each line item. Price is fixed & firm during the entire duration of contract subject to price reduction clause in case of delay in performance; however, price is subject to price variation clause as per special conditions of contract, if any In the case of Item Rate Contracts, Rates by the item rates quoted by the tenderer and accepted by the Company for the various items.

h) **"Constructional Plant"** means all appliances or things of whatsoever nature as required or about the execution, completion or maintenance of the Works or, Temporary Works (as hereafter defined) but does not include materials or other things intended to form or forming part of the permanent work or temporary housing ,hutting, offices &Stores etc.

i) **"Temporary Works"** means all temporary works of every kind required in or about the execution, completion or maintenance of the works.

j) **"Drawings"** means the drawings referred to in the Specification and any modification of such drawings approved in writing by the Engineer and such other drawings as may from time to time be furnished or approved in writing by the Engineer.

k) **"Site"** means the land sand other places envisaged by the Employer where the Works are to be executed or carried out.

l) **"Letter of Intent"** is intimation by a letter to tenderer that tender has been accepted in accordance with the provisions contained in that letter.

m) **"Approved"** means approved in writing including subsequent written confirmation of previous verbal approval and "approval" means approval in writing including aforesaid.

1.2 Singular & Plural: Words importing the singular only also include the plural and vice versa where the context requires.

1.3 Clause Headings or Marginal notes: The Clause headings or marginal notes in these General Conditions shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of thec ontract.

1.4 Specification: The term "Specification "shall mean schedules, detailed designs, and statements of technical data, performance characteristics and all such particulars mentioned as such in the contract. In the absence of any specific specifications issued by the Employer, the specifications issued by the BIS will apply.

1.5 ENGINEER-IN-CHARGE:

The Engineer-in-charge shall represent and act on behalf of IREL at all times during the currency of the all notices, instructions, orders, certificates, approvals and all other communications under this Contract shall be given by the Engineer-in-charge, except as here in otherwise provided.

The Engineer-in-charge shall have authority for

- General supervision, follow up of supply and direction of the Works
- Direction to stop the Works whenever such stoppage may be necessary to ensure the proper execution of the works
- To reject all Works and Materials which do not conform to the contract specifications. The Engineer-in-charge shall have no authority to relieve the CONTRACTOR of any of his duties or obligations under the contract or except as expressly provided here-in-under or elsewhere in the Contract to order any work involving delay or any extra payment by IREL or to make any variation of or in the Works.

2.0 ASSIGNMENT AND SUB-LETTING:

2.1 The Contractor shall not assign the Contract or any part thereof or any benefit or interest therein or there under (other than a charge in favour of the Contractor's Bankers of any money due or to become due under this Contract) without the prior written consent of Employer.

2.2 The Contractor shall not sub-let the whole or part of the Works except where otherwise provided by the Contract, and even then only with the prior written consent of the Employer and such Consent if given shall not relieve the Contractor from any liability or obligation under the contract and he shall be responsible for the acts, defaults and neglects of any Sub-contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen Provided always that the provision of labour on a piecework basis shall not be deemed to be a sub- letting under this clause.

2.3 CONTRACTOR shall supervise and direct the work of all SUB-CONTRACTORS and shall be responsible for co-coordinating their work. If CONTRACTOR fails to correct, or commence to correct and execute the correction with due diligence of deficient or defective work performed by any SUB-CONTRACTOR within reasonable time (provided it doesn't materially impact safe operation of plant), after receipt by CONTRACTOR of a notice from EMPLOYER with respect thereto. EMPLOYER may (but shall not be obligated to), after

seven days following receipt by CONTRACTOR of an additional notice, and without prejudice to any other right or remedy take all reasonable steps to remedy such defective or deficient work at risk and cost of CONTRACTOR.

2.4 CONTRACTOR shall require all SUB-CONTRACTORS to perform in accordance with the relevant requirements of the CONTRACT including FINAL PROPOSAL, all APPLICABLE LAWS and APPLICABLE PERMITS, Prudent Utility Practice, Good Engineering Practices, the requirements of the NIT, and all Warranties of SUB-CONTRACTORS/SUBVENDORS and Manufacturers and all insurance policies relating to the PLANT or the WORK.

2.5 CONTRACTOR shall be solely responsible for paying each SUB-CONTRACTOR and anyother person to whom any amount is due from CONTRACTOR for services, equipment, construction equipment, materials or supplies otherwise related to the PLANT or the WORK.

2.6 CONTRACTOR shall take all reasonable steps and actions to ensure that such service, equipment, construction equipment, materials and supplies and the like have been or will be received, inspected and approved and that such services have been or will be properly performed.

2.7 EMPLOYER shall not be deemed by virtue of the CONTRACT to have any contractual obligation to or relationship with any SUB-CONTRACTOR.

3.0 EXTENT OF CONTRACT:

The Contract comprises the construction, completion and maintenance of the works and except in so far as the contract otherwise provides, the provision of all labour, materials, constructional plant, temporary works and everything whether of a temporary or permanent nature required in and for such construction, completion and maintenance.

4.0 CONTRACT DOCUMENTS:

4.1 CUSTODY OF DRAWINGS:

The drawings shall remain in the sole custody of the Engineer but two copies thereof shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him. On the completion of the contract, the Contractor shall return to the Engineer all drawings provided under the contract, The Contractor shall give adequate notice in writing to the Engineer or Engineer's representative, of any further drawings or specifications that may be required for the execution of the works or otherwise under the contract.

4.2 ONE COPY OF DRAWINGS TO BE KEPT ON SITE:

One copy of the drawings furnished to the Contractor as aforesaid shall be kept by the Contractor on the site and the same shall at all reasonable time be available for inspection and use by the Engineer and the Engineer's representative and by any other person authorized by the Engineer in writing.

4.3 FURTHER DRAWINGS AND INSTRUCTION:

The Engineer shall have full power and authority to supply to the Contractor from time to time during the progress of the works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.

5.0 CONTRACT AGREEMENT:

The Contractor shall enter into and execute a Contract Agreement in the form annexed hereto within the specified time in Letter of Intent/ Award and in default there of the earnestmoney paid by the Contractor shall be forfeited and acceptance of his Tender shall

be considered as withdrawn. The cost of the stamp fee of the agreement is to be borne and paid by the Contractor.

6.0 MODIFICATIONS IN CONTRACT:

All modifications leading to changes in the CONTRACT with respect to technical or commercial aspects including terms of completion period shall be considered valid only when amendment to the CONTRACT is issued by the Employer.

The modification or amendment of the CONTRACT for an adjustment in the CONTRACT PRICE and/ or COMPLETION DATE in accordance with the applicable provision of the CONTRACT, if any, shall be subject to mutual agreement.

IREL shall not be bound by any printed conditions or provisions in the CONTRACTOR'sbid forms or acknowledgement of CONTRACT and other documents which support to impose any condition at variance with or supplemental to CONTRACT.

7.0 USE OF CONTRACT DOCUMENTS AND INFORMATION:

7.1 The CONTRACTOR shall not, without the IREL's prior written consent, disclose the CONTRACT or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the IREL in connection therewith, to any person other than a person employed by the CONTRACTOR in the performance of the CONTRACT. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purpose of such performance.

7.2 The CONTRACTOR shall not without the IREL's prior written consent, make use of any document or information enumerated in Clause 7.1 except for purpose of performing the CONTRACT.

7.3 Any document other than CONTRACT, itself, enumerated in Clause 7.1 shall remain the property of the IREL and shall be returned (all copies) to the IREL on completion of the CONTRACTOR's performance under the CONTRACT, if so required by the IREL.

7.4 CONTRACTOR TO INFORM HIMSELF FULLY:

The CONTRACTOR in fixing his rate shall for all purpose whatsoever reason may be, deemed to have himself independently obtained all necessary information for the purpose of preparing his tender and his tender as accepted shall be deemed to have taken into account all contingencies as may arise due to such information or lack of same. The correctness of the details, given in the Tender Document to help the CONTRACTOR to make up the tender is not guaranteed.

The CONTRACTOR shall be deemed to have examined the CONTRACT DOCUMENTS, to have generally obtained his own information in all matters whatsoever that might affect the carrying out of the works at the schedules rates and to have satisfied himself to the sufficiency of his tender. Any error in description of quantity or omission there from shall not vitiate the CONTRACT or release the CONTRACTOR from executing the work comprised in the CONTRACT according to DRAWINGS and SPECIFICATIONS at the scheduled rates. He is deemed to have known the scope, nature and magnitude of the WORKS and the requirements of materials and labour involved etc., and as to what all works he has to complete in accordance with the CONTRACT documents whatever be the defects, omissions or errors that may be found in the DOCUMENTS. The CONTRACTOR shall be deemed to have visited surroundings, to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of the Railways, Roads, Bridges and Culverts, means of transport and communication, whether by land,

water or air, and as to possible interruptions thereto and the access and egress from the site, to have made enquiries, examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus materials, the available accommodation as to whatever required, depots and such other buildings as may be necessary for executing and completing the works, to have made local independent enquiries as to the sub-soil, subsoil water and variations thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting these works. He is deemed to have acquainted himself as to his liability of payment of Government Taxes, Customs duty and other charges, levies etc.

Any neglect or omission or failure on the part of the CONTRACTOR 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 works at the scheduled rates and times in strict accordance with the CONTRACT.

It is, therefore, expected that should the CONTRACTOR have any doubt as to the meaning of any portion of the CONTRACT DOCUMENT, he shall set forth the particulars thereof in writing to IREL in duplicate, before submission of tender. IREL may provide such clarification as may be necessary in writing to CONTRACTOR, such clarifications as provided by IREL shall form part of CONTRACT DOCUMENTS.

No verbal agreement or inference from conversation with any effect or employee of the IREL before, during or after the execution of the CONTRACT AGREEMENT shall in any way affect or modify and of the terms or obligations herein contained. Any change in layout due to site conditions or technological requirement shall be binding on the CONTRACTOR and no extra claim on this account shall be entertained.

7.5 GENERAL INFORMATION:

a) **Location of Site:** The proposed location of Project site is defined in the Special Conditions of Contract.

b) **Access by Road:** CONTRACTOR, if necessary, shall build other temporary access roads to the actual site of construction for his own work at his own cost. The CONTRACTOR shall be required to permit the use of the roads so constructed by him for vehicles of any other parties who may be engaged on the project site. The CONTRACTOR shall also facilitate the construction of the permanent roads should the construction there of start while he is engaged on this work. He shall make allowance in his tender for any inconvenience he anticipates on such account. Non-availability of access roads, railway siding and railway wagons for the use of the CONTRACTOR shall in no case condone any delay in the execution of WORK nor be the cause for any claim for compensation against the EMPLOYER.

c) **Scope of Work:** The scope of WORK is defined in the Technical Part of the tender document. The CONTRACTOR shall provide all necessary materials, equipment, labour etc. for the execution and maintenance of the WORK till completion unless otherwise mentioned in the Tender Document.

d) **Water Supply:** Contractor will have to make his own arrangements for supply of water to his labour camps and for works. All pumping installations, pipe network and distribution system will have to be carried out by the Contractor at his own risk and cost. Alternatively, IREL at his discretion may endeavour to provide water to the Contractor at its source of supply provided the Contractor makes arrangement for pipe networks from source of

supply and such distribution pipe network shall have prior approval of the Engineer-in-Charge so as not to interfere with the layout and progress of the other construction works. In such case, the rate for water shall be deducted from the running account bills (Subject to rate of deduction specifically mentioned in the tender, if any). However, IREL does not guarantee the supply of water and this does not relieve the Contractor of his responsibility in making his own arrangement and for the timely completion of the various works as stipulated.

e) **Power Supply:** Subject to availability, IREL will supply power at 400/440 V at only one point at the nearest sub-station, from where the CONTRACTOR will make his own arrangement for temporary distribution. The point of supply will not be more than 500 m away from the CONTRACTOR'S premises. All the works will be done as per the applicable regulations and passed by the ENGINEER-IN-CHARGE. The temporary line will be removed forthwith after the completion of work or if there is any hindrance caused to the other works due to the alignment of these lines, the CONTRACTOR will re-route or remove the temporary lines at his own cost. The CONTRACTOR at his cost will also provide suitable electric meters, fuses, switches, etc. for purposes of payment to IREL which should be in the custody and control of the IREL. The cost of power supply shall be payable to IREL every month for Construction Works which would be deducted from the running account bills (subject to rate of deduction specifically mentioned in the tender, if any). IREL shall not, however, guarantee the supply of electricity nor have any liability in respect thereof. No claim for compensation for any failure or short supply of electricity will be admissible.

It shall be the responsibility of the CONTRACTOR to provide and maintain the complete installation on the load side of the supply with due regard to safety requirement at site. All cabling, equipment, installations etc. shall comply in all respects with the latest statutory requirements and safety provisions, i.e., as per the Central/State Electricity Acts and Rulesetc. The CONTRACTOR will ensure that his equipment and Electrical Wiring etc., are installed, modified, maintained by a licensed Electrician/Supervisor. A test certificate is to be produced to the ENGINEER-IN-CHARGE for his approval, before power is made available.

At all times, IEA regulations shall be followed failing which the IREL has a right to disconnect the power supply without any reference to the CONTRACTOR. No claim shallbe entertained for such disconnection by the ENGINEER-IN-CHARGE. Power supply will be reconnected only after production of fresh certificate from authorized electrical supervisors.

The IREL is not liable for any loss or damage to the CONTRACTOR's equipment as a result of variation in voltage or frequency or interruption in power supply or other loss to the CONTRACTOR arising there from.

The total requirement of power shall be indicated by the tenderer along with his tender.

7.6 STANDARDS:

The goods and services supplied under this CONTRACT shall conform to the standards mentioned in the technical specifications and when no applicable standard is mentioned, CONTRACTOR shall follow best engineering practices.

7.7 PRIORITY OF CONTRACT DOCUMENTS:

Except if and the extent otherwise provided by the Contract, the provisions of the General Conditions of Contract and Special Conditions shall prevail over those of any other documents forming part of the CONTRACT. Several documents forming the CONTRACTare to be taken as mutually explanatory of one another, but in case of ambiguities or discrepancies the same shall be explained and adjusted by the ENGINEER-IN-CHARGEwho shall thereupon issue to the Contractor instructions thereon and in such event, unless otherwise provided in the Contract, the priority of the documents forming the Contract shall be as follows:

1. The Contract Agreement;
2. The Letter of Acceptance;
3. The Instructions to Bidders(ITB);
4. Special Conditions of Contract (SCC);
5. General Conditions of Contract (GCC)
6. Any other document forming part of the Contract.

Works shown in the DRAWING but not mentioned in the SPECIFICATIONS or described in the SPECIFICATIONS without being shown in the DRAWINGS shall nevertheless be deemed to be included in the same manner as if they had been specifically shown upon the DRAWINGS and described in the SPECIFICATIONS.

7.8 SPECIAL CONDITIONS OF CONTRACT:

Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, specification of Work, Drawings and any other documents forming part of this CONTRACT wherever the context so requires. Notwithstanding the sub-division of the documents into these separate sections and volumes, every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the CONTRACT so far as it may be practicable to do so.

Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy, or variations, prevail.

8.0 PATENT INFRINGEMENT:

8.1 CONTRACTOR shall at all times, indemnify and keep indemnified IREL against all claims or suits and defend, at its own cost, any suit or action brought against IREL and hold IREL free and harmless against all costs of such claims or suits which may be made against IREL in respect of any infringement of any rights protected by patent ,copyright, trademarks, and trade secrets to the extent that such claim, suit, or action is are sult of the use of CONTRACTOR"s technical Information for the construction, maintenance, and operation of PLANT and the use of CONTRACTOR "sand/or any other process, licenser"s processes used in PLANT. IREL shall pass on all claims made against it to CONTRACTOR for settlement.

8.2 CONTRACTOR declares that to the best of his knowledge and belief the use of CONTRACTOR"s Technical Information for the construction, maintenance, and operation of PLANT and the use of CONTRACTOR "s processes used in PLANT will not infringe any valid patent rights of a third party. However, if at any time such infringement arises, CONTRACTOR agrees to keep IREL indemnified and harmless against such claims and

costs thereof and make arrangements that will allow IREL to continue the operation of PLANT.

8.3 IREL shall promptly advise CONTRACTOR in writing of any claim of infringement or any action for infringement of patents brought against it by a third party and based upon the use of CONTRACTOR"s Technical Information. If such use is in accordance with instructions given in writing by CONTRACTOR, CONTRACTOR shall undertake the defense, or assist IREL in the defence, of the claim or suit up to final judgment or settlement.

8.4 CONTRACTOR shall under take the defence on behalf of IREL and shall have so e charge and direction of the defence, and shall be at all costs related thereto. CONTRACTOR shall further hold IREL harmless from any damages or other sums that may become payable by IREL under final judgment or settlement. However, REL shall render to CONTRACTOR all reasonable assistance that may be required by CONTRACTOR in the defence, and shall have the right to be represented therein by advisory council of its own selection and at its own expense.

8.5 In addition to the measures specified in Clause-8.4, CONTRACTOR may further, at its option, however, in reasonable consultation with IREL, seek to abate the alleged infringement by modification of PLANT or its operation without adversely affecting the performance and/or secure for IREL immunity from suit for infringement. In such case, CONTRACTOR shall bear/ reimburse IREL all costs related to the said modification and to the said immunity.

8.6 In the event that IREL is legally restrained from operating PLANT on account of any infringement action or suit, CONTRACTOR shall take all possible actions to assist IREL operate and use PLANT, is so far his area of operation is concerned.

8.7 Neither CONTRACTOR nor IREL shall settle or compromise any suit or action without the written consent of the other, if settlement or compromise obliges the other to make any payment or part with any property or assume any obligations or surrender any rights or to be subjected to any injunction by reason of such settlement or compromise.

9.0 INDEMNITIES:

9.1 INDEMNIFICATIONFORLIABILITIES:

9.1.1CONTRACTOR INDEMNIFICATION FOR LIABILITIES:

To the fullest extent permitted by Law, CONTRACTOR assumes liability for and agrees to indemnify, protect, save and hold harmless IREL from and against any and all Liabilities(including, any strict liability), arising out of acts or omissions of CONTRACTOR or its personnel or its agents in the performance of its obligations under the CONTRACT causing bodily injury, sickness, disease or death, damage to or loss of any property, and whether or not involving damage to WORKS or SITE that may be imposed on, suffered or incurred by or asserted against IREL and in any way relating to or arising out of

i. WORK, any EQUIPMENT
ii. the presence, discharge, treatment, storage, transportation, disposal, escape or release of any Hazardous Substance, or the threat there of, at, toor from SITE after commencement of work (any hazardous substance already existing at SITE before commencement of WORK excluded)
iii. The performance of WORK, or as a result of personal injuries (including wrong ful death);
iv. the violation by CONTRACTOR or any SUB-CONTRACTOR/ VENDOR of any Government Approval or applicable Law;
v. Any breach of CONTRACT with any SUB-CONTRACTOR/VENDOR, provided,

however, that CONTRACTOR shall not be required under this Clause to indemnify IREL for any liability arising out of or resulting from events or circumstances occurring or existing after PRELIMINARY ACCEPTANCE OF PLANT except where the liability arises from an act or omission of CONTRACTOR or any SUB-CONTRACTOR/VENDOR or any other Person directly or indirectly employed by either of them or anyone for whose acts either of them may be liable that was a contributory cause of such liability.

9.1.2CONTRACTOR INDEMNIFICATION FOR TAXES:

It is specifically understood that CONTRACTOR hereby accepts and assumes exclusive liability for and save and hold IREL harmless from and against of all Taxes arising from the performance of WORK, and all such Taxes shall be deemed to be included in CONTRACT PRICE, except for GST. GST at applicable rate is payable extra. Seller need to prepare E-Invoice under GST and submit monthly/ quarterly GST Return as per GST Rules. Failure to submit GST Return on time as per GST Rules may result into deduction of GST while processing Bills.

9.1.3INDEMNIFICATION BYSUB-CONTRACTOR/VENDOR:

CONTRACTOR shall obtain from each SUB-CONTRACTOR/VENDOR, which is an affiliate, and shall use all reasonable efforts to obtain from each SUB-CONTRACTOR/VENDOR, an indemnification materially similar inform and substance to Clause-9.1.1and Clause-9.1.2of which the IREL shall be named as beneficiary.

9.1.4PAYMENT OF AMOUNTS UNDER THIS CLAUSE:

Except to the extent covered by insurance, all amounts payable and due by CONTRACTOR to IREL under this Clause shall be deducted from CONTRACT PRICE or any other amounts owed by IREL to CONTRACTOR here under. If such amounts payable by IREL to CONTRACTOR are less than the amounts payable and due by CONTRACTOR under this Clause, CONTRACTOR shall be liable to IREL for such excess and shall pay such amount to IREL immediately upon demand.

9.1.5PERMIT SAND CERTIFICATES:

CONTRACTOR shall procure, at its expense, all necessary permits, certificates and licenses required by virtue of all applicable laws, regulations, ordinances and other rules in force at the place where any of the works is to be performed, and CONTRACTOR further agrees to hold IREL harmless from liability or penalty which might be imposed by reason of any asserted or established violation of such laws, regulations, or finances or other rule. IREL shall provide the necessary permits for CONTRACTOR's personnel to undertake any work in India in connection with CONTRACT.

9.1.6MECHANICSLIEN:

CONTRACTOR agrees to indemnify and hold harmless IREL against all labourer's material, men's and/or mechanics liens arising from its work, and shall keep the premises of IREL free from all such claims, liens and encumbrances.

10.0 WORK TO BE TO THE SATISFACTION OF ENGINEER:

The Contractor shall execute, complete and maintain the Works in strict accordance with the contract, to the satisfaction of the Engineer and shall comply with and adhere strictly to the Engineer's instructions and direction on any matter (whether mentioned in the Contract or not). The Contractor shall take instructions and directions only from the

Engineer or from the Engineer's representative on any matter touching or concerning the Works.

11.0 PROGRAMME TO BE FURNISHED:

As soon as practicable after the acceptance of his tender, the Contractor shall, if required, submit to the Engineer for his approval a programme showing the order of procedure and the method in which he proposes to carry out Works and shall whenever required by the Engineer or Engineer's representative furnish for his information particulars in writing of the Contractor's arrangement for the carrying out of the Works and of the constructional plant and temporary Works which the Contractor intends to supply, use or construct as the case maybe. The submission to and approval by the Engineer or Engineer's representative of such programme or the furnishing of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

12.0 CONTRACTORS SUPER INTENDENCE:

The Contractor shall give and provide all necessary super intendance during the execution of the works and as long thereafter as the Engineer may consider necessary for the proper fulfilling of the Contractor's Obligation under the contract. The Contractor or one of his competent and authorized agent approved of in writing by the Engineer (which approval may at any time be withdrawn) is to be constantly on the Works and shall give his whole time to the superintendence of the same. If such approval shall be withdrawn by the Engineer, the Contractor shall as soon as is practicable(having regard to the requirement of replacing him as here-in-after mentioned) after receiving written notice of such withdrawal, remove the agent from the Site and shall not thereafter employ him again on the Site in any capacity and shall replace him by another agent approved by the Engineer, Such authorized agent shall receive on behalf of the Contractor directions and instructions from the Engineer or (subject to the limitations of Clause2 hereof) the Engineer's representative.

13.0 CONTRACTOR'S EMPLOYEE:

The Contractor shall provide and employ on the Site in connection with execution and maintenance of the Works.

a) Only such technical assistants and other staff as are skilled and experienced in their respective callings and such sub-agents, foreman and loading hand sasare competent to give proper supervision to the work they are required to supervise and
b) Such skilled, semi-skilled and unskilled labour as is necessary for the proper and timely execution and maintenance of the Works.

13.1 The Engineer shall be at liberty to object to and require the Contractor to remove forth with from the Works any person employed by the Contractor in or about the execution or maintenance of the Works who in the opinion of the Engineer misconducts himself or incompetent or negligent in the proper performance of his duties or whose employment is other-wise considered by the Engineer to be undesirable and such person shall not be again employed upon the Works without the written permission of the Engineer. Any person so removed from the Works shall be replaced without delay by a competent substitute approved by the Engineer.

14.0 EXTRA SUPER VISIONON WORK:

If in the opinion the Engineer, due progress is not made with the work in accordance with the contract, and or the execution thereof becomes contrary to specifications, and/or bad work is executed and/or bad materials are used or supplied by the Contractor, and/or any

directions given by the Engineer are not properly complied with or attended to, the Engineer may if he considers it necessary or proper for the execution of the work in accordance with the contract, of which his certificate in writing will be sufficient evidence order the employment of extra supervising staff to supervise the work and the expenses of the employment including the salary of the supervising staff shall be provided by the Contractor, provided that the Engineer shall give to the Contractor not less than 7 days previous notice in writing of intention to exercise his power.

15.0 SETTING-OUTOFTHEWORKS:

The Contractor shall be responsible for the true and proper setting out of the Works and the correctness of the position levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instrument appliances and labour in connection there with. If at any time during the progress of the works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor on being required so to do by the Engineer or Engineers representative shall at his own expense rectify such error to the satisfaction of the Engineer or Engineer's representative unless such error is based on incorrect data supplied in writing by the Engineer or the Engineer's representative in which case the expense of rectifying the same shall be borne by the Employer. The checking of any setting out or of any line or level by the Engineer or the Engineer's representative shall not in any way relieve the Contractor of his responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all bench marks, site rails, pegsand other things used in setting out the works.

16.0 USE OF EXPLOSIVES:

Explosives shall not be used on the work by the contractor without the permission in writing of the Engineer and then only in the manner and to the extent to which he has prescribed. Where explosives are used, the same shall best or Edina special magazine to be provided by and at the cost of the Contractor, who shall be liable for all damages, loss or injury to any person or property & shall be responsible for complying with all the statutory obligations in these respects.

17.0 CARE OF WORKS:

The Contractor shall in connection with the Works provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or required by the Engineer or Engineer’s representative or by a duly constituted authority for the protection of the Works or for the safety and convenience of the Public or others.

From the commencement to the completion of the Works, the Contractor shall take full responsibility or the care thereof and of all Temporary Works and in case any damage, loss or injury shall happen to the Works or to any part thereof or to any temporary Works from any cause whatsoever(save and except the excepted risks as defined in sub-clause(2) of the clause) shall at his own cost repair and make good the same so that at completion the Works shall being good order and condition and in conformity in every respect with the requirements of the Contract and the Engineer's instructions. In the event of any such damage, loss or injury happening from any of the excepted risks the Contractor shall if and to the extent required by the contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations under Clause58 hereof.

17.1 EXCEPTED RISKS:

The "excepted risks" mentioned in Sub-clause (1) above are war hostilities (whether war be declared or not), invasion act of foreign enemies, rebellion, revolution, insurrection of military or usurped power, civil war or (otherwise than among the Contractors own employees) riot, commotion or disorder or any such operation of the forces of nature as responsible foresight and ability on the part of Contractor could not foresee or reasonably provide against(all of which are here in collectively referred to as "the excepted risks".)

18.0 USE OF LAND & BUILDINGS

a) Wherever any land or building belonging to IREL is allotted to the Contractor, the Contractor shall return vacant possession of the same land/building in good condition to IREL after the completion of works as soon as the contract is over/terminated, failing which IREL would been titled to with hold the payment of the security deposit and/or final bill in addition to any other action which the IREL may like to take for getting the vacant possession of the land or building as aforesaid.

b) The Contractor should obtain the prior approval of the competent authority for construction of purely temporary shed. The Contractor should submit written application accompanied by layout plan for construction of such temporary shed. Any modification/alteration if deemed necessary thereafter should be done with prior approval of the competent authority.

c) The permission for such temporary shed will be accorded only for the purpose of work as awarded to such Contractor and the temporary shed so constructed should bed is mantled within 15 days from the date of completion of the maintenance work and restore the possession of vacant land in the original condition or in a condition acceptable to the Management of IREL. In case of any difficulty, the Contractor may obtain specific approval of the competent authority which may not be extended more than a period of one month in any case.

In case of failure of the Contractor to dismantle the temporary shed and hand over the vacant possession of the premises, the department shall be compelled to dismantle the temporary sheds constructed at the risk and cost of the contractor without prejudice to any other action which may be taken including recovery of damages as per rates fixed by IREL for the unauthorized occupation of the shed/ premises beyond the permitted period.

d) The Contractor should use such premises/shed for such purpose incidental to such awarded work and not as otherwise. It shall be the liability of the contractor to ensure that this occupation of the premises/shed does not provide to be of nuisance to the residents in the vicinity. The Contractor shall also not sublet the premises to any other party.

19.0 DAMAGE STOPER SONS AND PROPERTY:

19.1 The Contractor shall (except if and so far as the Specification provided otherwise) indemnify and keep indemnified the IREL against all losses and claims for injuries or damages to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the works and against all claims, demands, proceedings, damages, costs charges and expenses whatsoever in respect of or in relation thereto. Provided always that nothing hereby contained shall be deemed to render the Contractor liable for or in respect of or to indemnify the IREL against any compensation or damages for or with respect to:

(a) The permanent use or occupation of land by the works or any part there of (save as

herein -after provided) surface or other damage as aforesaid i.e. surface or other damage caused by contract works in the normal course.

(b) The right of the IREL to construct the Works or any part thereof on over under in or through any land.

(c) Interference whether temporary or permanent with any right to light, air, way or water or other easement or quasi-easement which is un avoidable result of the construction of the Works in accordance with the Contract.

Provided further that for the purposes of this clause, the expression "the land" shall be deemed to be limited to the area defined in the specification as shown on the drawings in which land crops, trees and structures will be disturbed or damaged as an inevitable con sequence of the carrying out of the Works.

20.0 ACCIDENT OR INJURY TO WORKMEN:

a) The employer shall not be liable for or in respect of any damages or compensation payable as per or otherwise in respect of or in consequence of any accident or injury to any workmen or other persons in the employment of the Contractor or any Sub-Contractor and the Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation and against all claims, demands, proceedings, cost, charges and expenses whatsoever in respect thereof in relation thereto.

b) The Contractor shall forthwith report all accidents and injuries as a result of his contractual work to the employer or his representative.

21.0 WORKMEN'S COMPENSATIONACT:

The Contractor shall at all times indemnify the Employer against all claims for compensation under the provision of the Workmen's Compensation Act, 1923 (VIII of1923)or any other law for the time being in force by or in respect of any workmen employed by the Contractor in carrying out the contract and against all costs and expenses incurred by the employer in connection therewith and (without prejudice to any other means of recovery) the employer shall be entitled to deduct from any money due or to become due to the Contractor (whether under this contract or any other contract) all moneys paid or payable by the Employer by way of compensation aforesaid or for costs or expenses in connection with any claim thereto and the Contractor shall abide by the decision of the Employer as to the sum payable by the Contract, under the provision of this clause.

22.0 GIVING OF NOTICE AND PAYMENT OFFEES:

The Contractor shall give, all notices and pay all fees required to be given or paid to any Central or State, Statute, Ordinance or other Law or any rule, Regulation or Bye-Law of local or other duly constituted authority in relation to the execution of the Works or of any temporary works and by the rules and regulations of all public bodies whose property or rights are affected or may be affected in any way by the works or any Temporary Works.

22.1 COMPLIANCE WITH STATUTES REGULATIONS ETC.:

The Contractor shall conform in all respects with the provision of any such statute, ordinance, or Law as a fore said and the rules, Regulations or Bye-laws of any local or other duly constituted authority which may be applicable to the Works or to any Temporary Works and with such rules and regulations of public bodies as aforesaid and shall keep the employer indemnify against all penalties and liability of every kind for breach of any such Statute, Ordinance, Law, Rules, Regulation or Bye-laws.

23.0 FOSSILSETC.

All fossils, coins, articles, value of antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall as between the employer and the Contractor be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precautions to prevent, his work me nor any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Engineers representative of such discovery and carry out at the expense of the employer the engineer's Representative's orders as to the disposal, removal or otherwise of the same.

24.0 (a) **PATENTRIGHTS & ROYALTIES:**

The Contractor shall save harmless and indemnify the Employer from and against all claims and proceeding for or on account of infringement of any patent rights, designs trade-mark or name or other protected rights in respect of any Constructional plant, machine, work or material used for or in connection with the Works or Temporary Works of any of them and from and against all claims, demands, proceeding, damages, cost, charges and expenses whatsoever in respect here of or in relation there to.

(b) Except where otherwise specified, the Contractor shall pay all tollage and other royalties, rent and other payments or compensation (if any) for getting stone, sand, gravel, clay or other materials required for the Works or temporary Works or any of them.

25.0 INTERFERENCE WITH TRAFFIC ADJOINING PROPERTIES

All operations necessary for the execution of the Works and for the construction of any Temporary works shall so far as compliance with the requirements of the Contract permits be carried on so as not to interfere unnecessarily or improperly with the Public convenience or the access to use and occupation of public or private roads and foot paths or to or properties whether in the possession of the Employer's Workmen or of any other person and Contractor shall save harmless and indemnify employer in respect of all claims, demands, proceeding, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters.

26.0 (a)EXTRAORDINARY TRAFFIC:

The Contractor shall use every reasonable means to prevent any of the highways and bridges communicating with or on the routes to the site from being damaged or injured by any traffic of the Contractor or any of his Sub-Contractors and in particular shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the site shall be limited as far as reasonably possible and so that no unnecessary damage or injury may be occasioned to such highways and bridges. For any damage caused by the breach here of, the Contractor shall be responsible.

3 (b) WATER BORNE TRAFFIC:

Where the nature of the works is such as to require the use by the Contractor of waterborne transport, the fore going provisions of this clause shall be construed as though "highway" included a dock, deck, sea wall, or other structure related to a water-way and "vehicles "included craft and shall have effect accordingly.

27.0 OPPORTUNITIES FOR OTHER CONTRACTORS:

The Contractor shall in accordance with the requirements of the Engineer afford all reasonable opportunities for carrying out their work to any other contractors employed by the Employer and their workmen and to the workmen of the Employer and of any other duly constituted authorities who may be employed in the execution on or near the site of any work not included in the Contract or of any Contract which the Employer may enter in to in connection with or ancillary to the works.

28.0 SUPPLY OF PLANT, MATERIAL AND LABOUR:

Except where otherwise specified the Contractor shall at his own expense supply and provide all the Constructional Plant, Temporary Works, materials both for temporary and for permanent Works, labour (including the supervision thereof), transport to or from the Site and in and about the Works and other things of every kind required for the constructions, completion and maintenance of the Works.

29.0 DELAYINOBTAININGMATERIALSBYTHEEMPLOYER:

If the Employer has undertaken to supply materials specified in the special conditions at rates stated there in the Contractor shall keep himself in touch with the day-to-day position regarding the supply of materials from the Engineer and so adjust the progress of the work that their labour may not remain idle nor may there be any other claim due to or arising from delay if any, in obtaining the materials. It should be clearly understood that no claim what so ever shall been pertained by the Employer on account of delay in supplying materials.

30.0 SITE CLEARANCE ON COMPLETION OF WORK:

On the completion of the work all rubbish, debris, vats tanks, materials, and temporary structures of any sort or kind used for the purpose of or connected with its construction are to be removed by the Contractor and all pits and excavations filled up and the site handed over in a tidy and workman like condition and no final payment in settlement of the account for the said work shall be held to be due or shall be made to the Contractor, till such site clearance shall have been effected by him, and such clearance may be made by the Engineer, at the expense of the Contractor in the even to his failure to comply with this provision within 7days after receiving notice in writing from the Engineer to that effect. If it becomes necessary for the Engineer to have the site cleared as indicated above at the expense of the Contractor, the Employer shall under no circumstances, be held liable for any losses or damages to such of Contractor's property as may be on such site due to such removal there from which removal may be effected by means of public sale of such materials and property or in such way as seems fit and most convenient to the Engineer.

31.0 RETURN OF SURPLUS MATERIALS:

Not with standing anything contained to the contrary anywhere in this contract, wherever any materials for the execution of the contract are procured with the assistance of the Employer either by issue from Employer's stocks or purchase made under orders or permits or licenses issued by the Employer, the Contractor shall use the said materials economically and solely for the purpose of the contract and not dispose of them without the permission of the Employer, and if required by the Engineer shall return to the Employer all surplus or unserviceable materials that may be left with the Contractor after the completion of the contract or at its termination, for any reason whatsoever on being paid or credited such price as the Engineer shall determine, having due regard to initial

cost and the condition of the materials at the time of such return thereof. The price to be allowed to the Contractor, however, shall not exceed the amount charged to him excluding the storage charge if any. The decision of the Engineer shall be final and conclusive. In the event of breach of the aforesaid condition, the Contractor shall in addition to making himself liable of action for contravention of the terms of the licences or permit and/or for criminal breach of trust) be liable to the Employer for payment of all moneys, advantages or profit resulting or which in the usual course would have resulted to him by reason of such breach.

WORK MATERIAL AND PLANT

32.0 QUALITY OF MATERIAL & WORKMANSHIP AND TESTS:

All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, quantity or weight of any material used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer.

Cost of samples: All samples shall be supplied by the Contractor at his cost.

Cost of tests: The cost of making any test in performance of his works shall be borne by the Contractor.

Cost of tests not provided or:

If any test is ordered by the Engineer which is either,

a. Not so intended or provided or
b. Is not so particularized for or
c. though so intended or provided for is ordered by the Engineer to be carried by an independent person at any place other than the Site or the place of manufacture or fabrication of the materials tested. Then the cost of such test shall be borne by the Contractor if the test shows the workmanship of materials not to be inaccordance with the provisions of the Contract or the Engineer's instructions but otherwise by the Employer.

33.0 ACCESSTOSITE:

The Employer/Engineer and any person authorized by him shall at all times have access to the Works and to the Site and to all workshops and places where work is being prepared or where materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

34.0 INSPECTION, TESTING AND EXPEDITING:

34.1 The EMPLOYER or his representatives shall have their right to inspect and/or to test the goods to conform to the specifications laid down in the CONTRACT. The SPECIAL CONDITIONS OF CONTRACT and/ or the TECHNICAL SPECIFICATIONS shall specify what inspections and test the EMPLOYER requires and where they are to be conducted. The EMPLOYER shall notify the CONTRACTOR in writing of the identity of any other

representatives retained for this purpose. Expediting by EMPLOYER"s representative in no way relieves the CONTRACTOR of his obligation under the terms and conditions of this CONTRACT.

34.2 The inspections and tests may be conducted on the premises of the CONTRACTOR or his SUB-CONTRACTOR at point of completion and/or at the good's final destination. When conducted on the premises of the CONTRACTOR or his SUB-CONTRACTOR, all reasonable facilities and assistances including access to drawings and production data shall be furnished to the inspector at no charge to the EMPLOYER.

34.3 CONTRACTOR shall be held responsible for any possible delay in the approval or testing phase as well as for any possible delay in the remittance of necessary certificates. Delay on the part of the Inspection institutions will not be considered a case of 'Force Majeure'.

34.4 Participation or presence of EMPLOYER or their representatives at any tests or their failure to be present at or to witness any tests to be undertaken pursuant here to shall not in any way or manner relieve or release the CONTRACTOR from any of its warranties, guarantees or other obligations under the CONTRACT.

34.5 Copies of all test results/report of the tests shall be furnished promptly by the CONTRACTOR to EMPLOYER.

35.1 EXAMINATION OF WORK BEFORE COVERING UP:

No work shall be covered up or put out of view without the approval of the Engineer or the Engineer's representative and the Contractor shall afford full opportunity for the Engineer or the Engineer's representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is over, any such work or foundations is or are ready or about to be ready for examination and the Engineer's representative shall without unreasonable delay unless he considers it unnecessary and advises the Contractor accordingly attend for the purpose of examining and measuring such work or of examining such foundations.

35.2 UNCOVERING & MAKING OPENINGS:

The Contractor shall uncover any part or parts of the Works or make opening in or through same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been covered up or put out of view after compliance with the requirements of sub clause(l) of this Clause and are found to be executed in accordance with the Contract, the expenses of uncovering making opening in or through reinstating and making good the same shall be borne by the Employer but in any other case all such expenses shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any moneys due or which may become due to the Contractor.

36.0 REMOVAL OF IMPROPER WORK & MATERIALS:

The Engineer shall during the progress of the Works have power to order in writing from time to time:

(a) The removal from the Site with in such time or times as may be specified in the order of any materials which in the opinion of the Engineer are not in accordance with the contract,
(b) The substitution of proper and suitable materials and
(c) the removal and proper re-execution (not withstanding any previous test there of or interim payment there for) of any work which in respect of materials of workman ship

is not in the opinion of the Engineer in accordance with the contract.

37.0 DEFAULT OF CONTRACTOR IN COMPLIANCE:

In case of default on the part of the Contractor in carrying out such order, the employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any moneys due or which may become due to the Contractor.

38.0 SUSPENSION OF WORK:

The Contractor shall on the written order of the Engineer suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of Engineer. Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to the Engineer within 28 days of the Engineer's order. The Engineer shall settle and determine the extra payment to be made to the Contractor in respect of such claim as the Engineer shall consider reasonable.

39.0 SUSPENSION LASTING MORE THAN 90 DAYS:

If the progress of the works or any part thereof is suspended on the written order of the Engineer for more than 90days, the Contractor may serve a written notice on the Engineer requiring permission within 28 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is notgrantedwithinthattimetheContractorbyafurtherwrittennoticesoservedmay(butisnotboun d to) elect to treat the suspension where it affects part only of the Works as an omission of such part under Clause 62 thereof or where it affects the whole Works as an abandonment of the Contract by the Employer.

40.0 ISSUE OF OTHER MATERIALS FROM IREL STORES:

(i) **Use of additional items:**

If the Engineer directs the use of additional items of IREL stores in the work, the Contractor is bound to comply with such directions. The recovery rate for such stores shall be fixed by the Engineer.

(ii) **Recovery Rates:**

In addition to the above, other materials from IREL stores can be supplied subject to availability if the Engineer is satisfied as to the necessity for such issues. Recovery rates for the materials so issued shall be IREL issue rates plus 12% plus GST as may be in force from time to time.

(iii) **Handling Conveyance etc:**

All handling, conveyance, etc. from place of issue to the work site of the Contractor are to be borne by the Contractor and the rates quoted in the Tender Schedule cover these.

(iv) **Proper accounting:**

AII materials issued to the Contractor whether free of cost or on cost recoverable basis shall be properly accounted for. Any loss or damage to the stores issued by IREL will be debited to the Contractor at the IREL issue rates plus 20% plus GST as may be in force from time to ime.

(v) **Excess/misuse:**
Steel drawn in excess or misused will be charged at 100% over issue/recovery rates as stipulated in the contract.

(vi) **Surplus stock:**
No claim will be entertained for non-supply or delay in supply of any or all the above stores.

(vii) Except Steel, materials issued to the Contractor on recovery basis shall not normally be taken back. In case of steel and materials issued free, the surplus stock will be taken back at the stipulated rates of issue, provided they are returned in good condition. In case of steel, rebate at full rates will be made only if the pieces are returned in length not less than 6M. Shorter pieces in the range of 4M to 6M length will be taken back @ 50% of the issue rates. The materials shall be returned at IREL stores and all expenses towards conveyance, handling, weighing, sorting, etc. shall beat Contractor's accounts. As regards to the conditions of the materials to be returned, the decision of the Engineer shall be final and binding on the Contractor. The norms prevalent for consumption in respect to Steel shall apply for calculating the consumption of these materials for recovery.

COMMENCEMENT TIME AND DELAYS

41.0 COMMENCEMENT OF WORK:
The Contractor shall commence the works on site within the period as mentioned in the contract and shall proceed with the same with due expedition and without delay.

42.0 WAY LEAVES ETC.:
The Contractor shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional accommodation outside the Site required by him for the purposes of the works, except when other wise specifically agreed and provided for.

43.0 TIME FOR COMPLETION:
Subject to any requirement in the Contract as to completion of any portion of the works before completion of the whole of the works, it shall be completed within the times dated in the LOI/Award Letter/Agreement.

44.0 EXTENSION OF TIME FOR COMPLETION:
Should the amount of extra or additional work of any kind or other special circumstances of any kind whatsoever which may occur be such as fairly to entitle the contractor to an extension of time for the completion of the work, the Engineer shall determine the amount of such extension. Provided that the Engineer as not bound to take into account any extra or additional work or other special circumstances unless the Contractor has within 14 days after such work has been commenced on such circumstances have arisen or as soon thereafter as is practicable, delivered to the Engineer's representative full and detailed particulars of any claim to extension of time to which he may consider himself entitled in order that such claim may be investigated at the time.

44.1 TIME EXTENSION OF CONTRACT:

The CONTRACTOR shall promptly notify the ENGINEER-IN-CHARGE any event or conditions which might delay the completion of work in accordance with the approved schedule and the steps being taken to remedy such situation.

44.2 If the Work is delayed at any time in the commencement or during the progress of the WORK by any act, delay or neglect solely attributable to IREL or his employees, or by any other contractor utilised by the IREL or by FORCE MAJEURE conditions, the time of completion shall be extended by IREL (without levy of Mutually Agreed Damages) in writing for a reasonable period as may be mutually agreed upon, at the time of closure of contract. The CONTRACTOR shall, immediately on occurrence of such special circumstances but not later than 14 working days, bring to the knowledge of IREL through written application for any such delay as mentioned bove.

44.3 IREL shall have the right to suspend the WORK in whole or in part for such time as maybe necessary in order that WORKS shall be well and properly executed. In such events, suitable extension of time shall be granted to CONTRACTOR.

45.0 NO NIGHT OR SUNDAY WORK:

Subject to any provision to the contrary contained in the contract, none of the permanent work shall save as hereinafter provided be carried on during the night or on Sundays (if locally recognized as days of rest) or their locally recognized equivalent without the permission in writing of the Engineer's representative save when the work is unavoidable or absolutely necessary for the saving of life or property or for the safety of the Works in which case the Contractor shall immediately advise the Engineer's representative. Provided always that the provisions of this Clause shall not be applicable in the-case of any work which it is customary to carry out by rotary or double shifts

46.0 RATE OF PROGRESS:

The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and maintenance of the work are to be of a kind and conducted in a manner to the satisfaction of the Engineer. Should the rate of progress of the works or any part thereof be at any time in the opinion of the Engineer too slow to ensure the completion of the works by the prescribed time or extended time for completion the Engineer shall so notify the Contractor in writing and the Contractor shall there upon take such steps as the contractor may think necessary and the Engineer may approve to expedite progress so as to complete the works by the prescribed time or extended time for completion. If the work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by then if the Engineer shall grant such permission, the Contractor shall not been titled to any additional payment for so doing but if such permission shall be refused and there shall be no equivalent practicable method of expediting the progress of the work, the time for completion shall be extended by such period as is solely attributable to such refusal. All work at night shall be carried out without unreasonable noise and disturbance. The Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to such liability.

47.0 LIQUIDATED DAMGES FOR DELAYED EXECUTION OF CONTRACT:

Subject to Article -48, if the CONTRACTOR fails to deliver any or all of the GOODS or performance of the services within the time period(s) specified in the CONTRACT, the EMPLOYER shall, without prejudice to his other remedies under the CONTRACT, levy Liquidated damages from the CONTRACT PRICE, a sum calculated on the basis of the CONTRACT PRICE, including subsequent modifications.

Deductions shall apply as per following formula:

For repair works costing up to Rs. Ten lakhs (Rs 10,00,000/-) : One percent (1%) of the contract value per week subject to a maximum of ten percent(10%)of contract value

For all other works:

Half percent (0.5%) of the contract value per week of delay subject to a maximum of ten percent (10%)of contract value

47.1 EMPLOYER may deduct the amount so payable by CONTRACTOR, from any amount falling due to the CONTRACTOR or by recovery against the Performance Guarantee. Both CONTRACTOR and EMPLOYER agree that the above percentages of price reduction are genuine pre-estimates of the loss/damage which the EMPLOYER would have suffered on account of delay/breach on the part of the CONTRACTOR and the said amount will be payable on demand without there being any proof of the actual loss/ordamage caused by such breach/delay. A decision of the EMPLOYER in the matter of applicability of price reduction shall be final and binding.

48.0 FORCE MAJEURE:

48.1 Force majeure is an event beyond the control of contractor and not involving the contractor's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to acts of the purchaser/contract or either in its sovereign or contractual capacity, wars or revolution, hostility, acts of public enemy, civil commotion ,floods, explosions, epidemics, quarantine restrictions, strikes, lockouts and freight embargoes or any other event which IREL may deem fit to consider so. The decision about force majeure shall rest with IREL which shall be final and binding.

48.2 If there is delay in performance or other failures by the contractor to perform obligations under its contract due to event of a Force Majeure, the supplier/contractor shall not be held responsible for such delays/failures.

48.3 If a Force Majeure situation arises, the contractor shall promptly notify the purchaser in writing of such conditions and the cause thereof within fifteen days of occurrence of such event. Unless otherwise directed by the EMPLOYER in writing, the CONTRACTOR shall continue to perform its obligations under the contract as far as reasonable/practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

48.4 If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period of exceeding 120 days, IREL may its option terminate the contract without any financial repercussion on either side.

49.0 CERTIFICATE OF COMPLETION OF WORK:

As soon as in the opinion of the Engineer the works shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed by the Contract, the Engineer shall on receiving a written undertaking by the Contractor to finish any outstanding work during the period of Maintenance issue a Certificate of

completion in respect of the works and the Period of Maintenance of the works shall commence from the date of such certificate. Provided that the Engineer may give such a certificate with respect to any part of the works before the completion of the whole of the work and shall upon the written application of the contractor give such certificate with respect to any substantial part of the works, which has been both completed to the satisfaction of the Engineer and occupied or used by the employer and when any such certificate is given in respect of a part of the works such part shall be considered as completed and the Period of Maintenance of such part shall commence from the date of such certificate. Provided also that a Certificate of Completion given in accordance with the foregoing provision of any part of the works occupied and use as aforesaid shall not be deemed to certify completion of any round or surfaces requiring reinstatement unless such certificate shall expressly so state.

50.0 MAINTENANCE AND DEFECTS:

50.1 DEFINITION OF PERIOD OF MAINTENANCE:

In these conditions, the expression "Period of Maintenance" shall be either 12 (Twelve) months or any other period if specifically specified in the special conditions of this contract, and calculated from the date of completion of the works certified by the Engineer in accordance with Clause 49 here of or in the event of more than one certificate having been issued by the Engineer Under the said Clause from the respective dates so certified and in relation to the Period of maintenance, the expression "the works" shall be construed accordingly.

50.2 EXECUTION OF WORKS OF REPAIR ETC.:

To the intent that the works shall at or as soon as practicable after the expiration of the period of Maintenance be delivered upto the Employer in as good and perfect a condition (fair wear and tear expected) to the satisfaction of the Engineer as that in which they were at commencement of the Period of Maintenance ,contractor shall execute all such work of repair, amendment, reconstruction, rectification and making good of defects, imperfections, shrinkages or other faults as may be required of the Contractor in writing by the Engineer during the Period of Maintenance or within fourteen days after its expiration as a result of an inspection made by or on behalf of the Engineer prior to its expiration.

50.3 COST OF EXECUTION OF WORKS OF REPAIR ETC.:

All such work shall be carried out by the Contractor at his own expense if the necessity thereof shall in the opinion of the Engineer be due to the use of materials or workmanship not in accordance with the Contract or to neglect or failure on the part of the Contractor to comply with any obligation expressed or implied on the Contractor's part under the Contract. If in the opinion of the Engineer such necessity shall be due to any other cause, the value of such work shall be ascertained and paid for as if it was an additional work.

50.4 REMEDY ON CONTRACTOR'S FAILURE TO CARRYOUT:

If the Contractor shall fail to do any such work as aforesaid required by the Engineer, the Employer shall be entitled to carry out such work by his own workmen or by other Contractors, and if such work is the work which the Contractor should have carried out at his own cost, Employer shall be entitled to recover from the Contractor the cost there of or may deduct the same from any moneys due or that may become due to the Contractor.

51.0 CONTRACTOR TO SEARCH:

The Contractor shall if required by the Engineer in writings each or the cause of any defect in perfection or fault under the directions of the Engineer. Unless such defect, imperfection or fault shall be one for which the Contractor is liable under the contract, the cost of the work carried out by the Contractor in searching as aforesaid shall be borne by the Employer. But if such defect, imperfection or fault shall be one for which the Contractor is liable as aforesaid the cost of the work carried out in searching as afore said shall be borne by the Contractor and he shall in such case repair, rectify and make good such defect, imperfection or fault at his own expense in accordance with the provisions of Clause 50 hereof.

52.0 ALTERATIONS, ADDITIONS AND OMISSIONS:

52.1 VARIATIONS

The Engineer shall make any variation from quality or quantity of the works or any part there of that may in his opinion be necessary and for that purpose or if for any other reason it shall in his opinion be desirable he have power to order the Contractor to do and the Contractor shall do any of the following:

a. Increase or decrease the quantity of any works included in the contract.
b. Omit any such work
c. Change the character or quality or kind of any such work
d. Change the levels ,lines position and dimensions of any part of works and
e. Executeadditionalworkofanykindnecessaryforthecompletionoftheworks and no such variation in any way vitiate or invalidate the contract but the value (if any)of all such variations shall be taken into account in ascertaining the amount of the contract price.

52.2 No such variation shall be made by the Contractor without an order in writing of the Engineer. Provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause but is the result of the quantities exceeding or being less than those stated in the Tender Schedule. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally, the contractor shall comply with such order and any confirmation in writing of such verbal order given by the Engineer whether before or after the carrying out of the order shall be deemed to be an order in writing within the meaning of this clause.

53.1 VALUATION OF VARIATIONS:

The 'Engineer shall determine the amount (if any) to be added to or deducted from the sum named in the Tender in respect of any extra or additional work done or work omitted by his order. All such work shall be valued at the rates set out in the Contract, if in the opinion of the Engineer the same shall be applicable. If the Contract shall not contain any rates applicable to the extra or additional work then reasonable prices shall be fixed by the Engineer.

53.2 POWER OF ENGINEER TO FIX RATES:

Provided that if the nature of amount of any omission or addition relative to the nature or amount of the whole of the contract work or to any part thereof shall be such that in the opinion of the Engineer the rate or price contained in the contract for any item of the work is by reason of such omission or additions rendered unreasonable or inapplicable, the Engineer shall fix such other rate or price as in the circumstances he shall think reasonable and proper.

ProvidedalsothatnoincreaseoftheContractPriceundersub-clause(1)ofthisclauseonvariation of rate or price under sub-clause (2) of this clause shall be made unless as soon after that date of the order as is practicable and in the case of extra or additional work before the commencement of the work or as soon thereafter as is practicable notice shall have been given in writing.

a) By the Contractor to the Engineer of his intention to claim extra payment or a varied rate or.
b) By the Engineer to the Contractor of his intention to vary a rate or price as the case may be.

53.3 CLAIMS:

The Contractor shall send to the Engineer's representative once in every month an account giving particulars (as full and detailed as possible) of all claims for any additional expenses to which the Contract or may consider himself entitled and of all extra or additional work ordered by the Engineer which he has executed during the preceding month and no claim for payment for any such work will be considered which has not been included in such particulars. Provided always that the Engineer, shall be entitled to authorize payment to be made for any such work notwithstanding the Contractor's failure to comply with this condition, if the contractor has at the earliest practicable opportunity notified the Engineer that he intends to make a claim for such work.

53.4 EXTRA ITEM:

Any extra item arising during the execution of work due to any reason shall be paid for based on the sanctioned schedule of rates or rates derived there from. The percentage quoted by the tenderer shall be applied to the rate arrived at from the schedule of rates or rates derived there from. In case the rates cannot be derived from the Schedule of rates or the quoted rates, CPWD norms shall be followed for determination of rates. Analysis of rates on the basis of field observations shall be considered if schedule of rates/CPWD norms are not available. The rates given in the schedule are complete for labour and materials including all leads, lifts, royalty etc. Except otherwise stated in the items. No extra claim on account of these items shall be entertained.

54.0 PROPERTY IN MATERIALS:

If the specification or estimate of the work provides for use of any special description of materials to be supplied from the Engineer's store, or if it is required that the Contractor shall use certain stores to be provided by the Engineer (such materials and stores, and Plants and the prices to be charged therefore, as here-in-after mentioned being so far as practicable for the convenience of the Contractor but not so as in any way to control the meaning or effect of this contract specified in the schedule or memorandum here to annexed),the Contractor shall be supplied with such material sand stores as required from time to time to be used by him for the purposes of the contract only, this being calculated out from specifications, drawing etc. and the value of the full quantity of materials and stores so supplied at the rates specified in the said schedule or memorandum may be set off or deducted from any sums then due, or thereafter to become due to the Contractor under the contract, or otherwise, or against or from the security deposit or the proceeds of sale thereof if the same is held in Government securities, the same or a sufficient portion thereof being in this case to fulfil the purpose. All materials supplied to the Contractor shall remain in the absolute property of Employer and shall not on any account

be removed from the site of the work and shall at all times be open to inspection by the Engineer.

Any such materials unused and in perfectly good condition at the time of the completion of determination of the contract shall be returned to the Engineer store. If by a notice in writing under his hand he shall so require but the Contractor shall not be entitled to return any such materials unless with such consent and shall have no claim for compensation on account of any such materials so supplied to him as aforesaid during being unused by him or for any wastage in or damages to any such materials.

54.1 MATERIALS OBTAINED FROM DISMANTLEMENT &EXCAVATION ETC: Contractors in the course of their works should understand that all material (e.g.store and other materials obtained in the work of dismantling, excavation, etc. will be considered Employer's property) and issued to the Contractor (if they require the same for their own use) at rates approved by him. If these materials are not required by them they will be disposed off to the best advantage of Employer.

54.2 RELICS, GOLD, SILVER FOUND IN OR UPON THE SITE:
All gold, silver, oil and other minerals of any description and precious stones, coins, treasures, relics, antiquities and other similar things which shall be found in or upon the site shall be the property of the Employer, and the Contractor shall duly preserve the same to the satisfaction of Employer and shall, from time to time deliver the same to such person or persons as the Employer may appoint to receive the same.

55.0 NO APPROVAL BY VESTING:
The operation of the Clause numbered 62 shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer.

MEASUREMENT

56.0 QUANTITIES:
The quantities set out in the Tender Schedule are the approximate estimated quantities of the work but they are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfillment of his obligations under the Contract. Any item may be omitted or altered and no claim for compensation will be entertained on this account or for any variation however substantial it may be in the Tender Schedule.

57.0 WORKS TO BE MEASURED:
The Engineer shall except as otherwise stated ascertain and determine by measurement the value in accordance with the Contract of work done in accordance with the contract. He shall when he requires any part or parts of the Works to be measured give notice to the Contractor's authorized agent or representative who shall forthwith attend or send a qualified agent to assist the Engineer or the Engineer's representative in making such measurement and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agent then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work. For the purpose of measuring such permanent work as is to be measured by record drawings, the Engineer's representative shall prepare record drawing month by month of such work and the Contractor as and when called upon to do so in writing shall within 14 days attend to examine and agree such record drawings, with the Engineer's representative and shall sign the same when so agreed and if the Contractor does not so

attend to examine and agree any such record drawings they shall be taken to be correct. If after examination of such record drawings the Contractor does not agree the same or does not sign the same as agreed, they shall nevertheless be taken to be correct unless the Contractor shall within 14 days of such examination lodge with the Engineer's representative for decision by the Engineer's notice in writing of the respects in which such record drawings are claimed by him to be incorrect. The Contractor shall be paid for the quantities resulting from measurement of the executed work.

58.0 MODE OF MEASUREMENT FOR CIVIL WORKS:

The mode of measurement shall be as per Indian Standard 1200 latest, subject to the following:

(a) In case the mode of measurement is not covered by the said Indian Standard for a particular item, the method of measurement shall be as per CPWD specifications for that item only.
(b) Wherever a particular mode of measurement is specified in the description of the item in the tender schedule/special conditions, the same shall only apply.
(c) In case of dispute regarding mode of measurement, the decision of the Engineer shall be final and binding on the Contractor.

59.0 PAYMENT FOR WORK DONE

59.1.1 100% payment against bills for the work done (Subject to the required deductions) shall be made to the Contractor based on detailed measurements and certification of bills by the Engineer.

59.1.2 **ON ACCOUNT PAYMENT:** Bills shall be prepared and submitted by the Contractor. Joint measurements shall be taken continuously and need not be connected with billing stage. Based on these joint measurements recorded in the register, the Contractor shall submit the bills in both soft and hardcopies (three copies)in the prescribed format along with the detailed measurements item wise. All the pages of the measurement sheets shall be serially machine numbered and signed by the Contractor. The bills along with measurement sheet shall be computer generated and also suitably programmed for effecting the necessary corrections easily. The bills shall be accompanied with necessary documents such as abstract of quantities, variation statements, reconciliation of materials, part rate statements indicating the extent of work done, statement of secured advance claimed andfulfillingotherstatutoryobligationssuchasESI/PF/Insurance/labour licence etc. Payment against bills for the workdone (Subject to necessary deductions)will be made after the verification and certification by the Engineer of the bill submitted by the Contractor.

59.1.3 **COMPLETION CERTIFICATE:** The Works shall be deemed to have been completed in all respects on the day the Engineer certifies that the works have been so completed in accordance with this Contract, takes over the completed Works and issues a certificate to that effect. The Defect Liability Period will start from the said date of completion / handing over of the work.

59.1.4 **FINAL PAYMENTS:** Based on the measurement of Work performed, the Contractor shall submit his final bill for the Works within 3 months of completion of work. The bill shall be based only on Works as measured and at accepted tender rates including rates for any additional or extra work which might have been approved by the Company. All deductions due under the Contract shall be incorporated. The final bill shall be accompanied by:

A) A copy of the Completion Certificate issued by the Engineer.

B) No Claim Certificate" in the prescribed form or a list of claims if any, not included in the final bill with full details.

The Engineer shall examine and certify the final bill for payment after satisfying that the Works have been satisfactorily completed and that all properties, works and things removed or disturbed or damaged in consequence of the Work have been properly replaced and made good and all expenses and demands incurred or made by or on the Company or in respect of any damage or loss by, from or consequence of the Works have been satisfied, all materials have been returned and the site cleared.

59.1.5 SECURED ADVANCE:

75% payment against bills as Secured Advance on the cost of all non-perishable materials brought by the Contractor to Site for use in the Works (excluding chargeable materials issued by the Company) as assessed and approved by the Engineer may be paid, provided the materials confirm to the specifications of the contract an accepted by the Engineer. These materials shall be pledged by the Contractor to the Company. All the Secured Advance allowed will be deducted while making payment of any bill for the work done and a fresh Secured Advance on the materials remaining then at Site will be paid along with the same bill.

59.2 BILLS TO BE ON PRINTED FORMS:

The Contractor shall submit all bills on the printed forms to be had on application at the office of the Engineer and the charges in the bills shall always be entered at the rates specified in the tender in the case of any extra work ordered in pursuance of the second it ions and not mentioned or provided for in the tender at the rates herein after provided for such work.

Invoice must contain Contractor's GST Registration number, PAN, Bank detail of Contractor, GST Registration number of IREL Factory/ Office, HSN/SAC Code for service rendered.

59.3 RETENTION MONEY

5% percent of the value of the work executed shall be deducted as Retention money from every progressive bill of the Contractor.

59.4 SET-OFF:

a) Any sum of money due and payable to the Contractor (including security deposit returnable to him) may be appropriated/ retained/ withheld and/or set off by the Employer or Government against any claim of the Employer or Government or such other person or persons for the payment of a sum of money arising out of or under this contract or other contracts made by Contractor with the employer or Govt.or such other person or persons.
b) The Employer will be at liberty to recoup any damage/loss suffered as a result of any action on the part of the Contractor.

59.5 DEDUCTIONS FROM CONTRACT PRICE:

All costs, damages or expenses which the EMPLOYER may have paid for which, under the CONTRACT, the CONTRACTOR is liable, will be claimed by the EMPLOYER. All such claims shall be billed by the EMPLOYER to the CONTRACTOR regularly as and when they fall due. Such claims shall be paid by the CONTRACTOR within fifteen days of the receipt of the corresponding bills and if not paid by the CONTRACTOR within the said period, the EMPLOYER may then deduct the amount from any bill due or becoming due by him to the

CONTRACTOR under the CONTRACT or may be recovered by action of law or otherwise, if the CONTRACTOR fails to satisfy the EMPLOYER of such claims.

59.6 TAXES APPLICABLE TO CONTRACTOR'S MANPOWER, TURNOVER, EQUIPMENT ETC…

The CONTRACTOR shall be solely responsible for all taxes that may be levied on the CONTRACTOR's turnover & profit or on the earnings of any of his employees or personnel engaged by him and shall hold the EMPLOYER indemnified and harmless against any claims that may be made against the EMPLOYER in this behalf. The EMPLOYER does not undertake any responsibility whatsoever regarding any taxes levied on CONTRACTOR and/ or his personnel by Centre/ State/Local Authorities.

59.7 DEDUCTION OF INCOMETAX AT SOURCE:

Income Tax on the gross amount billed will be deducted from Contractor's bills as per Section 194 (C) of the Income Tax Act. In case of contract for consultancy or professional services Tax deduction at source as per Section 194J .will be carried out

59.8 OVER PAYMENTS / UNDER PAYMENTS DETECTED DURING TECHNICAL AUDIT:

The Company reserves the right to carryout post-payment audit and technical examination of the running/ final bill including all supporting vouchers etc. The Company also reserves the right to propose recoveries detected by CVC (Central Vigilance Commission) based on their audit and observations of works/bills etc. The Company further reserves the right to enforce recovery of any overpayment when detected, notwithstanding the fact the amount of running/final bill may be included by one of the parties as an item of dispute before an arbitrator appointed and notwithstanding the fact that the amount of running/final bill figures in the arbitration award.

If as a result of such audit and technical examination any over payment is discovered in respect of any work done by the Contractor under the contract, the Company from the Contractor shall recover it, or if any underpayment is discovered, the amount shall be duly paid to the Contractor by the Company.

60.0 APPROVAL BY MAINTENANCE CERTIFICATE:

No certificate other than the maintenance certificate referred to in **clause 61** here of shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as admission of the due performance of the contract or any part here of or of the accuracy of any claim or demand made by the contractor or of additional or varied work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the powers of the Engineer.

61.0 MAINTENANCE CERTIFICATE:

The contract shall not be considered as completed until a maintenance certificate shall have been signed by the Engineer and delivered to the Employer stating that the Works have been completed and maintained to his satisfaction. The maintenance certificate will be given by the Engineer twenty-eight days after the expiration of the Period of maintenance (or if different Periods of maintenance shall become applicable to different parts of Works the expiration of the latest such period) or as soon thereafter as any works ordered during such Period pursuant to **Clause 50 and 51** here of shall have been completed to the satisfaction of the Engineer and full effect given to this Clause not withstanding any previous entry on the Works of taking possession, working or using there of or any part thereof by the Employer.

61.1 CESSATION OF EMPLOYER'S LIABILITY

The Employer shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract or the execution of the Works Unless the Contractor shall have made a claim in writing in respect thereof before the giving of the maintenance certificate under this Clause.

61.2 UNFULFILLED OBLIGATION:

Notwithstanding the issue of the Maintenance certificate the Contractor and (subject to sub - clause (2) of this clause) the Employer shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issue of the Maintenance Certificate which remains un-performed at the time such certificate is issued and for the purpose of determining the nature and extent of any such obligation, the contract shall be deemed to remain in force between the parties hereto.

62.0 URGENT REPAIRS:

If by reason of any accident or failure or other event occurring to in or in connection with the works or any part thereof either during the execution of the works or during the Period of Maintenances, any remedial or other work or repair shall in the opinion of the Engineer or the Engineer's representative be urgently necessary for security and the Contractor is unable or un-willing at once to do such work or repair, the Employer may by his own or other workmen to such work or repair as the Engineer or the Engineer's representative may consider necessary. If the work or repair so done by the Employer is work which in the opinion of the Engineer the Contractor was liable to do at his own expense under the contract, all cost and charges properly incurred by the Employer in so doing shall on demand be paid by the Contractor to the employer or may be deducted by the employer from any moneys due or which may become due to the Contractor. Provided always that the Engineer or the Engineer's representative (as the case may be) shall, as soon after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

63.0 RESOLUTION OF DISPUTES/ ARBITRATION:

63.1 The EMPLOYER and the CONTRACTOR shall make every effort to resolve amicably by direct informal, good faith negotiations any disagreement or dispute arising between them under or in connection with the Contract.

63.2 If, after thirty days from the commencement of such informal, good faith negotiations, the EMPLOYER and the CONTRACTOR have been unable to resolve the disagreement or dispute, the same shall be referred for resolution as per the formal mechanism as specified hereunder shall be applicable.

63.3 LEGAL CONSTRUCTION: The Contract shall be, in all respects be construed and operated as an Indian Contract and in accordance with Indian Laws as in force for the timebeing.

63.4 ARBITRATION:

a) All disputes and differences of any kind whatsoever arising out of or in connection with the contract or carrying out of the works (whether during the course of works or after their completion and whether before or after determination, abandonment or breach of contract) shall be referred to and settled by the person authorized and notified in writing by IREL who shall state his decision in writing. Such a decision may be in the form of a final certificate or otherwise and shall be made within a period of 30 days from the date ofreceipt of such reference to them.

b) If the CONTRACTOR is dissatisfied with the decision of such authorized person, then

he may within 30 days of receipt of such decision send a written appeal to PURCHASER, represented by the Chairman and Managing Director at the registered office, Mumbai for the same to be referred to Arbitration by a Sole Arbitrator to be appointed by mutual consent and after due approval of CMD, IREL. The Arbitration proceedings shall be conducted as per the provisions of the Arbitration and Conciliation Act, 1996. It is made clear that this Arbitration Clause shall be applicable to any and all disputes and differences between the Parties arising out of and/or relating to this CONTRACT and the Parties shall be bound to refer the same to arbitration in accordance with the procedure contemplated herein.

c) If the period of 30 days under Clause (b) has expired at any stage, stipulated in the preceding paras without any response from the CONTRACTOR before such expiry, the CONTRACTOR is deemed to have communicated his satisfaction to the decision of IREL at the relevant stage and all his rights of further appeal or as the case may be, adjudication are deemed to have been waived once and for all.

d) The seat of arbitration will be at Mumbai and the language thereof shall be English**.**

e) Notwithstanding the invocation, commencement and/or pendency any dispute resolution proceedings under this Clause 63 including arbitration under Clause 63.4, the CONTRACTOR shall continue to be bound by the provisions of the CONTRACT, if not terminated by the EMPLOYER, and shall be obligated to discharge its obligations under the CONTRACT including continuation of the WORK under the CONTRACT.

f) The CONTRACTOR shall not in any way delay or default or cause to delay or default the carrying out of the works by reason of the fact that any matter has been agreed to be referred to and / or referred to dispute resolution under Clause 63 including Arbitration under Clause 63.4.

63.5 JURISDICTION:

The courts only shall, subject to Arbitration Clause, have exclusive jurisdiction to deal with and decide any matter arising out of this contract.

64.0 ACTS OF PARLIAMENT, LOCAL AND OTHER AUTHORITIES AND BYE-LAWS:

64.1 COMPLYING WITH REGULATIONS:

64.1.1 Throughout the execution of the WORK, the CONTRACTOR shall comply with the requirements of all applicable laws and regulations, bye-laws or orders made there under and to the requirements of public, municipal and other authorities in any way affecting or applicable to the work. IREL shall, when requested by the CONTRACTOR, give all reasonable assistance to the CONTRACTOR in obtaining information concerning local conditions.

64.1.2 Before making any departure from the specification or drawings which may be necessary to conform to such requirements, the CONTRACTOR shall give the IREL written notice specifying the departure proposed to be made and the reason for making it and applying for instructions thereon. If the CONTRACTOR does not receive such instructions within thirty (30) days, he shall conform to those requirements and inform the IREL accordingly.

64.1.3 The Contractor shall remain liable for the payments of all wages or other money to his employees or labourers under the Minimum Wages Act, Payment of Wages Act, Employees Liability Act, Workmen's Compensation Act, PF and ESI Act or any other enactments and rules made applicable from time to time. The Contractor shall also comply with the provisions of the Apprenticeship Act, Contract Labour Regulation and Abolition) Act and the Rules and Orders issued there under from time to time. The Contractor shall

be liable to pay the wages directly to the workmen employed by him on the Works.

64.1.4 It is obligatory on the part of the Contractor to forward the declaration forms to the ESI authorities for issue of ESIC numbers, make timely contribution towards ESI and PF in accordance with the provisions of relevant acts from time to time in respect of labour engaged by him for all the works executed in the Company. The Contractor should contact the jurisdictional ESI and PF authorities and ensure to observe all formalities such as maintenance of muster rolls, opening of identification cards, making remittance etc. The Contractors / firms / establishments shall remit the PF and ESI contributions in their respective codes. However, in such cases, copies of muster roll, wage register, ESI / PF remittance, copies of the returns shall be furnished to the Engineer for verification and records while preferring bills.

64.1.5 The Contractor shall ensure compliance of any other laws, bye-laws, Acts. Statues, Rules & Regulations framed there under as appreciable in relation to its employees/workmen and establishments in mandatorily, even though not explicitly mentioned here. It shall be the responsibility of the Contractor to get itself acquainted about them adequately.

65.0 BREACH OF TERMS, SUSPENSION AND TERMINATION:

65.1 BREACH OF TERMS:

Breach of any of the terms of the Contract, the EMPLOYER shall be entitled, without prejudice to any and all other remedies available to it, without incurring any liability what-so-ever, to fore-bear from doing such acts or fulfilling such obligations as are to be done or fulfilled by it here under until the CONTRACTOR on terms herein makes good the said breach;

65.2 SUSPENSION:

65.2.1 IREL may suspend the Works in whole or in part at any time by giving the CONTRACTOR a notice in writing, if the CONTRACTOR shall be in breach of this Contract or shall fail to perform any of its obligations under this Contract, including the carrying out of the Works; provided that such notice of suspension (i) shall specify the nature of the breach or failure, and (ii) shall provide an opportunity to the CONTRACTOR to remedy such breach or failure within a period not exceeding 30 (thirty) days after receipt by the CONTRACTOR of such notice of suspension.

65.2.2 On receiving the notice of suspension from IREL, the CONTRACTOR shall stop all such work, which IREL has directed to be suspended with immediate effect. IREL may at any time cancel the suspension notice for all or any part of suspended work by giving written notice to the CONTRACTOR specifying the part of work to be resumed and the effective date of suspension withdrawal. The CONTRACTOR shall resume the suspended work on immediately upon receipt of such withdrawal of suspension notice. In the event of suspension of work, IREL shall not be liable to the CONTRACTOR for any damage and loss.

65.3 TEMPORARY SUSPENSION:

65.3.1 IREL may at any time temporarily suspend the progress of work being performed under the Contract or any part thereof by notice in writing to the CONTRACTOR. All the work so suspended shall be resumed by the CONTRACTOR and extended as assessed and deemed fit by IREL.

65.3.2 IREL will not pay the CONTRACTOR for any work, which is performed during such an interval of suspension, and IREL shall not be liable to the CONTRACTOR for any damages or loss caused by such suspension of work.

65.4 EVENT OF DEFAULT:

Event of Default means the CONTRACTOR Event of Default or IREL Event of Default or both as the context may admit or require.

65.4.1 CONTRACTOR EVENT OF DEFAULT:

Any of the following events shall constitute an event of default by the CONTRACTOR ("CONTRACTOR Event of Default");

a) the CONTRACTOR fails to remedy any breach hereof or any failure in the performance of its obligations hereunder, as specified in a notice of suspension pursuant to Sub-clause 65.2 hereinabove, within 30 (thirty) days of receipt of such notice of suspension or within such further period as IREL may have subsequently granted in writing;
b) The CONTRACTOR fails to commence the Works ;
c) The CONTRACTOR fails to ensure that Works Completion Date of the Plant is achieved as per schedule mentioned in the contract/ agreement;
d) Any representation made or warranties given by the CONTRACTOR under this Contract is found to be false or misleading;
e) The transfer, pursuant to law of either (a) the rights and/or obligations of the CONTRACTOR under the Contract, or (b) all or material part of the CONTRACTOR; except where such transfer in the reasonable opinion of IREL does not affect the ability of the CONTRACTOR to perform, and the CONTRACTOR has the financial and technical capability to perform. its material obligations under the Contract;
f) The CONTRACTOR suspends or abandons the Works without prior consent of IREL, provided that the CONTRACTOR shall be deemed not to have suspended/ abandoned operation if such suspension/ abandonment was (i) as a result of Force Majeure Event and is only for the period such Force Majeure is continuing, or (ii) is on account of a breach of its obligations under the Contract by IREL;
g) the CONTRACTOR becomes insolvent or bankrupt or enters into any agreement with its creditors for relief of debt or take advantage of any law for the benefit of debtors or goes into liquidation or receivership whether compulsory or voluntary;
h) the CONTRACTOR fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 63 hereof;
i) the CONTRACTOR submits to IREL a statement which has a material effect on the rights, obligations or interests of IREL and which the CONTRACTOR knows to be false;
j) any document, information, data or statement submitted by the CONTRACTOR in its Bid, based on which the CONTRACTOR was considered eligible or successful, is found to be false, incorrect or misleading; or
k) The CONTRACTOR repudiates the Contract or otherwise evidences an intention not to be bound by the Contract.

65.4.2 IREL EVENT OF DEFAULT:

The following events shall constitute events of default by IREL (**"IREL Event of Default"),** unless any such IREL Event of Default has occurred as a result of CONTRACTOR Event of Default or due to a Force Majeure Event:

a) IREL is in breach of the Contract and has failed to cure such breach within sixty (60) days of receipt of notice in that behalf from the CONTRACTOR;
b) IREL repudiates the Contract or otherwise evidences an intention not to be bound by this Contract;

c) Any representation made or warranties given by IREL under the Contract is found to befalse or misleading.

65.5 RECOURSE TO EVENT OF DEFAULT:

65.5.1 In case of an event of default, the following recourse is available to IREL and the CONTRACTOR or both as the situation may warrant:

a) In case of occurrence of Event of Default mentioned in Sub-clause a and Sub-clause b of Clause 65.4.1, the CONTRACTOR shall have an option to ask for extension from IREL specifying the conditions that have restricted the CONTRACTOR to complete the tasks in stipulated time. However, IREL"s decision on said matter shall stand final as the case maybe;

b) In case of occurrence of any other Event of Default in Clause 65.4.1, IREL shall be entitledto terminate this CONTRACT as per Clause 65.6 herein.

c) In case of occurrence of Event of Default mentioned in Sub-clause 65.4.2, the CONTRACTOR shall have an option to seek Termination of this Contract. In seeking the Termination of the Contract, CONTRACTOR would have to clearly demonstrate that the Event of Default has occurred despite all possible steps taken by CONTRACTOR to avoid Termination. The Parties shall mutually decide the modalities of Termination.

65.6 TERMINATION DUE TO CONTRACTOR EVENT OF DEFAULT:

65.6.1 Without prejudice to any other right or remedy which IREL may have in respect thereof under the Contract, upon the occurrence of an CONTRACTOR Event of Default, IREL shall be entitled to terminate the Contract by issuing a Termination Notice (the **"Termination Notice"**) to the CONTRACTOR, provided that before issuing the Termination Notice, IREL shall by a notice in writing inform the CONTRACTOR of its intention to issue the Termination Notice (the **"Preliminary Notice"**). In case the underlying breach/default is not resolved within a period of sixty (60) days from the date of the Preliminary Notice, IREL shall be entitled, to terminate the Contract by issuing the Termination Notice.

65.6.2 Upon termination of the Contract by notice of either Party to the other pursuant to Sub-clauses 65.5.1 b or 65.5.1 c hereof, the CONTRACTOR shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Works to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum.

65.7 PAYMENT UPON TERMINATION:

65.7.1 Upon termination of this Contract pursuant to Sub-clauses 65.5.1 c hereof, IREL shall make the following payments to the CONTRACTOR (after offsetting against these payments any amount that may be due from the CONTRACTOR to IREL):

Remuneration pursuant to Schedule of rates hereof for Works satisfactorily performed prior to the date of termination;

65.8 DISPUTES ABOUT EVENTS OF TERMINATION:

65.8.1 If either Party disputes whether an event specified in Sub-clause 65.4.1 or in Sub-clause 65.4.2 hereof has occurred, such Party may, within 30 (thirty) days after receipt of notice of termination from the other Party, refer the matter to arbitration pursuant to Sub-clause hereof.

66.0 LIMITATION OF LIABILITY:

Notwithstanding anything contrary contained herein, the aggregate total liability of Contractor under the Contract or otherwise shall be limited to 100% of contract price. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

67.0 METHOD OF BLACKLISTING VENDORS:

67.1 Any failure by the vendor (CONTRACTOR) to supply/execute the contract as per order may result in blacklisting of vendor by the authority competent to conclude the contract. The blacklisted vendor shall not be considered for a minimum period of one year from the date of black listing.

67.2 Further, the competent authority may blacklist the bidder, if the bidder changes bid either techno-commercial and / or price or withdraw his bid after receipt of the same and during the validity period of bid.

67.3 Further, the vendor (CONTRACTOR) shall be banned from doing any business with IRELin case of

a. If security considerations including question of loyalty to the state so warrant.

a. If the proprietor of the firm, its partner or representative is convicted by a court of law following prosecution for offences relating to business dealings.

b. If there is strong justification for believing that the proprietor or employee or representative of the CONTRACTOR has been guilty of malpractice such as bribery, corruption, fraud, substitution of tenders, interpolation, misrepresentation, evasion or habitual default in payment of any tax levied by law, etc.

67.4 An order for ban/ suspension passed for a certain specified period shall be deemed to have been automatically revoked on expiry of that specified period and it will not be necessary to issue a specific formal order of revocation, except that an order of suspension/ban passed on account of doubtful loyalty or security consideration shall continue to remain in force until it is specifically revoked.

67.5 An order of ban on grounds of conviction by Court of Law may be revoked if, in respect of the same facts, the accused has been wholly acquitted by a court of law.

68.0 SECRECY

The CONTRACTOR shall not at any time during the pendency of the contract or there after disclose any information furnished to them by IREL or any drawings, designs, reports and other documents and information prepared by the Contractor for this contract, without the prior written approval of IREL except in so far as such disclosure is necessary for the performance of the Contractor's work and service hereunder.

69.0 LABOUR:

(a) In respect of all labour directly or indirectly employed by the Contractor, Labour Rules, on the work, it shall be the bounden duty of the Contractor to abide by and to strictly comply with all labour legislations, as may be applicable, enacted by the parliament or by the State Legislature and the rules/regulations framed there under by the Central or State Government or Local Authorities providing for the conditions of employment protection of health, Sanitary arrangements, wages, provident fund, gratuity, welfare, and safety of workmen. These rules and statutory obligations shall be deemed to be part of the Contract. Instructions issued by the Employer in this behalf from time to time shall be equally binding on the contractor & the Contractor shall observe them stringently.

(b) In the event of the Contractor failing to discharge his obligations imposed upon him by or under any statute as aforesaid, the employer shall be entitled to rescind the Contract. at the sole risk and cost of the Contractor and/or recover from him the amount of loss sustained by the Employer.

(c) It is advisable for the Contractor to properly and fully acquaint himself with all the legislations as applicable to his workmen and the work under this contract or in connection herewith, so as to preclude the possibility of infringement and noncompliance thereof and to make it easy for him to observe clause 69 without any deviation.

(d) The Contractor shall maintain records, registers in respect of workers employed by him as required under various statutes and or prescribed by the Employer, shall issue attendance cards to each worker and shall produce the same for inspection on demand to the authorities under statutes or to the authorised representatives of the Employer.

(e) All payments of whatever nature to be made by the Contractor to his workmen shall be made in the presence of an authorised representative of Employer and Employer's representative shall sign the acquaintance in token of having witnessed the payment, as prescribed under law.

(f) The first R.A. bill of the Contractor shall be released only after HRM (Welfare Section) gives clearance regarding compliance of all statutory provisions by the contractor. Final bill of the Contractor shall be cleared only when a clearance certificate is issued by the Contractor from an authority declared for the purpose by the Employer, that the claims of workmen in respect of wages, workmen's compensation, statutory payments etc. have been paid by Contractor to his workmen in full and subject to fulfillment of other conditions of Contract. Labour Rules etc.

(g) The Contractor shall be entirely responsible for safe and good conduct of his employees during the period of his contract. The Contractor shall also ensure, that no safety rules/instructions are violated by him or his workmen. The Contractor shall maintain his machineries and tools for work in safe condition and shall present the same for checking whenever called by Employer/ his representatives.

(h) It shall be binding on the part of the Contractor to familiarise himself and be governed by all statutes such as Mines Act 1952, Rules and Regulations including amendments made there under, if any, applicable for the work, Indian Electricity Act. 1910 and Indian Electricity Rules 1956 including amendments, if any applicable for the work.

(i) The Contractor shall provide and ensure proper use of safety appliances by his workmen throughout the course of their employment.

(j) The Contractor in fulfillment of his statutory obligations imposed by or under various Labour Laws, will among other things:

i) Arrange to provide cool and wholesome drinking water at appointed place/places near work site. The container of water shall be in hygienic condition.

ii) Implement the Employees Provident Fund Scheme or Produce exemption certificate from Regional Provident Fund Commissioner if they are so exempted otherwise, bills for the work will be released withholding 10% from such sums or as decided by the Management from time to time till such time they implement the scheme or produce exemption certificate from the Regional Provident Fund Commissioner. The Contractors are further required to indemnify Employer against any loss or damage, whatsoever that may be suffered by Employer as a result of any claim. Damage or

penalties for any failure or non-compliance on their (Contractor's) part with the provisions of the aforesaid Act and Scheme framed there under.

(k) The Contractor shall arrange to get his workmen trained under Mines Vocational Rules-1966 at the Training Department of the Company and shall pay all statutory allowances for such training to his workmen under training. The Contractor shall ensure the proper use of safety appliances by his workmen throughout the course of their employment.

70.0 RETURNS OF LABOUR:

The Contractor shall if required by the Engineer deliver to the Engineer's representative or at his office a return in detail in such from and at such intervals as the Engineer may prescribe showing the numbers of the labour from time to time employed by the contractor on the Site.

71.0 LABOUR LICENCE:

i. The Contractor shall have to obtain a licence from Asst. Labour Commissioner (Licensing Authority) within 15 days from the award of the Contract under Contract Labour (Regulation and Abolition) Act. 1970 and shall have to comply with all the provisions of the Act and Rules framed there under and shall ensure that no violations are pointed out by the Authorities under the Act.

ii. The RA Bills of the contract shall not be released until the licence for the number of labour employed under Contract Labour (Regulation and Abolition) Act, 1970 has been produced by the Contractor to the office of the employer. Whenever the number is increased, the Contractor shall arrange to get such changes incorporated in the licence.

iii. The Contractor shall make payment to their workmen in the presence of authorised representative of the Employer only, and obtain the required certificate regarding witnessing of payments.

72.0 WOMEN LABOUR:

The working hours of women labour employed by the Contractor/ tenderer shall conform to the relevant labour acts in force. They shall not be detained after 7.00 PM and employed before 6.00 AM and in no case employed during the night time.

73.0 EMPLOYMENT OF CHILDREN:

No child below the age of 18 years shall be employed. If children/young persons in the work premises are employed contravening the provision of the Factories Act, 1948 and rules framed there under, their agreement/ contract is liable to cancellation and/or termination without any compensation or notice.

74.0 ENTRY PASS:

All representatives and workers of Contractor shall possess the Entry Pass issued from the Security Dept. and concerned Officer/Engineer shall have the right to refuse the Entry passes to any worker or representative of the Contractor without assigning any reason. Permission to enter the Plant to any representative or worker of the Contractor may be suspended or withdrawn at any time by the Security Dept. or concerned Officer/Engineer without assigning any reason. The Contractor(s) shall ensure that any gate pass issued to their workmen or representatives by authorities are not misused by the unauthorized persons for entry in the plant area/in specified area inside the plant.

75.0 SAFE CUSTODY OF ENTRY PASS:

The Contractor shall be governed by the following provisions for enforcing safe custody and proper use of gate passes that may be issued to him for entry into the Plant area:

i. it shall amount breach of rules and regulations regarding entry into a prohibited place by Contractors in case any entry passes issued on their demand are found to be misused by any unauthorised person (s).

ii. It shall also amount to breach of terms of the contract for which the employer reserves the right to terminate the contract at any stage at the risk and cost of the Contractor.

iii. Final payment would be made to the Contractor only after all the passes issued bythe Security Department are surrendered to the Security Department for cancellation for which 'No Demand Certificate' should be obtained.

iv. In case of passes lost/ not surrendered for any reason an amount as fixed shall be levied as penalty before final payments are cleared or as amended from time to time. No Dues Certificate will not be issued unless all the statutory payments to contract labour including retrenchment benefits, gratuity etc. are paid and a copy of full and final payment Muster Roll duly witnessed by the nominee of employer issubmitted to Welfare Dept. by the contractor The Contractor may be debarred in case he is found that he is not complying with the statutory provisions.

76.0 LIABILITY FOR ACCIDENTS AND DAMAGES:

76.1 The CONTRACTOR shall be responsible for loss or damage to the PLANT and provide new equipment and machineries in lieu of equipment/machineries lost/ damaged beyond repairs, free of cost until the PLANT is handed over after successful completion of performance guarantee test run.

Notwithstanding the provisions in the CONTRACT, the CONTRACTOR shall not be responsible for any loss or damage to the PLANT or any part thereof if and to the extent that such loss or damage is not covered by insurance coverage such as War risk, provided the same is general exclusion of the policy of the EAR insurance. War Risks shall mean any of the following events occurring within India: War, hostilities, warlike operations (whether a state of war be declared or not), invasion, act of foreign enemy, civil war, rebellion, terrorism, revolution, insurrection, mutiny, usurpation of civil or military government, conspiracy, riot, civil commotion, mine, bomb, shell, grenade or other projectile, missile, munitions or explosive of war.

76.2 The CONTRACTOR shall indemnify the IREL in respect of all damage or injury to any person or to any property (other than property forming part of the Work) and against all actions, suits, claims, demands, costs, charges and expenses arising in connection therewith which shall have been occasioned by the negligence of the CONTRACTOR or any SUB-CONTRACTOR, or by defective design (other than a design made, furnished or specified by the IREL and which the CONTRACTOR has disclaimed responsibility in writing within a reasonable time after receipt of the IREL's instructions), material or workmanship, any breach of the CONTRACTOR's obligations.

77.0 SAFETY CLAUSES:

Before commencement of the work, the Contractor will give an undertaking in writing that they would abide by the safety Rules and Regulations laid down by the organization rigorously and any deviation from this would make them liable for action.

i. SAFETY CLEARANCE:

Along with contract document and job instructions from the contracting department, the Contractor will come to Safety & Training Dept. where he will be further briefed and Contractor's Safety Management Policy will be explained. The Contractor will notbe permitted to start the job without getting a written safety clearance from Safety & Training Dept.

ii. SHUTDOWNS

The contracting department would take necessary shutdowns wherever there are hazards of gases, electricity, moving machinery, etc. The Contractor shall ensure that the shutdowns/ clearance are taken before sending workers in such locations.

iii. WORK AT HEIGHT

Whenever work at height is involved Contractor should obtain passes to work at height for these persons who will be required to work at height from Safety & Training Dept. Rope access systems and Personal protective Equipment for protection against fall as per ISO-22846-1:2003 and 22846-2:2012. No extra cost shall be paid for this special safety arrangement.

iv. INJURY TO WORKMEN

The Contractor after preliminary examination at PHC may take his injured workmen to his own Doctor with permission from the Doctor at PHC at his own risk giving an undertaking to that effect in writing to the Doctor. He will, however, have to keep S&T Dept. informed about the nature of the injury and the period for which the injured person is off duty on account of injury.

v. RESPONSIBILITY FOR ACCIDENTS

The Contractor shall be fully, responsible for accidents caused due to his or his agent'sor workmen's negligence or carelessness in regard to the observance of the safety requirements and shall be liable to pay compensation for injuries and delay work due to these accidents.

vi. PRECAUTIONS & SUPERVISION:

The Contractor shall take all safety precautions and provide adequate supervision in order to do the job safely and without damage to equipment.

vii. SAFETY CODE

The Contractors shall strictly follow the IREL Safety Code and also the instructions issued by the Safety & Training Dept. from time to time. Before starting the work, the Contractor shall meet the safety Officer and get himself familiar with the safety measures to be taken during the execution of the job. The contractor shall be personally responsible for the safety of his workmen and shall be liable for prosecutionin case of any accident.

viii. OTHER ACTS RULES ETC.

Notwithstanding the above clauses, there is nothing in these conditions to exempt the Contractor from the operations of any other Act or Rule in force in the Republic of India.

ix. FAILURE TO OBSERVE SAFETY RULES:

Failure to observe the safety rules will make the Contractor liable to penalty by way of suspension of work, fine and termination of contract.

x. SAFE USE OF VEHICLES:

It will be entirely the responsibility of the Contractor to ensure that the vehicles are not driven with so high speed or in so reckless or rash manner as to cause accident or prove to be potential threat to the safety of the traffic. Where the speed limits have been fixed, they will be strictly adhered to by the Contractor's drivers who will also adhere to slow and safe driving inside the Plant and Township Area. Failure to comply with the above may result in termination of the contract.

xi. THEFT ETC.

Similarly, if a driver or any staff of the Contractor is caught in theft case or in any unauthorized movement of materials or in the activity which is punishable under the law or not authorized by the Plant, the Contractor will bear the full responsibility for the loss and other consequences which may result to the Plant due to such illegal/ unauthorized acts besides the action to terminate the contract by the Plant.

xii. COMPENSATION:

In case of accident or injury or damages caused by the Contractor's vehicle or staff to any person or property, the financial responsibility to compensate be borne solely by the Contractor and this amount may, at the discretion of the competent authority of IREL, be recovered from the bills or Security or other deposits of the Contractor.

xiii. PRECAUTIONS FOR VEHICULAR TRAFFIC:

Suitable safety precautions must be taken by the Contractor for his vehicular traffic at the level crossing/roads inside the Plant/ Township area. Contractors would be using those roads on their own risk and responsibility without any liability on the part of IREL Management.

78.0 INSURANCE:

78.1 GENERAL:

CONTRACTOR shall at his own expense arrange, secure and maintain insurance with reputed insurance companies to the satisfaction of the EMPLOYER as follows:

CONTRACTOR at his cost shall arrange, secure and maintain insurance as may be necessary and to its full value for all such amounts to protect the WORKS in progress from time to time and the interest of EMPLOYER against all risks as detailed herein. The form and the limit of such insurance, as defined here in together with the under works thereof in each case should be as acceptable to the EMPLOYER. However, irrespective of work acceptance the responsibility to maintain adequate insurance coverage at all times during the period of CONTRACT shall be that of CONTRACTOR alone. CONTRACTOR's failure in this regard shall not relieve him of any of his responsibilities and obligations under CONTRACT.

Any loss or damage to the equipment, during ocean transportation, port/custom clearance, inland and port handling, inland transportation, storage, erection and commissioning till such time the WORK is taken over by EMPLOYER, shall be to the account of CONTRACTOR.

CONTRACTOR shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the parts of the Work damaged or lost. CONTRACTOR shall provide the EMPLOYER with a copy of all insurance policies and documents taken out by him in pursuance of the CONTRACT. Such copies of document shall be submitted to the EMPLOYER immediately upon the CONTRACTOR having taken such insurance coverage. CONTRACTOR shall also inform the EMPLOYER at least 60(Sixty)

days in advance regarding the expiry, cancellation and/or changes in any of such documents and ensure revalidation/renewal etc., as may be necessary wellin time.

Statutory clearances, if any, in respect of foreign supply required for the purpose of replacement of equipment lost in transit and/or during erection, shall be made available by the EMPLOYER. CONTRACTOR shall, however, be responsible for obtaining requisite licences, port clearances and other formalities relating to such import. The risks that are to be covered under the insurance shall include, but not be limited to the loss or damage in handling, transit, theft, pilferage, riot, civil commotion, weather conditions, accidents of all kinds, fire, war risk (during ocean transportation only) etc. The scope of such insurance shall cover the entire value of supplies of equipments, plants and materials to be imported from time to time.

All costs on account of insurance liabilities covered under CONTRACT will be to CONTRACTOR's account and will be included in VALUE OF CONTRACT. However, the EMPLOYER may from time to time, during the currency of the CONTRACT, ask the CONTRACTOR in writing to limit the insurance coverage risk and in such a case, the parties to the CONTRACT will agree for a mutual settlement, for reduction in VALUE OF CONTRACT to the extent of reduced premium amounts.

78.2 CONTRACTOR as far as possible shall cover insurance with Indian Insurance Companies, including marine Insurance during ocean transportation.

i. EMPLOYEES' STATE INSURANCE ACT:

The CONTRACTOR agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by the Employees" State Insurance Act 1948 and the CONTRACTOR further agrees to defend, indemnify and hold EMPLOYER harmless for any liability or penalty which may be imposed by the Central, State or Local authority by reason of any asserted violation by CONTRACTOR or SUB-CONTRACTOR of the Employees' State Insurance Act, 1948, and also from all claims, suits or proceeding that may be brought against the EMPLOYER arising under, growing out of or by reasons of the work provided for by this CONTRACTOR, by third parties or by Central or State Government authority or any political sub- division thereof.

The CONTRACTOR agrees to fill in with the Employee's State Insurance Corporation, the Declaration Forms, and all forms which may be required in respect of the CONTRACTOR's or SUB- CONTRACTOR's employees, who are employed in the WORK provided for or those covered by ESI from time to time under the Contract. The CONTRACTOR shall deduct and secure the agreement of the SUB- CONTRACTOR to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the Employees Contribution Card at wages payment intervals. The CONTRACTOR shall remit and secure the agreement of SUB-CONTRACTOR to remit to the State Bank of India, Employee's State Insurance Corporation Account, the Employee's contribution as required by the Act. The CONTRACTOR agrees to maintain all cards and Records as required under the Act in respect of employees and payments and the CONTRACTOR shall secure the agreement of the SUB- CONTRACTOR to maintain such records. Any expenses incurred for the contributions, making contributions or maintaining records shall be to the CONTRACTOR's or SUB-CONTRACTOR's account.

The EMPLOYER shall retain such sum as may be necessary from the total VALUE OF CONTRACT until the CONTRACTOR shall furnish satisfactory proof that all contributions as required by the Employees" State Insurance Act, 1948, have been paid. This will be pending on the CONTRACTOR when the ESI Act is extended to the place of work.

ii. WORKMEN COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE: Insurance shall be effected for all the CONTRACTOR's employees engaged in the performance of this CONTRACT. If any of the work is sublet, the CONTRACTOR shall require the SUB-CONTRACTOR to provide workman's compensation and employer's liability insurance for the latter's employees if such employees are not covered under theCONTRACTOR's Insurance.

iii. TRANSIT INSURANCE:
In respect of all items to be transported by the CONTRACTOR to the SITE of WORK, the cost of transit insurance should be borne by the CONTRACTOR and the quoted price shall be inclusive of this cost.

iv. COMPREHENSIVE AUTOMOBILE INSURANCE:
This insurance shall be in such a form as to protect the Contractor against all claims for injuries, disability, disease and death to members of public including EMPLOYER"s men and damage to the property of others arising from the use of motor vehicles duringon or off the `site" operations, irrespective of the Employer ship of such vehicles.

v. COMPREHENSIVE GENERAL LIABILITY INSURANCE:

a) This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of member of public or damage to property of others due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and Sub-Contractor's or from riots, strikes and civil commotion.
b) Contractor shall take suitable Group Personal Accident Insurance Cover for taking care of injury, damage or any other risks in respect of his Engineers and other Supervisory staff who are not covered under Employees" State Insurance Act.
c) The policy shall cover third party liability. The third party liability shall cover the loss/ disablement of human life (person not belonging to the Contractor) and also cover the risk of damage to others materials/ equipment/ properties during construction, erection and commissioning at site. The value of third party liability for compensation for loss of human life or partial/full disablement shall be of required statutory value but not less than Rs. 2 lakhs per death, Rs. 1.5 lakhs per full disablement and Rs. 1 lakh per partial disablement and shall nevertheless cover such compensation as may be awarded by Court by Law in India and cover for damage to others" equipment/ property as approved by the Purchaser. However, third party risk shall be maximum to Rs. 10 (ten) lakhs to death.
d) The Contractor shall also arrange suitable insurance to cover damage, loss, accidents, risks etc., in respect of all his plant, equipments and machinery, erection tools & tackles and all other temporary attachments brought by him at site to execute the work.
e) The Contractor shall take out insurance policy in the joint name of EMPLOYER and Contractor from one or more nationalised insurance company from any branchoffice at Project site.
f) Any such insurance requirements as are hereby established as the minimum policies and coverages which Contractor must secure and keep in force must be

complied with, Contractor shall at all times be free to obtain additional or increased coverages at Contractor's sole expenses.

vi. ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATIONS OR BY EMPLOYER:

CONTRACTOR shall also carry and maintain any and all other insurance(s) which he may be required under any law or regulation from time to time without any extra cost to EMPLOYER. He shall also carry and maintain any other insurance which may be required by the EMPLOYER.

79.0 GENERAL

79.1 In the event that terms and conditions stipulated in the General Conditions of Contract should deviate from terms and conditions stipulated in the Contract, the latter shall prevail.

79.2 LOSSES DUE TO NON-COMPLIANCE OF INSTRUCTIONS:

Losses or damages occurring to the EMPLOYER owing to the CONTRACTOR"s failure to adhere to any of the instructions given by the EMPLOYER in connection with the contract execution shall be recoverable from the CONTRACTOR.

79.3 RECOVERY OF SUMS DUE:

All costs, damages or expenses which the EMPLOYER may have paid, for which under the CONTRACT CONTRACTOR is liable, may be recovered by the EMPLOYER (he is hereby irrevocably authorized to do so) from any money due to or becoming due to the CONTRACTOR under this Contract or other Contracts and/or may be recovered by action at law or otherwise. If the same due to the CONTRACTOR be not sufficient to recover the recoverable amount, the CONTRACTOR shall pay to the EMPLOYER, on demand, the balance amount.

79.4 PAYMENTS, ETC. NOT TO AFFECT RIGHTS OF THE EMPLOYER:

No sum paid on account by the EMPLOYER nor any extension of the date for completion granted by the EMPLOYER shall affect or prejudice the rights of the EMPLOYER against the CONTRACTOR or relieve the CONTRACTOR of his obligation for the due fulfilment of the CONTRACT.

79.5 CUT-OFF DATES:

No claims or correspondence on this Contract shall be entertained by the EMPLOYER/Consultant after 90 days after expiry of the performance guarantee (from the date of final extension, if any).

79.6 PARAGRAPH HEADING:

The paragraph heading in these conditions shall not affect the construction thereof.

80.0 EARNEST MONEY DEPOSIT (EMD)/ BID SECURITY

80.1 Earnest Money Deposit (EMD) is a deposit received from the tenderers in token of their earnestness in submitting their offer to undertake the supplies/works/services/consultancy contracts and conclude a contract if entrusted to them on the basis of their tender.

80.2 EMD is to be remitted by way of 'Insurance Surety Bonds' or 'account payee demand draft' or 'fixed deposit receipt' or 'bankers cheque' or 'Bank Guarantee from any scheduled commercial Banks' or "online payment' in favour of IREL. In case of online payment, bidders should submit the UTR no. enabling verification of receipt of the amount.

80.3 Government Body/Public Sector Undertakings may be exempted from payment of EMD with the approval of Competent Authority.

80.4 EMD amount in rupee value is to be mentioned as a fixed amount in the tender and not as a percentage of the estimated cost and no interest is payable on the EMD.

80.5 EMD shall be exempted to Start-ups, if participating as a single entity only and not as a consortium, as per prevailing guidelines in this regard.

80.6 EMD is liable to be forfeited if:

a. The tenderer changes the terms and conditions or prices or withdraw his quotation subsequent to the date of opening/ The tenderer impairs or derogates from the tender in any respect within the period of validity of the tender

b. The tenderer fails to accept the order when placed or fails to commence supplies/works/services after accepting the order.

c. In case bidder submits false/fabricated documents. d) In case bidder fails to submit SD as stipulated in the tender.

80.7 The offers received from tenderers without EMD and/or tender cost shall be summarily rejected except where an exemption is provided in the tender.

80.8 EMD may be adjusted against security deposit / performance security of the successful bidder. EMD of the unsuccessful bidders should be returned to them at the earliest after expiry of the final bid validity period and latest by the 30th day after the award of the contract. Bid security should be refunded to the successful bidder on receipt of performance security. However, in case of two stage bidding/ 2or 3 envelope bidding, EMD of unsuccessful bidders during first stage i.e. technical evaluation etc. should be returned within 30 days of declaration of result of first stage i.e. technical evaluation etc.

80.9 In case where the EMD is provided in form of BG in the prescribed format to be attached with the tender, the BG shall be obtained from a scheduled commercial Bank with validity of 45 days beyond final bid validity period.

80.10 **Traders/ distributors/ sole agent/ Works Contract are excluded from the purview of the Procurement Policy for Micro and small Enterprises, 2012 (as amended time to time).**

81.0 SECURITY DEPOSIT (PERFORMANCESECURITY) OR PERFORMANCE BANK GUARANTEE:

a) Security deposit (SD) shall be uniformly levied @ 5% of contract value (excluding Taxes) towards satisfactory completion of the order/works as under:

b) for works contract valued more than Rs.2 lakhs. b) For supply & service contract valued more than Rs.5 lakhs.

Performance Security is to be furnished by a specified date (generally 2 1 days after notification of the award) and it should remain valid for a period of 60 (sixty) days beyond the date of completion of all contractual obligations of the supplier/ contractor, including warranty obligations/ defect liability period (DLP).

In exceptional cases waiver of SD shall be approved by Competent Authority after recording the reasons for such waiver.

Submission of SD/PBG, if called for in the tender can also be paid through Insurance Surety Bonds" or „account payee demand draft" or „fixed deposit receipt from a Scheduled Commercial bank" or „Bank Guarantee issued/ confirmed from any Scheduled Commercial Banks in India" or online payment to be confirmed sharing Unique Transaction Reference (UTR) to the tender inviting authority as called for in tender. In case of GTE tenders, the performance security should be in the same currency as the contract and must conform to Uniform Rules for Demand Guarantees (URDG 758) — an international convention regulating international securities. In case

of JV, the BG towards performance security shall be provided by all the partners in proportion to their participation in the project. Bank Guarantees towards Bid Security/ Security Deposit/ PBG issued by Nationalized Banks/ Scheduled Commercial Banks (other than Cooperative Banks) only acceptable.

Purchase Department should immediately forward the SD to finance department for necessary action under intimation to EIC/ OIC.

In exceptional cases of work contracts, the approving authority may consider Recovering balance SD (in addition to EMD if it is given not in BG form) amount from 1st running bill of the contractor which shall be specifically mentioned in the tender document itself.

EMD/ Bid Security may be adjusted towards SD. However, if EMD is submitted in the form of Bank Guarantee, fresh Bank Guarantee in the prescribed format or demand draft/ bankers cheque is to be submitted towards SD.

BG format for security deposit and performance guarantee is attached in Annexure-XII.

The SD shall not bear any interest and is liable to be forfeited for unsatisfactory completion or on abandonment of the supply/ work order.

Additional amount of SD due to enhancement in scope of work is also to be obtained.

A register for the receipt, refund, forfeiture of these deposits shall be maintained by the Purchase/Finance department.

82.0 RETENTION MONEY:

80.11 Where in a contract, payment is made on progressive billing of work executed, 5% of the bill value shall be retained at the time of making payment towards rectification/defective work made as retention money.

80.12 The total SD and retention money together towards performance guarantee shall not exceed 10% of the contract value.

83.0 Refund of SD and Retention money:

83.1 Before releasing SD or retention money in respect of supplies/works, a "No Due Certificate" shall be issued by EIC/OIC duly countersigned by head of the department after ensuring that no amounts are recoverable from the supplier/contractor.

83.2 EIC/OIC shall recommend release of SD and retention money after compliance by the contractor towards Guarantee/warranty/performance guarantee & other related clauses as stipulated in the purchase/work order and on submission of formal claim by contractor.

83.3 On receipt of "no dues certificate" from EIC/OIC, SD or retention money retained in the form of B.G and / or any form shall be refunded at the earliest, if the contractor is not liable to pay any money to IREL (India) Limited under any other contract.

84.0 Forfeiture of SD & Retention Money

The SD & retention money shall stand forfeited in favour of IREL (India) Limited, without any further notice to the contractor in the following circumstances:

In case of any failure whatsoever on the part of the contractor at any time during performance of his part of the contract including the extended periods of contract, where notice is given and time for rectification allowed.

If the contractor indulges at any time in any subletting/sub -contracting of any portion of the work without approval of IREL (India) Limited.

85.0 MSME bidders are requested to get registered with TReDS Platform.

86.0 ETHICS IN TENDERING & OTHER BUSINESS DEALINGS:

Dear Sir,
IREL (India) Limited, a Government of India undertaking under the administrative control of Department of Atomic Energy is doing its business as per the rules and regulations of the Public Sector Undertaking and other statutory agencies. The business is done in an ethical, rational & impartial manner with good corporate governance.

In our endeavour to be more transparent in our dealings and to support our ideology all Vendors, Customers and Business Partners are requested not to provide any gift and / or inducement to any of our employees for securing/ being granted favour in dealings with our company. In assurance of your commitment to the aforesaid, it will be highly appreciated if you fill up, sign and abide by the attached undertakings.

Report of any gifts and / or inducements sought by any employee of the company should be immediately reported to any one of the following.

Chairman & Managing Director IREL (India) Limited. 1207, V.S. Marg, Prabhadevi, Mumbai-400 028 Ph:022-24225778 Email: cmd@irel.co.in	Chief Vigilance Officer IREL (India) Limited. 1207, V.S. Marg, Prabhadevi, Mumbai-400 028 Ph:022-24221065 Email: cvo@irel.co.in
Or Chief General Manager & Head, MK IREL (India) Limited, Manavalakurichi	

We assure you that complaints if any made by you on the subject will be kept confidential and fair investigation will be conducted and appropriate action will be taken. Similarly, we accept your commitment to thee undertaking and its violation will have consequences as per prevailing rule of the company.

Thanking you,
For IREL (India) Limited
Name_____
Designation_____
Date

87.0 UNDERTAKING:

Date:

To,

M/s. IREL (India) Limited.,
1207, V.S. Marg, Prabhadevi
Mumbai 400 028.

I / We …..... am / are a Vendor / Customer of IREL (India) Limited (now onwards to be referred as Company).

I / We agree and undertake:
Not to provide any gift and / or inducement to any employee of the Company in connection with securing / being granted favour (s) in my / our dealings with the corporate office of the company and / or its any field units namely MK, Chavara, OSCOM, RED & IRERC.

To immediately report any gift and / or inducement sought by any employee of the Company granting favour(s) to me / us in my / our dealings with the Company and / or its field units.

Signature……..
Name……..
Title……..
Name of the Company and Address (with Seal)……..

Appendix

Appendix 1

Letter comprising the Bid

Dated:

To:

Subject: Bid for ------ project

Dear Sir,

1. With reference to your RFP document dated *****, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project. The Bid is unconditional and unqualified.
2. All information provided in the Bid and in the Appendices is true and correct.
3. This statement is made for the express purpose of qualifying as a Bidder for the development and construction of the aforesaid Project.
4. I/ We shall make available to IREL any additional information it may find necessary or require to supplement or authenticate the Bid.
5. I/ We acknowledge the right of IREL to reject our Bid without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.
6. We certify that in the last three years, we have never failed to perform on any contract, as evidenced by imposition of a penalty or a judicial pronouncement or arbitration award, nor been expelled from any project or contract nor have had any contract terminated for breach on our part.
7. I/ We declare that:
    a. I/ We have examined and have no reservations to the Bidding Documents, including any Addendum issued by IREL.
    b. I/ We do not have any conflict of interest in accordance with the RFP document.
    c. I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with IREL or any other public sector enterprise or any Government, Central or State; and
    d. I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Clause 2.15 of the RFP, no person acting for us or on our behalf

has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

8. I/ We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders.
9. I/ We believe that I/we satisfy the Eligibility requirements as specified in Clause 2.3 of the RFP document and are/ is qualified to submit a Bid.
10. I/ We certify that in regard to matters other than security and integrity of the country, we have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.
11. I/ We further certify that in regard to matters relating to security and integrity of the country, we have not been charge-sheeted by any agency of the Government or convicted by a Court of Law for any offence committed by us or by any of our Associates.
12. I/ We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our Directors/Managers/ employees.
13. I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of ineligibility in terms of the provision of the RFP, we shall intimate IREL of the same immediately.
14. I/We acknowledge and agree that in the event of a change in control of an Associate whose Technical Capacity or Financial Capacity was taken into consideration for the purposes of short-listing and qualification under and in accordance with the RFP, I/We shall inform IREL forthwith along with all relevant particulars and IREL may, in its sole discretion, disqualify us or withdraw the Letter of Intent, as the case may be.
15. I/We further acknowledge and agree that in the event such change in control occurs after signing of the Agreement but prior to Commencement Date of the Project, it would, notwithstanding anything to the contrary contained in the Agreement, be deemed a breach thereof, and the Agreement shall be liable to be terminated without IREL being liable to us in any manner whatsoever.
16. I/We hereby irrevocably waive any right which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by IREL in connection with the selection of the Bidder, or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.
17. In the event of my/ our being declared as the Selected Bidder, I/We agree to enter into an Agreement in accordance with the draft that has been provided to me/us prior to the Bid Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

18. I/We have studied all the Bidding Documents carefully and also surveyed the Project. We understand that except to the extent as expressly set-forth in the Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by IREL or in respect of any matter arising out of or concerning or relating to the Bidding Process including the award of Project.
19. The Price Bid has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all the conditions that may affect the Bid.
20. I/We confirm supply of commissioning spares required for all equipment; all special tools and tackles required for erection, testing and successful commissioning of the proposed plants/ circuits, consumables and initial fill (if applicable) and one year spares required for operation and maintenance of the plant/ circuits. The price of the same is included in Price Bid.
21. I/We offer a Bid Security of Rs._____(Rupees _____ only) to IREL in accordance with the RFP Document.
22. The Bid Security in the form of a Bank Guarantee (strike out whichever is not applicable) is attached.
23. I/We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I/We shall have any claim or right of whatsoever nature if the Project is not awarded to me/us or our Bid is not opened.
24. I/We hereby submit our Bid for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement.
25. I/We agree to keep this Bid valid for 120 (one hundred and twenty) days from the Bid Due Date specified in the RFP.
26. I/We agree and undertake to abide by all the terms and conditions of the RFP document.

In witness thereof, I/we submit this Bid under and in accordance with the terms of the RFP document.

Yours faithfully,

(Signature of the Authorized signatory)

(Name and designation of the of the Authorized signatory)

Name and seal of Bidder

Date:

Place:

Annex-I to Appendix-1 – Particulars of Bidder

Particulars of the Bidder

S. No.	Particulars	Details
1.	Name of Bidder's entity	
2.	Country of origin	
3.	Legal Status	
4.	Registration number of the Company (under relevant Act of the Country)	
5.	a) Postal address of the Registered office b) Telephone no.(s) c) Fax no(s) d) Web Site, e-mail, if any e) Address of Regional / Local Office, if any	
6.	Brief description of the Bidder including details of its main lines of business and proposed role and responsibilities in this Project	
7.	a) Name of the authorized representative b) Designation c) Postal address d) Telephone no.(s) e) Fax no(s) f) E-mail	
8.	Permanent Account No. (PAN), if applicable	
9.	GSTIN number in India, if applicable	
10.	Whether the Bidder is from the country where as a matter of law or official regulations, the commercial relation with India is prohibited	
11.	Any other information	

12. The following information shall also be provided for the Bidder:

Name of Bidder:

S. No.	Criteria	Yes	No
1	Has the Bidder been barred by the Central/ State Government /Public Sector Undertaking (PSUs), or any entity controlled by it, from participating in any project (EPC or otherwise)?		
2	If the answer to 1 is yes, does the bar subsist as on the Bid Due Date?		

Signature of Authorised Signatory with seal

Name, Designation, Date, Place

Note: In case of consortium, the above information needs to be provided for each consortium member.

Annex-II to Appendix-1 – Technical Capacity of Bidder

Details of project for Technical Eligibility

(Refer Clause 2.3.3)

Name of Project:

Name of Bidder:

Title/Name of project		Documentary Proof for verification
Assignment Name:		
Country:		
Location within Country:		
Type of project, capacity, technology and process details		
Name of Client:		
Address of the Client:		
Date of commencement of the Project/ contract		
Date of completion/ commissioning of the project		
Equity shareholding (with period during which equity was held), In case a particular job/ contract has been jointly executed by the Bidder.		
Name of consortium members (if applicable) and equity shareholding for the project		
Details of commercial operation of the project with present status:		

Signature of Authorized Signatory with seal

Name, Designation, Date, Place

Notes:

- Use separate sheet for each Project.
- The Applicant may attach proofs on separate sheets as mentioned in the RFP.

Mention the supporting document such as LOA/ Work Order/ Completion Certificate indicating scope of work and other details as indicated in the RFP. Kindly indicate the page reference nos. for easy identification/ traceability.

Format for Certificate from practicing chartered accountant for Eligibility projects

Certificate from the practicing chartered accountant

Based on its books of accounts and other published information authenticated by it, this is to certify that …….. (name of the Bidder/Associate) was engaged by …….. (title of project company) for ……. (name of project).

The total fees received by the Bidder for the projects is ……

We further certify that the project was completed on …….. (date). The operations of the project commenced on …….. (date) and the project has been operational for a period of …….. (years) from ……. (date) to …….. (date) prior to the Bid Due Date of the said RFP.

Name of the audit firm:

Seal of the audit firm:

Date:

License/registration no:

(Signature, name, designation of the authorized signatory of the audit firm)

Annex-III to Appendix-1 – Financial Capacity of Bidder

Financial Capacity of the Bidder

Name of Bidder:

Net-worth of the Bidder

Net-worth of the Bidder As per lastFinancial Year's audited financial statements dated _____ Currency _____	_____ (in figures)	_____ (in words)

Turnover of the Bidder

Turnover of the Bidder	In figures	In words
FY 2024-25		
FY 2023-24		
FY 2022-23		
Average		

Signature of Authorised Signatory with seal

Name, Designation, Date, Place

Note:

- The Bidders will provide all necessary documents in support of the financial strength including audited financial statements and certificate from practicing chartered accountant.
- For the purpose of conversion of foreign currency, the provisions of Clause2.4.9 of the RFP will prevail.
- In case of Bidder taking support of Associate to meet the financial criteria, the above information for the Bidder as well as its Associate will be provided with documentary proof for both.

Annex-IV to Appendix-1 – Statement of Legal Capacity

Statement of Legal Capacity

(To be forwarded on the letterhead of the Applicant)

Ref.

Date.

To,

……

……

Dear Sir,

We hereby confirm that we satisfy the terms and conditions laid out in the RFP document.

We have agreed that …….. (insert individual's name) will act as our representative and has been duly authorized to submit the RFP. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.

Thanking you,

Yours faithfully,

(Signature, name and designation of the authorised signatory)

For and on behalf of……..

$ Please strike out whichever is not applicable

Appendix 2 – FORMAT OF BANK GUARANTEE FOR BID SECURITY

Bank Guarantee for Bid Security

B.G. No. Dated

In accordance with RFP No._____ Dated _____ for the work of _____ (herein after referred to as "the said Works"), under _____ (Corporate Office) of M/s IREL (India) Limited, a company incorporated under Indian Companies Act, having its registered office at Plot No.1207, ECIL building, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400028, India (herein after referred to as "IREL"), M/s _____ Address _____ [Herein after referred to as Bidder (s)] wish /wishes to participate in the said tender and a Bank Guarantee for the sum of Rs._____ (in words) valid for a period of _____ days (in words) is required to be submitted by the Bidder towards the Bid Security.

We the _____Bank (hereinafter called the said Bank) do hereby undertake to pay to IREL, the sum of Rs. _____ (Rupees _____ only) by reason of the said Bidder's failure to enter into an agreement of contract on intimation of acceptance of his Bid and/or to commence the works and/or failure to deposit the security deposit within the stipulated period as per the terms and conditions relating to and/or governing the contract and/or specified in the RFP. We also agree that any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. We also agree that notwithstanding any dispute or difference or any litigation in respect of or arising from the said contract and/or the acceptance of the Bid of the Bidder afore stated by IREL including the question as to the tenability of the claim of IREL for forfeiting the Bid Security being the Bank Guarantee herein, we shall forthwith pay the said amount to IREL on demand being made as aforesaid.

We _____ Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for entering into an Agreement of contract and that it shall continue to be enforceable till all the dues of IREL under the terms and conditions of the RFP for the work have been fully paid and its claims satisfied or discharged or till IREL certifies, that the terms and conditions of the RFP have been fully and properly carried out by the said Bidder and accordingly discharges the guarantee.

We _____ Bank further agree with IREL that IREL shall 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 RFP and/or terms and conditions governing the Agreement or to extend the time of validity of the Bid from the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by IREL against the said tenderer and to forbear or enforce any of the terms and conditions of the RFP and we shall not be relieved from our liability hereunder by reason of any such variation, or extension being granted to the said Bidder or for any forbearance, act or omission on the part of IREL or any indulgence by IREL to the said Bidder or by any such matter or thing whatsoever which under the law relating to surety/guarantee would but for this provision have effect of so relieving us.

We _____Bank do hereby further agree that any change in the Constitution of the said Bidder or the Bank will not affect the validity of this guarantee.

We _____ Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of IREL in writing.

Dated the _____ day of _____ 2025

_____Bank

(Signature with name in Block letters with designation,

Attorney as per power of Attorney No._____dt. _____)

Bank's Common seal

Appendix 3 – FORMAT FOR POWER OF ATTORNEY FOR SIGNING OF BID

Power of Attorney for signing of Bid

Know all men by these presents, We, _____ (name of the Bidder and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr. / Ms (Name), son/daughter/wife of _____ and presently residing at _____, who is [presently employed with usand holding the position of _____], as our true and lawful attorney (hereinafter referred to as the **"Attorney"**) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our bid for the "Selection of Agency for Installation of De-sliming system at HUS, IREL-MK, Tamil Nadu on EPC Basis" proposed or being developed by the IREL (India) Limited (the "IREL") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in bidders' and other conferences and providing information / responses to IREL, representing us in all matters before IREL, signing and execution of all contracts including the Agreement and undertakings consequent to acceptance of our Bid, and generally dealing with IREL in all matters in connection with or relating to or arising out of our Bid for the said Project and/or upon award thereof to us and/or till the entering into of the Agreement with IREL.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, _____, THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS _____DAY OF _____, 20**.

For_____

(Signature)

(Name, Title and Address)

Witnesses:

1.

2.

Accepted [Notarized]

(Signature)

(Name, Title and Address of the Attorney)

Notes:

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the

executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

- Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
- For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued.

Appendix 4 – FORMAT FOR SECRECY AGREEMENT

Secrecy Agreement to be executed on a Non-Judiciary Stamp paper of Rs.200/- (Rupees Two Hundred only).

SECRECY AGREEMENT

THIS AGREEMENT, made and entered into this ____th day of, 20- - by and between IREL (India) Limited, a company incorporated under Indian Companies Act having its registered office at Plot No.1207, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400 028, India (hereinafter called "IREL") on one part and, a company duly incorporated under……., with its registered office……. (hereinafter called _____) includes its successors and permitted assigns, on the other part.

WITNESSETH:

WHEREAS:

WHEREAS, IREL intends to carry outinstallation of De-sliming system at HUS, IREL-MK, Tamil Nadu.

WHEREAS,_____ [Bidder] had participated in the RFP and now will be providing EPC services to IREL for installation of De-slimingsystem at HUS, IREL-MK, Tamil Nadu.

NOW, THEREFORE, in consideration of the premises and the mutual covenants herein contained, the parties hereto agree as follows:

1 The term "Confidential Information" means:

1) All details supplied by IREL on technical, commercial and other information and data on the Process.

2) All details supplied by IREL on technical, commercial and other information and data relating to the products.

2. Each party hereto shall keep secret and confidential any and all confidential information it receives from any other party or parties hereto under this Agreement, and shall not use such Confidential Information for any purposes except for the said tender purpose hereunder. The obligations under this Article shall not apply to any information or data that:

i. at the time of its disclosure hereunder is in the public domain,

ii. after disclosure hereunder becomes part of the public domain by publication or otherwise through no fault of the party to whom such information or data is disclosed hereunder ("Receiving party") (but only after it is published or otherwise becomes part of the public domain),

iii. the Receiving Party can show in its possession at the time of disclosure hereunder and which the Receiving party, without breach or any obligation is free to disclose to others, or

iv. was received by the Receiving Party after the time of disclosure by a party hereto ("Disclosing Party") hereunder from a third party who did not acquire it, directly or indirectly, from the Disclosing Party under an obligation of confidence and which the Receiving party, without breach of any obligation, is free to disclose to others.

For the purpose of this Article 2, information or data which is specific, e.g., those on operating conditions or equipment, shall not be deemed to be within the foregoing exceptions merely because it is embraced by general information or data in the public domain or in the possession of Receiving Party. In addition, any combination of features shall not be deemed to be within the foregoing exceptions merely because individual features are in the public domain or in the possession of the Receiving Party, but only if the combination itself and its principle of operation are in the public domain or in the possession of the Receiving Party.

3. The Receiving Party shall limit the access to the Confidential Information received hereunder to its directors, officers and employees, who (i) need to have access with such Confidential Information, (ii) have been informed of the confidential nature thereof and (iii) have agreed to undertake the obligations of non-disclosure and non-use of such Confidential Information.
4. Upon request of IREL, (name of the party) shall, free of charge, promptly return to IREL all the Confidential information received from IREL hereunder.
5. Each party hereto shall not, without the other party's prior express written consents, disclose or allow the disclosure of the existence of this Agreement.
6. It is mutually understood and agreed that no license or other rights are granted to any party hereto under this Agreement, by implication or otherwise, for any of the patents or patents applications of any other party hereto or as to any information and data disclosed by any other party or parties hereto under this Agreement.
7. None of the parties may assign its rights or obligations hereunder without the prior written consent of the other parties.
8. The obligation of non-disclosure and non-use of the Confidential information under this Agreement shall remain in effect for five (5) years after the date hereof and shall terminate upon lapse of said five (5) years.
9. This Agreement shall be governed by and construed in accordance with Indian laws.
10. Each party hereto acknowledges and agrees that monetary damages for any breach or threat of breach of this Agreement are inadequate. Each party hereto shall, therefore, be entitled to seek and obtain temporary and injunctive relief for any breach or threat of breach of this Agreement relating to its Confidential Information, in addition to any other remedy.
11. **IN WITNESS WHEREOF**, the parties hereto have caused this Agreement to be executed in duplicate by their duly authorized representatives on the day and year first above written. The original shall remain with IREL and the duplicate with (name of the party).

1. For_____ Witness:

(Name)

Designation

1. (Name)
   Designation
2. (Name)
   Designation

2. For IREL (India) Limited Witness:

(Name)

Designation

1. (Name)
   Designation
2. (Name)
   Designation

Appendix 5 – SITE VISIT REQUEST FORM

(This Site Visit Request Form shall be submitted duly signed by authorised signatory on Bidder's letter head, at least one week prior to the proposed site visit date)

SITE VISIT REQUEST FORM

I/We ……..(Bidder or Associate members name) wish to participate in the RFP for selection of Agency for installation of De-sliming System at HUS, IREL-MK, Tamil Nadu on EPC Basis. For the same, as prescribed in the said RFP document, I/We propose following team member(s):

(1) Name, Designation and Company of the Team Leader

(2) Name, Designation and Company of the Team Member

(3) Name, Designation and Company of the Team Member

(4) Name, Designation and Company of the Team Member

for the Site Visit to understand the site conditions, and acquaint myself/ ourselves with atmosphere prevalent therein on ……(Proposed Site Visit date).

Seal of the Company:

Signature of the Bidder:

Name:

Designation:

Note:

a) Maximum four (4) member team can be proposed for site visit from a Bidding entity.

b) In case Team Leader and/ or Team Member are not nationals of India, the Bidder shall submit details of such member (proposed for Site Visit) as per Annex-1 of Appendix-5 along with this Site Visit Request Form.

c) The Request form for site visit of foreign officials shall be submitted at least fifteen (15) days before the scheduled site visit date.

d) Only formal written requests, duly received by IREL within the specified time shall be considered.

e) IREL reserves the right to alter or change the date of the Site Visit

f) IREL shall not be liable to reimburse to any Bidder any costs/expenses incurred by its team member(s) in connection with any such alteration in date or time, or withdrawal of

request.

g) The team member(s) of the interested Bidders will be accompanied by representative(s) of IREL.

h) The interested Bidders shall ensure that it's all team members adopt best safety practices and adhere to all safety standards, including the required protective gear, during the Site Visit.

i) The interested Bidder having any query of reasonable relevance arising from the Project Site Visit and study, may discuss the same during the Pre-bid Conference or send a formal written query to IREL.

j) Interested Bidders shall take full responsibility for their respective members. If any member of the team of an interested Bidder displays any untoward behaviour or refuses to follow the guidelines or the reasonable instructions issued by IREL, IREL reserves the right to cause the removal of such member from the Project Site and also forfeit the privilege of the interested Bidder to conduct another Site Visit.

k) The Team Leader of the Site Visit Team shall be responsible for:

    a. ensuring proper conduct of team members;

    b. liaising with IREL or its staff for any inputs/ instructions during Site Visit; and

    c. resolving any issues which may arise during the course of the Site Visit.

l) It should be noted that all data/information (oral or written) that the interested Bidders and the members of the Site Visit Team may learn or come across during the Project Site Visit and study shall be treated as Confidential Information and should not be disclosed or shared with any third party.

m) Each interested Bidder shall bear the costs and expenses incurred by its Survey Team during the Project Site Survey.

n) IREL shall not be liable, in any manner whatsoever, for any loss, expense, injury or damage suffered or likely to be borne by the interested Bidder or any of its member or representative, as a consequence of their entry to, access to or presence at the Project Site during the Site Visit.

o) Each interested Bidder shall, upon the completion of the Project Site Visit, confirm in writing was it was accorded a fair opportunity to have full access to the Project Site.

p) Each interested Bidder shall conduct the site visit responsibly to ascertain and familiarize themselves with the Project Site and associated factors required to give Bid.

q) A Site Visit Team, who fails to comply with these guidelines or cooperate with any reasonable request made by a designated officer of IREL may be denied further access to the Project Site, and Pre-bid Conference with IREL.

Annex-I to Appendix 5 – Details of Foreign Officials

Details of Foreign Officials proposed for Site Visit

Reference No. and date of RFP	Name of the Visitor	Passport No.	Nationality	Name and address of present Employer	Details of facilities proposed to be visited	Period of visit (exact dates of the visit)	Start date of visit (dd/mm/yy)	End date of visit (dd/mm/yy)	Purpose of visit

Appendix 6 – FORMAT FOR SITE VISIT CERTIFICATE

DECLARATION OF SITE VISIT

(To be submitted along with the Bid)

I, hereby, declare that I have visited the site to understand the site conditions, and acquainted myself with atmosphere prevalent therein. I have also understood the extent of total works involved for this package.

Seal of the Company:

Seal of IREL:

Signature of the Bidder:

Name:

Designation:

Signature of IREL Technical Person Head:

Name:

Designation:

Signature of IREL Security Person:

Name:

Designation:

Note: The Bidder shall carry a signed and stamped print out in duplicate of this Site Visit Declaration on Company letter head. The same shall be attested and signed by accompanying Technical Person and Security Person of IREL during site visit.

Appendix 7 – FORMAT OF INTEGRITY PACT

Pre Contract Integrity Pact

General

This pre-bid pre-contract Agreement (hereinafter the Integrity Pact) is made on …… day of the month of …… year …….. between IREL (India) Limited (hereinafter called the "IREL" which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s. …… ……. (hereinafter called the "Bidder" which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS IREL proposes to select an Agency for installation of De-sliming system at HUS, IREL-MK on EPC Basis and the Bidder is willing to offer/ has offered the services and

WHEREAS the Bidder is a private company / public company / Government undertaking / partnership / registered export agency, constituted in accordance with the relevant law in the matter and IREL is a PSU.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence / prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

Enabling IREL to obtain the desired said stores/equipment at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary Impact of corruption on public procurement, and

Enabling Bidders to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and IREL will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The Parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

1. **Commitments of IREL**

   1.1. IREL undertakes that no official of IREL, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immediate benefit or any other advantage from the Bidder, either for themselves or for any person, organization or third party to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

   1.2. IREL will, during the pre-contract stage, treat all Bidders alike, and will provide to

all Bidders the same information and will not provide any such information to any particular Bidder which could afford an advantage to that particular Bidder in comparison to other Bidders.

1.3. All the officials of IREL will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case any such preceding misconduct on the part of such official(s) is reported by the Bidder to IREL with full and verifiable facts and the same is prima facie found to be correct by IREL, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by IREL and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by IREL the proceedings under the contract would not be stalled.

3. **Commitments of Bidders**

The Bidder commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the followings:-

3.1. The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of IREL, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

3.2. The Bidder further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of IREL or otherwise in procuring the contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract for showing or forbearing to show favour or disfavor to any person in relation to the contract or any other contract.

3.3. The Bidder further confirms and declares to IREL that the Bidder has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to IREL or any of its functionaries, whether officially or unofficially to the award of the contract to the Bidder, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

3.4. The Bidder, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of IREL or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of

services agreed upon for such payments.

3.5. The Bidder will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

3.6. The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

3.7. The Bidder shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by IREL as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The Bidder also undertakes to exercise due and adequate care lest any such information is divulged.

3.8. The Bidder commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.

3.9. The Bidder shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.10. If the Bidder or any employee of the Bidder or any person acting on behalf of the Bidder, either directly or indirectly, is a relative of any of the officers of IREL, or alternatively, if any relative of an officer of IREL has financial interest/stake in the Bidder's firm, the same shall be disclosed by the Bidder at the time of fill of tender. The term 'relative' for this purpose would be as defined in Section 6 of the Companies Act 1956.

3.11. The Bidder shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of IREL.

4. **Previous Transgression**

4.1. The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify Bidder's exclusion from the tender process.

4.2. The Bidder agrees that if it makes incorrect statement on this subject, Bidder can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

5. **Bid Security**

5.1. While submitting the Bid, the Bidder shall deposit an amount _____ (as specified in RFP) as Bid Security, with IREL through any of the following instruments:

5.1.1. Bank Draft or a Pay order in favour of IREL (India) Limited, payable at Manavalakurichi.

5.1.2. A confirmed guarantee by an Indian Scheduled Bank, as applicable,

promising payment of the guaranteed sum to IREL on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by IREL shall be treated as conclusive proof of payment.

5.2. The Bid Security shall be valid upto complete conclusion of the contractual obligations to the complete satisfaction of both the Bidder and IREL.

5.3. In case of the successful Bidder, a Clause would also be incorporated in the article pertaining to Security Deposit in the contract that the provisions of Sanctions for Violation shall be applicable for forfeiture of Security Deposit in case of a decision by IREL to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.4. No interest shall be payable by IREL to the Bidder on Bid Security for the period of its currency.

6. **Sanctions for Violations**

6.1. Any breach of the aforesaid provisions by the Bidder or any one employed by it or acting on its behalf (whether with or without the knowledge of the Bidder) shall entitle IREL to take all or any one of the followings actions, wherever required:-

6.1.1. To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the Bidder. However, the proceedings with the other Bidder(s) would continue.

6.1.2. The Bid Security / Security Deposit (after the Agreement is signed) shall stand forfeited either fully or partially, as decided by IREL and IREL shall not be required to assign any reason therefore.

6.1.3. To immediately cancel the Agreement, if already signed, without giving any compensation to the Bidder.

6.1.4. To recover all sums already paid by IREL, and in case of an Indian Bidder with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of Bidder from a country other than India with interest thereon at 2% higher the SOFR. If any outstanding payment is due to the Bidder from IREL in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

6.1.5. To encashthe Security Deposit, if furnished by the Bidder, in order to recover the payments, already made by IREL, along with interest.

6.1.6. To cancel all or any other contracts with Bidder. The Bidder shall be liable to pay compensation for any loss or damage to IREL resulting from such cancellation / rescission and IREL shall be entitled to deduct the amount so payable from the money(s) due to the Bidder.

6.1.7. To debar the Bidder from participating in future bidding processes of IREL (India) Limited for a minimum period of five years, which may be further

extended at the discretion of IREL.

6.1.8. To recover all sums paid in violation of this Pact by Bidder(s) to any middleman or agent or broker with a view to securing the contract.

6.1.9. In cases where irrevocable Letters of Credit have been received in respect of any contract signed by IREL with the Bidder, the same shall not be opened.

6.1.10. Forfeiture of Bid Security/Security Deposit in case of a decision by IREL to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2. IREL will be entitled to take all or any of the actions mentioned at Para 6.1 (i) to (x) of this Pact also on the commission by the Bidder or any one employed by it or acting on its behalf (whether with or without the knowledge of the Bidder), of an offence as defined in Chapter XII of the Bharatiya Nyaya Sanhita, 2023or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3. The decision of IREL to the effect that a breach of the provisions of this Pact has been committed by the Bidder shall be final and conclusive on the Bidder. However, the Bidder can approach the Independent Monitor(s) appointed for the purposes of this Pact.

7. **Independent Monitor(s)**

7.1. IREL has appointed Independent Monitor(s) (hereinafter referred to as Monitors) for this Pact.

Dr. M Malakondaiah, IPS (Retd.) **156, Prashan Nagar, Jubilee hills,** **Road No. 72,** **Hyderabad-500 110** **Mobile: 7330960888,** **E mail: mannam1958@gmail.com**	**Shri Latit Chandra Trivedi IRMS (Retd)** **701, Premium Tower- IV** **Shalimar Township,** **Indore – 452 010 (MP)** **Mobile: 9967567679** **E mail: lctrivedi61@gmail.com**

7.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

7.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

7.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

7.5. As soon as the Monitors notices, or have reason to believe, a violation of this Pact, they will so inform the Authority designated by IREL.

7.6. The Bidder(s) accepts that the Monitors has the right to access without restriction to all Project documentation of IREL including that provided by the Bidder. The Bidder will also grant the Monitors, upon its request and demonstration of a valid

interest, unrestricted and unconditional access to its project documentation. The same is applicable to Subcontractors. The Monitors shall be under contractual obligation to treat the information and documents of the Bidder/Subcontractor(s) with confidentiality.

7.7. IREL will provide to the Monitors sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitors the option to participate in such meetings.

7.8. The Monitor will submit a written report to the designated Authority of IREL with 8 to 10 weeks from the date of reference or intimation to him by IREL/Bidder and, should the occasion arise, submit proposals for correcting problematic situations.

8. **Facilitation of Investigation**

In case of any allegation of violation of any provision of this Pact or payment of commission, IREL or its agencies shall be entitled to examine all the documents including the Books of Accounts of the Bidder and the Bidder shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

9. **Law and Place of Jurisdiction**

This pact is subject to Indian Law. The place of performance and jurisdiction is the seat of IREL.

10. **Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

11. **Validity**

11.1. The validity of this Integrity Pact shall be from date of its signing and upto the complete execution of the contract to the satisfaction of both IREL and the Bidder, including warranty period, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of signing of the contract.

11.2. Should one or several provisions of this Pact turn out to be invalid, the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intensions

12. The Parties hereby sign this Integrity Pact at _____ on _____.

	IREL	Bidder
Signature		
Name of Officer		
Designation		
	Witness	Witness

1	1
2	2

Appendix 8 – FORMAT FOR PRICE BID

Format for Price Bid

Name of Project:

Name of Bidder:

IREL shall pay the Bidder Lump Sum (LS) basis as below:

Price Schedule–(Package Lump Sum (LS) Charges)

Sl. No.	Particulars	Unit	Value in INR
1	Fees for validation/ Development of flowsheet, Design & Engineering, Supply & erection of Equipment as per billing schedule, installation & commissioning, performance test, operation & maintenance assistance and final acceptance of de-sliming system with supply of O & M spares	LS	
2	GST charges		
3	Total Price		

Total Price with Taxes (in words):

Indian Currency (in words):

Signature and Seal of Bidder

Name

Designation

Date

Place

Notes:

h) Only the lump sum price total quoted along with various taxes and levies will be considered for comparison between various bidders.

i) The price quoted shall remain firm during the execution period of the contract. No requests for change of price will be allowed for whatsoever reasons. The final billing schedule shall be finalized on mutual discussion between IREL and the successful bidder.

j) In case of difference in amount in words and figures, amount in words will prevail.

k) In case the Price Bid is not as per the format and directions provided in the RFP, the same shall be termed as non-responsive and shall be liable for rejection by IREL and shall result in forfeiture of the Bid Security.

l) In case any conditional Price Bid is submitted by the Bidder, IREL shall have the right to reject the Price Bid and forfeit the Bid Security.

m) The fees and Tax should be mentioned separately as indicated in the price bid structure. In case any amount towards tax is not mentioned, then the price quoted will be considered taking the fees inclusive of tax into consideration.

Appendix 9 – CHECK LIST

Check list for Submission of Bid:

S. No.	Details of Document	Remarks (Applicable/ Not applicable Attached/ Not attached) If not attached, reasons to be given.
Techno-Commercial Bid		
1	Letter comprising the Bid along with particulars of Bidder in Annex-I of Appendix-1	
2	Technical Capacity of the Bidder as per Annex-II of Appendix 1	
3	Financial Capacity of the Bidder as per Annex- III of Appendix 1	
4	Statement of Legal Capacity as per Annex- IV of Appendix 1	
5	Bid Security	
6	Power of Attorney(s) as per format given in Appendix 3 of RFP	
7	Site Visit Certificate as per format given in Appendix 6	
8	Certificate of Registration, Incorporation, along with Memorandum and Articles of association of Bidding entity, its Associate (if applicable).	
9	Letter of Association from the Associate (if applicable)	
10	Consortium Agreement with responsibility matrix	
11	All documentary proof for the above mentioned Annexes as mentioned in the RFP	
12	Signed copy of Integrity Pact as per Appendix 7	

13	Undertaking as per Para 87 of GCOC	
14	Signed copy of RFP and draft Agreement including all addendum, corrigendum and clarification	
15	Techno-commercial Bid with all supporting documents as mentioned in the RFP	
16	Unpriced Price Bid (as per format in Appendix 8) along with unpriced BOQ	
17	Any other document/ data/ details to be submitted as mentioned in the RFP	
Price Bid		
1	Price Bid as per format in Appendix 8 along with priced BOQ.	

Appendix 10 – PROJECT DETAILS

INTRODUCTION

IREL intends to set up a De-sliming System on EPC basis, the details of which are mentioned below:

Project Location

The proposed plant will be located at IREL (India) Limited, Manavalakurichi, Kalkulam taluk, Kanyakumari District, Tamil Nadu.

Plant Site Conditions

Location	Manavalakurichi, KalkulamTaluk, Kanyakumari District, TN Coordinates: 8.15076°N 77.29902°E Altitude : + 1 m above Mean Seal Level Terrain : Plain, seashore
Climatic Conditions	1. Max. temperature : 36C 2. Max. Of mean daily temperature : 31 C 3. Min. Of mean daily temperature : 25 C 4. Relative humidity (Max.) : 80% (May – June) 5. Relative humidity (Min.) :85% (Nov. – Dec.)
Wind speed	The general direction of the wind is from East in winter and from West in summer. 10 to 17 km /h during (Dec – Jan) 16 to 26 km/h (May - Jun)
Annual Mean rainfall	About 1400 mm (maximum during June to October)
Susceptibility to Earthquake	Falling under zone – III as defined in IS:1983 However, an increased horizontal seismic coefficient corresponding to Zone –IV shall be used for project execution purposes.
Railways	The main broad gauge line of Southern railways connecting Kanyakumari and Kashmir passes at a distance of 9 km from the eastern boundary of the plant site. The major railway station is Nagercoilat a distance of about 18km.
Sea ports	Tuticorin is the major port with suitable road and rail connections of 160 km distance. Nearest Sea port is Colachel at a distance of 7 km by road.
Airport	The nearest airport is at Thiruvananthapuram at a distance of 65 kms by road.
Road ways	All weather road from plant site to NH-47connecting Kanyakumari and Salem. One road is the link road of 13 km distance between NH 47 and plant site passes through Thuckalay

POWER & WATER

IREL will arrange for Power from TNEB as may require for the Project. IREL will make for arrangement of water supply for the project.

MANPOWER

Bidder will deploy its manpower up to commissioning

Appendix 11 – DRAFT OF AGREEMENT

[To be printed on non-judicial stamp paper of appropriate value]

DRAFT AGREEMENT
INSTALLATION OF DE-SLIMING SYSTEM
AT HUS, IREL-MK, TAMIL NADU
ON ENGINEERING PROCUREMENT CONSTRUCTION (EPC) BASIS

THIS AGREEMENT No.....made on this .....day of .....[month] Two Thousand and Twenty Six in .....[place], India

BETWEEN

IREL (India) Limited (IREL) incorporated under the Companies Act, 1956/2013and having its registered office at PLOT NO. 1207, VEER SAVARKAR MARG, NEAR SIDDHI VINAYAK TEMPLE, PRABHADEVI, MUMBAI-400028, INDIA and having one of its Mineral Separation Units located at Manavalakurichi, Kanyakumari District, Tamil Nadu hereinafter referred to as "**IREL-MK**", which term or expression unless excluded by or repugnant to the context or the meaning thereof shall be deemed to include its successors and permitted assigns, OF THE ONE PART,

AND

.....(**Name of Company of Selected Bidder**), an agency organized and existing under Companies Act 1956/2013[1] and having its Registered / Principal Office at(hereinafter referred to as **"Agency**"), which term or expression unless excluded by or repugnant to the context or meaning thereof shall be deemed to include its successors and permitted assigns, OF THE OTHER PART,

AND WHEREAS

A. IREL intends to process the raw material from River linking project site in Sathankulam area and Midalam deposit. The raw material (Teri sand) has approximately 20% slime content. IREL is intent to remove the slime content from the feed sand in Heavies Up-gradation section through installation of De-sliming System, (the "Project").

B. As part of this endeavor, IREL has decided to appoint an EPC Agency for Installation of De-sliming System at HUS, IREL-MK.

C. IREL had floated a RFP number …….. dated ……. wherein [Name of Selected Bidder] had participated and met the qualification requirements and other terms and conditions. IREL has accepted the Bid submitted by the [Name of Selected Bidder] and now appoints it as Agency, on the terms and conditions for the aforesaid arrangement as specified in the RFP and Agreement, to undertake Works.

D. The Agency warrants that it is having requisite competence in the business, inter-alia of, and intends to undertake engineering, procurement, fabrication, inspection, transportation, insurance, storage, handling, dismantling & removal of debris, construction, installation, erection, testing, commissioning, and demonstration of guarantee of the proposed De-sliming system and as per the terms and conditions more particularly appearing hereinafter;

E. The Agency warrants that it has satisfied itself to the site conditions and has acquainted itself in general with all local conditions, workability on the site, facility for transport & storage of materials, availability of labour and materials and all its responsibilities for compliance to Applicable Laws and regulations and has obtained all other information on its own both as to risk, contingencies & other circumstances which may influence or affect the work and other requisites for proper execution of the Agreement after due inspection of site and surrounding and scrutiny of other related factors, probable contingencies.

NOW IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES AS FOLLOWS:

Article 1 Definitions

1.1. **"Agreement"** shall mean, this Agreement between IREL and the Agency duly signed by both for undertaking engineering, procurement, construction and commissioning activities for De-sliming system, as may be amended, modified or supplemented from time to time;

1.2. **"Agreement Value"** shall have the meaning set forth in Sub-clause 18.1.2;

1.3. **"Agency Event of Default"** shall have the meaning set forth in Sub-clause 27.4.1;

1.4. **"Applicable Law"** shall mean all applicable statutes, laws, by-laws, rules, regulations, orders, ordinances, protocols, codes, guidelines, policies, notices, directions, judgments, decrees or other requirements or official directive of any governmental authority or court or other law, rule or regulation approval from the relevant governmental authority, government resolution, directive, or other government restriction or any similar form of decision, or determination, or any interpretation or adjudication having the force of law in India;

1.5. **"Battery Limits"** shall mean the physical location(s) as defined in the Terms of Reference in Annexure-III;

1.6. "**Change in Applicable law**" shall mean If, after Effective Date of this Agreement, any law, regulation, ordinance, order or by-law having the force of law is enacted, promulgated, abrogated or amended (which shall be deemed to include any change in interpretation or application the competent authorities). Such changes will not invalidate the Agreement but the impact of the changes will be settled on mutually agreed terms.

1.7. **"Commissioning"** means operation of the De-sliming system by the Agency to a level of output as provided in Article 12 (Commissioning) hereof or as specified in Terms of Reference in Annexure-III to Agreement**.**

1.8. **"Commissioning Certificate"** is the Certificate to be issued by IREL as per Clause 12.4 hereof.

1.9. **"Construction"** include, unless the context otherwise requires, survey and investigation (if required), engineering, procurement, supply of plant, materials, equipment, labour, delivery, transportation, installation, processing, fabrication, testing, and commissioning of the Project, including maintenance during the Construction Period, removing of defects, if any, and other activities incidental to the Construction and **"construct"** shall be construed accordingly;

1.10. **"PCB"** shall mean Pollution Control Board;

1.11. **"Dimensions"** shall mean the dimension as per metric system;

1.12. **"Defect"** means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards;

1.13. "**Defect Liability Period**" means the period of validity of the warranties given by the Agency commencing from the date of issuance of Final Acceptance Certificate of the

De-sliming system, during which the Agency is responsible for defects with respect to the De-sliming system as detailed in Article 22 (Defect Liability) hereof.

1.14. **"Drawings"** means all of the drawings, calculations and documents pertaining to the Project as set forth in Terms of Reference in Annexure-III, and shall include 'as built' drawings of the Project as well;

1.15. "**Engineer-in-charge**" means the person appointed by IREL in the manner provided in Article 9 hereof and to perform the duties delegated by IREL.

1.16. **"Effective Date"** shall mean the date of signing of Agreement;

1.17. "**Final Acceptance Certificate**" shall mean the certificate issued by IREL as per Article 13

1.18. **"Financial Year"** shall refer to the Indian financial year commencing April 1st and ending on the following March 31st or as notified and amended by the Government of India. It shall refer to a fiscal year or the accounting period of 12 months;

1.19. **"Good Industry Practice"** means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement and which would be expected to result in the performance of its obligations by the Agency in accordance with this Agreement, Applicable Laws and Applicable Permits in reliable, safe, economical and efficient manner;

1.20. **"Governmental Approval"** shall mean all permits, licenses, authorizations, consents, clearances, decrees, waivers, privileges, no-objection certificate or approvals from and the Government of India and/or the Government of Tamil Nadu or the respective nodal agencies necessary for development and Construction of the De-sliming system and the completion of the Project;

1.21. **"GOI" or "Government"** shall mean the Government of India including any and / or all ministries thereof and /or departments thereof having duly constituted authorities to grant approvals under any applicable statutes, rules and regulations enforced from time to time;

1.22. **"Implementation Plan"** shall cover, but will not be limited to key tasks to be undertaken, Annexure of these tasks, associated costs, responsibility allocation, monitoring mechanism, etc. for executing the Scope of the Project as per Clause 16.1 of this Agreement;

1.23. **"Indemnifying Party"** and **"Indemnified Party"** shall have the meaning set forth in Clause 24.1;

1.24. **"IREL Event of Default"** shall have the meaning set forth in Clause 27.4.2;

1.25. "**Intellectual Property**" means all patents, trademarks, service marks, logos, get-up, trade names, internet domain names, rights in designs, blue prints, programmes and manuals, drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;

1.26. **"Letter of Intent"** or **"LOI"** means based on the offer of Bidder, IREL issues its acceptance to the said offer requesting Selected Bidder to sign the Agreement;

1.27. **"Material"** are all the supplies used by the Agency for Construction and Commissioning of the De-sliming system under Supervision of the Agency;

1.28. **"Metric tonne" or "t"** for the purpose of this Agreement shall be used for the weighment;

1.29. **"Parties"** shall mean the parties to this Agreement collectively and **"Party"** shall mean any of the parties to this Agreement individually;

1.30. "**Performance Bank Guarantee**" shall have the meaning set forth in Clause 7.1

1.31. **"Performance Guarantee Test"** means the test(s) specified in Clause 8 of Part-I of the Terms of Reference to be carried out to ascertain whether the De-sliming system is able to attain the performance guarantees specified in the Terms of Reference in Annexure-III to Agreement.

1.32. **"Preliminary Notice"** shall have the meaning set forth in Sub-clause27.6.1;

1.33. **"Products"** shall mean the output from the De-sliming system;

1.34. **"Project"** shall mean the De-sliming System to be installed at IREL-MK, Tamil Nadu as detailed in Terms of Reference in Annexure-III;

1.35. **"Project Milestone"** means the project milestone as set forth under Sub-clause 18.2.1and includes the Works Completion Date;

1.36. **"Scope of Work" or "Scope of the Project"** shall mean the work specified in Clause 16.1of the Agreement and shall include all the activities towards engineering, procurement, construction and commissioning activities of De-sliming system.

1.37. **"Security Deposit"** shall have the meaning set forth in Clause 6.1;

1.38. **"Site"** of the Project shall include the land, buildings, structures, road works, etc., as described in the RFP and this agreement;

1.39. **"Specifications and Standards"** shall mean, the technical specifications, standards, schedules, statements of technical data, performance characteristics, values and all such particulars relating to the quality, quantity, capacity and other requirements for the Project, as set forth in Terms of reference in Annexure-III, and any modifications thereof, or additions thereto, as included in the design and engineering for the Project submitted by the Agency to, and expressly approved by, IREL;

1.40. **"Termination Notice"** means a communication in writing by a Party to the other Party regarding Termination in accordance with the applicable provisions of this Agreement;

1.41. **"Third Party"** means any person or entity other than IREL or the Agency

1.42. **"Time"** shall be reckoned by months, day and hours. Month being equivalent to the calendar month according to the Gregorian calendar. The day or days unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each;

1.43. **"Works"** shall mean engineering, procurement, fabrication, inspection, transportation, insurance, storage, handling, dismantling& removal of debris, construction,

installation, erection, testing, commissioning, and demonstration of guarantee of the De-sliming system, equipment and associated facilities in relation to the De-sliming system to be undertaken by the Agency. It will also include other necessary works in relation to De-sliming system including establishment of infrastructural facilities, development activities and all other related, incidental and ancillary works, which are to be undertaken by the Agency under this Agreement as more fully specified in Article 16 to this Agreement and which include all extra or additional or any work of emergent nature, which in the opinion of IREL becomes necessary during the progress of the works**.**

1.44. "**Works Completion Date**" shall be date of issuance of Final Acceptance Certificate as defined in Article 13.

Article 2 Interpretations/ Defined Terms

(A)Definitions

Unless the context of this Agreement otherwise requires

2.1. The paragraph headings and numbering are for convenience only and shall be ignored in the interpretation of this Agreement;

2.2. The singular includes the plural and vice versa;

2.3. Words of any gender are deemed to include the other gender;

2.4. The term "Clause" refers to the specified Clause of this Agreement;

2.5. The terms "hereof", "herein", "hereby", "hereto" and derivative or similar words refer to this entire Agreement or specified Sections of this Agreement as the case may be;

2.6. The words "include" and "including" shall be deemed to be followed by "without limitation" or "but not limited to" whether or not they are followed by such phrases or words of like import;

2.7. Terms defined under Definitions shall have the meanings ascribed thereto in that Clause when used elsewhere in this Agreement;

2.8. Reference to any agreement, enactment, ordinance or regulations includes any amendment or replacement thereof in whole or in part;

2.9. Reference to clauses, paragraphs and annexures are unless the context otherwise requires, references to clauses, paragraphs and annexures respectively, of this Agreement;

2.10. The headings are inserted for convenience only and shall not affect the Construction of the Agreement;

2.11. Any act which is to be done on a day which is not a business day, must be done by the next business day;

(B) Other Terms

2.12. Other terms may be defined elsewhere in the text of this Agreement and, unless otherwise indicated, shall have such meaning throughout this Agreement;

(C) Supersession

2.13. Unless otherwise mentioned, this Agreement supersedes all previous correspondence, communications, understandings, representations, and warranties between the Parties;

(D) Discrepancies, if any in the Agreement

2.14. The Agreement and the schedules, annexures, enclosures shall be read harmoniously as being mutually explanatory and as part of a complete set. In case of any repugnancy/conflict between the Agreement and the schedules, annexures, enclosures, the provisions of the Agreement shall prevail;

2.15. Any error in description, quantity or rate in schedule or quantities or omission there from, shall not vitiate the Agreement or release the Agency from discharging his obligations under the Agreement including execution of the Works;

2.16. If the Agreement and the schedule, annexure, enclosure documents provide for different standards of product, workmanship or finish, the Agency must specify those of the highest standard provided in any part of the Agreement;

2.17. The Agreement may be signed in one or more counterparts and each counterpart shall have the same effect as the original;

2.18. The Agreement shall come into force on and from the Effective Date.

Article 3 Business Purpose

It is expressly understood that;

3.1. The Agency shall undertake Works for establishing the De-sliming system in conformance with the Terms of Reference in Annexure-III of this Agreement, and in accordance with all legal requirements, approvals and Good Industry Practices.

Article 4 Conditions Precedent

4.1. Effective Date of the Agreement

4.2. This Agreement shall be deemed to have come into effect on the date of signing of the Agreement (the **"Effective Date"**) which shall be within twenty one (21) days from the date of receipt of LOI. However, the roles, responsibilities, warranties, obligations and other terms and conditions as mentioned in the Agreement shall be deemed to have come into effect from the date of acceptance of LOI.

4.3. Conditions Precedent of IREL

4.3.1. Provide access of the land/ space for setting up of the De-sliming system to the Agency.

4.4. Conditions Precedent of the Agency

4.4.1. Submission of the Implementation Plan (L-3 level network)to IREL;

4.4.2. Obtaining of all necessary Governmental Approvals and clearances for commencement of the Works as may be required under Applicable Law;

4.4.3. Agency shall submit, on the date of signing of this Agreement or within twenty one (21) days from the date of receipt of LOI, whichever is earlier, a Security Deposit as specified in Article 6 of this Agreement.

4.5. All the Conditions Precedent in Clause 4.4 shall be achieved within 7 days of Effective Date unless extended in writing by IREL at its sole discretion. If the Conditions Precedent under this Clause 4.5 are not satisfied within the above-mentioned period, IREL shall have the right to terminate the Agreement, by notice in writing and forfeit the Security Deposit.

4.6. Provided that upon request in writing by the Agency, IREL may, in its sole discretion, waive any of the Conditions Precedent set forth in this Clause 4.4 or grant extension of time for fulfillment thereof, as the case may be.

4.7. Best Endeavors

Both Parties shall make best endeavors to provide assistance to the each other wherever possible in relation to the fulfillment of the Conditions Precedent by them.

Article 5 Duration of Agreement

5.1. This Agreement shall take effect from the Effective Date of the Agreement and shall remain in force till completion of operation & maintenance assistance subsequent to commissioning (for a period of fourteen (14) months). In case of any delay in commissioning of the project by the Agency the duration of agreement shall be suitably extended.

5.2. Within twenty one (21) days of Effective Date of this Agreement, the Agency shall submit an Implementation Plan giving Project Milestones of scheduled progress on monthly basis.

5.3. Expiry of Agreement

Unless terminated earlier pursuant to Clause27.6, this Agreement shall, unless extended by the Parties by mutual consent, expire upon issuance of "Final Acceptance Certificate" by IREL.

Article 6 Security Deposit

6.1. Agency shall submit, within twenty one(21) days from the issuance of LOI or at the time of signing of Agreement, whichever is earlier, a Security Deposit**(**the **"Security Deposit")** in the form of a demand draft/ banker's cheque/bank guarantee, for an amount equal to five percent (5 %) of the Agreement Value as per Sub-clause18.1.2.

6.2. Bank guarantee shall be as per format given at Annexure-I, valid for sixteen (16) months (2 month beyond the Duration of Agreement) from the date of issue with an additional claim period of ninety (90) days beyond expiry and shall be issued from any scheduled bank. Other instruments for Security Deposit in place of bank guarantee shall be in favour of "IREL (India) Limited" payable at Manavalakurichi, Kalkulam, Kanyakumari, Tamil Nadu;

6.3. In case of breach of any of the terms of this Agreement, IREL, at its sole discretion and without prejudice to its other rights, may encash the entire Security Deposit without assigning any reasons to the Agency;

6.4. Extension of Security Deposit

6.4.1. The Agency may initially provide the Security Deposit for a period of sixteen (16) months; provided that it shall procure the extension of the validity of the Security Deposit, as necessary, at least 2 (two) months prior to the date of expiry thereof. Upon the Agency providing an extended Security Deposit, the previous Security Deposit shall be deemed to be released and IREL shall return the same to the Agency after submission of the extended Security Deposit.

6.5. Forfeiture of Security Deposit

The Security Deposit shall stand forfeited in favour of IREL, without any further notice to the Agency in the following circumstances:

6.5.1. In case of any failure whatsoever on the part of the Agency at any time during performance of his part of the Agreement including the extended periods of the Agreement, where notice is given and time for rectification allowed;

6.5.2. If the Agency indulges at any time in any subletting/ sub-contracting of any portion of the Works without approval of IREL;

6.5.3. If the Agency abandons the Agreement;

Notwithstanding anything in the Agreement, the refund of the Security Deposit, shall be subject to IREL's right to deduct its dues which are payable by the Agency to IREL;

6.6. The Security Deposit shall be released (without any interest) only after completion of the Works, subsequent issuance of Final Acceptance Certificate by IREL to Agency and compliance of statutory provisions after deduction of any dues from the Agency arising out of any claim by IREL on the Agency;

6.7. Payment for 'Final Acceptance Certificate' and Retention Money, after adjustment of applicable Liquidated Damages, may be released by IREL against submission of Performance Bank Guarantee (by the Agency) equal to 5% of the Agreement Value valid for 12 months from the date of issue of FAC

Article 7 Performance Bank Guarantee

7.1. Performance Bank Guarantee

7.1.1. The Agency shall, for the performance of its obligations hereunder, provide to IREL, within 15 (fifteen) days of the date of receipt of Final Acceptance Certificate, an irrevocable and unconditional guarantee, for an amount equal to 5% (five per cent) of the Agreement Value, from a Scheduled Bank in the form set forth in Annexure-II (the "Performance Bank Guarantee"). The Performance Bank Guarantee shall be valid for a period of one year, i.e. until the expiry of the Defects Liability Period specified in Article 22, with an additional claim period of 6 (six) months beyond the validity of Performance Bank Guarantee.

7.1.2. Until such time the Performance Bank Guarantee is provided by the Agency pursuant hereto and the same comes into effect, the Security Deposit shall remain in force and effect, and upon such provision of the Performance Bank Guarantee, IREL shall release the Security Deposit and Retention Money to the Agency.

7.1.3. Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Agency to provide the Performance Bank Guarantee in accordance with the provisions of Sub-clause 7.1.1 and within the time specified therein or such extended period as may be provided by IREL, in accordance with the provisions of Sub-clause 7.1.3, IREL may encash the Bid Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Agency under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Agency, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

7.1.4. Payment for 'Final Acceptance Certificate' and Retention Money, after adjustment of applicable Liquidated Damages, may be released by IREL against submission of Performance Bank Guarantee (by the Agency) equal to 5% of the Agreement Value valid for 12 months from the date of issue of FAC

7.2. Appropriation of Performance Bank Guarantee

7.2.1. In accordance with Article 22, IREL shall, without prejudice to its other rights and remedies hereunder or in law, be entitled to encash and appropriate from the Performance Bank Guarantee the amounts due to it as Damages.

7.3. Release of Performance Bank Guarantee

7.3.1. IREL shall release the Performance Bank Guarantee within 30 (thirty) days of the expiry of the claim period of the Performance Bank Guarantee, as the case may be, under this Agreement. Notwithstanding the aforesaid, the Parties agree that IREL shall not be obliged to release the Performance Bank Guarantee until all Defects identified during the Defects Liability Period, have been rectified.

Article 8 Risk Purchase Clause

8.1. After signing of Agreement, if the Agency fails to execute the activities outlined in the Scope of Work as per this Agreement or at any time repudiates the order, IREL have the right to forfeit the security deposit and execute the order from other agencies at the risk and cost of the Agency. The cost difference between the alternative arrangements and total contract value will be recovered from you along with other incidental charges. IREL reserves the right to take over the De-sliming system to carry out the unfinished work and proceed with production activities without any payment to the Agency.

Article 9 ENGINEER-IN-CHARGE

9.1. The Engineer-in-charge shall represent and act on behalf of IREL at all times during the currency of the Agreement. All notices, instructions, orders, certificates, approvals and all other communications under this Agreement shall be given by the Engineer-in-charge, except as herein otherwise provided.

9.2. The Engineer-in-charge shall have authority for

9.2.1. general supervision, follow up of supply and direction of the Works

9.2.2. direction to stop the Works whenever such stoppage may be necessary to ensure the proper execution of the Agreement

9.2.3. to reject all Works and Materials which do not conform to the Agreement

9.3. The Engineer-in-charge shall have no authority to neither relieve the Agency of any of his duties or obligations under this Agreement nor except as expressly provided here-in-under or elsewhere in the Agreement to order any work involving delay or any extra payment by IREL or to make any variation of or in the Works.

Article 10 INSPECTION, TESTING AND REJECTION

10.1. IREL shall be entitled, at all reasonable times during Implementation Plan, to inspect, examine and test on the Agency's premises the materials and workmanship and performance of all Works to be supplied under the Agreement and if part of the said De-sliming system is being manufactured on other premises, the Agency shall obtain and furnish for the IREL permission to inspect, examine and test. Such inspection, examination or testing shall not release the Agency from any obligation under the Agreement.

10.2. The Agency shall notify IREL of the date and the place at which any equipment will be ready for testing as provided in the Agreement and IREL may attend at the place so named within fifteen days after the date which the Agency has stated in his notice. IREL shall notify to the Agency in writing of his intention to attend the tests. In case where IREL requested to carry out inspection when in fact the equipment is not ready for testing.

10.3. Where the Agreement provides and IREL so desires for tests on the site, IREL except where otherwise specified, shall provide free of charge, such labour, materials, electricity, fuel, as may be required and as may be reasonably demanded to carry out such tests efficiently.

10.4. The satisfactory completion of these tests shall not bind IREL to accept the De-sliming system should it on further tests after erection be found not to comply with the Agreement.

10.5. If after inspection, examining of De-sliming system IREL shall decide that system or any part thereof is defective or not in accordance with the Agreement, it may reject the De-sliming system or part thereof giving the Agency within a reasonable time notice of such rejection, stating therein the grounds upon which the said decision was based.

10.6. If at any time before the Works are taken over, IREL shall:

a) Decide that any work done or equipment supplied or materials used by the Agency or any sub Agency is or are defective or not in accordance with the Agreement or that the Works or any portion thereof are defective or do not fulfill the requirements of the Agreement.

b) As soon as reasonably practicable, notify to the Agency of the said decision specifying particulars of the defects alleged and of where the same are alleged to exist or to have occurred and,

c) So far as may be necessary place the plant of the Agency's disposal, then, the Agency shall within a reasonable time at his own expense and with all speed make good the defects so specified.

Article 11 Trial Run

11.1. On completion of erection of the De-sliming system by the Agency, trial runs for individual equipment / units shall be conducted by the Agency to prove that the De-sliming system have been supplied and erected as per Agreement and after erection, De-sliming system is fit for start-up and Commissioning.

11.1.1. Trial runs shall be so designed to conduct the systematic check of the components and of the functional operation thereof. Trial runs shall comprise idle, no-load and part-load trial runs, as applicable. Feed material required for the purpose will be provided by IREL. Environmental friendly, bio-degradable Flocculant and other consumables shall be arranged by the Agency.

11.1.2. Trial runs shall be conducted by the Agency under its sole responsibility and employing its own personnel. IREL's supervisory personnel and skilled operating personnel shall, however, witness the trial runs.

11.2. On successful completion of trial runs and rectification of the Defects and / or deficiencies, indicated / listed by IREL to the Agency during trial runs, the Agency shall so notify IREL for conducting integrated trial runs of De-sliming system.

11.3. On receipt of the notice from the Agency for conducting integrated trial runs, IREL, shall deploy the necessary operating personnel, and provide raw materials and utilities.

11.4. As soon as all works in respect of trial runs are completed and IREL is satisfied that the defects and / or deficiencies, indicated by IREL to the Agency have been rectified, the Agency shall notify to IREL that De-sliming system is fit for Commissioning and performance test.

Article 12 Commissioning and Performance Test

12.1. After completion of trial run, the Agency shall commission the De-sliming system in accordance with provisions and terms of this Agreement.

12.2. IREL shall provide the operating personnel, all raw materials and utilities required for Commissioning. The Agency shall provide maintenance personal and supply the commissioning spares and consumables etc. required for Commissioning.

12.3. The Agency shall conduct Performance Guarantee Test as specified in Terms of Reference in Annexure-III of this Agreement. On completion of integration of the de-sliming system with HUS, Selected Bidder shall demonstrate the performance of de-sliming system for a minimum period of 120 hours of continuous operation at a throughput of 180-220 tph in HUS, through meeting the following process deliverables

a. Free slime content in HUS concentrate should be less than or equal to 0.5%

b. Free slime content in HUS Tails should be less than 1.0%

c. Recycled process water from thickener/filter press shall be clear with less than 1000 ppm of Slime particles

d. The filter cake generated shall have moisture content of 30% maximum

12.4. The Commissioning Certificate shall be issued by the IREL subject to the following:

12.4.1. Performance Guarantee Test has been successfully completed and parameters are as per Terms of Reference in Annexure-III.

12.4.2. The Agency to the satisfaction of IREL, has met all the objections/ observations, if any.

12.4.3. In case the Performance Guarantee Tests has been completed as per the flowsheet, the Agency has to provide hand-holding support and provide training to the operators for a minimum period of 2 months, for issuance of FAC. The cost towards the above is to be subsumed in the overall price quoted by Selected Bidder and shall be deemed to be included in LS Price.

Article 13 Final Acceptance

13.1. Final Acceptance shall occur in respect of the Works when:

13.1.1. the Performance Guarantee Tests have been successfully completed.

13.1.2. the Agency has submitted all final drawings & documents including SOPs for the respective Works in accordance with the provisions of this Agreement as given in Terms of Reference in Annexure-III.

13.1.3. the Agency has fulfilled all the obligations under the Agreement.

13.1.4. the Agency has fulfilled successful completion of 2 months Operation and maintenance assistance as per TOR

13.2. At any time after the events set out in Clause 13.1 hereof, have occurred, the Agency may notify to IREL requesting for the issue of Final Acceptance Certificate (FAC) for Works.

13.3. IREL shall, within seven (7) days after receipt of the Agency's notice, issue a FAC.

13.4. Payment for 'Final Acceptance Certificate' and Retention Money, after adjustment of applicable Liquidated Damages, may be released by IREL against submission of Performance Bank Guarantee (by the Agency) equal to 5% of the Agreement Value valid for 12 months from the date of issue of FAC.

Article 14 Ownership of Materials and Products

14.1. Notwithstanding anything in this Agreement, IREL shall have absolute rights of the input Materials & output Products at all times and shall have ownership and title over the De-sliming system and the Works in progress. However, the risk and liability of the De-sliming system including all its components like equipment, material, structure, associated facilities and resources shall lie with the Agency till until completion of the Performance Guarantee Test as per the satisfaction of IREL. After completion of Performance Guarantee Test, the risk and liability of the De-sliming system including machinery, equipment, structures, tools & tackles, spares, manuals, drawings and any other components shall be transferred by the Agency to IREL in accordance with the terms and conditions of this Agreement.

14.2. Notwithstanding anything in this Clause, the Agency shall at all times be responsible for monitoring the safety and security of its manpower, equipment, tools & tackles etc. being used for completion of Works.

Article 15 Declaration of the Agency

15.1. The Agency acknowledges that prior to the execution of this Agreement, the Agency has after a complete and careful examination made an independent evaluation of the Site conditions and all the information provided by IREL and has determined to the Agency's satisfaction the nature and extent of such difficulties, risks and hazards as are likely to arise or may be faced by the Agency in the course of performance of its obligations hereunder. The Agency shall not be entitled for any compensation, or extension in time, whatsoever on account of its failure to make such examination and evaluation;

15.2. The Agency does not, and shall not, at any time, claim ownership of the land and/or space provided for the purpose of installation of the De-sliming system. The Agency is undertaking the Works for and on behalf of IREL.

Article 16 Obligations of the Agency

16.1. **Scope of Work**

16.1.1. Under this Agreement, the Agency shall fulfill scope of work (the **"Scope of Work"**) defined in the Terms of Reference attached in Annexure-III.

16.2. **Construction of temporary stores and site office**

16.2.1. Suitable areas will be allocated by IREL to the Agency to build, at his expense, temporary stores for storing his equipment, materials, etc. and also to build his temporary site office. The Agency will be solely responsible for watching and guarding of his stores office, materials, equipment etc.

16.2.2. The Agency shall cover all his equipment and materials at site with requisite insurance against theft, fire, tempest, flood, earthquake, etc.

16.3. **Accommodation**

16.3.1. IREL shall not be in a position to offer any lodging/ boarding facilities for Agency's personnel /men and it shall be the responsibility of the Agency to make his own arrangements in this respect. No permanent accommodation facilities shall be constructed by the Agency at the Site.

16.3.2. No personnel/ men of Agency shall be allowed to stay during night time at Site, until unless so is desired for completion of Works or for security purpose. Only temporary structural shelters shall be constructed by Agency at Site for stay during shift time break. All such temporary constructions as well as stay of Agency's personnel/ men at Site during night shall be with due approval of IREL.

16.4. **Co-ordination with other Agencies**

16.4.1. The Agency shall execute his work so as not to obstruct or retard the work being executed simultaneously by other agencies. This aspect shall also be considered while quoting for the Works.

16.5. **Cleaning the site**

16.5.1. The Agency shall clean all required debris etc. at the site prior to the commencement of work at no extra cost.

16.5.2. On completion of Works the site shall be cleared of all men, materials and equipment belonging to the Agency. The Agency shall remove with IREL's approval all his temporary arrangements for storage and distribution of construction water, all electrical installations together with wiring or construction power, site offices and all other temporary works and shall reinstate and make good any work disturbed by the temporary work to the satisfaction of IREL. The site and surroundings shall be handed over in a clean and neat condition as required by IREL.

16.6. The Agency shall ensure that installation and Commissioning on the land/ space provided by IREL, within a stipulated period of fourteen (14) months from the Effective Date of the Agreement, subject to the terms mentioned in Clause 16.11&Article 16 herein below;

16.7. The de-sliming system is to be located suitably on the land/ space provided by IREL. The Agency shall finalize the De-sliming system layout keeping in view the optimum utilization of existing infrastructure and topography of the area;

16.8. All the activities related to the Works of this Agreement shall be under periodical inspection of the representatives of IREL;

16.9. The employees of the Agency, including any assignees, entrusted with the job of installation and Commissioning upto the stabilisation of the De-sliming system shall be required to follow, but not limited to, the Industrial Safety & Health Rules issued by Ministry of Labour& Employment, GoI;

16.10. While undertaking Works for the de-sliming system, the Agency shall take all necessary precautions against any untoward incident, inside the Site beside the area, earmarked for installation of the De-sliming system, and shall indemnify IREL for any accident, loss or damage to the property of IREL or any third party due to negligence of the Agency and /or its representatives;

16.11. The Agency shall adhere to the Implementation Plan as submitted as part of the Conditions Precedent for successful Commissioning of the Plant, and the Agency shall ensure no delay in Commissioning the de-sliming system due to any reason whatsoever, other than Force Majeure and subject to IREL fulfilling its obligations under this Agreement;

16.12. For any delay in Commissioning of the De-sliming system, the Agency shall compensate IREL for the loss suffered by IREL (Liquidated Damages) as mentioned in this Agreement;

16.13. The Agency shall not be the owner of the aforesaid civil structures, building, equipment and land during the Agreement period;

16.14. The Agency shall ensure all the statutory provisions of State Government, Central Government and local authorities including labour laws and industrial laws for installation of the De-sliming system / engagement of labours are followed, and in no case, the employees / workers engaged by the Agency directly or indirectly, shall be the employee of IREL. Any violation of any of the provisions by the Agency and / or its representatives, the same shall be indemnified by them to IREL, against any claim / demand made by any authority;

16.15. The Agency shall take all necessary steps for obtaining Certificate under the provisions of the Agreement, Labour (Regulation & Abolition) Act, 1970 and the rules made there-under for engaging any contractor and contract labours and comply with all provisions of the said act and the rules;

16.16. The Agency shall have strict compliance of all Safety provisions / norms at Site as per details given in Terms of Reference in Annexure-III.

16.17. The Agency shall ensure all the environmental norms and regulation under the relevant authorities are followed.

16.18. **Supply of O & M spares**

16.18.1. The Agency shall Supply essential O&M spares required for continuous operation of the equipment for one year, before commencing the

commissioning of the project, as per the detailed billing schedule in Annexure-VII. Spares shall be supplied for all items found essential

Article 17 Obligations of IREL

17.1. Unless otherwise specified in the Agreement, IREL shall :

a. provide the Agency and its Personnel with work permits and such other documents as may be necessary to enable the Agency, or its Personnel to perform the services;

b. provide construction water and power at a single point each for Site Works, at the boundary of Battery Limit

17.2. Integration of de-sliming system.

a. IREL shall arrange for stoppage of HUS to integrate the equipment/ project based on the request of the Agency.

b. For the purpose of integration and commissioning, maximum of 14 days stoppage of HUS shall be available to the Agency.

17.3. Access to land and property

17.3.1. IREL warrants that the Agency shall have, free of charge, unimpeded access to the Site of the Project in respect of which access is required for the performance of Works;

17.4. Payment

17.4.1. In consideration of the Works performed by the Agency under this Agreement, IREL shall make to the Agency such undisputed payments and in such manner as is provided in Article 18 of this Agreement.

Article 18 Payments to the Agency

18.1. Agreement Value

18.1.1. IREL shall pay the following amount for executing the Works to the Agency:

Price Schedule

Sl. No.	Particulars	Unit	Value in INR
1	Fees for validation of flow sheet, Design & Engineering, Supply & erection of Equipment as per billing schedule, installation & commissioning, performance test, operation & maintenance assistance and final acceptance of de-sliming system with supply of O & M spares	LS	
2	GST		
3	Total Price		

18.1.2. The Agreement Value is the basic amount, which is total of fees for validation, Design & Engineering, supply & erection of equipment as per billing schedule, installation & commissioning, performance test, supply of O & M spares, operation & maintenance assistance and final acceptance of de-sliming system, as mentioned above**.**

18.1.3. The payments under this Agreement shall not exceed the Agreement Value specified herein (the **"Agreement Value"**). The Parties agree that the Agreement Value is Rs……. (Rupees).

18.2. Time Schedule

18.2.1. The De-sliming system will be commissioned within 12 months from the Effective Date and followed by 2 months of operation and maintenance assistance. The overall time schedule for completion of the Works is given below:

S. No.	Items of Work	Commencement (No. of days from Effective Date)	Completion (No. of days from Effective Date)
1	Engineering	0	As per time schedule submitted by Agency
2	Supply / Delivery of:		
i)	Building steel structures & sheeting	As per time schedule submitted by Agency	As per time schedule submitted by Agency
ii)	Mechanical equipment including technological structures	As per time schedule submitted by Agency	As per time schedule submitted by Agency
iii)	Electrical equipment	As per time schedule submitted by Agency	As per time schedule submitted by Agency
5.	Erection of building steel structures	As per time schedule submitted by Agency	As per time schedule submitted by Agency
6.	Civil Work	As per time schedule submitted by Agency	As per time schedule submitted by Agency
7.	Erection		
i)	Mechanical equipment	As per time schedule submitted by Agency	As per time schedule submitted by Agency
ii)	Electrical equipment	As per time schedule submitted by Agency	As per time schedule submitted by Agency
iii)	Instrumentation and Automation	As per time schedule submitted by Agency	As per time schedule submitted by Agency
8.	Trial Run	As per time schedule submitted by Agency	As per time schedule submitted by Agency
9.	Supply of O & M spares	As per time schedule submitted by Agency	As per time schedule submitted by Agency
10.	Commissioning	As per time schedule submitted by Agency	As per time schedule submitted by Agency
11.	Operation and Maintenance Assistance	As per time schedule submitted by Agency	As per time schedule submitted by Agency

18.3. The master network (L-3 level schedule) showing the sequence of engineering, supply, transportation, assembly, installation, trail run and commissioning is attached at Annexure-VI to this Agreement.

18.4. The detailed Billing Schedule (consisting item wise break-up of Engineering document, supply of equipment, civil & structural work at site, erection, installation & commissioning, PG Test, O&M Spares, operation & maintenance assistance) to be adopted for raising invoices against the Agreement Value by the Agency is attached at Annexure-VII to this Agreement.

18.5. The Payment to Agency for completion of Works will be in accordance to the Article 19

Article 19 Billing and Payment

19.1. The Agency shall raise an invoice for each of the Project Milestone completed as per master network and in accordance with Billing Schedule, and shall submit the same to IREL in accordance with Clause mentioned below;

19.2. Each bill/ invoice shall state the amount billed and be accompanied with progress report for each milestone and any other supporting documents as required and finalised with IREL.

19.3. The Agency shall reimburse IREL all costs, charges, damages or expenses which IREL may have paid or incurred, if and to the extent to which the Agency is liable under this Agreement to pay upon written request of the Engineer-in-Charge, failing which such costs, charges, damages or expenses shall be deducted by IREL from any money due or becoming due by IREL to the Agency under this Agreement or any other Agreement failing which such amounts shall be considered as debt from the Agency to IREL and shall be recoverable accordingly.

19.4. Agency shall validate the flow sheet as per tender and same needs to be approved by IREL. Payment **of five percent (5%) of total Price Schedule will be released for finalizing flow sheet after the same is accepted and approved by IREL.**

19.5. Payment of **five percent (5%) of Price Schedule shall be released on submission of detail design & engineering data** for the facility of the De-sliming system, and accepted by IREL.

19.6. Payment of **sixty percent (60%) of Price Schedule shall be released towards progressive payments for Supply of Plant & Equipment and building steel**. Invoicing for progress payments will be made in RA Bills with minimum value of each bill to be INR 2 Crore or as per the billing schedule to be submitted by the Successful Bidder against milestones to be mutually discussed and approved by IREL

19.7. Payment **of ten percent (10%) of Price Schedule shall be released upon completion of Erection of Plant & Equipment and building Steel structures**.

19.8. Payment of **ten percent (10%) of Price Schedule shall be released upon completion of Commissioning & PG Test and supply of O & M spares**.

19.9. Payment of **ten percent (10%) of Price Schedule shall be released upon issue of the Final Acceptance Certificate.**

19.10. Ninety five percent (95%) of the payment, towards each invoice raised, and 100% of payment of taxes and duties on submission of documentary evidence, shall be made by IREL within thirty (30) days after verification of the documents submitted by the Agency and by conducting physical inspection of the site as mentioned in the documents submitted with the invoice.

19.11. Liquidated Damages to be deducted shall be adjusted in the current invoice or next following invoice raised, as may be applicable;

19.12. All interim payments as per Clause 19.6 shall be regarded as progress payments against the final payment only and not as payment for Works completed and shall not preclude defective / imperfect / incomplete facilities to be removed. It will not be considered as an admission by IREL of the due performance of the Agreement, or any

part thereof by the Agency nor shall it preclude, determine or affect in any way the powers of IREL under these conditions or in any way vary or affect the Agreement

19.13. The remaining five percent (05%) payment for each Project Milestone (the "Retention Money") shall be made after issuance of "Final Acceptance Certificate" by IREL and submission of Performance Bank Guarantee, as per the format attached in Annexure-II by the Agency in accordance with the terms and conditions mentioned in this Agreement;

Article 20 Liquidated Damages

20.1. In case of delay in achieving Works Completion Date, Liquidated Damages as mentioned below shall be applicable.

20.2. Liquidated Damages (LD) against delay in achieving Works Completion Date.

20.2.1. Liquidated Damages (LD) shall be levied where reasons are attributable to Agency for delays in execution of this Agreement. LD shall be levied @0.5% per week or part thereof on the Agreement Value for each week of delay in achieving Works Completion Date as per Clause 1.44; subject to a maximum of 10% of the total Agreement Value.

Article 21 Representations and Warranties

21.1. IREL's Representations and Warranties

21.1.1. It is duly organised and validly existing entity under the laws of India and has all requisite legal right, power and authority to execute and deliver this Agreement and all the agreements to which it is a Party and to carry out the terms, conditions and provisions hereof and thereof;

21.1.2. The execution, delivery and performance by it of this Agreement and all of the agreements and documents referred to herein to which it is the party have been duly authorised by all requisite corporate action, and shall not contravene any provisions of, or constitute a default under, any other agreement or instrument to which it is the party. The execution, delivery and performance by it of this Agreement and all of the agreements and documents referred to herein to which IREL is the party does not constitute a violation of any statute, judgement, order, decree or regulation or rule of any court, government authority or arbitrator of competent jurisdiction applicable or relating to IREL, its assets or its business; and

21.1.3. This Agreement constitutes its valid, legal and binding obligation, enforceable in accordance with the terms hereof except that the enforceability thereof may be limited by applicable bankruptcy, insolvency, re-organisation, moratorium or other similar law affecting creditor's rights generally and except to the extent that the remedies of specific performance, injunctive relief and other forms of equitable relief are subject to equitable defenses, the discretion of the court before which any proceeding thereof may be brought and the principles of equity in general.

21.2. Agency's Representations and Warranties

The Agency represents and warrants as to itself that:

21.2.1. It is duly organised and validly existing entity under the laws of India. It has complied with the requirements of all Applicable Law and all requisite legal right, power and authority to execute and deliver this Agreement and all the agreements and documents referred to herein to which it is the party and to carry out the terms, conditions and provisions hereof and thereof,

21.2.2. The execution delivery and performance by it of this Agreement and all of the agreements and documents referred to herein to which it is the party have been duly authorised by all requisite corporate action, and shall not contravene any provisions of, or constitute a default under, any other agreement or instrument to which it is the party. The execution, delivery and performance by it of this Agreement and all of the agreements and documents referred to herein to which the Agency is the party does not constitute a violation:-

a. of any statute, judgment order, decree or regulation or rule of any court, government authority or arbitrator of competent jurisdiction applicable or relating to the Agency, its assets or its business; or

b. the Agency articles, constituting documents or any indenture, agreement or agreement to which it is the party or by which it or its property is bound.

21.2.3. This Agreement constitutes its valid, legal and binding obligation, enforceable in accordance with the terms hereof except that the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganisation, moratorium or other similar law affecting creditor's rights generally and except to the extent that the remedies of specific performance, injunctive relief and other forms of equitable relief are subject to equitable defences, the discretion of the court before which any proceeding thereof may be brought and the principles of equity in general;

21.2.4. There are no attachments or warrants served on it, in respect of GST, income tax, central government revenues or any other state government of India revenues, any other taxes and dues, that might materially adversely affect its ability to meet and carry out its obligations under this Agreement;

21.2.5. There are no actions, suits of proceeding pending or, to its knowledge threatened against or affecting the Agency or its employee, before any court or administrative body or arbitral tribunal that might materially adversely affect its ability to meet and carry out its obligations under this Agreement;

21.2.6. It is not in default under any agreement to which it is the party or by which it or its property may be bound, nor in any material default of any obligation under this Agreement and all of the agreements and documents referred to herein to which it is the party.

Article 22 Liability

22.1. The Agency's liability under this Agreement shall be determined by the Applicable Laws and the provisions hereof.

22.2. The Agency shall, subject to the limitation specified in Clause22.3, be liable to IREL for any direct loss or damage accrued or likely to accrue due to deficiency in Services rendered by it.

22.3. The Parties hereto agree that in case of negligence or willful misconduct on the part of the Agency or on the part of any person or firm acting on behalf of the Agency in carrying out the Work, the Agency, with respect to damage caused to IREL's property, shall not be liable to IREL:

22.3.1. for any indirect or consequential loss or damage; and

22.3.2. for any direct loss or damage that exceeds (a) the Agreement Value set forth in Sub-clause 18.1.2 of this Agreement, or (b) the proceeds the Agency may be entitled to receive from any insurance maintained by the Agency to cover such a liability in accordance with Clause25, whichever of (a) or (b) is higher.

22.4. This limitation of liability specified in Clause 22.3 shall not affect the Agency's liability, if any, for damage to Third Parties caused by the Agency or any person or firm acting on behalf of the Agency in carrying out the Work subject, however, to a limit equal to the Agreement Value.

Article 23 Warranty and Defects Liability

23.1. **Defects Liability Period**

23.1.1. The Agency shall be responsible for all the Defects and deficiencies, except usual wear and tear in the Project or any Section thereof, till the expiry of a period of 1 (one) year commencing from the date of issue of Final Acceptance Certificate(the "Defects Liability Period").

23.2. **Remedy and rectification of Defects and deficiencies**

23.2.1. Without prejudice to the provisions of Clause 23.1.1, the Agency shall repair or rectify all Defects and deficiencies observed by IREL during the Defects Liability Period within a period of 15 (fifteen) days from the date of notice issued by IREL in this behalf, or within such reasonable period as may be determined by IREL at the request of the Agency, in accordance with Good Industry Practice.

23.3. **Cost of remedying Defects**

23.3.1. For the avoidance of doubt, any repair or rectification undertaken in accordance with the provisions of Clause 23.2, including any additional tests, shall be carried out by the Agency at its own risk and cost

23.4. **Agency's failure to rectify Defects**

23.4.1. In the event that the Agency fails to repair or rectify such Defect or deficiency within the period specified in Clause 23.2, IREL shall be entitled to encash the Performance Bank Guarantee.

Article 24 Indemnity

24.1. The Agency (**"Indemnifying Party")** shall indemnify IREL (**"Indemnified Party")** against any claim or damage, demand and any other expenses incurred by IREL for defending such claims / demand made by any authority due to the commission, omission and negligence on the part of the Agency in complying with any of the statutory provisions, being the owner of the De-sliming system;

24.2. Without prejudice to the generality of Clause 24.1, the Indemnifying Party shall indemnify, and keep the Indemnified Party indemnified against any claim, damages, compensation proceeding, suit and any award rendered in any such suit or proceeding where such claim, proceeding, suit arises out of or in relation to:

24.2.1. Violation or breach of any Applicable Law as may be applicable to the Agreement which may arise out of or in consequence of the construction or maintenance or performance of the Works under the Agreement;

24.2.2. Breach of any conditions imposed by all and any Government Approvals in relation to the Works or any part thereof;

24.2.3. Infringement of any domestic or foreign patent rights, copyrights or other Intellectual Property, proprietary or confidentiality rights with respect to any materials, information, design or process used by the Agency or by the Sub-contractors in performing the Agency's obligations or in any way incorporated in or related to the Project;

24.2.4. Any accident or injury caused to any Third Party, any employee of the Indemnified Party, where such accident or injury is directly or indirectly attributable to any act, omission or negligence on the part of the Indemnifying Party, its agents, representatives or employees.

24.2.5. Any damage or loss of any property, real or personal, to the extent that such damage or loss arises out of or in the course of or by reason of the execution and completion of the Works and the remedying of any defects by the Agency.

24.2.6. Any breach of the representations and warranties provided herein.

24.2.7. Any sum payable by IREL to Agency for any breach of the Agreement, or otherwise which is directly or indirectly attributable to the acts and /or omission of the Agency, its agents, representatives or employees under this Agreement.

24.2.8. The Agency shall indemnify IREL and keep IREL indemnified to the extent of the value of free issue materials, if applicable, to be issued till such time the entire Agreement is executed and proper account for the free issue materials is rendered. The Agency shall not utilize IREL's free issue materials for any job other than the one contracted out in this Agreement and also not indulge in any act, commission or negligence which shall cause/result in any loss/damage to IREL and in which case, the Agency shall be liable to IREL to pay compensation to the full extent of damage/loss and undertakes to pay the same.

Article 25 Insurance

25.1. The Agency, at its sole cost and expense, shall continue to obtain and maintain all the construction insurance policies and operational insurance policies required to be taken in respect of the De-sliming system or as may be necessary in accordance with the Prudent Operating Practices. The Agency shall ensure that IREL is named as an additional insured on all insurance policies with respect to third party liability insurance. Any failure by the Agency to obtain the insurance coverage or certificates of insurance as required, shall neither relieve the Agency of the insurance requirements set forth herein nor relieve or limit in any way the Agency's obligations and liabilities under any other provision of this Agreement;

25.2. The under mentioned minimum coverage or such additional coverage as may reasonably be required, shall be maintained or caused to be maintained by the Agency throughout the Agreement period:

- Transit Insurance
- Workers Compensation and Employers General Liability Insurance
- Builders All Risk Insurance
- All Risk Property/Comprehensive Machinery Insurance (Upon Completion of Construction)
- Third party Liability Insurance

25.3. To the extent that the above insurance policies are available through Indian insurance companies, preference shall be given to using these companies.

25.4. Notwithstanding any liability that may arise under this Agreement, any loss for which compensation is due to the Agency under this Clause, shall not be charged to IREL.

25.5. The Agency shall cause its insurers or agents to provide IREL with certificates of insurance for required replacement policies or renewals evidencing the endorsements of policies, at least thirty (30) days prior to either termination or expiration of any policy hereunder.

Article 26 Force Majeure

26.1. **"Force Majeure"** is an event beyond the control of Agency and not involving the Agency's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to acts of IREL/Agency either in its sovereign or contractual capacity, wars or revolution, hostility, acts of public enemy, civil commotion, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts and freight embargoes or any other event which IREL may deem fit to consider so. The decision about Force Majeure shall rest with IREL that shall be final and binding. Force Majeure clause has to be compulsorily embedded in the order;

26.2. If there is delay in performance or other failures by the Agency to perform obligations under this Agreement due to event of a Force Majeure, the Agency shall not be held responsible for such delays/failures;

26.3. If a Force Majeure situation arises, the Agency shall promptly notify IREL in writing of such conditions and the cause thereof within fifteen (15) days of occurrence of such event. Unless otherwise directed by IREL in writing, the Agency shall continue to perform its obligations under the Agreement as far as reasonable/practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event;

26.4. If the performance in whole or in part or any obligation under this Agreement is prevented or delayed by any reason of Force Majeure for a period of exceeding 120 days, IREL may at its option terminate the Agreement, without any financial repercussion on either side;

26.5. Any delay or non-performance by either Party hereto caused by the occurrence of any event of Force Majeure shall not:

26.5.1. constitute a default or breach of the Agreement;

26.5.2. give rise to any claim for damages or additional cost or expense occasioned thereby;

If and to the extent that such delay or non-performance is caused by the occurrence of an event of Force Majeure.

Article 27 Breach of Terms, Suspension and Termination

27.1. Breach of Terms

27.1.1. Should either Party here-to commit breach of any of the terms of this Agreement and in any such case the other Party, shall be entitled, without incurring any liability what-so-ever, to fore-bear from doing such acts or fulfilling such obligations as are to be done or fulfilled by it here under until the Party committing breach on terms herein makes good the said breach;

27.2. Suspension

27.2.1. IREL may suspend the Works in whole or in part at any time by giving the Agency a notice in writing, if the Agency shall be in breach of this Agreement or shall fail to perform any of its obligations under this Agreement, including the carrying out of the Works; provided that such notice of suspension (i) shall specify the nature of the breach or failure, and (ii) shall provide an opportunity to the Agency to remedy such breach or failure within a period not exceeding 30 (thirty) days after receipt by the Agency of such notice of suspension.

27.2.2. On receiving the notice of suspension from IREL, the Agency shall stop all such work, which IREL has directed to be suspended with immediate effect. IREL may at any time cancel the suspension notice for all or any part of suspended work by giving written notice to the Agency specifying the part of work to be resumed and the effective date of suspension withdrawal. The Agency shall resume the suspended work as expeditiously as possible after receipt of such withdrawal of suspension notice. In the event of suspension of work, IREL shall not be liable to the Agency for any damage and loss.

27.3. Temporary Suspension:

27.3.1. IREL may at any time temporarily hold the progress of work being performed under the Agreement or any part thereof by notice in writing to the Agency. All the work so held shall be resumed by the Agency and extended suitably for the period amounting to temporary suspension based on a schedule as directed by IREL and mutually agreed upon between the Agency and IREL.

27.3.2. IREL will not pay the Agency for any work, which is performed during such an interval of suspension, and IREL shall not be liable to the Agency for any damages or loss caused by such suspension of work.

27.4. Event of Default

Event of Default means the Agency Event of Default or IREL Event of Default or both as the context may admit or require.

27.4.1. Agency Event of Default

Any of the following events shall constitute an event of default by the Agency **("Agency Event of Default")** unless such event has occurred as a result of IREL Event of Default or a Force Majeure event;

a. the Agency fails to remedy any breach hereof or any failure in the performance of its obligations hereunder, as specified in a notice of

suspension pursuant to Sub-clause 27.2.1hereinabove, within 30 (thirty) days of receipt of such notice of suspension or within such further period as IREL may have subsequently granted in writing

b. The Agency fails to commence the Works within thirty (30) days from the Effective Date;

c. The Agency fails to ensure that Works Completion Date of the De-sliming system is achieved within fourteen (14) months of the Effective Date;

d. Any representation made or warranties given by the Agency under this Agreement is found to be false or misleading;

e. The transfer, pursuant to law of either (a) the rights and/or obligations of the Agency under the Agreement, or (b) all or material part of the Agency; except where such transfer in the reasonable opinion of IREL does not affect the ability of the Agency to perform, and the Agency has the financial and technical capability to perform, its material obligations under the Agreement;

f. The Agency suspends or abandons the Works without prior consent of IREL, provided that the Agency shall be deemed not to have suspended/ abandoned operation if such suspension/ abandonment was (i) as a result of Force Majeure Event and is only for the period such Force Majeure is continuing, or (ii) is on account of a breach of its obligations under this Agreement by IREL;

g. the Agency becomes insolvent or bankrupt or enters into any agreement with its creditors for relief of debt or take advantage of any law for the benefit of debtors or goes into liquidation or receivership whether compulsory or voluntary;

h. the Agency fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause 27.2 hereof;

i. the Agency submits to IREL a statement which has a material effect on the rights, obligations or interests of IREL and which the Agency knows to be false;

j. any document, information, data or statement submitted by the Agency in its Bid, based on which the Agency was considered eligible or successful, is found to be false, incorrect or misleading; or

k. The Agency repudiates this Agreement or otherwise evidences an intention not to be bound by this Agreement.

27.4.2. IREL Event of Default

The following events shall constitute events of default by IREL (**"IREL Event of Default"),** unless any such IREL Event of Default has occurred as a result of Agency Event of Default or due to a Force Majeure Event:

a. IREL is in breach of this Agreement and has failed to cure such breach within sixty (60) days of receipt of notice in that behalf from the Agency;

b. IREL repudiates this Agreement or otherwise evidences an intention not to be bound by this Agreement;

c. Any representation made or warranties given by IREL under this Agreement is found to be false or misleading.

27.5. Recourse to Event of Default

27.5.1. In case of an event of default, the following recourse is available to IREL and the Agency or both as the situation may warrant:

a. In case of occurrence of Event of Default mentioned in Sub-clause27.4.1.b and Sub-clause 27.4.1.c, the Agency shall have an option to ask for extension from IREL specifying the conditions that have restricted the Agency to complete the tasks in stipulated time. However, IREL's decision on said matter shall stand final as the case may be;

b. In case of occurrence of Event of Default mentioned in Sub-clause 27.4.1.a, Sub-clause27.4.1.d, Sub-clause 27.4.1.e, Sub-clause 27.4.1.f, Sub-clause27.4.1.g, Sub-clause 27.4.1.h,Sub-clause 27.4.1.i,Sub-clause 27.4.1.j and Sub-clause 27.4.1.k IREL shall have the option to seek Termination of Agreement. The Termination shall be governed by Clause 27.6 of this Agreement

c. In case of occurrence of Event of Default mentioned in Sub-clause 27.4.2, the Agency shall have an option to seek Termination of this Agreement. In seeking the Termination of the Agreement, Agency would have to clearly demonstrate that the Event of Default has occurred despite all possible steps taken by Agency to avoid Termination. The Parties shall mutually decide the modalities of Termination.

27.6. Termination due to Agency Event of Default

27.6.1. Without prejudice to any other right or remedy which IREL may have in respect thereof under this Agreement, upon the occurrence of an Agency Event of Default, IREL shall be entitled to terminate this Agreement by issuing a Termination Notice (the **"Termination Notice"**) to the Agency, provided that before issuing the Termination Notice, IREL shall by a notice in writing inform the Agency of its intention to issue the Termination Notice (the **"Preliminary Notice"**). In case the underlying breach/default is not resolved within a period of sixty (60) days from the date of the Preliminary Notice, IREL shall be entitled, to terminate this Agreement by issuing the Termination Notice. Provided further, that IREL shall be entitled to forfeit the Security Deposit;

27.6.2. Upon termination of this Agreement by notice of either Party to the other pursuant to Sub-clauses 27.5.1.b or 27.5.1.c hereof, the Agency shall, immediately upon dispatch or receipt of such notice, take all necessary steps to bring the Works to a close in a prompt and orderly manner and shall make every reasonable effort to keep expenditures for this purpose to a minimum.

27.7. Payment upon Termination

27.7.1. Upon termination of this Agreement pursuant to Sub-clauses 27.5.1.c hereof, IREL shall make the following payments to the Agency (after offsetting against these payments any amount that may be due from the Agency to IREL):

a. remuneration pursuant to Article 18Article 1 hereof for Works satisfactorily performed prior to the date of termination;

27.8. Disputes about Events of Termination`

27.8.1. If either Party disputes whether an event specified in Sub-clause 27.4.1 or in Sub-clause 27.4.2 hereof has occurred, such Party may, within 30 (thirty) days after receipt of notice of termination from the other Party, refer the matter to arbitration pursuant to Sub-clause 28.2 hereof, and this Agreement shall not be terminated on account of such event except in accordance with the terms of any resulting arbitral award.

Article 28 Resolution of Disputes

28.1. **Conciliation**

28.1.1. All disputes or difference whatsoever arising between the Parties out of or relating to the Agreement shall be settled through discussions between the Chairman & Managing Director of IREL and the Authorised signatory of the Agency (the **"Conciliation"**). In case an amicable settlement is not arrived at, the matter shall be settled through Arbitration by appointment of sole arbitrator as approved by CMD, IREL.

28.1.2. Conciliation shall be resorted to prior to invoking Arbitration. The Arbitration clause is to be invoked by the Parties to the Agreement only on failure of Conciliation proceedings to amicably settle the disputes;

28.2. **Arbitration**

28.2.1. All disputes and differences of any kind what so ever arising out of or in connection with the Agreement or carrying out of the works (whether during the course of works or after their completion and whether before or after determination, abandonment or breach of Agreement) shall be referred to and settled by the person authorized and notified in writing by IREL who shall state his decision in writing. Such a decision may be in the form of a final certificate or otherwise, within a period of 30 days from the date of receipt of such reference to them.

28.2.2. If the Agency is dissatisfied with the decision of such authorized person, then he may within 30 days of receipt of such decision send a written appeal to IREL, represented by the Chairman and Managing Director at the registered office, Mumbai for Arbitration, in accordance with the provisions of the Arbitration and Conciliation Act and the Rules framed there under from time to time, and for the time being in force. Such written appeals should however specify only those matters in dispute, which have been referred to such authorized person but not satisfied with the decision and the reasons leading to his dissatisfaction.

28.2.3. If the period of 30 days has expired at any stage, stipulated in the preceding paras without any response from the Agency before such expiry, the Agency is deemed to have communicated his satisfaction to the decision of IREL at the relevant stage and all his rights of further appeal or as the case may be, adjudication are deemed to have been waived once and for all.

28.2.4. The seat of arbitration will be at IREL-MK unit, Manavalakurichi and only the appropriate Court coming under High Court of Chennai will have jurisdiction to entertain all matters of litigation to the exclusion of all other courts.

28.2.5. The Agency shall not in any way delay or default or cause to delay or default the carrying out of the works by reason of the fact that any matter has been agreed to be referred to and / or referred to Arbitration.

Article 29 Copyright and Intellectual Property rights

29.1. As between the Parties, the Agency shall retain the copyright and other Intellectual Property rights in the Agency's Documents and other design documents made by (or on behalf of) the Agency. The Agency shall be deemed (by signing this Agreement) to give to IREL a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Agency's Documents, including making and using modifications of them. This license shall:

29.1.1. apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,

29.1.2. entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Agency' Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

29.1.3. in the case of Agency's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by this Agreement, including replacements of any computers supplied by the Agency:

29.2. The Agency's Documents and other design documents made by (or on behalf of) the Agency shall not, without the Agency's consent, be used, copied or communicated to a third party by (or on behalf of) IREL for purposes other than those permitted under this Article 29.

29.3. As between the Parties, IREL shall retain the copyright and other Intellectual Property rights in this Agreement and other documents made by (or on behalf of) IREL. The Agency may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement. They shall not, without IREL's consent, be copied, used or communicated to a third party by the IREL, except as necessary for the purposes of the Agreement.

Article 30 Governing Law

30.1. The execution interpretation, Construction and performance of this Agreement shall be governed by and constructed according to the Laws of India.

Article 31 Notices

31.1. All Notices or other communications which are required or permitted hereunder shall be in writing and shall be sufficient if delivered personally or sent by registered or certified mail, facsimile or certified courier to the address shown below.

In case to IREL:

…….

…….

Telephone No.:

Fax No.:

E-mail address:

In case to the Agency:

……

……

Telephone No.:

Fax No.:

E-mail address:

Article 32 General Provisions

32.1. The provisions made under this Agreement shall be applicable except where the context requires otherwise;

32.2. Disclosure of Information and Right of Inspection: The Parties shall furnish to each other all information reasonably requested in regard to the performances of their respective duties and obligations under this Agreement in such manner and form as the Parties may mutually determine from time to time;

32.3. Amendments and Supplements: All additions, supplements, amendments or variations to this Agreement shall be in writing and shall be signed by the duly authorized representatives of the Parties;

32.4. Entire Agreement: This Agreement including all Annexures hereto, represents the entire understanding between the Parties with respect to the subject matter hereof and supersedes any and all previous oral or written agreements or understanding between the Parties in respect of the Plant;

32.5. Assignments: The rights and obligations hereunder of each of the Parties hereto shall not be assigned to a Third Partywithout having obtained in writing the prior approval of the other Party;

32.6. Waivers:

32.6.1. No wavier by either Party of any default by the other in the performance of this Agreement (i) shall be effective unless recorded in a document duly executed by an authorised representative of such Party; (ii) shall operate or be construed as a waiver of any other or further default whether of a similar or different character;

32.6.2. The failure by either Party on any occasion to insist upon the performances of any of the terms, condition or provisions of this Agreement shall not constitute a waiver. The grant of additional time or order indulgence by one Party to the other, or acceptance of any variation in performance, shall not constitute a waiver.

32.7. Confidentiality:

32.7.1. The Agency, its and the Personnel of either of them shall not, either during the term or after the expiration or termination of this Agreement disclose any proprietary information, including information relating to reports, data, Drawings, design software or other material, whether written or oral, in electronic or magnetic format, and the contents thereof; and any reports, digests or summaries created or derived from any of the foregoing that is provided by IREL to the Agency, its and the Personnel; any information provided by or relating to IREL, its technology, technical processes, business affairs or finances or any information relating to IREL's employees, officers or other professionals or suppliers, customers, or contractors of IREL; and any other information which the Agency is under an obligation to keep confidential in relation to the Project, the Works or this Agreement (**"Confidential Information"**), without the prior written consent of IREL.

Notwithstanding the aforesaid, the Agency, and its personnel of either of them may disclose Confidential Information to the extent that such Confidential Information:

a. is required to be disclosed by Applicable Laws or judicial or administrative or arbitral process or by any governmental instrumentalities, provided that for any such disclosure, the Agency, its and the Personnel of either of them shall give IREL, prompt written notice, and use reasonable efforts to ensure that such disclosure is accorded confidential treatment; and

b. is provided to the professional advisers, agents, auditors or representatives of the Agency or its personnel or either of them, as is reasonable under the circumstances; provided, however, that the Agency or personnel or either of them, as the case may be, shall require their professional advisers, agents, auditors or its representatives, to undertake in writing to keep such Confidential Information, confidential and shall use its best efforts to ensure compliance with such undertaking.

32.8. No Third Party Beneficiaries: This Agreement is intended solely for the benefit of the Parties. Nothing in this Agreement shall be construed to create any duty to, standard of care with respect to, any liability to, or any right of suit or action in, any Third Party.

32.9. Severability: The declaration, as void or unenforceable, of any provisions of this Agreement by any judicial authority or arbitration panel shall not ipso facto render the remaining provisions of the Agreement void or unenforceable.

32.10. Relationship of the Parties: This Agreement shall not constitute either Party as a partner, agent or legal representative of the other Party. Neither Party shall have any right or authority to assume, create or incur any liability or obligation of any kind, expressed or implied, against, in the name of or on behalf of the other Party except in accordance with this Agreement or as may otherwise be agreed in writing by the Parties.

32.11. Governing Language: The language that governs the interpretation of this Agreement is the English language. All Notices required to be given by either Party to the other and all other communications and documentation which are in any way relevant to this Agreement or which are relevant to the execution and implementation of this Agreement, including any dispute resolution proceedings, shall be in English language.

32.12. Counterparts: This Agreement may be executed in two counterparts, each of which when executed and delivered shall constitute an original, but both counterparts shall together constitute but one and the same instrument.

32.13. General Liability Provision: The rights and obligations of the Parties are finally and conclusively defined in this Agreement. Claims for indirect, remote or consequential damages such as loss of production, loss of profit, loss of use are excluded.

Article 33 Annexures

The following Annexures shall also form integral part of this Agreement.

(i) Annexure I: Bank guarantee format for Security Deposit

(ii) Annexure II: Bank Guarantee format for Performance Bank Guarantee

(iii) Annexure III: RFP document, all addendums, corrigendum and clarifications issued by IREL and any other official communications

(iv) Annexure IV: Techno-Commercial offer and other documents/ details/ data submitted by Agency at RFP stage

(v) Annexure V: Letter of Intent (LOI) issued by IREL to the Agency

(vi) Annexure VI: L3 Level Implementation Schedule

(vii) Annexure VII: Detailed Billing Schedule

(viii) Annexure VII: Instructions to Contractor for Statutory Compliances for Job / Work / Labour Contract

IN WITNESS HEREOF, the Parties hereto have executed this Agreement in two originals by putting the signature of their respective duly authorised representatives effective as of the day, month and year first written above.

For and on behalf of Agency	**For and on behalf of IREL**
Signature……	Signature……
Name	Name
Designation	Designation
Seal	Seal
Witness	
Signature……..	Signature……
Name	Name
Designation	Designation
Seal	Seal

Annexure-I

BANK GUARANTEE FORMAT FOR SECURITY DEPOSIT

WHEREAS on or about the _____ day of _____ M/s _____ (Selected Bidder's name & address), having its registered office situated at _____ (Postal address) (herein after referred to as the 'Agency') entered into an Agreement bearing reference no. _____ dtd. _____ with M/s IREL (India) Limited, a company incorporated under Indian Companies Act having its registered office at Plot No.1207, ECIL building, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400 028, India (herein after referred to as IREL), for _____ (details of order) (herein after referred to as 'the Agreement').

AND WHEREAS under the terms and conditions of the Agreement the Agency is required to keep with IREL a Security Deposit of Rs. _____ (Rupees_____ only) or submit a bank guarantee in lieu of cash deposit for the fulfillment of the terms and conditions of the Agreement, and whereas AGENCY has chosen to submit a bank guarantee.

We _____ Bank do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from IREL stating that the amount claimed is due by way of loss or damage caused to or that would be caused to or suffered by IREL by reason of breach of any of the terms and conditions of the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this guarantee. The payment will be released within three working days from the date of demand for payment.

We undertake to pay to IREL any money so demanded notwithstanding any dispute or disputes raised by the Agency in any suit or proceeding pending before any court or tribunal relating thereto, our liability under these present being absolute and unequivocal.

The payment so made by us under this guarantees shall be valid discharge of our liability for payment thereunder and the Agency shall have no claim against us for making such payment.

We _____ (Name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of IREL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till IREL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Agency and accordingly discharges this guarantee. Our guarantee shall remain in force until _____ and unless a demand or claim under

this guarantee is made on us in writing within three months from the expiry of the guarantee period, we shall be discharged from all liability under this guarantee thereafter.

We _____ (Name of Bank) , further agree that IREL shall 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 Agreement or to extent time of performance by the said Agency from time to time or to postpone for any time or from time to time any of the powers exercisable by IREL against the said Agency and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relived from our liability by reason of any such variation, or extension being granted to the said Agreement or for any forbearance, act or omission on the part of IREL or any indulgence by IREL to the said Agency or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the bank or the Agency.

We_____ (Name of Bank) lastly undertakes not to revoke this guarantee during its currency except with the previous consent of IREL in writing.

Notwithstanding anything to the contrary contained herein before :

1. (i) Our Liability under this Bank Guarantee shall not exceed and restricted to Rs …… (in words)
2. (ii) This Bank Guarantee shall be valid upto ……, unless extended on demand.
3. (iii) The bank is liable to pay the guaranteed amount or any part thereof under this bank Guarantee only if IREL serve a written claim or demand on or before …… (Three months from the expiry of Guarantee period)

Dated the _____ day of _____ YEAR

_____Bank

(Signature with name in Block letters with designation,

Attorney as per power of Attorney No._____dt. _____)

Bank's Common seal

Annexure-II

Bank Guarantee format for Performance Guarantee

WHEREAS on or about the _____ day of _____M/s _____ (Tenderer's name & address), having its registered office situated at _____(Postal address) (herein after referred to as 'The Tenderer') entered into a contract bearing reference no. _____ dtd. _____ with _____ (MK unit/Chavara unit/OSCOM unit/RED unit/Corporate Office) of M/s IREL (India) Limited, a company incorporated under Indian Companies Act having its registered office at Plot No.1207, ECIL building, Opp. to Siddhivinayak Temple, Veer Savarkar Marg, Prabhadevi, Mumbai – 400 028, India (herein after referred to as IREL), for _____ (details of order) (herein after referred to as 'The Contract').

AND WHEREAS the Agreement provides that the tenderer shall furnish a Bank Guarantee for Rs._____ (Rupees _____ only) being ____% (_____percent) of the total agreement value as Guarantee for the due fulfillment by the tenderer of the terms and conditions contained in the Agreement, the guarantee remaining valid till the completion of the guarantee period.

We _____ Bank do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from IREL stating that the amount claimed is due by way of loss or damage caused to or that would be caused to or suffered by IREL by reason of breach by the said tenderer of any of the terms or conditions contained in the said Agreement or by reason of the Bidder's failure to perform the said agreement. Any such demand made 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 Rs. _____ (Rupees _____ only).

We undertake to pay to IREL any money so demanded notwithstanding any dispute or disputes raised by the tenderer in any suit or proceeding pending before any court or tribunal relating thereto, our liability under these present being absolute and unequivocal.

The payment so made by us under this guarantees shall be valid discharge of our liability for payment thereunder and the tenderer shall have no claim against us for making such payment.

We _____ Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of IREL under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till IREL certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said bidder and accordingly discharges this Guarantee.

We also agree that the amount will be paid by us to the IREL within three working days from the date of demand for payment till the actual date of payment made by us.

Our Guarantee shall remain in force until and unless a demand or claim under this guarantee is made on us in writing within six months from the expiry of the Guarantee period, we shall be discharged from all liability under this Guarantee thereafter.

We _____ Bank, further agree that IREL shall 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 Agreement or to extent time of performance by the said tenderer from time to time or to postpone for any time or from time to time any of the distributions exercisable by IREL against the said tenderer and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relived from our liability by reason of any such variation, or extension being granted to the said tenderer or for any forbearance, act or omission on the part of IREL or any indulgence by IREL to the said tenderer or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the Bank or the bidder.

We_____ Bank lastly undertakes not to revoke this guarantee during its currency except with the previous consent of IREL in writing.

Notwithstanding anything to the contrary contained herein before :

(a) Our Liability under this Bank Guarantee shall not exceed and restricted to Rs …… (in words)
(b) This Bank Guarantee shall be valid upto ……., unless extended on demand.
(c) The bank is liable to pay the guaranteed amount or any part thereof under this bank Guarantee only if IREL serve a written claim or demand on or before …… (Three months from the expiry of Guarantee period)

Dated the _____ day of _____ 202_

_____Bank

(Signature with name in Block letters with designation,

Attorney as per distribution of Attorney No._____dt. _____)

Bank's Common seal

Annexure – III

(RFP document, all addendums, corrigendum and clarifications issued by IREL and any other official communications)

Annexure – IV

(Techno-Commercial offer and other documents/ details/ data submitted by Agency at RFP stage)

ANNEXURE V

(Letter of Intent (LOI) issued by IREL to the Agency)

ANNEXURE VI

(L3 Level Schedule/ Master Network: to be submitted by Selected Bidder on or Before Effective Date)

ANNEXURE VII

(Detailed Billing Schedule: to be submitted by Selected Bidder on or Before Effective Date)

ANNEXURE VIII

INSTRUCTIONS TO CONTRACTOR FOR STATUTORY COMPLIANCES FOR JOB / WORK / LABOUR CONTRACT

1. Statutory registrations and clearances – Pre-Requisites

Contractor shall commence the work only after obtaining the following:

- Labour License.
- Provident fund code no.
- ESI code no.
- Notice of commencement in Form 6-A & Maintain Register of workers Form-13.

2. Contractor shall ensure following while executing contract

- Employment card as per Contract Labour (Regulation & Abolition) Act.
- Annual leave with wages including National Holiday & Festival holiday.
- Leave record register.
- Shall engage only adult workers who have attained the age of 18.
- Work to be done on second/third shift, overtime, Sundays or on other declared holidays with written permission.
- Obtain insurance cover for his employees/equipments, tools etc&third party insurance coverage at his own cost.
- Remit Provident fund contributions in prescribed 3A & 6A forms.
- ESI contributions in Form 6.
- Submit challans of PF & ESI contributions every month.
- Provide Personal protective equipments for his employees.
- Distribute wage slip each month to his employees
- Ensure payment as per minimum wages act, 1948 in presence of HRM and concerned dept representative.
- Uniform to labours if provided by the Contractor, it must be different from IREL employees.

3. Appointment and termination of workers by contractor

- Contractor shall make appointment of his Employees only for a specific period and same shall be recordedin employment card.
- Contractor shall have the sole discretion to decide on employing, rewarding or terminating the servicesetc. of his employees. However, his employees must possess such qualifications, experience, agerequirement and medical and physical standards as required for the work awarded to the contractor.
- In case of termination of services of any employee of contractor, the contractor will ensure that wagepayment and other dues to his employee is made within 48 hours of termination of services of suchemployee. While termination of the services of any of his

employee, the contractor will discharge allformalities as per the Industrial Dispute Act such as payment of retrenchment compensation and gratuity asdue and admissible.

4. Leave with wages

- Contractor shall allow Annual leave with wages as under Mines Act.
- One-day leave for every 20 days of work performed during preceding calendar year after completing 240days of service in preceding calendar year.
- Un-availed leave can be carried forward to next Calendar year but carry forward should not exceed 30 days.Leave should not be taken more than 3 times in a Calendar year and for which application before 15 daysshould be made.
- In addition, festival and National Holidays shall also be availed by employee of contractor during theCalendar year as per the holidays declared by the IREL.
- Contractor shall maintain leave record register.

5. Attendance Card

- Contractor has to provide attendance card to his employee who will obtain endorsement of time of arrival atthe work place and time of leaving the work place. The contractor shall maintain Attendance card whichwill be retained by his employee and will be handed over to the contractor after the end of each wagemonth.

6. Statutory obligations

- Contractor shall engage only adult workers who have attained the age of 18 years and female workers shall not be employed between 7 PM to 6 Am on all days including Sundays and Holidays.
- Contractor shall observe local laws. As far as possible unskilled workers shall be engaged from the local areas only in which work is being executed.
- Contractor shall not employ any inter-state migrant workmen as defined in the Inter-State Migrant Workmen Act in the establishment except by prior permission of the Principal Employer.
- Contractor shall observe Provisions of the Mines Act in respect of working hours, holidays, rest intervals, leave and overtime to his employee.
- In case a contractor employs women as his employee, he will discharge his obligation under law in respect of such women workers such as prohibition of engaging them during night-hours, prohibition of employing them for more than 9 hours per day, provision of creche facility, grant of maternity leave as per rules etc.
- Payment of bonus under the Payment of Bonus Act, Payment of gratuity under the payment of Gratuity Act, will be the sole responsibility of the contractor.

7. PF & ESI Contribution & Returns

- Contractor shall remit Provident fund contribution of employee's together with Employer's within 15 days from the date of disbursement of wages to his employee. Monthly and annual returns in 3A & 6A prescribed forms should be submitted to the RPFC office. Present rate of employer share of PF is 13.61% and employee share is 12%.

- Contractor shall remit ESI contributions of employee's together with employer's within 21 days of the last day of the calendar month in which the contribution falls due and shall send a return of contribution in Form 6 before 12th May and 12th November of every year along with receipted challans to ESI office. Present rate of employer share is ESI 4.75% and employee is 1.75%
- Contractor shall submit a copy of latest PF& ESI returns and inspection reports from statutory authorities alongwith a copy of challans for having deposited PF & ESI contributions every month.
- Contractor shall submit following Certificate for each contract separately every month.

  " It is certified that PF challans of the amount ---------- pertains to my workers whose names are appearing in the wage sheet of the month ---------- and these workers are engaged in ---------- ------- (type of work) against work Work order no. ---------- in ---------- (name of department).

  Signature of Contractor

  Note : - Similar certificate shall be submitted for ESI also.
- Contractor shall fully comply all other formalities as per the PF & ESI statutory provisions and submit a copy of the same for replying to Statutory authorities in case of any complaints.

8. Medical care in case of accident

- It is the responsibility of contractor to undertake necessary care and make arrangement for transportation and treatment of his employee at ESI Hospital or any tie up hospitals of ESIC.
- Contractor should assist and guide his employees for claiming lawful benefits from ESI.

9. Supervision

Contractor shall employ adequate number of competent and qualified supervisors to supervise and control his employee at the work spot during execution of work for effective supervision. They will also identify their employee and regulate entry at gate at the time of entering and leaving the factory. Name and address of the Supervisor shall be submitted to the concerned department by the contractor.

10. Payment of wages

- Payment shall be made by the contractor to his employees as per their category & nature of work, which shall not be less than the rates declared from time to time under Minimum Wages Act, by Govt. of India.
- Over and above the daily wage rate, payment shall be made for leave with wages.
- Contractor shall be responsible for making payment of wages before expiry of 7 days from the last day of wage period and to ensure disbursement of wages in the presence of the authorised representative of contract operating division who shall record under his signature at the end of entries in the Register of wages in the following form

  "Certified that the amount shown in column no. ……. has been paid to the workers concerned in my presence on date …….. at time……..".

Signature of representative

- Contractor shall distribute wage slip to his employee one day before the monthly wage payment date.

11. Safety and disciplinary action

- Contractor shall ensure that his employee does not indulge in any unsafe or hazardous practices. They use safety equipment such as safety belts, safety shoes, goggles, helmet and masks where use of such equipment is required in day-to-day operations. All such safety gadgets will be provided by the contractor failing which the contract operating division will provide safety equipment to such employee of the contractor at the cost of the contractor to be recovered from his bills. Contractor shall fully indemnify IREL against any claim for damages for injury to person or property resulting from such accidents.
- Contractor to ensure that employee deployed in the premises is physically and mentally fit and do not have any criminal record.
- Contractor will be responsible for good conduct of his employees. In case of misconduct, contractor shalltake prompt disciplinary action as per "Model Standing Orders" on the advise of Contracting officer.
- Contract awarded is liable for termination for any contravention of statutory provisions or any other reasonswithout assigning any explanation or notice to the contractor.
- Contractor shall fully comply provisions of various applicable labour laws.

12. Records & information to be furnished by contractor

- Contractor shall maintain neatly, completely and legibly registers, records, reports and returns forinspection by various authorities at short notice.
- Contractor shall submit the details of work awarded to him by other departments indicating work order No.,nature of work and maximum number of workers employed etc.
- Contractor shall provide information as required in respect of all of his employees employed by him toenable the Contract operating division to monitor compliance of P.F./ESI and also to enable him to furnishinformation to Ministry and Labourdeptt. as may be required.
- Contractor shall provide full particulars of each employee employed by him before start of the work andfrom time to time. He will also endorse a copy of returns furnished by him to the Labour Department underthe Contract Labour (Regulation and Abolition) Act 1970.

13. Compliance of Statutory provisions

Contractor shall fully comply provisions of the following enactments and other enactments as applicable forsuch contracts.

- Contract Labour (R&A) Act 1970 and rules 1971.
- Payment of Wages Act.
- Mines Act, 1952

- Minimum Wages act 1948, M.P. Rules 1958.
- Employees State Insurance Act 1948, Rules and Regulations 1950.
- Employees Provident Fund Act 1952 and Pension Scheme 1995.
- Workmen's Compensation Act 1923.
- Maternity Benefit Act 1961.
- Equal Emolument Act 1976.
- Payment of Bonus Act 1963,
- Inter State Migrant Workmen Act
- Industrial Disputes Act,1947

GUIDE LINES IN CASE OF ACCIDENT

Steps to be followed

1) Locate the contractor & also inform Welfare Department with the full details of the injured person and accident.
2) Take the injured person immediately to OHC for first aid.
3) The contractor should report the accident in form 16 to Manager (ESI), Nagercoil within 24 hours of accident.
4) After First aid treatment, the contractor should immediately take his employee for further treatment & admission at ESI Hospital, if required.
5) Contractor should inform the concern deptt. & Welfare Department in case where absence is more than 48 hours.
6) Contractor should inform the date of joining to the Welfare Department of IREL for informing the statutory authority.

Responsibilities of Employees engaged by the Contractors:

1) An employee must, while at work, take reasonable care for the health and safety of people who are at the employee's place of work and who may be affected by the employee's act or omissions at work.
2) An employee must, while at work, co-operate with his or her employer or other persons so far as is necessary to enable compliance with any requirement under the act or the regulations that is imposed in the interest of health, safety and welfare of the employee or any other person.