SYAMA PRASAD MOOKERJEE PORT, KOLKATA
(FORMERLY KOLKATA PORT TRUST)
HALDIA DOCK COMPLEX

SHORT E-TENDER NOTICE

Online E-Tender under single stage **two part system** (**Part-I**: Prequalification & Techno-Commercial Bid and **Part-II**: Price Bid) are invited as per Prequalification criteria stipulated in Tender Document for the following work at Haldia Dock Complex.

Name of work	:	Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata.
E-tender No.	:	SDM(P&E)/T/12/2022-23
Estimated cost	:	**Rs. 13.35 Crores (excluding GST) for two years.**
Date & time of pre-bid meeting (Off-line)	:	**On 06/12/2022, 11:00 Hrs. (IST) onwards, at the** Office of General Manager (Engineering); Jawahar Tower, Annex. Building, 1st Floor, Haldia Dock Complex, SMP, Kolkata, Dist. Purba Medinipur; PIN: 721 607; West Bengal; India.
Closing date & time of submission of e-Tender at https://kopt.enivida.in	:	**20.12.2022 up to 15:00 Hrs. (IST).**

For details of tender and any corrigendum / addendum, please visit

http://eprocure.gov.in/epublish/app of Central Public Procurement Portal, Government of India (only for view purpose).

Or

https://kopt.enivida.in/. of e-Nivida's e-portal (for view and bidding purpose).

Or

http://www.smportkolkata.shipping.gov.in of Syama Prasad Mookerjee Port, Kolkata (Formerly Kolkata Port Trust) {only for view purpose}.

However, intending bidder shall have to participate in bidding process through https://kopt.enivida.in only.

General Manager (Engineering)
Haldia Dock Complex
SMP, Kolkata

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
(FORMERLY KOLKATA PORT TRUST)
HALDIA DOCK COMPLEX

श्यामा प्रसाद मुखर्जी पोर्ट, कोलकाता
SYAMA PRASAD MOOKERJEE PORT, KOLKATA
Formerly Kolkata Port Trust

ENGINEERING DEPARTMENT INVITE E-TENDER

[Tender No. SDM(P&E)/T/12/2022-23]

FOR

Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata.

November - 2022

TABLE OF CONTENTS

[Tender No.: SDM (P&E)/T/12/2022-23]

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
(FORMERLY KOLKATA PORT TRUST)
HALDIA DOCK COMPLEX

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Closing date & time of submission of e-Tender at https://kopt.enivida.in	:	**20.12.2022 up to 15:00 Hrs. (IST).**

For details of tender and any corrigendum / addendum, please visit

http://eprocure.gov.in/epublish/app of Central Public Procurement Portal, Government of India (only for view purpose).

Or

https://kopt.enivida.in/. of e-Nivida's e-portal (for view and bidding purpose).

Or

http://www.smportkolkata.shipping.gov.in of Syama Prasad Mookerjee Port, Kolkata (Formerly Kolkata Port Trust) {only for view purpose}.

However, intending bidder shall have to participate in bidding process through https://kopt.enivida.in only.

General Manager (Engineering)
Haldia Dock Complex
SMP, Kolkata

SYAMA PRASAD MOOKERJEE PORT, KOLKATA
(FORMERLY KOLKATA PORT TRUST)
HALDIA DOCK COMPLEX

NOTICE INVITING E-TENDER

(Tender No. SDM(P&E)/T/12/2022-23)

E-Tender, under single stage two part system [**Part-I:** Pre-qualification & Techno-commercial Bid and **P a r t - I I :** Price Bid] are invited on behalf of Haldia Dock Complex (HDC), Syama Prasad Mookerjee Port, Kolkata (SMP Kolkata), from the intending bidders, fulfilling the **"Minimum Eligibility Criteria** (MEC)" and complying with the "**Other documents**" for the work of **"Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata."**

2.1 MINIMUM ELIGIBILITY CRITERIA (MEC):

2.1.1 The average annual financial turnover of the bidder, during the last three (3) years, ending 31st March, 2022, must be at least **Rs. 2,00,24,149.14 (**Rs. Two Crores Twenty Four Thousand One Hundred Forty-nine and Fourteen Paisa only**)**. Auditor's Report of the bidding firm, certified by Chartered Accountant (CA), for the years 2019-20, 2020-21 and 2021-22, including relevant Audited Balance Sheets and Profit & Loss Accounts, should be made available.

Note: The bidder should upload the scanned copies of Annual Financial Turnover Statement (certified by CA) for the years 2019-20, 2020-21 and 2021-22 along with Balance Sheets and Profit & Loss Accounts.

2.1.2 The bidders must have experience of having successfully completed "**Similar Works**" [defined below] during last seven (7) years, ending last day of month previous to the one in which tenders are invited, and the experience must be either of the following:-

a) Three similar completed works of contract value not less than **Rs. 2,66,98,865.52 (**Rs Two Crores Sixty-six Lakhs Ninety-eight Thousand Eight Hundred Sixty-five and Fifty-two Paisa only**)**. each.

Or

b) Two similar completed works of contract value not less than **Rs. 3,33,73,581.90 (**Rs Three Crores Thirty-three Lakhs Seventy-three Thousand Five Hundred Eighty-one and Ninety Paisa only**)** each.

Or

c) One similar completed work of contract value not less than **Rs. 5,33,97,731.04 (**Rs Five Crores Thirty-three Lakhs Ninety-seven Thousand Seven Hundred Thirty-one and Four paisa only**).**

The term "**Similar works**" mean – Operation and Maintenance of mechanized dry bulk material Handling Plant having minimum capacity of 2.0 MMTPA.

Note: The bidder(s) will upload the scanned copies of work order(s) for similar works, successful completion certificates (with performance) from clients indicating the date of completion, value of work done, etc.

2.2 DOCUMENTS

2.2.A. ESSENTIAL DOCUMENTS:

The bidder should also upload scanned copies of the following documents along with bids;

a) Scanned copies of **Audited Balance Sheets and Profit & Loss Accounts for the years 2019-20, 2020-21 and 2021-22.**

b) Scanned copies of work order(s) for similar works, successful completion certificates (with performance) from clients indicating the date of completion, value of work done, etc. Work Experience as a sub-contractor or supply contractor shall not be considered as requisite qualification.

c) Scanned copy of **Power of Attorney (if applicable).**
d) **Bid security declaration (as per given format in the tender document).**
e) **Proof of Earnest Money Deposit.**

2.2. B. OTHER DOCUMENTS:

i. Goods and Services Tax (GST) Registration Certificate, issued by Government of India.

ii. Valid **Profession Tax Clearance Certificate (PTCC) or** Up-to-date **Profession Tax payment challan,** if applicable. If this is not applicable, the bidder must submit [upload] a declaration in this regard.

iii. Certificate for allotment of Employees' Provident Fund (EPF) Code No. [Latest challan is to be submitted (uploaded)], if applicable. If this is not applicable, the Bidder should submit [upload] a declaration (in the form of Affidavit), in this regard.

iv. Registration certificate of **Employees' State Insurance (ESI)** authority, if applicable.

v. If this is not applicable, necessary document(s) [to establish Non-applicability], along with **affidavit, affirmed before a first-class Judicial Magistrate** to that effect, are to be submitted [uploaded]. Moreover, such bidder(s) shall have to submit a declaration, confirming that they will obtain registration certificate of ESI authority, if required , and they will indemnify **Syama Prasad Mookerjee Port**, **Kolkata** against all damages & accident occurring to their laborer (including that of sub-contractor's labourers), in connection with the instant contract, in case they become a Successful Bidder.

vi. PAN Card, issued by Income Tax Department, Government of India.

vii. Certificate of **MSEs registered with NSIC under Single Point Registration scheme/DIC/MSME Udyog Aadhar.**

viii. Integrity Pact, duly filled up, signed and stamped.

2.3 The bidders are required to submit bid as per the instructions of the instant bidding documents (including Notice Inviting e-Tender). Bid will be considered rejected if any of the essential documents as mentioned in Clause no. 2.2.A is not submitted by the bidder. Essential documents mean papers related to "Minimum Eligibility Criteria (MEC)", including Bid Document fee, Bid security declaration and Power of Attorney.

2.4 AVAILABILITY OF THE BIDDING DOCUMENTS:

The bidding documents (in full) would be available in the following websites:-

- **https://kopt.enivida.in** of **RailTel Portal.**
- **http://eprocure.gov.in/epublish/app of Central Public Procurement Portal, Government of India**
- **http://www.smportkolkata.shipping.gov.in** of **SMP Kolkata [FORMERLY KOLKATA PORTTRUST].**

Corrigenda, Addenda, Queries & Clarifications, if any, would also be available in the aforesaid websites.

2.5 PARTICIPATING IN THE BIDDINGPROCESS:

The bidders will have to participate in the electronic bidding process through the website of E-Nivida (https://kopt.enivida.in) only.

General Manager (Engineering)
Haldia Dock Complex, SMP, Kolkata

SCHEDULE OF TENDER (SOT)

(Tender No. SDM(P&E)/T/12/ 2022-23)

3.1.	**Name of work**	::	**Operation & Maintenance of Mechanized Coal Handling Plant (Modified)**, for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata .
3.2.	**Tender Inviting Authority**	::	**General Manager (Engineering),** **Haldia Dock Complex, SMP, Kolkata**
3.3.	**Mode of Tender**	::	**e-Procurement System.** Online (Pre-qualification, Techno-commercial Bid and Price Bid, in **two** parts- Par-I- Techno-commercial Bid and Part-II: Price Bid**)** through https://kopt.enivida.inof **E-NIVIDA** **No physical tender is acceptable by Haldia Dock Complex, SMP, Kolkata.**
3.4.	**Estimated Cost**	::	**Rs. 13,34,94,327.60 (excluding GST) for two years.**
3.5.	i) **Bid Document Fee (Cost of bidding documents)**	::	The intending bidders should deposit **Rs 2,950.00 (Indian Rupees: Two Thousand nine hundred and fifty) only [including GST @ 18%],** as Bid document Fee (non-refundable), to Haldia Dock Complex. Bid Document Fee (Cost of bidding document) may be paid on following mode: **a) Through DD/Banker Cheque:** in favour of "Syama Prasad Mookerjee Port, Kolkata, Haldia Dock Complex" on any Scheduled/Nationalized Bank payable at Haldia and it should be submitted physically as specified in the Tender Document. Copy of the DD/Banker's Cheque should be uploaded during submitting online bid. OR **b) Through E-payment gateway:** by using Debit / Credit Card or Net Banking/eWallet/UPI option for e-Payment mode. Bidder has to select the payment option as "e-payment" to pay the tender fee as applicable and enter details of the instrument. Note: Without Bid Document Fees, offer of the bidder will be summarily rejected. In case the aforesaid Bid Document fee [non-refundable] is not deposited by the Bidder, the respective bid will be summarily rejected, treating the same as non-responsive.

	ii) RailTel Tender Processing Fee (Non refundable)		**a.** Mode of Payment:- E-payment Only through Debit / CreditCard or Net Banking. **b.** Tender Processing Fee (TPF)- 0.1% of estimate cost(Minimum 750/- and Maximum 7500/-) plus GST @ 18%. **c.** Registration Charges: Rs. 2000/- + Applicable GST PerYear. **Note:** 1. The bidders, who are not yet registered with RailTel, are advised to get themselves registered with RailTel, at least 72 (seventy-single) hours prior to bid submission. 2. Bidders are required to ensure that their corporate email idprovided is valid and updated at the stage of registration of vendor with RailTel's e-Nivida Portal (i.e. Service Provider).
	iii) **Earnest Money Deposit (EMD)**	::	**Rs 23,35,000.00 (Rupees Twenty-three lakhs Thirty-five thousand) only.** Earnest Money Deposit (EMD) may be paid on following mode: **a) Through DD/Banker Cheque:** in favour of "Syama Prasad Mookerjee Port, Kolkata, Haldia Dock Complex" on any Scheduled/Nationalized Bank payable at Haldia and it should be submitted physically as specified in the Tender Document. Copy of the DD/Banker's Cheque should be uploaded during submitting online bid. OR **b) Through E-payment gateway:** by using Debit / Credit Card or Net Banking/eWallet/UPI option for e-Payment mode. Bidder has to select the payment option as "e-payment" to pay the EMD as applicable and enter details of the instrument. Note: If, the aforesaid Earnest Money is not deposited by the Bidder, the respective bid will be summarily rejected, treating the same as non-responsive.

			NOTE : i) For exemption of **Bid Document Fee (Cost of bidding documents) and Earnest Money Deposit (EMD)** :- Bidders to upload the scanned copy of the certificate from MSME / Micro & Small Enterprises (MSEs) / DIC / SSI / National Small Industries Corporation (NSIC) under single point registration / Aadhar Udyog or any empowered Central / State Govt. authority is required in electronic format. But all MSEs registered with NSIC /DIC are not exempted from depositing cost of tender document. Only those firms, having documents of such exemption for the whole tender work (as per Scope of Work and Technical Specifications) will be exempted. Documentary evidence must be submitted in techno-commercial part of Tender for claim of such exemption, failing which their tender would be summarily rejected. ii) **Bid Document Fee and EMD** are to be deposited physically at the office of the Sr. Dy. Manager, Plant & Equipment Division, 1st floor at Operational Administrative Building of Haldia Dock Complex, Chiranjibpur, Haldia, PIN 721607, separately in a single sealed envelope, mentioning Tender no. with proper marking. Cost of bid document fee & EMD, should be submitted/deposited on any scheduled/ nationalized Bank, by the bidder before submission of the tender, as specified in the Tender Document.
3.6.	**Mobilization Period**	::	**21 Days** from the date of issuance of the LOA/LOI.
3.7.	**Bid Validity**	::	**120 days**.
3.8.	**Performance Bank Guarantee / Security Deposit**	::	**3 %** of the Contract Value (excluding GST) in the form of Bank Guarantee.
3.9.	**Period of contract**	::	**2 (two) years** from the date of commencement of work at site. Extendable up to further 1 (one) year, at same rate, terms & conditions.
3.10.	**i) Pre- Bid queries (on-line).**	::	**Any queries regarding subject tender may be forwarded to akkar.hdc@kolkataporttrust.gov.in within 05/12/2022, 17:00 Hrs. (IST). Any queries, received after aforementioned date & time, will not be considered by HDC.**
	ii) Date, time and venue of Pre-Bid Meeting (off-line).		**06/12/2022, 11:00 Hrs. (IST) onwards**, at the Office of General Manager (Engineering); Jawahar Tower, Annex. Building, 1st Floor, Haldia Dock Complex, SMP, Kolkata, Dist. Purba Medinipur; PIN: 721 607; West Bengal; India.

3.11	i) **Starting date of submission of e-Tender** at https://kopt.enivida.in	::	**28/11/2022**
	ii) **Closing date & time of submission of e-Tender** at https://kopt.enivida.in	::	**20/12/2022 up to 15:00 Hrs. (IST).**
	iii) **Date & time of opening Part-I** (Prequalification & Techno-commercial Bid).	::	**20/12/2022, 15:30 Hrs. (IST) onwards.**
	iv) **Date & time of opening of Part-II (Price Bid).**	::	**To be intimated later on, to the techno-commercially qualified bidders only.**
3.12.	**Address of the Employer**	::	**Syama Prasad Mookerjee Port, Kolkata** **(FORMERLY KOLKATA PORT TRUST)** 15, Strand Road, Kolkata – 700 001, West Bengal, India.
3.13.	**Address of Engineer**	::	**General Manager (Engineering),** Haldia Dock Complex, **Syama Prasad Mookerjee Port, Kolkata.** **Address:** Engineering Department Jawahar Tower Complex ; P.O. Haldia Township; Dist. Purba Medinipur ; PIN: –721607, West Bengal, India. **Telephone no. :** + 91-3224-264496 **E. mail: aganesan.hdc@kolkataporttrust.gov.in**
3.14.	**Address of the Engineer'srepresentative**	::	Shri A. K. Kar Designation : Sr. Dy. Manager (P&E), Operational Administrative Building (1st floor), SMP, Kolkata, Haldia Dock Complex, Chiranjibpur; P.O: Haldia; Dist. Purba Medinipur; PIN: 721 604; West Bengal; India. **Mobile no.:** + 91 94340 52489 **E.mail:** akkar.hdc@kolkataporttrust.gov.in

General Manager (Engineering)
Haldia Dock Complex
Syama Prasad Mookerjee Port, Kolkata

SECTION – IV
Important instructions for E-procurement

4.1 Introduction:

4.1.1 **Bidders are requested to use internet Browsers Firefox version below 50 / Internet Explorer version 8 or above, and Java 8 Update 151 or161.**

4.1.2 **Further, bidders are requested to go through the following information and instructions available on the RailTel Portal** https://kopt.enivida.in **before responding to this e-tender:**

- Bidders Manual Kit
- Help for Contractors
- FAQ

Contact person (Haldia Dock Complex):

(i) Shri A. K. Kar,
Designation: Sr. Dy. Manager (P&E),
Mobile No.: + 91 94340 52489
E-mail : akkar.hdc@kolkataporttrust.gov.in

(ii) Shri S. S. K. H. Imam
Designation: Dy. Manager (P&E),
Mobile No.: + 91 94340 31346
E-mail : sskhimam.hdc@kolkataporttrust.gov.in

(iii) Shri S. Das,
Designation: Asst. Manager (P&E)
Mobile No.: + 91 7478007299
E-mail : sudas.hdc@kolkataporttrust.gov.in

Contact persons (RailTel Portal):

Mr. Navneet Mishra.
Mobile No.: + 91 9355030630
E-mail : eprochelpdesk.17@gmail.com

Mr. Tariq Anwar
Mobile No.: +91 9355030608
E-mail : eprochelpdesk.35@gmail.com

(i) See RailTel Portal for contact details.

4.2 4.2.1 All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.

4.2.2 E-tender cannot be accessed after the due date and time mentioned in NIT. The process involves Electronic Bidding for submission of Tender Document Fee , Techno- Commercial Bid as well as Price Bid.

4.2.3 SMP, Kolkata reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.

4.2.4 Any order resulting from this tender shall be governed by the terms and conditions mentioned therein.

4.2.5 No deviation to the technical and commercial terms & conditions are allowed.

4.2.6 The bidders must upload all the documents required as per terms of tender. Any other document uploaded which is not required as per the terms of the tender shall not be considered.

4.2.7 The bid will be evaluated based on the filled-in technical & commercial formats. Price bid must be filled-up in EXCEL Sheet through RAILTEL PORTAL (which is uploaded by SMP, Kolkata).

4.2.8 Bidder has fully read and understood the entire Tender Document, GCC, Corrigendum and Addenda, if any downloaded from under the instant e-tender and no other source, and will comply to the said document, GCC, Corrigendum and Addenda".
A declaration in this regard is to be made by the bidder.

4.2.9 (A) Tender will be opened electronically on specified date and time as mentioned in the NIT. Bidder's can witness electronic opening of Bid.

(B) Necessary addendum/corrigendum (if any) of the tender would only be hoisted in the E-NIVIDA portal.

(C) Bid document Fee / Exemption of Bid document Fee should reach this office physically before opening of Tender document, failing which techno-commercial bid will not be opened.

(D) Bid document Fee / Exemption of Bid document Fee details are to be treated as essential documents should upload with the other essential documents.

4.3 Instructions related to Micro & Small Enterprises(MSEs):

4.3.1 **MSEs registered with NSIC under Single Point Registration scheme/DIC are exempted from depositing Tender Fee. But all the NSIC/DIC registered firms are not exempted from depositing Tender Fee. Only those firms, having documents of such exemption for the entire tendered work (as per the Bill of Quantity) would be exempted. Documentary evidence must be uploaded for claim of such exemption, failing which their tender would be summarily be rejected.**

4.3.2 When splitting of tender quantity is not possible purely on technical ground, Trustees reserve the right not to negotiate price with MSE if their price is within the band of L1+15%in comparison with L1 price of non-MSE for consideration of award of order for 20% of tender quantity against any item as per new public procurement policy.

4.3.3 If **Micro & Small Enterprises (MSEs)**, **NSIC under Single Point Registration scheme/DIC** intend to participate with respect to items for which they are not registered with NSIC, then they will have to deposit full amount of **Bid Document Fee**, in accordancewith the **Schedule of Tender (SoT).** Otherwise, their offer with respect to such items (for which they are not registered with NSIC) will not be considered.

4.4 Other Instructions related to e-Procurement:

4.4.1 All notices and correspondence with the bidder(s) shall be sent by e-mail only during the process till finalization of tender by HDC, SMP Kolkata. Hence, the intending bidders are required to ensure that their e-mail IDs provided are valid and updated at the stage of registration of bidders with E-NIVIDA (i.e., Service Provider). The intending bidders are also requested to ensure validity of their DSC (Digital Signature Certificate).

4.4.2 In all cases, an intending bidder should use their own ID and Password, along with Digital Signature, at the time of submission of their bid. It is mandatory that all bids are submitted with Digital Signature Certificate (DSC), otherwise the same will not be accepted by the system.

4.4.3 Addenda, Corrigenda and Queries & Clarifications (with respect to the instant e-Tender), if any, would be hosted in the e-Procurement portal of E-NIVIDA.
Since there is no provision to take out the list of intending bidders downloading the bidding documents from the websites mentioned in the Tender Notice, the intending bidders are requested to check the website of E-NIVIDA to ensure that they have not missed any Addenda, Corrigenda and Queries & Clarifications, uploaded against the instant e-Tender, after downloading the bidding documents. The responsibility of downloading such Addenda, Corrigenda and Queries & Clarifications, if any, will be that of the intending bidders.

4.4.4 No deviation/variation of the techno-commercial terms and conditions of the bidding documents will be considered by HDC, SMP Kolkata. Submission of bid in the e-Tender platform by any bidder confirms their acceptance of the techno-commercial terms and conditions of the bidding documents.

4.4.5 HDC, SMP Kolkata reserves the right to accept or reject any bid (in full or part) and to annul the bidding process and to reject all bids, at any time prior to contract award, without assigning any reason thereof and without thereby incurring any liability to the bidders.

4.4.6 Any order resulting from this open e-Tender shall be governed by the terms and conditions mentioned therein.

4.4.7 All electronic bids submitted during the e-Tender process shall be legally binding on the bidders. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by HDC, SMP Kolkata will form a binding contract, between HDC, SMP Kolkata and the bidder, for execution of the work. Such successful bidder shall be called hereafter the 'CONTRACTOR'.

4.4.8 The bids will be evaluated based on the filled-in Technical & Commercial formats and the requisite documents submitted (uploaded) by the bidders.

4.4.9 The documents uploaded by bidder(s) will be scrutinized. During scrutiny, in case any of the information furnished by the bidder is found to be false, Earnest Money Deposit of such defaulting bidder(s) will be forfeited. Punitive action, including suspension and banning of business, can also be taken against such defaulting bidder(s).

4.4.10 HDC, SMP Kolkata, at its discretion, may extend the closing date & time of e-Tender, prior to the closing date & time of e-Tender mentioned in the Schedule of Tender (SoT). However, the closing date & time of e-Tender will not be extended, under any situation, after the due date is over.

4.5 Opening of Bid [Pre-qualification & Techno-commercial Bid and Price Bid]:

4.5.1 **Part I** (Pre-qualification & Techno-commercial Bid) will be opened electronically on specified date and time, as given in the Schedule of Tender (SoT). Bidder(s) can witness electronic opening of bid(s).

4.5.2 **Part II (Price Bid)** will be opened electronically of only those bidder(s), who qualify (ies) in the "Pre-qualification & Techno-commercial Bid" [Part I]. Such bidder(s) will be intimated date of opening of Part II (Price Bid), through e-mail, to valid e-mail ID(s) confirmed by them.

4.6 RailTel Tender Processing Fee (Non refundable)

Mode of Payment:- E-payment Only through Debit/Credit Card or Net Banking. Tender Processing Fee(TPF)- 0.1% of estimate cost (Minimum 750/- and Maximum 7500/-) plus GST @18%.

Registration Charges: Rs. 2000/- + Applicable GST Per Year.

Note:

The bidders, who are not yet registered with RailTel, are advised to get themselves registered with RailTel, at least 72 (seventy-single) hours prior to bid submission.

Bidders are required to ensure that their corporate email id provided is valid and updated at the stage of registration of vendor with RailTel's e-Nivida Portal (i.e. Service Provider).

SECTION-V

INSTRUCTIONS TO BIDDERS (ITB)

A. GENERAL

5.1 Definition and interpretations:

(a) the term "in writing" means communicated in written form (i.e. by mail, e-mail, fax, telex, etc.) and delivered against receipt;

(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular;

(c) "day" means calendar day; and

(d) "Procurement" means the entire work requirements, as specified in

5.2 Fraud and corruption

5.2.1 It is the policy of **SMP Kolkata (erstwhile KoPT)** to require that bidders, Contractors, Sub-contractors, and Consultants, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, **SMP Kolkata**:

(a) defines, for the purposes of this provision, the terms set forth belowas follows:

(i) "**corrupt practice**" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

(ii) **"fraudulent practice"** means a misrepresentation or omission of facts, in order to influence a public procurement process or the execution of a contract;

(iii) "**collusive practice**" means a scheme or arrangement between single or more bidders, designed to establish Bid Prices at artificial , non competitive levels;

and

(iv) "coercive practice" means harming, or threatening to harm, directly or indirectly, persons or their property to influence their participation in procurement process or affect the execution of a contract;

(b) will reject a proposal for award, if it determines that the bidder, recommended for award, has, directly or through an agent, engagedin corrupt, fraudulent, collusive, or coercive practices in competingfor the contract in question;

(c) Will terminate contract, if it determines at any time that representatives of SMP Kolkata engaged in corrupt, fraudulent, collusive, or coercive practices during the procurement or the executionof that contract ;

(d) will sanction a firm or individual, including declaring them ineligible, either indefinitely or for a stated period of time, to be awarded a contractif it at any time determines that they have, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, a contract;

and

(e) will have the right to require that a provision be included in Bidding Documents and in contracts, requiring bidders, contractors , subcontractors, and consultants to permit SMP Kolkata to inspect their accounts and records and other documents relating to the bidsubmission and contract performance.

5.2.2 Furthermore, bidders shall be aware of the provision stated in GCC.

5.3 Eligible bidders

5.3.1 A Bidder, and all parties constituting the Bidder, **should have the nationality of any country**. A Bidder shall be deemed to have nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registeredand operates in conformity with the provisions of the laws of the country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or contractors for any part of the contract, including related services

5.3.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder and one or more parties:

(a) Submit more than one bid in this biding process.

Or

(b) are or have been associated in the past , with a firm or any of its affiliates which have been engaged by **SMP Kolkata** to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under the instant Biding Documents.

5.3.3 Participating by a Bidder in more than one bid shall result in the disqualification of all bids, in which such Bidder is involved.

5.3.4 A Bidder that is under a declaration of ineligibility by **SMP Kolkata**, in accordance with **ITB Clause No.5.2**, at the date of contract award shall be disqualified.

5.4 Authority in signing the bid /offer

5.4.1 In case the bid is submitted by a **Proprietorship Firm**, the same should be signed either by the **Proprietor** or other person(s), holding a valid **power of attorney** / **authorisation** from the proprietor, in connection with this bidding process. The signature of such power of attorney holder(s) / authorised person(s) should be attested by the proprietor. Such **power of attorney** / **authorisation** should be uploaded along with **Techno- commercial Bid** [**PartI**].

5.4.2 In case the bid is submitted by a **Partnership Firm**, the same should be signed either by the partner(s), holding valid **power of attorney** from the partners or other person(s), holding valid **authorisation** from such power of attorney holder(s) , subject to approval of the partner(s) in the matter of givingsuch authorization, in connection with this bid. The signature of such **power of attorney holder(s)** / **authorised person(s)** should be attested by the **partners** or **power of attorney holder**, as the case may be. Such **power of attorney** / **authorisation** should be uploaded along with **Techno- commercial Bid**.

5.4.3 In case the bid is submitted by a **Limited Company**, the same should be signed by the person(s) holding valid **power of attorney** / **authorisation,** executed in his / their favour (in connection with this bid) and the signature of such **power of attorney holder(s) / authorised person(s**) should also be attested, in accordance with the constitution of the Limited Company. Such **power of attorney** /

authorisation should be uploaded along with **Techno- commercial Bid**.

5.4.4 Such **power of attorney holder(s)** / **authorised person(s)** should put his / their signature identical with the attested one, in the relevant documents submitted / uploaded, in connection with the instant bidding process [including "**Techno-commercial Bid**"]. In case of putting different signatures in different documents / offers, all such signatures should be attested by the same person in line with the above.

B. CONTENTS OF BIDDING DOCUMENTS

5.5 Sections of Bidding Documents

5.5.1 The contents of the **Bidding Documents** as detailed at "TABLE OF CONTENTS" should be read in conjunction with any addendum / corrigendum issued in accordance with **ITB Clause No.5.7.**

5.5.2 The Employer (SMP Kolkata) is not responsible for the completeness or correctness of the bidding documents and their Addenda, if they were not obtained directly from the source indicated in Notice Invitinge-Tender.

5.5.3 The bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents. Failure to furnish all information or documentation required by the Bidding Documents [considering all addenda / corrigenda issued] may result in the rejection of thebid.

5.6 Pre-Bid Meeting

5.6.1 A prospective bidder requiring any clarification of the instant Bidding Documents shall contact **Sr. Dy. Manager (P&E), HDC**, in writing, or raise their enquiries during the **Pre-bid meeting**.

The **prospective bidders** are requested to submit their queries / observations / suggestions / requests for clarification, in connection with the instant Bidding Documents, in advance, to enable **SMP Kolkata** to prepare response / clarifications and make pre-bid meeting meaningful.

5.6.2 As indicated in the Schedule of Tender, pre-bid meeting will be conducted off-line on behalf of HDC, SMP Kolkata. The purpose of this pre-bid meeting will be to clarify issues and to answer questions on any matter (in connection with the instant Bidding Documents only) that may be raised at that stage. Authorised representative(s) of the prospective bidders will be allowed to attend the **Pre-bid meeting,** which will be held on the date, time & at the venue stipulated in the **Schedule of Tender** (**SOT)**.

The **designated representative(s)**, who will be deputed to attend the **pre- bid meeting**, should submit their authorization in this regard. The signature of such designated person(s) should be attested by the authorized signatory of the prospective bidders. Otherwise, the designated person should have to submit the proof of his identity through other means.

5.6.3 The prospective bidders are advised to attend the pre-bid meeting. However, non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.

5.6.4 Unless otherwise notified, **all the queries** / **observations** / **suggestions** / **requests for clarification** (related to the instant Bidding Documents only) [including the **queries** / **observations / suggestions / requests for clarification**

raised during pre-bid meeting], received till the date of **pre- bid meeting,** will be considered. **SMP Kolkata's** response / clarifications (including description of queries / observations / suggestions / requests for clarifications, but without identifying its source), in this regard, will be communicated to all the known prospective bidders (i.e. who would **attend pre-bid meeting** or **submit queries / observations / suggestions** or **requested for clarification)**, in writing, well in advance to the last date of submission of bids. The aforesaid **queries / observations / suggestions / requests for clarification** and **SMP Kolkata's** response / clarifications will also be hosted in the websites, as specified in the **Notice Inviting e- Tender.**

Any modification to the Bidding Documents, which may become necessary as a result of the **SMP Kolkata's response / clarifications,** so issued, shallbe made through the issue of an addendum / corrigendum, pursuant to **ITB.**

5.6.5 The Bidder shall be deemed to have **examined** thoroughly the instant Bidding Documents, in full, [considering all addenda / corrigenda issued (if any)], **visited the site & surroundings** and to have **obtained all necessary information in all the matters** whatsoever that might influence while carrying out the job as per the conditions of the instant **Bidding Documents** [considering all addenda / corrigenda issued (if any)] and to satisfy themselves to sufficiency of their bid, etc. If they shall have any issue to be clarified, the same should be brought to the notice of **SMP Kolkata**, in writing, as set out in **ITB.**

The bidders are advised to acquaint themselves with the job involved at the site, like technical scope of work, availability of labour, means of transport, communication facilities, laws and bye laws in force from Government of West Bengal & Government of India and other statutory bodies from time to time. The Bidder shall be deemed to have examined and collected all necessary information as to risk, contingencies and other circumstances, which may be necessary for preparing the Bid.

Visiting the site shall be at the bidder's own expense. Failure to visit to site will no way relieve the Contractor (successful Bidder) of any of their obligation in performing the work and liabilities & responsibilities thereof, in accordance of the contract.

5.6.6 Necessary Gate Pass/Dock Entry Permit, for entering into the Dock area, will be issued to the designated representative(s) of the prospective bidders, on chargeable basis [as per the extant "Scale of Rates" of SMP Kolkata, available at **http://www. smportkolkata.shipping.gov.in/** of SMP Kolkata (Formerly Kolkata Port Trust)], to visit the site, for the purpose of inspection only, on receipt of a formal written request. The signature of such designated person(s) should be attested by the authorized signatory of the prospective bidders. Otherwise, the designated person(s) should have to submit proof of his/their identity through other means.

However, during the pre-bid meeting, if the prospective bidders are willing to enter into the dock area, they will be allowed through VIP Pass of HDC free of cost.

Such prospective bidder will be fully responsible for any injury (whether fatal or otherwise) to its designated representative(s), for any loss or damage to property, or for any other loss, damage, costs and expenses whatsoever caused, which, but for the granting of such permission , would not have arisen.

The prospective bidder will be liable to indemnify SMP Kolkata against any loss or damage to the property of SMP Kolkata or neighboring property which may be caused due to any act of prospective bidder or their designated representative(s).

5.7 Amendment of Bidding Documents

5.7.1 At any time, prior to the last date for submission of bids, **SMP Kolkata** may, for any reason whether at its own initiative or in response to the **queries / observations / suggestions/ requests for clarification,** amend and modify the bidding documents by issuing Addenda/Corrigenda. Such Addenda /Corrigenda will be hosted in the websites, as specified in the **Notice Inviting e-Tender**.

5.7.2 Any Addendum/Corrigendum, thus issued, shall be part of the bidding documents and shall be communicated, in writing, to all the known prospective bidders (i.e. who would attend Pre-bid Meeting or submit queries / observations / suggestions or request for clarification), in writing, well in advance to the last date of submission of bids.

5.7.3 To give prospective bidders reasonable time to take the Addendum / Corrigendum into account in preparing their bids, SMP Kolkata may, at their discretion, extend the last date for submission of the bids, prior to the closing date & time of e-Tendering.

C. PREPARATION OF BIDS

5.8 Cost of bidding

The Bidder shall bear all costs associated with the preparation and submission of their bid, and **SMP Kolkata** shall not be responsible or liable for those costs, regardless ofthe conduct or outcome of the bidding process.

5.9 Language of Bid

The Bid, as well as all correspondence and documents relating to the bid, exchanged by the Bidder and SMP Kolkata, shall be written in the **English language only**. If the supporting documents and printed literature, that are part of the bid, are in another language, they must be accompanied by an accurate translation of the relevant passages in the English language, in which case, for purposes of interpretation of the bid, such translation shall govern.

5.10 Documents comprising the Bid

5.10.1 The Bid shall comprise of the following:-

(a) Pre-qualification and Techno-commercial Bid **(Part-I)**:

The Pre-qualification & Techno-commercial Bid comprises all documents [including the Bidding Forms (provided in these bidding documents), duly filled in, signed and stamped] required to be submitted as per the Notice Inviting e-Tender, Schedule of Tender (SOT), Instructions To Bidders (ITB) and any other relevant clause(s) of these bidding documents.

(b) Price Bid **(Part-II):**

The Price Bid comprises the prices only and the same are to be submitted electronically, through the website of https://kopt.enivida.in only.

5.11 Form of Tender

The bidder shall have to submit (upload) the "**FORM OF TENDER**". This form **must be**

completed without any alterations to its format, and no **substitutes shall be accepted.** All blank spaces shall be filled in with the information requested. Such **duly filled in "FORM OF TENDER**" should be uploaded.

5.12 Price Schedule

5.12.1 The Bidder shall quote their price on-line (**through RailTel Portal only**) as per the **Price Schedule** (Bill of Quantities) in the Price bid **(Part-II)**, without any condition or deviation. Price indicated anywhere else, in any other form or manner, will not be considered for evaluation of Price Bid.

5.12.2 The Bidder should submit(upload)the **unpriced** format [Bidding Form VI : **PRICE SCHEDULE**], of the instant Bidding Documents, duly filled in the GST rates at appropriate places and signed & stamped as token of acceptance.

5.13 Bid Prices

5.13.1 The prices are to be quoted by the Bidder **through RailTel Portal**, considering the work requirements, as detailed in **Section VI** (**Scope of Work)** and other terms & conditions of the Bidding Documents (considering all addenda / corrigenda issued).

5.13.2 Except where otherwise expressly provided, the contractor shall have to provide all materials, labour, plant and other things necessary in connection with the contract, although everything may not be fully specified, and although there may be errors and omissions in the specifications.

5.13.3 The prices and rates entered (electronically through RailTel Portal) **as per the Price Schedule** (Bill of Quantities)**,** in the Price bid **(Part-II),** by the **Bidder,** shall include, inter alia, all costs and expenses involved in or arising out of the following:

(a) Supply, delivery, inspection, transportation (including insurance), handling, receipt and storage of all required materials [in line with Scope of Work (Section VI)] and equipment at site.

(b) The provision, storage, transport, handling, use, distribution & maintenance of all materials, equipment, machinery and tools, including all costs, charges, dues, demurrage or other outlays involved in transportation.

(c) The provisions & maintenance of all their staff & labour and their payment, accommodation, transport, fares and other requirements.

(d) All required first aid, welfare and safety requirements.

(e) Damage caused to the work and /or construction, plant, materials and consumable stores caused by weather.

5.13.4 Tools, Tackles, lifting machineries, scaffolding, temporary lighting, different vehicular transport etc. required for execution of the whole work will have to be arranged by the Contractor, at their own risk, cost & arrangement, which may be considered, while submitting their rates in the offer.

5.13.5 Rates & amounts quoted by the bidders in the "PRICE SCHEDULE", includeall incidental charges [excluding Goods and Services Tax (GST)], as applicable, and charges for packing, forwarding, loading, handling, carrying to any lead, stacking, transportation, permits, overheads & profit, etc. necessary for the complete services as described in this Bidding Document.

GST, as applicable, shall be paid extra against proper invoice submitted by the Contractor.

The contractor will be required to submit GST compliant invoice with all required

details and also be required to file timely and proper return so as to enable SMP Kolkata to get due credit against GST paid.

In case of any failure on the above account, GST amount, even if paid by SMP Kolkata, shall be recoverable from the Contractor.

5.13.6 All quoted rates will remain firm during the validity period of the bid / offer, including any / all extension thereof, agreed by the bidder.

However, changes **in statutory taxes & duties [other than GST] will be adjusted** (within the scheduled completion period), based on documentary evidence.

5.13.7 The Bidder should clearly understand that they shall be strictly required to conform to all terms & conditions of the instant Bidding Documents [considering all addenda / corrigenda (if any) issued], as contained in each of its clauses and **plea of "Customs Prevailing"** will not be, in any case, admitted as excuse on their part, for infringing any of the terms & conditions.

No request for change or variation in rates or terms & conditions of the contract shall be entertained on the ground that the successful Bidder has not understood the work envisaged in the instant contract.

5.14 Currencies of Bid

The **Bidders** should quote the prices in **Indian Rupees (Rs)** only.

5.15 Period of validity of bids

5.15.1 Bids shall remain valid for the period of **120 days** after the bid submission deadline date (considering extension thereof, if any) as prescribed in **ITB.** A bid, valid for a shorter period, shall be rejected by **SMP, Kolkata**, treating the same as non-responsive.

5.15.2 In exceptional circumstances, prior to the expiration of the bid validity period, **SMP Kolkata** may request the bidders to extend the period of validityof their bids. The request and the responses shall be made in writing.

A Bidder granting the request shall not be required or permitted to modify its bid, except when option to do the same has been specifically granted by **SMPKolkata**, in writing.

5.16 Earnest Money Deposit (EMD):

Earnest money and cost of tender document, as indicated in **SOT**, are to be physically deposited at the office of Tender Inviting Authority (Sr. Dy. Manager, Plant & Equipment Division), 1st floor at Operational Administrative Building of Haldia Dock Complex, Chiranjibpur, Haldia, PIN 721607, separately in a single sealed envelope, mentioning Tender no. with proper marking.

Or

Through E-payment gateway: by using Debit / Credit Card or Net Banking/eWallet/UPI option for e-Payment mode. Bidder has to select the payment option as "e-payment" to pay the EMD as applicable and enter details of the instrument.

5.16.1 The intending bidders should deposit an amount specified in the Schedule of Tender (SOT)**, as** Earnest Money Deposit (EMD)**, in accordance with the procedure mentioned therein.**

5.16.2 Failing to deposit the Earnest Money, in accordance with ITB, shall be rejected by the Employer (SMP Kolkata), treating the same as nonresponsive. For exemption of EMD the bidder is required to upload the scanned copy of

the certificate from MSME / Micro & Small Enterprises (MSEs) / DIC / SSI / National Small Industries Corporation (NSIC) or any empowered Central / State Govt. authority.

5.16.3 Refund of Earnest Money Deposit:

Earnest Money Deposit of the successful bidder shall be retained by SMP Kolkata and Earnest Money Deposit of the unsuccessful bidders [including the bidder(s) whose Price Bid would not be opened in line with **ITB**] shall be refunded, without interest, within 2 (single) months from the date of opening of Price Bids or on finalization/acceptance of tender, whichever is earlier.

In case the bid of the **successful bidder** is found acceptable to **SMP Kolkata** and contract is awarded with them, the **Earnest Money Deposit** of the **successful bidder** (**Contractor**) shall be retained by **SMP Kolkata** till submission of **Performance Guarantee / Security Deposit** (in accordance with **ITB**) and signing of the **Contract Agreement** by **SMP Kolkata** and the Contractor (in accordance with **ITB**)**,** and shall be refunded thereafter.

In case, the successful bid is not found acceptable to SMP Kolkata, Earnest Money Deposit of the successful bidder shall be refunded after the decision, in this regard, is finalized by SMP Kolkata.

The respective bidders who have deposited earnest money or bid document fee in DD/Cheque, they have to collect Treasury Receipts, issued against Earnest Money Deposit/bid document fee, from Treasury Office of Finance Division of HDC, SMP, Kolkata, at Jawahar Tower Building, Haldia Township-721607 and during refund original receipt is to be submitted along with refund application.

In case of bidders who have made payment against earnest money or bid document fee through online, they have to request for refund through online by submitting documentary evidence against such payment.

5.16.4 No interest shall be payable on the account of Earnest Money Deposit in any case.

5.16.5 Forfeiture of Earnest Money Deposit:

The EMD may be forfeited

(a) if a Bidder withdraws their offer within the validity period of the bid / offer; and / or, alters / amends any terms and / or condition and / or quoted rate(s), within the validity period of the offer (excepting when option to do the same has been specifically granted by Kolkata Port Trust, Haldia Dock Complex in writing) making it unacceptable to the Kolkata Port Trust, Haldia Dock Complex;

or,

(b) if the successful bidder,

i) fails to submit the Performance Guarantee / Security Deposit (as per SCC) for the specified sum and in the specified form, within the stipulated time;

and / or,

ii) fails to carry out the work or to perform / observe any of the conditions of the contract, For the purpose of this provision, the validity period (of the

bid / offer) shall include any / all extension thereof, agreed by the Bidder in writing.

SMP Kolkata shall also be at liberty to deduct any of their dues from Earnest Money. It should be however be clearly understood that in case of any default in any terms and or condition of the contract after placement of order but before submission of Performance Guarantee / Security Deposit (as per SCC), the same shall be dealt with in accordance with the relevant provisions of contract, including forfeiture of Earnest Money.

Demand **Draft / Banker's Cheque** against cost of bid document fee & EMD, should be submitted/deposited on any scheduled/ nationalized Bank, by the bidder in favour of Syama Prasad Mookerjee Port, Kolkata, Haldia Dock Complex payable at Haldia, **before opening of the tender, as specified in the Tender Document**.

5.16.6 Details of cost of e-tender paper remitted should be entered by the participating bidder in the space provided in the e-tender as indicated hereunder:

a) Name of remitting bidder :
b) Tender No. :
c) Amount remitted :
d) Date of remittance:
e) DD/BC No. :

5.16.7 Details of Earnest money remitted should be entered by the participating vendor/contractor in the space provided in the e-tender as indicated hereunder:

a) Name of remitting bidder :
b) Tender No. :
c) Amount remitted :
d) Date of remittance :
e) DD/BC No. :

Tender submitted without requisite Earnest Money and cost of tender paper will be liable for rejection.

A. SUBMISSION OF BIDS AND OPENING OF BIDS (INCLUDING PRICEBID)

5.17 Submission of bids

5.17.1 Bidders shall have to submit their bids [both **Pre-qualification & Techno-commercial Bid (Part-I)** and **Price Bid (Part-II)]** on-line **through RailTel Portal only**.

5.17.2 The Bidder should submit (upload) the scanned copies of all the relevant and required documents, statements, filled up formats, certificates, etc. [in accordance with **ITB]**, in the aforesaid portal, in support of their **Pr- qualification Criteria and Techno-commercial Bid**.

5.17.3 Before scanning the aforesaid documents, all pages are to be signed by a person duly authorised to sign on behalf of the bidder, pursuant to **ITB,** and are to be embossed with their official seal, owing responsibility for their correctness / authenticity. All pages of the aforesaid documents should be serially marked.

5.17.4 Any inter-lineation, erasures, or overwriting, in the aforesaid scanned &uploaded documents, shall be valid only if they are signed by the aforesaid authorized person.

5.17.5 The Bidder will have to produce the original documents or any additional documents, if asked for, to satisfy **Haldia Dock Complex, SMP Kolkata (Formerly Kolkata Port Trust).**

5.17.6 The **Price Bid** comprised the prices only and the same are to be submitted electronically, through the website of https://kopt.enivida.in only. ***No hardcopy of priced "Price Schedule" is required to be uploaded.***

5.18 Techno-commercial offer

5.18.1 No techno-commercial deviation and variation will be considered by SMP Kolkata, except where the Techno-commercial terms and conditions, will be found as impossible and irrelevant to the bidder.

5.18.2 If the Bidder deliberately gives wrong information or conceals any information / fact in their bid, which shall be favourable for acceptance of their bid, fraudulently, then the right to reject such bid at any stage of execution, without any financial liability, is reserved by **SMP Kolkata**.

5.19 Priced offer

The Bidder should quote the offered rate appropriately in the PRICE BID (Part-II), electronically, through the website of **E-NIVIDA** only. *Price indicated anywhere else, in any other form or manner, would not be considered for evaluation of **Price Bid**.*

5.20 Deadline for submission of bids

5.20.1 Bids must be submitted within the closing date & time **indicated in the Schedule of Tender (SOT)**.

5.20.2 **SMP Kolkata** may, at its discretion, *extend the deadline for the submission of bids, prior to the closing date & time of e-Tendering,* by amending the Bidding Documents, in accordance with **ITB**, in which case all rights and obligations of **SMP Kolkata** and bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

5.21 Late Bids

This e-Procurement System would not allow any late submission of bid, after the closing date & time, as per the **Schedule Of Tender (SOT)** or extension, if any.

5.22 Withdrawal of bids

5.22.1 A Bidder may withdraw, substitute, or modify their bid on the e-Procurement System, before the closing date and time specified, but not beyond.

5.22.2 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder on the "**FORM OF TENDER [for Techno- commercial (un-priced) Bid].**" Or any extension thereof. Modification / Withdrawal of the bid sent through any other means shall not be considered by **SMP Kolkata.**

5.22.3 Withdrawal of bid during the interval between such closing time on due date and expiring of the bid validity period, may result in forfeiture of EMD in accordance with **ITB**.

5.23 Bid opening [except Price Bid]

5.23.1 The bids **[**except **Price Bid]**, will be opened at the date & time, indicated in the **Schedule Of Tender (SOT)**.

5.23.2 The on-line bid-opening event may be viewed by the bidders at their remote end,

by logging on to the e-Procurement System. A copy of the bid opening record shall be made available on the e-Procurement System.

B. EVALUATION OF BIDS

5.24 Confidentiality

5.24.1 Information relating to the evaluation of bids and recommendation of contract award shall not be disclosed to bidders or any other persons not officially concerned with such process until publication of the contract award.

5.24.2 Any attempt by a Bidder to influence SMP Kolkata in the examination, evaluation and comparison of the bids, or contract award decisions may resultin the rejection of their bid and forfeiture of **EMD**.

5.24.3 Notwithstanding **ITB Clause No. 5.24.2**, from the time of bid opening to the time of contract award, if any Bidder wishes to contact SMP Kolkata on any matter related to the bidding process, they should do so in writing.

5.25 Clarification of bids

To assist in examination, evaluation & comparison of the bids and qualification of the bidders, the Employer (SMP Kolkata) may, at their discretion, ask any bidder for a clarification of their bid. The Employer (SMP Kolkata) may also ask any bidder to withdraw any terms/conditions mentioned by them in their offer, which are not in conformity with the terms & conditions specified in the bidding documents. In case any bidder fails to submit required clarification within the time stipulated by the Employer (SMP Kolkata), in this regard, the tender would be processed in absence of the clarifications, which may result in disqualification of the corresponding bidder for the instant tender. Any clarification submitted by a bidder, which is not in response to a request by the Employer (SMP Kolkata), shall not be considered. The Employer's (SMP Kolkata's) request for clarification and the response shall be in writing.

No change in the prices or substance of the bid shall be sought, offered or permitted, nor will the bidder be permitted to withdraw their bid before expiry of the validity period of the bid.

5.26 Deviations, reservations and omissions

During the evaluation of bids, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the bidding documents;

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding documents ;and

(c) "Omission" is the failure to submit part or all of the information or documentation required in the bidding documents.

5.27 Responsiveness of bids

5.27.1 Responsiveness of a bid would be determined on the basis of the contents of the bid itself, and clarification(s) in accordance with **ITB.**

5.27.2 A substantially responsive bid is one that meets the requirements of the Bidding Documents without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

(a) if accepted, would

i) affect in any substantial way the scope, quality, or performance of the work specified in the Contract; or

ii) limit in any substantial way, inconsistent with the Bidding Documents, SMP Kolkata's rights or the bidder's obligations under the proposed contract; or

(b) if rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.

5.27.3 Bidders shall not contain the following information / conditions to consider them responsive:

(a) Either direct or indirect reference leading to reveal the prices of the bidsin the Techno-commercial offers;

(b) Adjustable prices, other than the provisions stated in **ITB.**

5.27.4 If a bid is not substantially responsive to the requirements of the bidding documents, it shall be rejected by SMP Kolkata and may not subsequently be made responsive by the bidder, by correction of the material deviation, reservation, or omission.

5.28 Nonconformities, errors and omissions

5.28.1 During examination, evaluation & comparison of the bids and qualification of the bidders, the Employer (SMP Kolkata) may, at their discretion, ask any bidder for submitting any document(s) [in case of shortfall in required documents (relating to capacity or otherwise)]. In case any bidder fails to submit required documents within the time stipulated by the Employer (SMP Kolkata), in this regard, the tender would be processed in absence of the documents, which may result in disqualification of the corresponding bidder for the instant tender.

Any document submitted by a bidder, which is not in response to a request by the Employer (SMP Kolkata), shall not be considered. The Employer's (SMP Kolkata's) request for submission of further document(s) shall be in writing.

5.28.2 **SMP Kolkata** shall examine the bids [including the further documents / clarifications received in accordance with **ITB**] to confirm that all documents requested in **ITB** have been provided and to determine the completeness of each document submitted.

5.28.3 Provided that a bid is substantially responsive, **SMP Kolkata** may waive any nonconformities or omissions in the bid that do not constitute a material deviation.

5.29 Examination of Pre-qualification Criteria

5.29.1 At first, the contents of the documents, submitted in support of the Pre-qualification Criteria [including the further documents / clarifications received in accordance with **ITB**] will be scrutinized and evaluated.

5.29.2 SMP Kolkata may, at their discretion, seek any other detail(s)/document(s),in subsequent course, to ascertain and get confirmed about the competence of the bidder. In case any bidder fails to submit required detail(s)/document(s) within the time stipulated by the Employer (SMP Kolkata), in this regard, the tender would be processed in absence of the documents, which may result in disqualification of the corresponding bidder for the instant tender. While evaluating Pre-qualification Criteria, regard would be paid to National Defence and Security considerations of the Indian Government.

5.29.3 In case it is found that the Pre-qualification Criteria has not been fulfilled by the

bidder or otherwise their participation has not been found acceptable to **SMP Kolkata**, the respective bid will be treated as non-responsive and "Price Bid" of the respective Bidder will not be considered further.

5.30 Examination of Techno-commercial offer

5.30.1 After scrutiny of the **Pre-qualification Criteria**, **Techno-commercial Bids** of the Pre-qualified bidders [as indicated above] will be scrutinized & evaluated.

5.30.2 **SMP Kolkata** shall examine the bid to confirm that all terms and conditions specified in the **Scope of Work , GCC** and **SCC** have been accepted by the bidder without any material deviation or reservation or omission.

5.30.3 If on examination of the "**Techno-commercial Bid**" of pre-qualified bidders, it is found that they have not accepted all Techno-commercial terms & conditions of the Bidding Documents [considering all addenda / corrigenda, issued], "**Price Bid**" part of such bidder(s) will not be considered for further evaluation. Decision of **SMP Kolkata** on this matter shall be final.

5.30.4 During Techno-Commercial evaluation, i.e. evaluation of Part - I of tender,an offer shall be considered **non-responsive** in case:-

a) Requisite "Bid Security Declaration", duly filled in, signed &stamped, is not submitted.

b) Requisite Bid Document Fee is not paid.

c) Valid Certificate from MSME / Micro & Small Enterprises (MSEs) / DIC / SSI / National Small Industries Corporation (NSIC) under single point registration / Aadhar Udyog or any empowered Central / State Govt. authority to get benefit in this regard is not submitted.

d) Certificate is not submitted, in case of exemption from depositing Bid Document Fee.

e) Any indication of quoted price anywhere in the document(s) uploaded by the bidder.

f) Earnest Money Deposit is not paid by bidder(s) as per SOT.

5.31 Opening of Price Bid

PRICE BIDs of the bidders, who qualify in the "Pre-qualification & Techno-commercial Bid", will be opened on a later date upon due intimation to the concerned bidders at their address furnished in their bid.

The on-line price-bid opening event may be viewed by the bidders at their remote end**,** by logging on to the e-Procurement System. A copy of the price-bid opening record shall be made available on the e-Procurement System.

5.32 Evaluation criteria and selection of Successful Bidder

The lowest rate quoted in percentage over the total estimated price as mentioned in the BOQ will be considered for selection of successful bidder.

5.32.1 In case it is found that the quoted "**TOTAL PRICE"** is same for single or more bidders and their bids become the lowest, the respective bidders will be given chance to submit their fresh Price Bid, subject to the condition that the fresh rate so quoted must be less than the rate quoted by the respective bidders earlier. Selection of the successful bidder will be made on the basis of the revised **"lowest**

TOTAL PRICE" thus obtained.

5.33 SMP Kolkata's right to accept any bid and to reject any or all bids

HDC, SMP Kolkata reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, withoutthereby incurring any liability to Bidders.

C. AWARD OF CONTRACT

5.34 Subject to ITB Clause **No. 5.33, SMP Kolkata** shall award the contract to the Bidder whose offer has been determined to be the lowest evaluated bid [as per **ITB Clause No. 5.32**] and is substantially responsive to the Bidding Documents.

5.35 Notification of award

Prior to the expiration of the period of bid validity or extended validity in accordance with **ITB**, **SMP Kolkata** shall notify the **Successful Bidder**, in writing, that their bid has been accepted. The notification letter (hereinafter called the "**Letter of Acceptance**") will be treated as **"Order Letter"** and will constitute the formation of the contract. Such order letter shall specify the **"Contract Price"** in line with **SCC.**

5.36 Signing of contract agreement

5.36.1 After placement of order, **contract agreement** [as per the form furnished in **Section- XI]** should be executed between **Syama Prasad Mookerjee Port, Kolkata** (formerly **Kolkata Port Trust)** and the **Contractor (Successful Bidder)**. In this respect, within a week of receipt of intimation regarding acceptance of their bid, the successful bidder shall have to submit, at their cost, required **Stamp Paper** [Non-judicial Stamp Paper of worth not less than **Rs 50.00**] & **dummy papers** (for three sets) along with relevant documents.

Immediately after receipt of the above papers & documents, **SMP Kolkata** will send three sets of **contract agreement form** [one set printed on Stamp Paper & dummy papers and single sets printed on dummy papers], photocopy of **one set of documentary transactions between them and SMP Kolkata** (till finalisation & award of the Contract) and **Contract Documents** [incorporating all accepted changes and addenda / corrigenda issued, if any], duly signed by the representative of **SMP Kolkata** at appropriate places on each pages.

Within a week, thereafter, the Contractor (Successful Bidder) shall have to return **Contract Agreement forms** (three sets) [after affixing their common seal], the set of **documentary transactions** and **Contract Documents**, duly signed by them at appropriate places on each page.

5.36.2 The **contract agreement form** &**Contract Documents** should be signed by the authorized persons of the Contractor, authorized in this respect.

5.36.3 After receipt of the **contract agreement forms** (three sets), duly signed by authorised person of **SMP Kolkata** & authorized person of the Contractor

(Successful Bidder), the same shall be kept under **SMP Kolkata**'s custody, after affixing the Common Seal of **SMP Kolkata**.

One copy of such **executed contract agreement** (on dummy paper), along with one photocopy of signed **documentary transactions** and **Contract Documents** will be handed over to the Contractor for their record & future reference.

5.36.4 Until such contract agreement is executed, the other documents referred to the definition of the term "Contract" [**GCC Clause**], shall collectively be the contract.

5.37 Performance Guarantee / Security Deposit

5.37.1 Within **twenty-eight (28) days** of issuance of "**Letter of Acceptance**" by SMP Kolkata, the Successful Bidder shall provide the Performance Bank Guarantee in accordance with the Special Conditions of Contract, using the form furnished in **Section XI**.

5.37.2 Failure of the successful bidder to submit the above-mentioned Bank Guarantee for **Performance Guarantee / Security Deposit or sign the contract agreement** shall constitute sufficient grounds for the annulment of the award and other actions as stipulated in the tender.

5.37.3 All costs, charges & expenses, including Stamp Duty, shall be borne by the Successful Bidder.

5.37.4 **No interest / charge**, of whatsoever nature, shall be paid by SMP Kolkata on the amount of Performance Guarantee / Security Deposit, held by them (as per SCC) at any stage.

SECTION – VI

6.0 Scope of Work

A. General:

6.1 Introduction about Haldia Dock Complex (HDC):

6.1.1 Haldia Dock Complex (HDC) is located near the confluence of river Hooghly and river Haldi, at Latitude 22° 2' N and Longitude 88° 6' E. HDC is situated on the East Coast in the State of West Bengal. HDC is a Satellite Port to the Major Port of Kolkata and is under the administrative control of Syama Prasad Mookerjee Port, Kolkata (SMPK) . HDC is 104 km downstream of Kolkata and 130 km upstream of Sandheads [45 km upstream from Pilotage Station, having an average pilotage time of 3 (three) hours]. The development of HDC was taken up in 1965. To start with, the First Oil Jetty, located on the river itself, was commissioned in 1968. The Second Oil Jetty, at its downstream, was commissioned in 1991. The Third Oil Jetty was commissioned in 2000. Since the river is tidal, with fluctuations in draft, HDC has been designed as an Impounded Basin, with a Lock Entrance. HDC consists of various berths & jetties for handling bulk, dry bulk, liquid cargo, LPG etc. Mechanized Berth No.3 will be used for handling Iron Ore.

6.2 Introduction about the Mechanized Coal Handling Plant [Modified] (MCHP) for handling of iron ore:

6.2.1 The Mechanized dry bulk handling plant behind Berth No. 3, in HDC was commissioned in and around 1978 and the same is being used to handle thermal coal since then. The Plant is being converted for handling Iron ore. The system broadly consists of (a) Wagon Tippler House, with 2 (single) parallel Rotaside Wagon Tipplers, for unloading Wagons; (b) a stockpile with 2 (single) Yard Conveyors, having 1 (one) Rail-mounted Stacker-cum-reclaimer in each Yard Conveyor route; and (c) 2 (single) Shiploaders on the Wharf. The system can load 1 (one) vessel at a time. While the capacity of each Wagon Tippler (WT) is 750 TPH, the capacity of each Stacker-cum-reclaimer (SCR) as well as Shiploader (SL) is 1,500 TPH and the annual design plant capacity is around 3.5 Million Tonnes.

6.3 **Brief details:**

6.3.1 HDC intends to outsource "Operation & Maintenance" (O&M) of the Plant, for handling of Iron ore, in a consolidated manner, to a resourceful outside agency, with sufficient expertise in the field. The main objectives of the intended O&M contract are underlined below:

i) To ensure efficient, safe and reliable operations of the plant.
ii) To maintain the plant in a healthy and efficient condition.
iii) To ensure high availability of the plant, in a consistent & sustainable manner.

Therefore, this contract will be an outcome-based service agreement, vesting responsibility on the successful bidder (Contractor) to achieve the desired level of performance.

6.4 Contractor's personnel with respect to physical execution of the contract at site level:

6.4.1 The Contractor shall ensure that all the required personnel/resources are available at the time of handing over, so as to be able to appropriately take over and commence the intended services in relation to each system and equipment.

6.4.2 The Contractor may authorize their personnel for the day-to-day activities [like maintaining log books, registers, keeping various records, receiving material from HDC, signing Hindrance Register (to be maintained at site), etc.], in connection with execution of the contract, at site level. Signature of such persons should be attested by an authorized official/representative of the Contractor. The Engineer-in-charge (EIC) of HDC should be notified in advance, accordingly. However, for the activities related to receiving materials from HDC, Sub-contractor's personnel will not be allowed to act as such authorized representative.

6.4.3 The Contractor shall have to issue Photo Identity Cards to all the personnel, workmen [including the personnel of Sub-contractor(s)] to be engaged by them for this work. These identity cards should bear the signature of the personnel, name of the company [in case of Sub-contractor's employee, name of the sub-contracting company should also be mentioned], period of validity and a photo of the personnel attached on it. Such photo identity cards should be laminated, after due attestation by an authorized official/ representative of the Contractor.

The Contractor shall have to submit photocopies of such photo identity cards along with a list of personnel, duly signed by an authorized official/representative of the Contractor. In case of any change in the said list, the same should be intimated [including submission of photocopy of the photo identity card for the new addition] immediately to the Engineer-in-charge.

The Contractor shall have to submit a consolidated list of personnel/workmen [indicating their designation, educational qualification, name of the concerned Sub-contractor (if applicable), applicability of EPF & ESI, etc.], related to the instant contract work, at the beginning of each calendar month.

6.5 Broad scope of Operation and Maintenance (O&M) of the MCHP:

6.5.1 The scope of the Contractor shall cover the following broad functional activities:

6.5.1.1 O&M of the main system of the plant, consisting of-

i) WAGON TIPPLER i.e. Wagon Tipplers, Vibro-feeders, Grizzly, associated Tippler Conveyors, etc.
ii) Stacker-cum-reclaimers [2 (two) nos.] and Shiploaders [2 (two) nos.].
iii) Master Control Sub-station (MCSS) and Tippler Sub-station (TSS) equipment [only the Breakers upto voltage grade 3.3 KV related to operation of MCHP].
iv) PLC network of 1 (one) Stacker-cum-reclaimer and 2 (single) Shiploaders.
v) VVVF Drives.
vi) Conveyor system & Conveyor Belts.
vii) Transfer Towers, Drive Houses/Towers, etc.
viii) Belt Weigher systems.
ix) Air-conditioning system of machines, as applicable.
x) All plant structures, Chutes, Hoppers, Walkways, Handrails, Conveyor Galleries, etc.
xi) All safety devices, field devices and monitoring devices in the plant.
xii) Cable networking (HT, LT, Control & Communication) of the plant.

6.5.1.2 O&M of the auxiliary system of the plant, consisting of all types of Water Pumps, Fire Pumps etc. related to O&M of the plant.

6.5.1.3 O&M by engaging qualified and experienced **Manpower** as under:

The contractor shall deploy qualified & experienced manpower as per qualification and experience criteria specified in the table below, for efficient operation and maintenance of the plant & machineries. The contractor is expected to submit a declaration to this effect annually during the contract period. The contractor is expected to deploy additional manpower over and above the deployed depending on the exigencies of work as may be necessary for efficient operation and maintenance, without any extra cost to HDC, SMPK.

The contractor will have to deploy qualified & experienced manpower (i.e. Site Manager, Engineers , Supervisors, Operators, Welders / Cutter, Technicians, Rigger, Technician (Belt Vulc.), Machine /Conveyor Attendants etc.) having experience in maintenance of respective fields of engineering in electrical, electronics, PLC, Drives, mechanical, hydraulics etc. for successful discharge of contract obligations. The contractor will also deploy required

labours in addition to the below designated manpower as & when required. Manpower to be deployed by the contractor must fulfill minimum qualification as follows:-

Qualification, category and experience of persons to be deployed

Sr. No.	Designation	Qualification	Experience
1.	Site Manager	BE (Mech./Elec.)	8 to 10 yrs. experience in large Material Handling System with experience on equipment like Shiploader / unloader, Stacker, Reclaimer, Wagon Tippler and Conveyor System etc.
2.	Shift In-charge / Engineers (Mech./Elect.)	BE (Mech./Elec.)	6 to 8 yrs. experience in large Material Handling System with experience of Operation and Maintenance of Mobile Cranes, Shiploaders / Unloaders /Loaders Stackers, Reclaimers, Wagon Tippler & conveyor system etc.
3.	Supervisors (Mech. / Elect.)	Diploma (Mech./Elect.)	8 to 10 yrs. experience in large order large Material Handling System with experience of Operation and Maintenance of Mobile Cranes, Shiploaders/ Unloaders/Loaders Stackers, Reclaimers, Wagon Tippler & conveyor system etc.
4.	Operators (for Wagon Tippler/ Stacker/ Reclaimer / shiploader / Control Desk)	Diploma (Mech./Elec.)	2-3 yrs. experience of operation of Shiploaders /Stacker / Reclaimer / Wagon Tippler and Harbour Mobile Crane
		ITI (Fitter/Elect.)	5 to 6 yrs. experience of Operation of Shiploaders / Stacker / Reclaimer/ Wagon Tippler and Harbour Mobile Crane.
5.	Machine /Conveyor Attendants	ITI (Fitter/Elec.)	4 to 5 yrs. experience in operating & maintenance of conveyor system.
6.	Technician (Mech.)	ITI (Fitter/Mech.)	8 to 10 yrs. experience in maintenance/repairs of Port Equipment & large Material Handling System having knowledge of mill wright fitting, Belt Vulcanizing & Conveyor maintenance.
7.	Technician (Elect)	ITI (Elect.)	3 to 4 yrs. experience in Maintenance / repairs of mobile equipment & Material Handling Equipment having knowledge of PLC system with HT & LT
		Class X	4 to 6 yrs. experience in Maintenance / repairs of mobile equipment & material Handling Equipment having knowledge of PLC system with HT & LT.
8.	Welder/Cutter	ITI	4 to 5 yrs. Experience in welding (Gas Cutting & Gas Welding in Workshop or at field.

9.	Rigger	Class X	6 to 7 yrs. experience in Port & large Material Handling System.
10.	Technician (Belt Vulc.)	Class X	6 to 7 yrs. experience in Nylon/Nylon, BP Steel Cord Belt Vulcanizing.
12.	Store Keeper	Diploma (Mech./Elect.)	4 to 5 yrs. Experience in inventory control and store keeping tool room.
13.	Helper (House Keeping / spillage cleaning / assistance to maintenance & operational persons)	Class VIII	2 to 3 yrs. experience in Port and large Material Handling System.

Manpower deployed by the successful bidder shall be sufficient to carry out the operation, maintenance and repair jobs in desired time limit so as to avoid down time and achieve desired availability of each system or equipment / performance of desired level.

Minimum operational points to be manned by operator per shift:

a) Wagon Tippler:

For single route	For double route
Charger Cabin (East/West)-1 head	Charger Cabins (East +West)- 2 heads
Main cabin-1 head	Main cabin – 1 head

b) Stacker Cum-reclaimer:

For single route	For double route
Stacker Cum-reclaimer – 1 head	Stacker Cum-reclaimer – 2 heads

c) Master Control Tower:

For single route	For double route
Tower – 1 head	Tower – 1 head

d) Ship Loader:

For single route	For double route
Ship Loader – 1 head	Ship Loader – 2 heads

Single route means:

1) Single loading route: WT-1 / WT-2 ---- SR-1 / SR-2 ---- SL-1 / SL-2
2) Single stacking route: WT-1 / WT-2 ---- SR-1 / SR-2

Double route means:

1) Double loading route:
   i) WT-1 ---- SR-1 ---- SL-1/SL-2
   ii) WT-2 ---- SR-2 ---- SL-2/SL-1
   iii) WT-1+2 ---- SR-1 ---- SL-1/SL-2
   iv) WT-1+2 ---- SR-2 ---- SL-2/SL-1
   v) SR-1 ---- SL-1/SL-2
   vi) SR-2 ---- SL-2/SL-1
2) Double stacking route:
   i) WT-1 ---- SR-1/SR-2
   ii) WT-2 ---- SR-2/SR-1

6.5.1.4 Normally, HDC, SMPK will supply heavy equipment [viz. Bulldozer(s), Excavator(s), Payloader(s), Dumper(s), hydra etc.], by hiring from outside agency with a nominal rate, required in connection with O&M activities of the plant. In case of non-availability of any equipment from HDC, the successful bidder may hire the required equipment from market /other sources with a reasonable rate, with intimation to HDC, SMPK. Re-imbursement of hiring charges will be made by HDC, SMPK, on submission of tax invoice considering reasonability of the rate/price. The successful bidder should plan and place their requirement of equipment to HDC, SMPK, well in advance (at least 48 hours before) to facilitated supply of equipment.

6.5.1.5 O&M of EOT Crane, Hoists, Electrical Hoists of the plant.

6.5.1.6 HDC, SMPK will arrange for new procurement of communication facility, such as Walkie Talkies, VHF Fixed Stations, etc. However, operation of Walkie Talkies, VHF Fixed Stations will be under the scope of contractor.

HDC presently has 24 (twenty-four) Walkie Talkies and 4 (four) VHF Fixed Stations and has Licence for the same. The said devices would be handed over to the Contractor during handing over/taking over. Renewal of Licence, from time to time, would be undertaken by HDC, SMPK.

6.5.1.7 Ground stock/yard stockpile management of Iron ore for respective exporters, including dozing for accumulation/ spreading out/shifting by equipment (to be supplied by HDC, SMPK), during stacking/reclaiming operation, covering /uncovering the stockpile as & when needed to protect from rain, storm and inclement weather conditions to avoid loss of cargo.

6.5.1.8 O&M of the **entire illumination system** of the plant, **excluding High Mast & Lattice-type Lighting Tower systems**, installed/fitted in different equipment/ areas viz.:

i) Conveyors and Conveyor Galleries.
ii) Transfer Towers and Drive Houses/Towers.
iii) Tunnels.
iv) Wagon Tippler House.
v) Sub-station lighting (Indoor & Outdoor).
vi) Stacker-cum-reclaimers.
vii) Shiploaders.
viii) Road from Wagon Tippler to Master Control Tower.
ix) Jetty and the adjoining areas.
x) All other working as well as non-working areas falling under the operational purview of the MCHP.
xi) Incoming & Outgoing power system at the bottom of High Mast & Lattice-type Lighting Tower.

6.5.1.9 House-keeping, Spillage-cleaning and cleanliness of the plant: Cleaning of spillage/house keeping required for maintenance activities will be under the scope of the contractor.

6.5.1.10 HDC, SMPK will supply all kinds of spares except Consumables (as per list indicated in clause no. **6.9.6.1**). Stores management like record keeping, spare parts planning, spare part assessment, consumables planning and submission of requirement of spares for procurement thereof by HDC is under the scope of the Contractor. In case of non-availability of any spare from HDC, the contractor will purchase the same from Market /other Sources / OEM for replacement, with prior intimation to HDC. Actual cost will be reimbursed to the contractor along with 6% handling charges on submission of GST Tax Invoice and installation & commissioning certificate from HDC's site representative. The contractor have to maintain

sufficient stock of consumables at their end all the time to avoid any slippage of maintenance due to non-availability.

6.5.1.11 Administration, Engineering support, Safety, Training, record keeping and report generation.

6.5.1.12 All other works, facilities and services required for successfully achieving the objectives of O&M of the plant and other obligations of the contract are included in the scope of work.

6.6 **Exclusions** from the O&M contract:

6.6.1 The following activities are excluded from the scope of work/services of the Contractor:

i) Liaising with (a) South Eastern Railway (SER); (b) Marine Operations Division of HDC, SMPK related to berthing and unberthing of vessels; and (c) Owner of the cargo to be handled and/or their Agent.

ii) Civil maintenance of buildings, main roads, service roads and drains.

iii) Passenger Lift.

iv) All kinds of major structural repair/replacement work including supply of Steel materials.

v) Fire-fighting activities inside the plant.

vi) Painting of entire equipment and heavy structural.

vii) High Mast & Lattice Towers (except incoming & outgoing power arrangement at the bottom)

viii) Maintenance of Walkie-Talkie sets & Fixed Stations.

ix) Electrical Substations (excluding circuit breakers directly connected to operation of MCHP).

[* Note: In the event of fire breaking out, the Contractor will be responsible for passing the information to HDC, SMPK authority for fire-fighting by HDC, SMPK].

6.7 Services during the mobilization period:

6.7.1 A maximum period of **21 (Twenty One) days**, from the date of placement of Letter of Intent (LoI)/Letter of Award (LoA), will be allowed as mobilization period, prior to handing over the plant by HDC, SMPK and taking over the plant by the Contractor, on "As is where is" basis.

Services during the mobilization period will include the following:

6.7.1.1 Establishment:

6.7.1.1.1 The Contractor shall set up their establishment (such as office and office facilities) and initiate related activities for taking over the plant and equipment for O&M, within the stipulated time period.

6.7.1.1.2 The Contractor shall nominate an authorized representative as the overall in-charge for the contract, to ensure that all the obligations under the contract are discharged smoothly. The Contractor's Representative shall be authorized and empowered by the Contractor on all matters concerning this contract. In all such matters, the Contractor shall be bound by the communications, directions, requests and decisions issued in writing by the Contractor's Representative.
The Contractor's Representative will co-ordinate with the "Engineer-in-charge" (EIC) of HDC in all matters relating to performance of the services under the contract.

6.7.1.2 **Preliminary works for smooth handing over and taking over of the plant**:

6.7.1.2.1 The handing over and taking over process includes joint inspection of the plant, equipment, systems, buildings, Sub-stations, spares and store items, etc. by the representatives of HDC, SMPK and the Contractor. The joint inspection report shall contain the condition and status of the plant, equipment, systems, buildings, Sub-

stations, spares and store items, etc., with specific comments on the detected visual abnormalities.

These reports/documents will be treated as the base level documents for effecting proper O&M planning and monitoring. HDC, SMPK will provide all available drawings, manuals, past maintenance records (including major failures), test records, log books, etc. to the Contractor, as available with site office of HDC, SMPK.

6.7.1.2.2 Development of formats, schedules and procedures acceptable to the EIC, during the term of the contract, for reporting feedback, status of O&M activities as well as maintaining records, log books, etc. shall be the responsibility of the Contractor.

6.8 Standards of performance of services:

6.8.1 The services shall be performed in accordance with the express and implied standards, including, but not limited to, the following:

i) The provisions of this contract.
ii) The operating logic of the plant.
iii) Operation of the unloading system (including Rake unloading operation) as well as the loading system with respect to loading plan of vessel (in co-ordination with authorized representative of vessel).
iv) Operation and maintenance as per the O&M Manuals, taking into account the current status of plant and equipment.
v) Prudent utility practices.
vi) All directives.
vii) Compliance with Dock Safety regulations and all relevant orders & directives of HDC as well as regulating authorities viz. Dock Safety Inspector or any Govt. authority, appointed under any law, from time to time.
viii) Compliance with statutes, regulations, etc.
ix) Compliance with the provisions of relevant Acts, Rules & guidelines, as amended, from time to time, by laws, rules & regulations made thereunder, any administrative or other directions given under the said Act and all other statutory enactment in relation to O&M of the MCHP.
x) Quality Control, in accordance with the requirements of ISO 9001: 2015 or introduction of new ISO system(s) from time to time.

6.8.2 The Contractor shall agree and undertake not to use the plant and the MCHP site for any purpose other than for the work or any other designated purposes specified in the contract, without obtaining prior written consent from HDC.

6.8.3 The Contractor shall operate and maintain the plant facilities and services, in accordance with sound industrial practice, financial & administrative practice and ensuring that the plant facilities and services are to be transferred to HDC, on expiry of the contract period, in good working condition.

6.9 Services during the tenure of the contract:

6.9.1 General:

6.9.1.1 Contractor's personnel

i) "Contractor's Personnel" means the Managers, Engineers, Supervisors, Technicians and other personnel, including labours, to be provided and deployed by the Contractor, for smooth Operation & Maintenance of the plant.

ii) The Contractor must engage appropriately trained, qualified and experienced staff for smooth, safe and trouble-free operation and maintenance of the machine/equipment/ system, as applicable. The core personnel of the Contractor, including Engineers, so deployed, must

have adequate qualification and experience in their respective fields, such as assembly and sub-assembly of the machine/system/equipment, Electrical Circuit of Electrical Power/Control System, PLC and VVVF Drives (Automation System), maintenance of HT/LT equipment, lighting system, earthing system, Hydraulic system, Structural, etc., preferably in mechanized bulk material handling plant and are in a position to rectify any defects developed during operation of the plant, with minimum downtime.

iii) The Contractor shall deploy adequate workmen, such as Operator, Mechanic, Electrician, Fitter, etc., so as to discharge all the obligations under the contract during the contract period. In emergency situations, the Contractor shall plan and make arrangements and bear all the costs associated with such arrangements for ensuring the presence of staff on-site for uninterrupted operation and maintenance of the plant.

iv) Where HDC, SMPK reasonably determines that the Contractor has not employed the required resources at the plant for the services, then HDC, SMPK shall have the right to ask the Contractor to arrange for such resources. In case the Contractor does not respond reasonably within 8 (eight) hours from the receipt of HDC's request, HDC shall have the right to arrange for such resources at the cost of the Contractor.

v) The normal deployment of Contractor's personnel shall be on round the clock basis in shifts basis per day for the whole year. The duty hour for each shift adopted by the contractor shall have to be intimated to HDC, SMPK, in advance prior to commencement of O&M contract. Any dispute arises in this respect should be taken care off by the contractor at their own cost & arrangement.

vi) The Contractor must disengage immediately the concerned workmen, in case of indiscipline, misconduct, negligence in duty, suppression of facts, deliberate mishandling of machine & equipment, sabotage, professional incompetency, etc. and replace such workmen, with due intimation to HDC, SMPK.

vii) Any damage, caused by the workmen engaged by the Contractor, to any machinery or equipment or installation of HDC, SMPK, due to negligence, ignorance or malafide intention, shall be made good at the cost of the Contractor, within a reasonable period of time acceptable to HDC, SMPK, failing which, the cost of the damages assessed by HDC, SMPK, shall be deducted from the bill of the Contractor or any money due to the Contractor.

viii) All individuals engaged in performance of the Contractor's obligations, under this contract, shall be the employees of the Contractor and solely the Contractor, in accordance with the applicable laws and regulations, shall determine their working hours, rates of compensation and all other matters relating to their employment. The Contractor shall be solely responsible for employment policies that specify the requirements for staff working under him and such policies are to be consistent and in conjunction with the existing applicable labour laws and any government directives applicable on HDC, SMPK.

ix) During the tenure of the contract, if the Contractor intends to induct new workmen or make alterations in their grade, the Contractor shall communicate the same for appraisal of HDC, SMPK.

6.9.1.2 The Contractor shall employ a Shift-in-charge (SIC) in each shift, for overall co-ordination of operation and maintenance of the plant, apart from Managers, Engineers, Supervisors, Technicians, Helpers etc. for different departments/systems/equipment and Contractor's Representative/Overall-in-charge (OIC)/Site Manager, who will oversee and be responsible for all the functions of plant operation and maintenance. The SIC shall co-ordinate with representative of HDC at CHP or the EIC, for smooth execution of the contract. He has to ensure smooth and trouble-free operation and maintenance of the plant, with execution of the instructions and requirements duly intimated by HDC, SMPK, from time to time.

6.9.1.3 Tools & tackles, special tools & tackles, testing & measuring instruments, welding machine, consumables, scaffolding materials, etc., required for operation and maintenance shall be maintained and arranged by the Contractor. A list in this regard has to be submitted to HDC, SMPK. prior to commencement of O&M contract

6.9.1.4 During the O&M contract, watch and ward of the systems and equipment, under the scope of the Contractor, shall be the responsibility of the Contractor.

6.9.1.5 The Contractor shall observe all applicable regulations regarding safety of men, machines and materials.

6.9.1.6 Authority for access: No persons other than personnel of the Contractor [and Sub-contractor(s) approved by HDC, SMPK, if any] shall be allowed on the plant premises, except with the consent of HDC, SMPK. The personnel of the Contractor [and Sub-contractor(s) approved by HDC, SMPK, if any] must possess proper identity card having their photographs. The Contractor shall grant access to all plant related data, records, reports and software that is being generated or used as part of its services for the plant, for verification of HDC, SMPK. All such data shall be the property of HDC and shall not be used by the Contractor for any purposes other than contractual requirements. Use of such information for any other purpose by the Contractor is strictly prohibited.

6.9.1.7 Routine interaction with the authorized representative(s) of HDC, SMPK, regarding plant operation and maintenance, shall be held every day or as may be desired by HDC, SMPK.

6.9.1.8 The O&M activities and also other activities (if any) shall be reviewed/discussed weekly in the site meeting to plan the operational and maintenance requirements, which will be presided over by the EIC or any other authorized representative of HDC, SMPK. The OIC, Managers and SICs of the Contractor, along with the Engineers from HDC, SMPK, shall attend this meeting.

6.9.1.9 HDC, SMPK, shall conduct inspections/audit of the plant, at any time, to check the health of the plant and maintenance & operation standards followed by the Contractor. The Contractor shall provide all necessary assistance/documents for such inspections/audit, as may be desired by HDC, SMPK. Non-conformance(s) observed during such inspections/audit shall have to be complied with by the Contractor within the mutually agreed time frame, failing which, HDC, SMPK, shall have the right to make good such non-conformance(s) at the Contractor's risk and cost.

6.9.1.10 The Contractor shall notify HDC, SMPK promptly regarding the occurrence of any emergency situation and take quick action to prevent any threatened damage, injury or loss to the plant or persons or property inside the plant.

6.9.2 Operation:

Note: The contractor shall operate one route in any combinations of Plant and Machineries or Operate both the routes of the Plant as per the direction of HDC in line with BoQ schedule.

6.9.2.1 The plant will operate round the clock in shift basis [i.e. 24 (twenty-four) hours a day], for 365 days a year. The normal shift timings for HDC, SMPK personnel are as follows:

1^{st} Shift - 0600 hrs. to 1400 hrs.

2^{nd} Shift - 1400 hrs. to 2200 hrs.

3^{rd} Shift - 2200 hrs. to 0600 hrs.

The contractor has to plan and decide the shift timing and hours at their own considering prevailing labour condition in the Haldia region. Arrival and departure of contractor's staff should be well-planned by the contractor, to up-keep operation and maintenance requirements, intact, round the clock.

6.9.2.2 Normally, the plant operation, i.e. main system operation, can be divided into the following 4 (four) activities, for transportation of Iron Ore through the Conveyor system, connecting Chutes and machines:

- Wagon Tippler operation: Receipt and unloading of Iron ore from Railway (BOXN) Wagons at Wagon Tippler.
- Stockpiling operation (Stacking operation): Receipt of Iron Ore at Wagon Tippler and stockpiling in the stockyard through Stacker Cum-reclaimer.
- Ship loading operation (Shipping operation): Reclamation of Iron ore from stockyard and loading into vessel. Receipt of Iron ore at Wagon Tippler and directly loading into vessels, by passing the stackyard, if required.

N.B: Back-loading operation is not under the scope of the Contractor.

The Contractor shall manage plant operation, following the operating logic of the plant, on a time and shift basis, as per requirement. Stacking of Iron ore in stackyard, reclaiming of Iron ore from stackyard, direct loading shall be made as per plot plan, requirement and in consultation with HDC, SMPK. Allotment and adjustment of plots to exporter(s) is under the scope of HDC, SMPK. Reclaiming of Iron Ore shall be based on requirement of vessel from the specific allotted plots of respective exporter. No mismatch of iron ore in allotted plots of respective exporters during loading/unloading/stacking/reclaiming among the exporters should be allowed, utmost care should be taken by the contractor.

6.9.2.3 Depending on placement of rakes in Wagon Tippler and stacking of Iron Ore in its designated plot, the route shall be selected, as per scheduled requirement of the plant or as desired by HDC, SMPK. Similarly, the shipping route shall be selected, depending on berthing of vessel in berth and designated plot from where reclaiming is to be done, as per scheduled requirement of the plant or as desired by HDC, SMPK. Once the route is selected, then the route will be treated as a running stream. The plant shall be operated in the sequence described in the Control Philosophy.

6.9.2.4 Unless specified by the vessel, the loading facility shall be operated at its rated capacity to maintain the loading rate (excluding stoppages beyond control of the Contractor), as desired operational rating of shipping stream. Similarly, a rake (generally consisting of 58/59 Wagons) shall be unloaded **within 5 (Five) hours** [maximum] from placement at the Feeder Line(s) of Wagon Tippler.

6.9.2.5 During operation of the plant, all field devices, safety devices and monitoring devices shall be in working condition and set as per the designed parameters. In any circumstances, these settings, along with plant operational limits, shall not be tampered/modified. Normally, bypassing of field devices and monitoring devices is not permissible. However, the same, if done for operational urgency, should be made good promptly.

6.9.2.6 Before and during operation of the plant, observance of basic rules of operation, systematic and careful inspection of the individual parts of the system and equipment, checking the functions of all sub-assemblies and components in time are essential and to be ensured. The checks have to be made strictly in accordance with the check lists for the concerned machine/equipment.

6.9.2.7 In order to have safe operation of the facilities, the operating personnel should be conversant with the functional requirement and control philosophy of system(s) & equipment and should be capable of recording the events/incidents during operation, noting the parameters & maintain the log books at the following stations, as per the scheduled requirement and instructions issued by HDC, SMPK, from time to time.

- Wagon Tippler
- Route circuit breakers in Sub-stations
- Plant Monitoring Room (Master Control Office)

6.9.2.8 The Engineers/Supervisors attached to operation must be conversant with the technology of various systems, equipment, machines and Conveyor systems and have to co-ordinate with the operating personnel for smooth operation. They have to be vigilant and should promptly respond to any operational requirements.

6.9.2.9 During operation, if any abnormality/defect/ fault is noticed, the same shall be promptly communicated to the SIC/EIC of HDC, SMPK and remedial steps must be taken under intimation to the SIC/EIC of HDC, SMPK. The Contractor shall place a suitable mechanism for rectification of problems, so that delay in operation can be avoided.

6.9.2.10 In no case, running of machine/equipment should be without proper and required number of manpower. Similarly, operation of machine/ equipment/system/sub-system shall not be carried out in abnormal condition(s) and by compromising with safety of machines and Conveyor system by repeated and prolonged by-passing of safety devices, field devices and monitoring/controlling devices. The plant shall be operated consistently with the operational limits, safety and prudent utility practices.

6.9.2.11 The Shift-in-charges/Engineers/Supervisors of the Contractor, associated with operation, shall plan and co-ordinate all the operational activities, including pre-operational checks. Also, close co-ordination is to be maintained by the Contractor with SIC/EIC of HDC, SMPK.

6.9.2.12 Stoppages during operation, any type of abnormalities, including adverse operating condition or characteristics, bypass of safety devices shall be recorded and the same shall be intimated to SIC/EIC of HDC, SMPK, with follow–up action.

6.9.2.13 The Contractor shall be responsible for proper documentation of operational activities, in order to furnish Management Information System (MIS) data to HDC, SMPK on daily, weekly, monthly and yearly basis and its analysis.

6.9.2.14 In addition to main system operation, the Contractor shall be responsible for other operations such as

- Operation of auxiliary system.
- Management of use and operation of heavy equipment.
- Operation of Illumination system.

6.9.3 Maintenance:

6.9.3.1 Maintenance of the plant primarily aims at keeping the plant & equipment, under the scope of the Contractor, in efficient and reliable operating conditions, minimizing downtime during operation, so as to ensure their maximum availability and productivity.

6.9.3.2 The Contractor's scope covers deployment of different maintenance teams - comprising Engineers, Supervisors, Technicians, skilled/ semiskilled workmen - for efficient and effective preventive, predictive and corrective maintenance during the tenure of the contract.

6.9.3.3 The maintenance of machine/system/equipment shall be done by the Contractor, in accordance with recommendations of Original Equipment Manufacturer (OEM) and taking into account the current status of system/machinery/equipment, by following sound Engineering practice and proper maintenance standards.

6.9.3.4 The Contractor shall carry out the maintenance activities to prevent failures and also execute improvement activities/repair activities to prolong equipment life, reduce maintenance hours, in order to ensure maximum availability of the system and equipment, optimizing productivity.

6.9.3.5 The Contractor shall follow the maintenance practices/activities as under:

Generally, there are 2 (single) types of maintenance in use:

a) Preventive Maintenance (scheduled):

- The care and servicing, for the purpose of maintaining the systems and equipment in satisfactory operating conditions, by providing systematic inspection, detection and correction of incipient failures, either before they occur or before they develop into major defects.
- Maintenance, including tests, measurements, calibration and part/ component replacement, performed specially to prevent occurrence of faults/ failures.

b) Corrective (Unscheduled) Maintenance:

- Maintenance which is required when an item has failed or worn out, to bring it back to working order.

Preventive Maintenance:

- Preventive Maintenance can be divided into the following sub-groups:
  - Planned/Scheduled Maintenance (PM/SM):

    Maintenance activities to be done as per schedule or plan following ISO guideline (Preventive Maintenance Schedule) which may be related to time like Daily/Weekly/Monthly/Quarterly/Half Yearly/ Yearly basis and so on or equipment running hours or other parameters as per recommendation of OEM. Besides, the PMS shall be reviewed and modified, taking into account the aging of systems/machinery/ equipment, operational conditions (environment) and operational requirement, etc. Indicative Preventive Maintenance Schedule Plan is attached as **Annexure- XII**. However, the contractor has to prepare maintenance schedules of different equipment/instruments, devices, system of the MCHP and submit to HDC, SMPK for approval.

  - Conditioned Based Maintenance (CBM):

    Maintenance activities to be done when need arises. CBM is based on using real time data to prioritize and optimize the maintenance resources. This is achieved by observing the state of the system, known as condition monitoring, by extensive instrumentation of equipment and together with better tools for analyzing condition data. Such a system will determine the health of equipment and act only when maintenance is actually necessary. Ideally, CBM will allow the maintenance personnel to do only the right things, minimizing cost of spare parts, system downtime and time spent on maintenance. CBM is aimed at avoiding unnecessary shutdowns and increase availability of equipment.

    Another variant of preventive maintenance is Predictive Maintenance, which tends to do maintenance activities, in time, by regular observation of the operation of systems/ machines/equipment.

    CBM, together with planned maintenance, comprises preventive maintenance, in which maintenance event is pre-planned and all future maintenance is pre-programmed. The effectiveness of a preventive maintenance schedule depends on the Reliability Centered Maintenance (RCM) analysis. RCM enables to monitor, assess, predict and understand the working of the assets i.e. plant. RCM shall be implemented to create a cost effective maintenance strategy, to address dominant causes of equipment failure and it is a systematic approach in defining a routine maintenance

programme, composed of cost-effective tasks that preserve important functions in a defined operating context for systems/machinery/equipment. RCM emphasizes the use of predictive techniques, in addition to traditional preventive measures.

Corrective/Un-scheduled Maintenance/ Breakdown maintenance:

- During operation, abnormalities/defects/faults are observed and in some cases, failure of components occur, resulting in breakdown of plant or equipment. Corrective Maintenance is a maintenance activity to identify, isolate and rectify a fault, so that the failed component/ equipment/machine or system can be restored to an operational condition, within the tolerances or limits, by repairing or otherwise by replacement.

  Corrective Maintenance can be divided into the following sub-groups:

  - Immediate Corrective Maintenance (Breakdown Maintenance):
    Work starts immediately after failure. It signifies repair work, which is to be carried out after the failure of the equipment in service, to restore it to its working condition and unlike other maintenance, cannot be given careful advance planning.
  - Deferred Corrective Maintenance (Post-fault Maintenance):
    Works which can be delayed, in conformation to a given set of maintenance rules, depending on the nature of abnormalities /defects/faults and its effect on operation.

6.9.3.6 Based on the maintenance practices mentioned above, following are the gist of maintenance to be adopted by the Contractor:

- The Contractor shall take up Mechanical maintenance, Electrical maintenance, Automation maintenance, Structural maintenance, Hydraulic maintenance, etc. of different systems, machines and equipment, by using predictive maintenance techniques, in addition to traditional preventive measures, so as to maintain the plant in efficient and reliable manner, with an objective to increase plant uptime and productivity.
- The Contractor shall prepare a routine maintenance plan and ensure timely maintenance of the systems, machines and equipment, as per the plan. While deciding on the schedule maintenance plan (PMS), the respective manufacturer's recommendations should be followed. However, the schedule may be reviewed and amended, from time to time, if necessary and in consultation with the EIC, with a view to make it more appropriate to meet the site needs.
- During the mobilization period, the Contractor shall submit to the EIC, the PMS for equipment, machines and system, etc., under his scope, which are to be carried out in this contract, for approval. The same is to be approved by HDC, SMPK, with corrections, if any, and to be returned to the Contractor within 30 (thirty) days from the date of receipt of format. The maintenance activities shall be carried out as per the approved PMS.
- The Contractor shall prepare and implement long term maintenance, major maintenance and overhaul schedules. The Contractor shall be responsible for any additional resources, as may be necessary, for all major overhauls, shutdowns and other repairs/replacements.
- Planning of maintenance work as to what jobs are to be done, how they are to be carried out (determining the best method of carrying out the work), when they should be taken up and the various resources required to execute the work, shall be done by the Contractor, in close co-ordination with HDC, SMPK.

  The maintenance planning shall be made on the basis of:
  - Routine Maintenance Plan [Preventive Maintenance Schedule (PMS)]
  - Pending scheduled activities
  - Observations made during execution of PMS
  - Observations made during operation
  - Condition monitoring
  - Observations of HDC, SMPK inspections

- Observations of OEM experts
- Any additional works/requirements

o Routine inspection & condition monitoring:

The Contractor, in accordance with maintenance manual of the individual equipment/OEM's recommendations, shall carry out inspection of all equipment. Before and after operation of the plant, the Contractor shall carry out careful and detailed inspection of all equipment and its components. An effective maintenance practice should include Condition Monitoring and assessment, along with visual inspection. Effective monitoring of such information and intelligent analysis of the same can provide valuable information on the condition of the equipment and can avoid failure while in operation. Most of the tasks associated with Condition Monitoring are generally carried out while the equipment is in service or when the equipment is shutdown for some other reason.

The Contractor shall prepare a checklist, in order to ensure correct and proper inspection. Inspection and condition monitoring shall also include use of inspection equipment and testing devices, at the cost of the Contractor, to determine the extent of defect.

Action shall be taken on the observations during inspection and condition monitoring.

o Periodic inspection through OEM:

The Contractor shall have to arrange for periodic inspection of all specialized equipment, i.e. Control & Automation systems (viz. PLC and VVVF Drives) and Hydraulic systems, at least once in a year, by the OEM's (i.e. manufacturer's) expert(s), to assess the health of the systems and make suitable recommendations to maintain the reliability of the system. However, the first OEM inspection of all specialized systems, mentioned here above, must be arranged during the first 6 (six) months of award of contract. The cost of such inspections, to be conducted by the expert(s), shall have to be borne by the Contractor, without any additional financial liability to HDC, SMPK. A copy of the inspection report and action plan thereof, along with replacement policy of spares, shall be forwarded by the Contractor to the EIC of HDC, SMPK for reference and monitoring of implementation of such recommendations. However, HDC, SMPK reserves the right to have independent audits of the health of the systems and equipment by OEMs at the cost of the Contractor and the Contractor shall implement the findings of such audits in a mutually agreed schedule.

In the event of non-existence of the OEM for a particular specialized system, the Contractor have to propose name(s) of alternate agency(ies) for the purpose, for approval of HDC, SMPK.

o Lubrication:

Lubrication is an important activity in the system of maintenance. The Contractor shall prepare and implement the lubrication schedule, as per the maintenance manual, for all equipment in the MCHP. The contractor submit lubrication schedule for approval of HDC, SMPK. An indicative lubrication plan is attached in Annexure-XIII. The Contractor shall supply all types of lubricants recommended by the respective equipment manufacturer. A well-conceived lubrication schedule should include its application by the right method, at proper frequency, storage, handling and identification.

- The Contractor shall conduct i) periodic test of Gauges, Meters, tools & Tackles, handling tackles, etc.; ii) periodic load test of lifting appliances such Test Weights, Hoists and Chain Pulleys, etc. [by "Competent Person", as applicable]; and iii) periodic calibration of metering, testing instruments & measuring instruments, to be used by them, as per ISO requirement and it shall be his responsibility to make good any defects promptly. A compliance report of such calibration and testing shall be submitted to HDC, SMPK.

- The contractor shall maintain all field devices, safety devices and monitoring devices in perfect working condition, functional all the time and set as per the designed parameters. In any circumstances, these settings, along with plant operational limits, shall not be tampered/modified. In case of malfunctioning of field devices, safety devices and monitoring devices during operation, the same may be bypassed, if feasible, for continuous operation. However, prompt action shall be taken to rectify the faults [for which the field devices, safety devices and monitoring devices are bypassed] and put the same back into services.

- Breakdown Maintenance:

  During operation, if any fault/defect is appeared/observed once, the same shall be identified, isolated and rectified, so that the failed equipment, machine or system can be restored to an operational condition in a shortest possible time. However, defects which can be deferred for the regular periodic maintenance (provided it will not have any type of adverse effect on equipment, machine, or systems) shall be recorded and reported, in a suitable form, for follow up action.

  Faults once observed shall be promptly attended and rectified to avoid major failures. In case it is not possible to rectify the faults/defects due to any constraints, alternate feasible temporary arrangement shall be made to restore the system and resume operation at the shortest possible time. The permanent measures shall be taken up thereafter in the next immediate operational gap. Also, if the services of any expert are required, the Contractor shall arrange the same in the most expeditious manner at his own cost.

  In the event of any breakdown maintenance, the Contractor shall put in his best effort to promptly attend the break down and bring the machine to an operating condition as early as possible. If necessary, the Contractor shall arrange and deploy more manpower and other resources to reduce the breakdown period.

  In case of the opinion of the Contractor that the breakdown is not attributable to him, a joint inspection shall be conducted with HDC, SMPK representative(s) to assess the cause of the failure. In case it is established that the failure is not due to negligence on the part of the Contractor, the time of restoration will not be counted by HDC for calculation of plant availability. However, prompt action should be taken by the contractor for restoration of plant/system under breakdown irrespective of reasons attributable to the contractor or HDC, SMPK or others etc.

- Overhauls/repairs of plant and equipment:

  Overhauling, both major and minor repairing and replacement of components/equipment and systems & subsystems, are under the scope of the Contractor. The Contractor shall supplement the plant personnel with additional resources, as necessary, for all major overhauls, shutdowns and other repairs.

- **Overhauling Maintenance**:

  The equipment or machines or systems, which are removed either due to defective/

breakdown condition or as per schedule planning, shall be overhauled with replacement of defective/worn out/aging components and kept as standby spares for future requirement. Besides, the overhauled items shall be tested, if required, to ascertain its performance, so that it can be used whenever required. The overhauled equipment shall be preserved, as per proper Engineering standard. The overhauled components are to be kept properly, with proper lubrication. The Contractor shall avoid overhauling of equipment in-situ.

- **Repair/Replacement Maintenance**:

  Both major and minor repairing and replacement of components/equipment and systems & subsystems, due to normal wear and tear or due to defects/failures, are under the scope of the Contractor. The spares which were repaired shall be installed or put into service immediately after repair for assessing its performance. Repairing activities shall be made in such a manner that the equipment can run its balance life, without further deterioration in its performance. Otherwise, replacement of equipment shall be considered.

  In case of repair of Electrical equipment like Motors and Transformers, for winding damage, if the equipment is de-rated beyond 10%, then the equipment shall be discarded and new procurement shall be processed. Similarly, in case of damage to the Rotor of Motor(s), the Rotor(s) should be replaced without going for repair.

  For Gear Boxes, any damage to the Gear components and the Shaft shall not be repaired and new replacement shall be done. Similarly, in case of damage to the Housing, like enlargement of bore and development of cracks on the body, repair, if feasible, can be done once, beyond which the same shall be discarded.

  If there is any damage/worn-out to the Shaft, Shell, failure of welding of End Disc, the Pulley is to be discarded and suitably replaced.

  For Fluid Couplings, crack on the body and continuous Oil leakage after over hauling, the Fluid Couplings shall be discarded.

  In case of pitting on the surface of the Shell and wear out of the Shell, the Rollers shall be completely discarded. No repair to the Shaft of the Rollers is permissible.

  In case of pitting on the working surface of the Piston Rod, the same is to be replaced. Hydraulic Pumps and Valves shall be discarded and suitably replaced, if the pressure development and the flow rate are not proper as per the ratings.

  For other important components of plant and equipment, repairing shall be considered, if feasible as per standard Engineering practice, otherwise the same shall be discarded.

- **Modification/Improvement Maintenance**:

  During the course of the contract, the Contractor may take up improvement/ modification activities, to avoid repeated nature of breakdown of a particular component, to facilitate easy maintenance, operational convenience and to bring more reliability and efficiency of machines/ equipment/systems, at his cost, without compromising with the basic design, operational logic, characteristics, and safety aspect, under intimation to the EIC of HDC, SMPK.

  For undertaking major maintenance activities, planning shall have to be done by the Contractor in advance and in consultation with the EIC of HDC, SMPK, so as to make the best use of the idle period. The Contractor shall properly plan for execution of maintenance activities during non-operational time of systems/equipment.

- **Other Specific Maintenance**:

- Structural repair/replacement of Drive Houses/Transfer Towers, Conveyors and Conveyor Galleries & Columns, WAGON TIPPLER, Workshop, Machines, etc.:

  Due to normal wear & tear and saline climate, the various structures of the plant are prone to damage. The Contractor has to carry out the routine inspection of various structures of the plant, with special attention to important load bearing members. Any defect found in the structures shall be made good promptly by the Contractor. The Contractor shall be responsible for carrying out repair/replacement of worn out, corroded, pitted and damaged structures of Drive Houses/Transfer Towers, Conveyors and Conveyor Galleries & Columns, WAGON TIPPLER, Workshop, machines (like SCRs, SLs, etc.), in time, as per requirement, so as to avoid premature failure of structures. The same would involve application of Epoxy Paint with DFT 350 micron and proper surface preparation and Primer application prior to painting.

  It shall be ensured by the Contractor that replacement of structures shall not be done in piecemeal basis. An entire section, either from bolting to bolting or welding to welding, shall be replaced. In no case, welding joints shall be increased. Similarly, the dimensions of structures shall not be altered in any case. The available drawings, specification, etc., or otherwise physical dimensions shall be referred/taken for fabrication of the structures. Fabrication and erection shall be made as per applicable standards. If the thickness of structures is found reduced from specification, then it shall be completely replaced.

  Replacement of corrugated sheets of Drive Houses and Conveyor Galleries shall also be done by the Contractor.

  The sheet metal items, including outdoor & indoor Junction Boxes (Control & Power), shall be maintained properly and in case found damaged or depleted, the same shall be replaced immediately, which shall be either GI Sheet or Aluminum Sheet. The Handrails, Seal Plates, Gratings, to be fitted during the term of the contract, shall be galvanized.

- **Conveyor Belt Maintenance**:

  Repair work on Conveyor Belt by suitable methods - for longitudinal through-cut, groove cutting, edge damages, pot holes, surface damages, perforation repair and strip cut, etc. - is included in the scope of the Contractor. In case of damage to the Belt during operation, temporary repairs may be done in order to resume the operation, followed with permanent repair in the next non-operation time. The Belt shall be replaced, if repairing of Belt is not possible. The Belt replacement due to wear & tear, damage of Belt beyond economic repair and repairs not sustainable to the remaining life, etc. is included in the scope of the Contractor, with Belt jointing, excluding supply of new Belt. In case of side/edge cut of the Belt, resulting in damage & exposure of fabric and affecting the rated carrying capacity of the Belt, replacement of Belt is to be done by the Contractor. The following jobs in brief are included under the scope of the contractor:

  e) Conveyor belt & conveyor structure monitoring, checking & preparation of checking reports daily basis.

  f) Ply cutting / edge cutting / dressing of conveyor belt and lagging etc.

  g) Replacement of conveyor belts.

  h) Complete or Partial dismantling, removing and shifting of conveyor belts.

  i) Vulcanizing / full fastening joint of conveyor belt.

j) Vulcanizing of LT & HT trailing cable upto 3.3 KV grade.

k) Repairing of conveyor belts.

l) Drum lagging.

m) Replacement of bracket (BKT), stringer, stringer post, idler / roller (TR-1 / BR-1 / Garland roller), return roller holding base angle, bracket, tie angle, damage walk-way chequer plates / MS plates

n) Fabrication of stringer & stringer post.

o) Fabrication & erection of toe guard, hand railing.

p) Painting of existing conveyor structures.

The initial Conveyor Belt repair/ replacement, if any, in opinion of the Contractor, shall have to be done by the Contractor, the cost of which shall be included in the quoted price. The Belt repairs/renewal work shall be done by the Contractor during tenure of the contract period. In case of damage to the Belt due to foreign materials during the contract period, the cost of Belt repairs/renewal work, to be carried out by the Contractor, shall be borne by the HDC, provided such damage by foreign materials is not attributable to the Contractor.

- **Electrical maintenance**:

  All Electrical maintenance work is included in the scope of the Contractor. However, with respect to Master Control Sub-station (MCSS) and Tippler Sub-station (TSS) equipment, maintenance of only the Breakers (voltage grade 3.3 KV) related to MCHP, installed in the said Sub-stations, is included in the scope of the Contractor. Maintenance of the main Power Transformers of the said Sub-stations is not included in the scope of the Contractor.

- **Maintenance of Earthing system**:

  Earthing system is provided for Sub-stations, Machines, Rail Tracks, Conveyor Structural and Control system, keeping suitable earth resistance value.

  Maintenance will be referred to as the monthly, quarterly, bi-annual or annual inspection, monitoring and repair/ replacement of the earthing system. The Contractor should perform timely inspection and monitoring of the system, as per the recommended and preferred frequency, as per the O&M Manual.

  The Contractor shall take measurement of earth resistance and measurement data shall be produced on quarterly basis for healthy monitoring of the system.

- **Cable Schedule and Maintenance:**

  There are different types of Cables spread around the plant:

  HT Cable (Power):

  HT Cable network is spread to different locations of the plant. The Cables are laid in trenches and also over-ground, in Aluminum Cable Trays, dressed with Aluminum Clamps.

  In case of failure of Cable beyond existing jointing locations, new joint has to be made and the same shall have to be incorporated in the Cable Schedule, for future reference. However, in case increase in number of joints affects the reliability of the Cable, such Cable is to be entirely replaced.

  LT Cable (Control & Power):

  LT Cable (Control & Power) network, in different sizes & span, is spread to different locations of the plant.

The Control & Power Cables are mostly laid on Aluminum Cable Trays, dressed with Aluminum Clamps.

Profibus Communication Cable:

Profibus network is also available in the plant.

Trailing Cable (Control & Power):

Copper Flexible Trailing Power Cable and Trailing Control Cable are used in Stacker-cum-reclaimer and Shiploader. There are 6 (six) spans of Trailing Power Cable and also 6 (six) spans of Trailing Control Cable, each span measuring around 600 meters.

No joint is allowed in the Trailing Cable. In case of failure of Cable, the complete span of the Cable (around 600 mtrs) is to be replaced by a new one.

- **Painting:**
  Painting of all conveyor galleries & structure, chutes, posts, handrails, walkway, and seal plate - shall be done at least once during term of contract of 2 (single) years. The same shall be maintained in order to avoid corrosion of structures. Special attention shall be given to the areas like welding joints, other critical areas, etc. electrical panels & outdoor/indoor junction boxes etc shall be done by the contractor during contract period. In all the cases, the contractor shall have to make thorough surface cleaning & preparation before applying coatings. Painting of all structures - Coating may be applied using conventional, air atomizing or airless spray equipment.
- A broad painting scheme shall be as
  a) Apply quick drying surface tolerant self-priming coating (100 micron)
  b) Apply single components of high built micaceous oxide coating (100 micron)
  c) Apply intermediate epoxy coating (100 micron)
  d) Apply modified polyurethane coating (50 micron).

  Paint & primers of reputed makes such as Shalimar, Berger, Asian Paint, J & N or Any other equivalent make shall be supplied.

  The contractor will have to supply paints, primers and thinners required for above painting purpose of reputed make as mentioned.

- **Maintenance of communication facility**:

  At the time of hand over of plant, HDC, SMPK shall handover the existing VHF Sets (handsets, base stations, etc.) to the Contractor for his use. At the end of the contract, the Contractor shall return the VHF Sets and other communication facility, received from HDC, SMPK, in reasonably good and working condition.

- **Maintenance of illumination system**:

  The Contractor shall be responsible for maintenance of illumination system of the plant, for desired illumination level in different areas of plant during day and night operation of the plant, as per requirement, which is very much essential from operation and safety point of view. Illumination by High Masts & Lattice Towers maintenance is not in the scope of the contractor but incoming & outgoing power arrangement is under the purview of the contractor.

- Maintenance of fire-detection and fire-fighting systems:

The Contractor shall be responsible for maintenance of the existing fire-detection systems in machines (as applicable), from safety point of view. Moreover, it will be the responsibility of the Contractor to inform HDC, SMPK, to place requirement of installation of additional Fire Extinguishers (other than the existing ones) in strategic locations, as felt necessary and in consultation with the EIC of HDC, SMPK.

- Maintenance o f EOT Cranes, Electrical & Manual Hoists, etc:

  The Contractor shall be responsible to maintain the EOT Cranes and Electrical & Manual Hoists in healthy condition, to meet the requirement, as and when required.

- Additional work:

  Additional work is any work, which applies neither to scheduled service nor to emergency service work. It may arise from the identification of failures and non-compliance during inspections, which the Contractor executes, at regular intervals, without any price implication to HDC.

6.9.3.7 Adequate precautions shall be taken to prevent danger from Electrical equipment. When workers are employed on Electrical installations, which are already energized, insulating mats, working apparels such as gloves, sleeves and boots, as may be necessary, shall be provided by the Contractor.

6.9.3.8 Written clearance: All maintenance activities shall be executed, after taking shutdown and issuance of clearance from Sub-stations or SIC/EIC of HDC, SMPK. The Contractor must obtain written clearance, in a format (maintained in shutdown register) acceptable to HDC, SMPK clearly indicating the nature of maintenance intended to be undertaken, the equipment name, expected time of commencement and completion. The Contractor shall also mention the time that he would require to bring the machine to operational condition, in the event of any emergency need.

6.9.3.9 The Contractor shall prepare the format for inspections of plant and systems and allow inspections of the plant by competent authorities;

6.9.3.10 The Contractor shall ensure that all the components of equipment, machines and systems, as per O&M Manual, shall be available in all time. In case of defect, the same shall be replaced with the spare one.

6.9.4 House-keeping:

6.9.4.1 Cleaning of spillage/house keeping required for maintenance activities will be under the scope of the contractor.

6.9.4.2 Special attention shall be given for keeping the structures clean and free from trash, spillover and debris. The Contractor shall employ sufficient personnel to thoroughly clean all the work areas continuously and shall ensure that the plant and equipment are clean.

6.9.4.3 Material shall be stored in locations, which will not block access ways and permit easy cleaning of the area. In areas where equipment might drip oil or cause damage to the floor surface, a protective cover shall be provided between the equipment and the floor surface so that no oil or grease drips to the floor surface.

6.9.4.4 All Hoses, Cables and similar items shall be located, arranged and grouped, so that they will not block any access way and will permit easy cleaning and maintenance.

6.9.4.5 All trash, debris and waste materials shall be collected, stored and deposited in waste collection areas, as designated by the Contractor and acceptable to HDC.

6.9.4.6 The Contractor shall ensure that Scrappers shall work all the time so that muck deposit on the Berth, areas under all Conveyor Galleries, etc. shall be minimum and can be cleaned with least effort.

6.9.4.7 The Contractor shall have to arrange for cleaning of spillover cargo (from loading), if any, on the Deck/Hatch of vessels, as per instruction of the Master of the vessel and/or HDC, SMPK, to their entire satisfaction in a time bound manner so as to avoid any delay in sailing / departure of ships due to non-cleaning.

6.9.5 Procurement of major equipment:

6.9.5.1 Procurement of the following major equipment is not included in the scope of the Contractor:

i) Wagon Tippler.
ii) Stacker-cum-reclaimer.
iii) Shiploader.
iv) Sizer/Crusher.
v) Apron Conveyor.
vi) Power Transformer.

6.9.6 Spares and Store Management:

6.9.6.1 All kinds of spares (Mechanical, Electrical, Electronics, Automation, Hydraulic, etc.) - including insurance spares, imported spares and materials like Steel materials, Steel Wire Ropes, POL, Conveyor Belt, Idler / rollers/ Brackets, drums/pulleys, cables etc. except the **Consumables [**i.e. Lubricants, Greases, Welding Electrodes (various types), Bolts & Nuts with Flat Washers & Spring Washers, Coupling bolts & nut with Flat washer & bush, Oil Seal, Packing, Various types of Paints with Primer & Thinner, HRC Fuse (approved make), Lamps (LED/GLS/HPMV/HPSV) upto 400 watt, Wire Brush, Welding hand screen with glass, Molded hand screen, Welding goggles, Arc welding electrode holder-600 amps, Gas cutting torch (Cutogen-5), Gas cutting nozzles (1/16'', 1/32'', 3/32'', 3/64'', 7/64''), Apron for welder, Asbestos cloth (for welder), Emery Paper, Markin Cloth, Cotton Waste, Distilled water, Carbolic Acid, Sulfuric Acid, Rustlick, EC Cleaner, Orion-77 & 712, Gas (DA & Oxygen), V-belts, G.I. Wire, Hand gloves, Hoses for gas cutting, Painting brush, Teflon tape, PVC tape, M-seal, Favicol or Sealant, Araldite, Hack- saw blades, Buffing wheels, Grinding wheels, Cotton thread, Fuses (upto 100 Amps), Petrol & Diesel (for washing purpose), Solution & Hardener for cold vulcanising joints of conveyor belt, fasteners for fastener joints, brushes for apply of cold solution on belts, lagging sheets (plain & diamond shape), marking chalks, nails for jointing of belts etc. and all other materials required day to day basis] - required for satisfactory execution and performance of the work "Operation & Maintenance of MCHP for Iron Ore handling", during the contract period, shall be supplied by the Contractor, at his risk and cost. The Contractor shall maintain desirable inventory of consumables etc. to meet the day to day requirement.

6.9.6.2 Use of spares by the Contractor:

The Contractor shall have to place requisition for spares and store items to HDC, SMPK and authorized person of the contractor shall collect spares from Master Control Store of HDC, SMPK with proper documentation as available in at the store– that are applicable for the plant & equipment of MCHP. The Contractor may verify the same, along with representative(s) of HDC, SMPK.

6.9.6.3 Procurement, inspection, storage, maintenance and use of inventory:

The Contractor shall plan and prepare a detailed report on the requirement of inventory of spare & store items, POL, Steel materials, Conveyor Belt, idler, rollers, brackets etc.(under scope of HDC), except consumables (to be supplied by contractor), for procurement action by HDC, so that the materials are timely available in site, as per the requirement. In case of non-availability of spares from HDC store, the contractor will purchase the same from OEMs/other sources/market on the following basis.

a) The required spares & store items, including imported spares, consumables, POL, hardware, Steel materials, Conveyor Belt, etc. shall conform to applicable standard, specifications, drawings and shall be suitable for intended purpose and shall be new and genuine.

b) The spares and components shall be procured from OEMs or from their authorized organizations. The authorization certificates from OEMs and renewals thereof shall be submitted by the Contractor to HDC, from time to time.

c) Maintaining the quality of materials is the essence of healthiness of plant, which results in increase in reliability of plant. Therefore, material shall be procured following predetermined QAP, in order to maintain the quality of the material, wherever required.

d) The Contractor shall forward copy of specification and QAP (if applicable) of items [being procured by the Contractor] to HDC, SMPK for reference.

e) After receipt of material (spares, Steel materials, Conveyor Belts, hardware, Fasteners, etc.) at site store, intimation shall be given to HDC, SMPK, in accordance with specification, drawing and test & inspection certificates. Acceptance of material by HDC, SMPK shall not relieve the Contractor from their obligations.

f) HDC, SMPK reserves the right to subject any part/ component/equipment for re-test and on written instruction from HDC, SMPK, the Contractor shall arrange for the re-test and the cost shall be reimbursed by HDC, as per actual, only if the test results are satisfactory. In case of unsatisfactory test results, the part/ component/ equipment shall be rejected and the Contractor shall be responsible for replacement of the item at his own cost & arrangement and also bear the cost of the re-test.

g) HDC's right to inspect, test and where necessary, reject the goods, after arrival of the goods in HDC, SMPK's premises shall, in no way, be limited or waived by reason of the goods having previously been inspected, tested and passed by HDC, SMPK or its representative, prior to the good's shipment from the place of origin.

h) The entire inventory shall be stored in accordance with ISO guidelines. Maintenance of inventory shall be made following the applicable standards and procedures. No material on any of the sites of the MCHP shall be so stacked or placed as to cause danger or inconvenience to any person.

i) The lubricants shall be stored in a clean and dry place, under cover, to prevent deterioration and contamination due to exposure to varying environment. Drums of lubricants shall be stored in the condition prescribed by the lubricant supplier. Receptacles shall be kept clean/open. Lubricants, which are contaminated with dirt or other foreign materials, shall not be used.

j) The Rubber items shall be stored properly and consumed before its expiry date otherwise expired Rubber items shall be disposed of, following standard procedure.

k) Material brought into the site shall not be taken out without the gate pass issued by HDC, SMPK.

l) The Steel materials must be of reputed make, i.e. SAIL/TATA/Vizag Steel/Jindal, conforming to the relevant standards. All materials shall be new, free from loose rust, pitting,

flaws, cracks & any other defects and shall have a smooth uniform finish. The test certificate for the Steel materials is to be produced by the Contractor.

m) Materials once issued and used shall not be returned to the Contractor's store.

n) During the tenure of this contract, the Contractor shall maintain adequate record of spare parts procurement, inventory and usage and shall submit a report, as and when required by HDC, SMPK.

o) First In – First Out (FIFO) is generally the basis for consumption of items and specifically for items having shelf life.

6.9.6.4 Inventory Control:

The surplus materials, if any, procured by the Contractor during the contract period, can be taken back by the Contractor, at the end of the contract, with due clearance from HDC, SMPK, at the discretion of HDC, SMPK only.

6.9.6.5 During the tenure of the contract, the following situations may arise:

Case-1:

Some of the components or equipment or systems will be getting obsolete and spares will not be available, but the components or equipment or systems are getting upgraded or new versions developed with new features and compatible with plant requirement.

In this case, the Contractor shall procure the higher version/upgraded components or equipment compatible with plant requirement, without affecting plant efficiency/performance, at his own cost.

Case-2:

(i) Some of the components or equipment or systems will be getting obsolete and spares will not be available and the OEM has closed his business.

(ii) Some of the components or equipment or systems are not available, in spite of best effort of the Contractor from OEM.

In both the cases, the following procedure shall be followed by the Contractor:

(a) Intimation to HDC, along with supporting documentation, regarding closure of OEM/non-availability of material from OEM, after exploring all options/ materials getting obsolete and OEM is no more existing.

(b) The Contractor may make written request to HDC for acceptance of the use of alternative equipment or materials. Such request shall contain complete data to show that such alternative item is quality-wise same and has the required characteristics for the intended use, with proof of performance from users.

(c) The Contractor shall make such request at least 30 (thirty) calendar days before a final decision to be taken by HDC, SMPK.

(d) Within 30 (thirty) calendar days following receipt of all requested information from the Contractor, HDC, SMPK will determine whether the proposed alternative and change meets the requirements of the contract and will inform the Contractor, in writing, of its decision. However, the decision shall not relieve the Contractor of his obligations under this contract.

Case-3:

Some of the components or equipment or systems are not through OEM, but through some other firm/agency, who have taken over the manufacturing/assembling/marketing of the products from OEM.

(a) Intimation to HDC, SMPK along with supporting documentation, regarding non-availability of material from OEM, due to either the OEM stopped assembly or marketing or taken over by other firm/agency.

(b) The Contractor may make written request to procure components or equipment or systems from the new vendor, along with all supporting documents.

(c) Upon request, the Contractor shall furnish to HDC, SMPK such additional information relating to such cases, as HDC, SMPK may require.

(d) The Contractor shall make such request at least 30 (thirty) calendar days, before a final decision to be taken by HDC, SMPK.

(e) Within 30 (thirty) calendar days, following receipt of all required information from the Contractor, HDC, SMPK will determine whether the proposed alternative and change meets the requirements of the contract and will inform the Contractor, in writing, of its defect. However, the decision shall not relieve the Contractor of his obligations under this contract.

6.9.7 Administration, Engineering Support, Safety, Training:

The Contractor shall establish procedures, plan & schedules and resources to accomplish the intended objectives of Administration, Engineering Support, Safety, Training, which are required for smooth operation & maintenance of the plant. Timely compliance to statutory requirements is the foremost responsibility of the Contractor.

The Contractor shall be responsible to ensure the safety of the plant and all of the plant personnel and other personnel employed by the Contractor for the service as well as other individuals and invitees who are at any time in the plant. The Contractor shall provide first aid equipment for on-site emergency medical treatment and deploy a Safety personnel to enforce safety measures among all the Contractor's personnel [including personnel of Sub-contractor(s) approved by HDC, SMPK]. The Contractor shall provide on-going and refresher training for all his personnel, which will help to increase productivity.

6.9.8 Record keeping and report generation for Management Information System (MIS):

During execution of the contract, the Contractor shall maintain adequate records and generate reports for Management Information System (MIS). Record keeping and report generation for the following activities of the plant should be done:

i) Operation

ii) Maintenance

iii) Housekeeping and cleanliness

iv) Stores and spares

v) Administration, Engineering support, Safety, Training, etc.

Building up of data/records and its analysis is one of the basic aspects of proper operation and maintenance of the system. Various decisions involved in respect of fulfilling the performance of this contract i.e. maintaining the operational rating (availability) of plant at its rated capacity and improvement in availability of plant, combined with safety of plant & personnel, are all dependent on an analysis of accurate data. The Contractor shall maintain the data to determine the cause of failures and take decision on the corrective action for operation & maintenance and improving the

performance of the plant & equipment.

The Contractor shall develop a framework of systems or adopt the existing system implemented in MCHP, procedures and guidelines towards record keeping and report generation for proper O&M management. The log books and reports for various functional activities are to be maintained by the Contractor. The requirement of records and reports may vary, from time to time, depending upon the requirement of either HDC, SMPK or Govt. or even the Contractor. Formats, schedules and procedures for record keeping and report generation are already developed for monitoring of operation, maintenance, inventory and administration and the same may be followed by the Contractor. If required, the formats and procedure can be further customized/modified on mutually agreed terms between EIC of HDC, SMPK and Contractor. Also, these may be reviewed, monitored and modified, by mutual agreement, if required, during the term of contract. The Contractor may develop computerized log books and reports instead of conventional method of record keeping and report generation under Management Information System.

The Contractor shall keep HDC, SMPK appraised of the plant health and operating performance data. The Contractor shall furnish the MIS data to HDC, SMPK on daily, weekly, monthly and yearly basis and its analysis regarding plant performance.

6.9.9 Other works:

In the event HDC, SMPK procures and installs new machines like Wagon Tippler, Stacker-cum-reclaimer, Shiploader, Sizer/Crusher, Power Transformer, the Contractor shall have to operate and maintain the same, at no extra cost to HDC, SMPK.

Moreover, if dust mitigation system is installed in any area of the MCHP, including the stockpiles, the Contractor shall also have to operate and maintain the same, at no extra cost to HDC, SMPK.

6.9.10 Monthly Reports:

The Contractor shall submit the following monthly reports to HDC, in formats acceptable to HDC, along with the bills:

a) Monthly availability factor of the plant.
b) Monthly report of loading of vessels, indicating Average Shipday Output (ASDO).
c) Monthly report of unloading of wagons indicating time taken for each rake (59 boxes).
d) Operational availability factor of plant, on monthly & quarterly basis.
e) Extract of Preventative Maintenance.
f) Extract of Corrective Maintenance.
g) Report on house-keeping and safety.
h) Spares consumption report.
i) Satisfactory compliance to site order or site instruction of HDC, SMPK.
j) An undertaking that all statutory rules and regulation have been followed.

Without these reports, bills shall not be processed for payment.

6.9.11 Final inspection and acceptance:

6.9.11.1 The Contractor shall, 3 (three) months prior to the expiry of the contract period or if called for by HDC, SMPK earlier, notify HDC, SMPK in writing, to take over the MCHP. HDC, SMPK shall make a final inspection, within reasonable time; take over the system, in fully working and reasonably good condition. In case of any defect or abnormality, observed during inspection, the same shall be made good by the Contractor, at his own cost and arrangement, within a reasonable period, failing which, the final payment shall be withheld.

6.9.11.2 The Contractor shall remove all tools, equipment and materials brought by the Contractor.

6.9.11.3 The Contractor shall hand over an updated inventory list, taking into account all additions and deletions during the term of this contract, and deliver to HDC, SMPK all the then-existing inventory and documents, in accordance with the scope of work of the Contractor.

6.9.11.4 The Contractor shall remove all their personnel, except as otherwise instructed by HDC, SMPK. The Contractor shall be solely liable for resettlement, compensation or any other obligations, in respect of the Contractor's personnel engaged during the term of the contract. The Contractor shall keep HDC, SMPK indemnified against claims, if any, pertaining to his personnel.

6.9.11.5 The Contractor shall settle all dues, recoveries, insurance claims, if any, with HDC, SMPK.

6.9.11.6 The Contractor shall hand over all the records/instruction manuals/drawings/documents, as had been received from HDC, SMPK, back to HDC, SMPK, in proper condition.

6.9.11.7 The Contractor shall prepare and hand over all the records, including, but not limited to, plant performance, logs and history data of the equipment, which may or may not be part of day to day report, in hard and soft copies.

6.9.11.8 The Contractor shall remove and dispose from the site premises all rubbish and other debris, generated during the term of contract, as well as all tools, equipment, machinery and surplus material of the Contractor and shall leave the site premises area in a neat, clean and usable condition. All cleanup and disposal activities of the Contractor shall be conducted in accordance with all applicable laws and applicable procedures.

6.10 Contract period:

The contract period will be **2 (two) years** from the date of actual commencement of work against award of contract, i.e. award of LOI/LOA and the contract may be extended by **1(one) year** on mutual consent, without any price escalation. A year means 12 (twelve) calendar months.

6.11 **Date of commencement of work**:

The date of handing over the MCHP by HDC, SMPK and taken over by the Contractor, for undertaking Operation & Maintenance (O&M) activities therein by the Contractor, will be treated as the date of commencement of work. The same will be considered for payment purpose. No payment will be made until the MCHP is taken over by the Contractor for O&M of the same.

6.12 **Price variation:** No price variation for the contract period of 2 years and extended period of 1 year will be allowed by HDC, SMPK.

6.13 **Facilities to be provided by the Employer/ Employer's obligations**:

6.13.1 HDC, SMPK will separately allot space for setting up office, store and workshop for operation and maintenance of MCHP, as may be required by the Contractor, for fulfilling all the obligations of the contract. License fee will be charged as per prevailing SOR per month for the open space, to be provided for the purpose of fabrication work, repair/maintenance work, storage of materials etc. at site, for the period of contract.

However, in case of allotment of covered space for setting up site office, store, workshop etc. or any other purposes, charges as per the prevailing Schedule of Rent (SOR) of HDC, SMPK's land and buildings at Haldia, including annual escalation thereof, will be recovered from the contractor.

No rent will be charged by HDC, SMPK for the space to be utilized by the Contractor for parking of different equipment, as applicable, during idle hours. However, such parking will have to be done at the area to be earmarked by HDC, SMPK.

6.13.2 **Electricity & Water:** HDC, SMPK will provide electricity and water to the Contractor, as may be required, on chargeable basis, from its available sources for purposes (like office, stores, workshop, etc.). HDC, SMPK will provide electricity and water free of cost to the Contractor for operation, maintenance and repair work purpose in connection with O&M contract. In all the cases, the Contractor shall have to lay their own electric line/ water pipe line, from nearest HDC, SMPK source up to their place of requirement.

Regarding electricity and water supply, necessary meters should be installed by the Contractor at his own cost.

Electricity charges will be determined on the basis of chargeable unit (kWh) [actual unit (kWh) consumed (recorded through Energy Meter) at the rate prevailing from time to time. Billing will be done on the basis of electricity charges and overhead charges @ 19.25% [on the aforesaid electricity charges]. Electricity readings will be collected on monthly basis. All payment on this account should be updated, otherwise the pending bill amount, along with late payment surcharge, will be recovered from the Contractor's bills.

HDC, SMPK do not guarantee uninterrupted supply of electricity and the Contractor shall not be compensated for any delay or irregularity in supply of electricity.

6.13.3 Medical facility will not be provided by HDC, SMPK to the Contractor. However, the Contractor's personnel can be provided with medical facilities at HDC Hospital, in emergency cases only, on payment basis.

6.13.4 The Contractor shall have to obtain required RFID based permits/licenses for its employees, workmen, security personnel, vehicles, tools and tackles, equipment and accessories etc. [including that of his Sub-contractor(s)], for entry into the Dock area, following the procedure of HDC, SMPK in vogue at HDC, SMPK. The required permits/licenses will be issued on chargeable basis as per rates applicable.

6.13.5 Administrative support only, for obtaining clearance from any statutory authority, shall be provided by HDC, SMPK.

6.14 Drawings and manuals of the plant:

6.14.1 Copies of drawings, specification and manuals of the plant, equipment, buildings, Sub-stations, etc., whatever are available with HDC, shall be handed over to the Contractor. In addition, the programmes for PLCs, as available with HDC, shall be handed over to the Contractor. It is the responsibility of the Contractor to keep such drawings, specification and manuals of the plant, equipment, buildings, Sub-stations, etc. as well as programmes for PLCs in safe custody and make a plant information library, keeping all such items satisfactorily indexed. Photos of important activities may also be kept. The Contractor is also responsible for preparing drawings afresh for missing drawings or non-available drawings and updating the plant drawings, on a regular basis, to ensure that they are always maintained in a current state. However, the drawings, specification, manuals, programmes for PLCs, etc. are the property of HDC and their secrecy shall be maintained by the Contractor. The same should be utilized only for the scopes under contractual obligations and the same shall be returned to HDC on completion of the contract.

6.15 Performance Targets and Deduction on default:

6.15.1 Availability factor of machines, equipment and systems, as per norms, on demand, maintaining the desired Average Ship Day Output (ASDO) and Rake unloading time, proper cleanliness/housekeeping, carrying out proper maintenance, attending breakdown in time (rectification of faults), inventory management and following the safety aspects, statutory norms and regulations are the essence of this contract. Therefore, the Contractor shall meet the performance parameters/norms/obligations pursuant to the contract. Failure on the part of the Contractor to comply with the requirements shall attract deductions on account of under-performance.

6.15.2 AVAILABILITY FACTOR OF PLANT/STYSTEM :

i) The Contractor shall ensure that the machines, equipment/ system are available on demand all the time. The Contractor shall guarantee an availability factor of **90%** in a given month for the system demanded (operational demand), i.e. as per the shift route programming of shipping streams and receiving streams.

The percentage of availability shall be calculated as under:

% of Availability = {(A – B) / A } x 100.
A = Total demanded time for operation.
B = Stoppages on account of the Contractor during the demand time [Non-availability period (in hour) of machines, equipment/ system]
Note: Time given for schedule maintenance and preventive maintenance, if any, as specified in scope of work, will not be factored into the calculation of availability.

ii) Deduction for default on availability factor of plant of machines, equipment, system:

The deduction shall be made from the quoted amount per month against operation & maintenance of machines, equipment/ system. Any stoppages which is not attributable to the contractor will not be considered for calculation of availability.

The deduction for under-performance shall be as follows:-

Availability factor of Plant/ System	Deduction (@ % of monthly quoted amount)
90% and above	NIL
>=80% and < 90%	2% of accepted rate of BoQ -1
>=80% and below	5% of accepted rate of BoQ -1

In case of monthly availability factor of plant/system is found below 70% for consecutive 3 months during the period of contract, HDC, SMPK may terminate the contract, at the sole discretion, with a notice period of one month considering poor performance/failure of the contractor.

6.15.3 Loading Target : Average Ship Day Output (ASDO):

i) The Contractor shall ensure Average Ship Day Output (ASDO) of 12,000 MT considering two routes and 8000 MT considering single route for each vessel.

Calculation of ASDO for each vessel will be as per the following:
S = {Q / (A – B) } x 24
Where S = ASDO
Q = Total quantity loaded into the vessel, in Metric Tonnes, as per the certified survey figure.
A = Time taken (in hours) between time from vessel hauled in at working berth to time of finish of loading work (completion of loading) at working berth.
B = Stoppages time beyond control of the Contractor, in hours

In case, ASDO [to be calculated as above], against a particular vessel, becomes less than 12,000 MT considering two routes and 8000 MT considering single route for each vessel, compensation for deduction from monthly bill of the contractor will be calculated as per the following procedure:

ASDO (in MT) per vessel for two routes	ASDO (in MT) per vessel for single route	Deduction (@ % of monthly quoted amount)
12000 MT and above	8000 MT and above	NIL

>=10000 MT and < 12000 MT	>=7000 MT and < 8000 MT	3% of accepted rate of BoQ -2 /BoQ- 3
>=8000 MT and < 10000 MT	>=6000 MT and < 7000 MT	5% of accepted rate of BoQ -2 /BoQ- 3
>=8000 MT and below	>=5000 MT and below	10% of accepted rate of BoQ -2 /BoQ- 3

The deduction shall be made (@ % of monthly quoted amount, as mentioned above, from the quoted amount per month against operation & maintenance of MCHP for handling of Iron Ore.

Under-performance of ASDO below 8000 MT for two routes and/or below 5000 MT for single route (taking average ASDO for all vessels loaded in a month) for consecutive **4 (four) months** may be treated as failure of performance, at the discretion of Engineer of Contract. **HDC, SMPK may terminate the contract with a notice period of one month considering poor performance/failure of the contractor.**

6.15.4 Unloading of wagons (rakes):

The Contractor shall endeavor to promptly release BOXN Wagons from the Rail Receival Station (WAGON TIPPLER), as per norm, as fixed. The contractor should ensure unloading of a full rake of 58/ 59 wagons within **5 (five) hours** from the time of placement of wagon at feeder line to unloading of last wagon at Wagon Tippler of the same rake.

Failure on the part of the Contractor to release the rakes (i.e. a full rake of 58 /59 wagons) within the schedule unloading time of **5 (five) hours**, shall attract a deduction due to under performance and to be deducted from the monthly bill. In case of any rake placed having lesser no. of wagons proportionate time calculation vis-a vis time allowed for unloading will be considered for calculation.

Calculation of excess time taken by the Contractor:

T1 = Actual time taken for unloading of a rake (58 or 59 wagons), in hours, i.e., from placement at the Feeder Line(s) to completion i.e. unloading of last wagon at Wagon Tippler, excluding stoppages beyond control of the Contractor.

T2 = Scheduled time for completion of the rake, i.e., **5 (Five) hours.**

T3 = (T1 – T2) = Excess time taken by the Contractor, in hours, for unloading of the rake.

N= No. of rakes handled with excess hours.

W= No. of wagons in the each rake handled with excess hours.

C= Compensation

Total compensation for a rake handled with excess hours per day will be calculated as below:

Compensation [C] = T3 x W x Rs. 150/- (Rs. 150/- is the rate at which demurrage SER charges and will be applicable as will be revised from time to time by South Eastern Railways (SER), Govt. of India).

Based on the above formula, sum of total compensation (∑C) during a given month shall be calculated and shall be deducted from monthly bills.

In case it is found that the contractor fails to perform unloading operation of full rake within scheduled time of 5 hours for the 80% of rakes handled within a month, occurrence of such under-performance for consecutive 4 months, will be treated as failure of performance. **HDC, SMPK may**

terminate the contract at the discretion of the Engineer of Contract with a notice period of one month considering poor performance/failure of the contractor.

Stoppages *of system due to following shall not be considered while calculating desired targets for ASDO, Unloading of wagons and Plant Availability.*

a) Stoppages due to power failure (i.e. non-availability of incoming power supply) from HDC's end, Ship's account, no cargo, stockpile changing, Hatch change.

b) Stoppages due to Force Majeure conditions.

c) Non-working day/shift declared by HDC.

d) Stoppages due to removal of foreign materials, stone, concrete sleeper, jamming of big size Iron Ore /stone/concrete sleeper, ship account in case of direct loading, Railway track jamming and other Railway problems.

e) Stoppages due to machine placement, depending on plot orientation.

f) Chute jamming by big size Iron Ore/stone/sticky cargo.

g) Delay in commencement of unloading of rakes, after placement, beyond control of the Contractor.

h) Any other cause of stoppage, which is beyond the reasonable control of the Contractor and for which the Contractor has promptly notified HDC with sufficient justification and acceptable to the EIC, will not be considered because of the Contractor. In case of disagreement in determining whether the cause is beyond the reasonable control of the Contractor or not, the decision of the Engineer of the contract shall be final and binding.

Stoppages of streams/routes due to following shall be considered while calculating desired operational rating.

Apart from the stoppages mentioned above, all other stoppages shall be considered on the account of the Contractor.

6.15.5 DEDUCTION FOR VIOLATION OF SAFETY NORMS:

The Contractor shall comply with all the requirements of safety regulations as applicable and comply, in all respect, with all applicable laws of any duly constituted authority in India. HDC is ISO certified as well as ISPS compliant. The Contractor shall ensure that all actions of the Contractor comply with ISO and ISPS requirements.

Failing of the above, the Contractor may be liable for penalty of Rs. 10,000/- for the 1st violation and Rs. 20,000/- for the subsequent violations.

6.16 EVALUATION OF YEARLY PERFORMANCE:

The performance of the Contractor shall be judged, depending upon fulfillment of obligations of the contract, such as (a) availability factor of mechanized plant on operational demand, (b) maintaining the desired operational ratings of plant, (c) proper cleanliness/housekeeping and (d) carrying out proper operation & maintenance, attending breakdown in time (rectification of faults), inventory management, etc.

Failure on the part of the Contractor to comply with the requirements shall attract deductions on account of defaults, as outlined in **Clause Nos.6.16.1 to 6.16.5**.

Apart from the above, annual plant health check-up by engaging Independent Inspection agency /Independent Engineer /OEMs or in combination shall have to be carried out by the contractor, at their own cost & arrangement, in presence of authorized representative of Engineer of the Contract (EIC). The plant health report is to be submitted to HDC and unsatisfactory report may cause termination of the contract at the sole discretion of HDC, SMPK. During health check-up if any defect found, the same has to be made good with earliest action.

The overall performance of the Contractor shall be treated as satisfactory, if the total deduction amount on default in a contract year does not exceed 10% of the contract price in the concerned contract year.

If the above condition is not met with, i.e., the overall performance of the Contractor is not found to be satisfactory (as per the above criteria), the Contractor would be given an opportunity to improve performance within the next half year of the contract.

However, if the overall performance of the Contractor is still not found satisfactory, i.e. for 2 (single) consecutive years, the Contractor may be liable to be debarred from further execution of the contract, i.e., HDC would reserve the right to terminate the contract.

6.17 REQUIREMENT OF BULLDOZERS, EXCAVATORS, PAYLOADERS, CRANES, DUMPERS AND OTHER MAINTENANCE VEHICLES:

The Contractor may have to deploy Bulldozers, Excavators, Payloaders, Cranes, Dumpers, Hydra and other maintenance vehicles, as and when required during the tenure of the contract, to fulfil the various contractual obligations. This may be for Conveyor maintenance activities, lifting of equipment, transportation/shifting of materials, spillage cleaning, plot cargo management, etc. All such equipment and vehicles will be arranged & supplied by HDC, SMPK, on prior requisition (except some emergency unpredictable situations), by the contractor to HDC. In case HDC is unable to supply the equipment as per requirement, the contractor may hire equipment at a reasonable cost from other sources/market. Cost in this respect of such hiring will be reimbursed to the contractor at actuals on submission of bill along with certification from site representative of HDC.

6.18 REQUIREMENT OF SIMULTANEOUS OPERATION OF 2 (SINGLE) RECEIVING STREAMS AND 2 (SINGLE) SHIPPING STREAMS:

The Contractor shall be prepared to operate the 2 (single) receiving streams [including WAGON TIPPLER operation] as well as the 2 (single) shipping streams simultaneously, in accordance with terms & conditions of the contract, for which the Contractor shall plan accordingly. The bids should be submitted, taking the above requirement/condition into account.

6.19 REQUIREMENT OF INITIAL WORKS, IF ANY:

The Contractor is advised to make thorough survey/ inspection of the MCHP before taking over the plant and plan the initial works, if any, in his opinion, required to ensure the availability factor and desired operational rating of the plant, in a consistent manner, during tenure of the contract period. The Contractor shall give priority to the works which are affecting the operational activity, safety aspects and also to avoid further deterioration of the components, which may affect in achieving the desired end objective of the contract. All the materials, manpower required to carry out the works is covered under the scope of the Contractor and no extra payment will be made by HDC on such account. Accordingly, the cost of such repairs shall be integrated in the quoted price.

However, the time period to take up and complete the initial works, if any, as opined by the Contractor, shall be arranged in a mutually agreed time schedule, preferably during non-operational periods of the plant.

6.20 RESPONSIBILITY TO RECTIFY LOSS OR DAMAGE:

If any loss or damage happens to the works/property of HDC or any part thereof, due to negligence of the Contractor, for which the Contractor is supposed to take care thereof during the period of the contract, the Contractor shall, at his own cost and arrangement, rectify such loss or damage to the works/property of HDC, to the satisfaction of HDC. The Contractor shall also be liable for any loss or damage like damage to vessels/Railway Wagons in the course of any operations carried out by him and rectify the same, in a time bound manner, for the purpose of complying with his obligations under the contract.

In the event of an emergency, where, in the judgment of HDC, delay would cause serious loss or damage, repairs or adjustments may be made by HDC or a third party chosen by HDC with advance notice to the Contractor and the cost of the work shall be paid by the Contractor.

SECTION VII

GENERAL CONDITIONS OF CONTRACT (GCC)

Sanctioned by the Trustees under Resolution No. 92 of the 6th Meeting held on 27th May, 1993

Including Addendum Sanctioned by the Trustees under Resolution No. 80 of the Meeting held on 25th August, 2009

KOLKATA PORT TRUST

KOLKATA DOCK SYSTEM & HALDIA DOCK COMPLEX

AUGUST , 2009

GENERAL CONDITIONS OF CONTRACT

AMENDMENT
TO
GENERAL CONDITIONS OF CONTRACT

❖ *Cl-3.4 THE TENDER /OFFER & ITSPRE-REQUISITES*

Table under sub-clause (a)

PREVIOUS			**AS AMENDED**		
Estimated Value of Work	**Amount of Earnest Money**		**Estimated Value of Work**	**Amount of Earnest Money**	
	For Works Contract	For Contract of Supplying Materials or Equipment only		For Works Contract	For Contract of Supplying Materials or Equipment only
Up to Rs. 1,00,000=00	5% of the estimated value of work	1% of the estimated value of work	Up to Rs. 10 Crore	2% of the estimated value of work	1% of the estimated value of work
Over Rs. 1,00,000.00	2% of the estimated value of work subject to a maximum of Rs.20,000/- and minimum of Rs.5,000/-.	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs.1,000/-.	Over Rs. 10 Crore	2% on first Rs. 10Crore + 1% on the balance	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs. 1,000/-.

[AMENDMENT SANCTIONED BY THE BOARD OF TRUSTEES VIDE RESOLUTION NO 210 OF THE TRUSTEES' MEETING HELD ON 26.02.2013]

Table under sub-clause (d)

PREVIOUS			AS AMENDED		
Class of Registra-tion	Amount Of Fixed Security	Financial Limit Of Each Tender	Class of Registration	Amount Of Fixed Security	Financial Limit Of Each Tender
A	Rs 10,000/-	Any tender priced upto Rs 2,00,000/-	A	Rs 50,000/-	Any tender priced up to Rs 10,00,000/-
B	Rs 5,000/-	Any tender priced upto Rs 1,00,000/-	B	Rs 25,000/-	Any tender priced upto Rs 5,00,000/-
C	Rs 2,500/-	Any tender priced upto Rs 50,000/-	C	Rs 15,000/-	Any tender priced upto Rs 3,00,000/-

[AMENDMENT SANCTIONED BY THE BOARD OF TRUSTEES VIDE RESOLUTION NO 82 OF THE TRUSTEES' MEETING HELD ON 12.10.2012]

GC - 2

1. DEFINITIONS:

1.0 In the contract, as here in after defined, the following words and expressions shall have the meaning herein assigned to them, except where the context otherwise required.

1.1 "Employer" or "Board" or "Trustees" means of the Board of Trustees for the Port of Calcutta, a body corporate under Section 3 of the Major Port Trusts Act, 1963, including their successors, representatives and assigns. ***Employer***

1.2 "Chairman" means the Chairman of the Board and includes the person appointed to a ctinhis place under Sections 14 and 14 A of the Major Port Trusts Act, 1963. ***Chairman***

1.3 "Contractor" means the person or persons, Firm or Company whose tender/offer has been accepted by the Trustees and includes the Contractor's representatives, heirs, successor and assigns, if any, permitted by the Board/Chairman. ***Contractor***

1.4 "Engineer" means the Board's official who has invited the tender on its behalf and includes the Manager (Infrastructure & Civic Facilities) or other official as may be appointed from time to time by the Employer, with written notification to the Contractor, to act as Engineer for the purpose of the Contract, in place of the "Engineer" so designated. ***Engineer***

1.5 "Engineer's Representative" means any subordinate or Assistant to the Engineer or any other official appointed from time to time by the Engineer to perform the duties set forth in Clauses 2.4 to 2.6 here of. ***Engineer's Representative***

1.6 "Work" means the work to be executed in accordance with the Contract and includes authorised "Extra Works" and 'Excess Works" and "Temporary Works". ***Works***

1.7 "Temporary Works" means all temporary works of every kind required in or about the execution, completion or maintenance of the works and includes (without thereby limiting the foregoing definitions) all temporary erections, scaffolding, ladders, timbering, soaking vats, site offices, cement and other godowns, platforms and bins for stacking building materials, gantries, temporary tracks and roads, temporary culverts and mixing platforms. ***Temporary works***

1.8 "Extra Works" means those works required by the Engineer for completion of the Contract which were not specifically and separately included in the schedule of items of the works i.e. (Bill of Quantities) of the tender. "Excess Works" means the required quantities of work in excess of the provision made against any item of the bill of Quantities. ***Extra works and Excess works***

1.9 "Specifications" means the relevant and appropriate Bureau of Indian Standard's specifications / International Standard's Specifications (latest revisions) for materials and workmanship unless stated otherwise in the Tender. ***Specification***

1.10	"Drawings" means the drawings referred to in the Tender and 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.	***Drawings***
1.11	"Contract" means and includes the General and Special Conditions of Contract, Specifications, Drawings, priced Bill of Quantities, the Tender / Offer, the letter of acceptance of the Tender/Offer, the Contract Agreement, if separately entered into and the Schedule of Rates and Price, if any, adopted by the Trustees at their discretion.	***Contract***
1.12	"Constructional Plant" means all appliances or things of whatsoever nature required or about the execution, completion or maintenance of the works or temporary works and includes (without thereby limiting the foregoing definition) all machinery and tools but does not include materials or other things intended to form or forming part of the permanent works.	***Constructional Plant***
1.13	"Site" means the land, waterways and other places, on, under, in or through which the works are to be executed by the Trustees for the purpose of the Contract.	***Site***
1.14	"Contract Price" means the sum named in the letter of acceptance of the Tender/Offer of the Contractor, subject to such additions thereto and deductions there from as may be made by the Engineer under the provisions here in after contained.	***Contract Price***
1.15	"Month" means English Calendar Month.	***Month***
1.16	"Excepted Risks" are riot in so far as it is uninsurable, war, invasion, act of foreign enemies, hostilities) whether war be declared or not), Civil War, rebellion, revolution, insurrection or military or usurped power or use or occupation by the Trustees of any portion of the works in respect of which a certificate of completion has been issued (all of which are herein collectively referred to as the excepted risks).	***Excepted Risks***
1.17	Word importing the singular only, also includes the plural and vice-versa where the context so requires.	***Singular/ Plural***
1.18	The heading and marginal notes in these General Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.	***Headings/ Marginal Notes.***
1.19	Unless otherwise stipulated the work "Cost" shall be deemed to include overhead costs of the Contractor, whether on or off the site.	***Cost***
2.0	DUTIES & POWERS OF ENGINEER & ENGINEER'S REPRESENTATIVE.	
2.1	The Contractor shall execute, compete and maintain the works in terms of the contract to the entire satisfaction of the Engineer and Shall comply with the Engineer's direction on any matter whatsoever.	***Engineer's Authority***

2.2 The Contractor shall take instructions from the Engineer and subject to limitation of Clause 2.5 hereof, from the Engineer's Representative.

Authority of Engineer's Representative Engineer's Power

2.3 The Engineer shall have full power and authority:

(a) 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 proper and adequate execution and maintenance of the works and the contractor shall carry out and be bound by the same.

(b) to alter or modify the specification of any material and workmanship and to inspect the work at anytime.

(c) to order for any variation, alteration and modification of the work and for extra works.

(d) to issue certificates as per contract.

(e) to settle the claims & disputes of the Contractor and Trustees, as the first referee.

(f) to grant extension of completion time.

2.4 The Engineer's Representative shall :

Power of Engineer's Representative

(i) watch and supervise the works.

(ii) test and examine any material to be used or workmanship employed in connection with the work.

(iii) have power to disapprove any material and workmanship not in accordance with the contract and the contractor shall comply with his direction in this regard.

(iv) take measurements of work done by the contractor for the purpose of payment or otherwise.

(v) order demolition of defectively done work for its reconstruction all by the Contractor at his own expense.

(vi) have powers to issue alteration order not implying modification of design and extension of completion time of the work and

(vii) have such other powers and authorities vested in the Engineer, which have been delegated to him in writing by the Engineer under intimation to the Contractor.

2.5 *Provided always that the Engineer's Representative shall have no power:*

Limitation of Engineer's Representative's Power

(a) to order any work involving delay or any extra payment by the Trustees,

(b) to make variation of or in the works; and

(c) to relieve the Contractor of any of his duties or obligations under the Contract.

2.6 Provided also as follows:

Engineer's Overriding Power

(a) Failure of Engineer's Representative to disapprove any work or materials shall not prejudice the power of the Engineer thereafter to disapprove such work or materials and to order the pulling down, removal, breaking- up thereof and re-constructing at the contractor's cost and the contractor shall have no claim to compensation for the loss if any sustained by him.

(b) If the contractor shall be dissatisfied by reason of any decision of the Engineer's Representative, he shall be entitled to refer the matter to the Engineer who shall thereupon confirm, reverse or vary such decision.

(c) Any written instructions or written approval given by the Engineer's Representative to the contractor, within the terms of delegation of power and authority vested in the Engineer to his Representative in writing, shall bind the contractor and the Trustees as though it had been given by the Engineer, who may from time to time make such delegation.

3.0 THE TENDER/OFFER AND ITSPRE-REQUISITES

3.1 The Contractor shall, before making out and submitting his tender/offer, be deemed to have inspected and examined the site, fully considered all factors, risks and contingencies, which will have direct and indirect impact on his expenses and profit from the work and shall be specifically deemed to have taken the following aspects into consideration:

The tender must encompass all relevant aspects/ issues

(a) The form and nature of the site and its surroundings including their sub-surface, hydrological, tidal and climatic conditions, the means of access to the site and all other local conditions, including the likely charges and costs for temporary way-leave, if any, required for the work.

Site & Local condition.

(b) The drawings, specifications, the nature and extent of work to be executed and the quality, quantity and availability of the required materials and labour for the work and the need to execute the work to the entire satisfaction of the Engineer, and also by complying with the General and Special Conditions of Contract.

Drawing/ Specification/ Nature& extent of work to be done.

(c) The accommodation required for the workmen and site office, mobilisation/ demobilisation and storage of all plant, equipment and Construction materials. ***Accommodation for Contractor's men/materials.***

(d) The sources and means of procurement of water for drinking, washing and execution of work, and source and availability of electrical power, all at Contractor's cost. ***Water for drinking etc./Electrical power***

(e) Payment of taxes and duties and compliance of all applicable statutes, ordinances and law together with the rules made thereunder, the rules, regulations and bye-laws of public bodies or any local or other authority by the Contractor, keeping the Trustees indemnified against penalties and liabilities of every kind arising from the Contractor's failure in such compliance. ***Payment of Taxes/duties and observance of all statutes***

(f) Payment of all kinds of stamp-duty for executing the agreement or for any legal instrument including Bank Guarantees and Indemnity Bonds. ***Payment of Stamp Duty by the Contractor***

3.2 The Contractor's tender shall be in ink on the Tender Forms supplied by the Trustees, unless stipulated otherwise in the Notice Inviting the Tender and shall be faultless in figures and free from erasing. Corrections, if any, shall only be made by scoring out and initialling of the revised figure.

3.3 If required by the Engineer or the Trustees, the Contractors in their tender or subsequently, shall disclose the names of their owners/partners/share holders at the required points of time. The failure in this regard shall be treated as a breach and a contract, if entered into, shall be liable to be cancelled. ***Disclosure of Owner's name.***

3.4 (a) Unless otherwise stipulated in the Notice Inviting Tender / Offer, every tender must be submitted with Earnest Money of the amount calculated as per the following scale. ***Earnest Money and Security Deposit***

Estimated Value ofWork	Amount of Earnest Money	
	For Works Contract	For Contract of Supplying Materials or Equipment only
Up to Rs. 1,00,000=00	5% of the estimated value of work	1% of the estimated value of Work
Over Rs. 1,00,000=00	2% of the estimated value of work subject to a maximum of Rs. 20,000/- and minimum ofRs. 5,000/-.	½% of the estimated value of work subject to a maximum of Rs. 10,000/- and minimum of Rs. 1,000/- .

(b) Earnest Money shall be deposited with the Trustees' treasurer in cash or by Banker's Cheque of any Calcutta Branch of a Nationalised Bank of India drawn in favour of Calcutta Port Trust or in the form of any "Account Payee" Draft of any Nationalised Bank of India drawn in favour of "Calcutta Port Trust" and payable at Calcutta/Haldia, as the case may be, and the receipt granted therefor be kept attached to the Tender/Offer in the Sealed Cover.

Method of Paying E.M.

(c) Earnest Money of unaccepted tender shall be refunded without any interest through A/c. Payee Cheque drawn on a Nationalised Bank of Calcutta / Haldia.

Refund of E.M.

(d) The enlisted (registered) Contractors of the Trustees who have deposited fixed Security with the Trustees' FA & CAO / Manager (Finance) according to his Class of Registration, shall be exempt from depositing the Earnest Money, as per the following scale:

Exemption from E.M. to Regd. Firms

Class of Registration	Amount of Fixed Security	Financial Limit of Each Tender
A	Rs. 25,000/-	Any tender priced up to Rs.5,00,000/-
B	Rs. 10,000/-	Any tender priced up to Rs.2,00,000/-
C	Rs. 5,000/-	Any tender priced up to Rs.1,00,000/-

(e) (i) Tender submitted without requisite Earnest Money may be liable to rejection.

Tender with- out EM liable to rejection.

(ii) If before expiry of the validity period of his Tender/Offer, the tenderer amends his quoted rates or tender/offer making them unacceptable to the Trustees and/or withdraws his tender/offer, the Earnest Money deposited shall be liable to forfeiture at the option of the Trustees.

Forfeiture of E.M. before Acceptance of offer.

(f) The Earnest Money of accepted tender/offer shall be retained by the Trustees as part of the Security Deposit, for which a separate Treasury Receipt shall be issued to the Contractor after cancellation of the previous Receipt of Earnest Money.

E.M. to be converted to part S.D.

(g) Balance security for works contract shall be recovered by deduction from all progressive Bill (including final Bill, if necessary) @ 10% of the gross value of work in each such bill, so that the total recovery may not exceed the quantum computed as per the under noted percentages of the total value of work actually done up to the stage of completion.

Mode of recovery of balance S.D.

GC - 8

Value of Work	% of Security Deposit for works contract.	% of Security Deposit For contract of supply- ing materials & equipment only.
For works up to Rs.10,00,000/-.	10% (Ten percent)	1% (One percent)
For works costing more than Rs.10,00,000/- and up to Rs.20,00,000/-	10% on first Rs.10,00,000/- +7½% on the balance.	1% on firstRs.10,00,000/- + ½% on the balance.
For works costing more than Rs.20,00,000/-	10% on first Rs.10,00,000/- + 7 ½% on the next Rs.10,00,000/- +5% on the balance.	1% on firstRs.10,00,000/- + ½% on the next Rs.10,00,000/- + ¼% on the balance.

Scale of S.D. recovery.

(h) Balance Security for Contract of supplying materials and equipment computed in terms of the percentages given above, shall have to be deposited with the Trustees' Treasurer in advance and within 30 days from the date of placement of supply order, either in cash or by A/c. Payee Draft of a Nationalised Bank of India drawn in favour of Calcutta Port Trust and payable at Calcutta/Haldia, as the case may be.

S.D. for supply contracts to be deposited in advance

(i) No interest shall be paid by the Trustees to the Tenderer/Contractor on the amount of Earnest Money/Security Deposit held by the Trustees, at any stage.

No interest payable on E.M. /S.D

3.5 (i) The Security Deposit shall refunded to the Contract or in terms of Clause 9.3 hereinafter and subject to deduction, if any, under the provision of Sub-clause 3.5 (ii) herein below. Id, however, the Contract provides for any maintenance period. 50% of the Security Deposit may be refunded against any of the treasury Receipt for that amount on expiry of half of the maintenance period and the balance deposit on the expiry of the said maintenance period and after the Engineer has certified the final completion of work in Form G.C.2 and the Contractor has submitted his "No Claim" Certificate in Form G.C.3.

Mode of refund of S.D.

(ii) The Security Deposit/Earnest Money may be liable to forfeiture at the option of the Trustees, if the Contractor fails to carry out the work or to perform/observe any of the conditions of the Contract. The Trustees shall also be at liberty to deduct any of their dues from the Security Deposit, fixed Security, Earnest Money or from any sum due or to become due to the Contractor under any other contract.

Forfeiture of S.D.

3.6 If stipulated in the contract as a Special Condition, the contractor shall have to submit to the Engineer a performance Bond in the form of an irrevocable guarantee from Calcutta/Haldia Branch, as the case may be, of any Nationalised Bank of India in the proforma annexed hereto and for the sum and period as mentioned in the letter of acceptance of the Tender/Offer, within 15 days from the date of such letter, failing which the Contract shall be liable to be terminated and the earnest money shall be liable to forfeiture; all at the discretion of the Engineer. The cost of obtaining this or any other Bank Guarantee and/or the revalidation thereof, wherever required, has to be borne by the Contractor and it shall be his sole responsibility to arrange for timely revalidation of such Bank Guarantee, failing which and for non-fulfilment of any contractual obligation by the Contractor, the Engineer and/or the Trustees shall be at liberty to raise claim against the Guarantee and/or enforce the same unilaterally.

Bank Guarantee in lieu o f Cash S.D. in certain Cases

3.7 "Every Tenderer/ Bidder shall submit, in respect of a tender value of more than Rs. 5 Crore, along with their tender comprising Special Conditions of Contract, General Conditions of Contract, BOQ, Earnest Money, etc. a document called Integrity Pact Agreement duly signed by their authorized representative. The Proforma of the Integrity Pact Agreement shall as specified in the GCC. In case of tender value more than Rs 5 Crore, the Integrity Pact Agreement is an essential part and parcel of bid document to be submitted by each tenderer, without which the tender shall not be considered."

4.0 THE CONTRACT & GENERAL OBLIGATIONS OFCONTRACTOR

4.1 (a) The contract documents shall be drawn-up in English language.

English language to be used

(b) The contract shall be governed by all relevant Indian Acts. As applicable only within the jurisdiction of the High Court at Calcutta, India, including the following Acts:

Applicability of laws on the contract

1) The Contract Act (India), 1872.
2) The Major Port Trusts Act,1963.
3) The Workmen's Compensation Act,1923.
4) The Minimum Wages Act,1948.
5) The Contract Labour (Regulation & Abolition) Act,1970.
6) The Dock Workers' Act,1948.
7) The Arbitration and Conciliation Act (1996) (in the case of a definite Arbitration Agreement only).
8)

4.2 After acceptance of his Tender/Offer and when called on to do so by the engineer or his representative, the contractor shall, at his own expense, enter into and execute a Contract Agreement to be prepared by him in the form annexed hereto. Until such Contract Agreement is executed, the other documents referred to in the definition of the term 'Contract' here-in-before, shall collectively be the Contract.

Contractor to Execute Contract Agreement.

4.3 Several documents forming the contract are to be taken as mutually explanatory of one another. Should there by any discrepancy, ambiguity, omission or error in the various contract documents, the Engineer shall have the power to correct the same and his decision shall be final and binding on the parties to the Contract.

Interpretation of Contract documents– Engineers' Power

4.4 Single copies of the Drawings referred to in the general and special Conditions of Contract and in the Bill of Quantities, shall be furnished by the Engineer to the Contractors free of cost for his use on the work, but these shall remain the property of the Trustees and hence, the Contractor shall return them to the Engineer or his Representative on completion of the work, if not torn or mutilated on being regularly used at site.

All Drawings are Trustees' property

4.5 The Contractor shall prove and make at his own expense any working or progress drawings required by him or necessary for the proper execution of the works and shall, when required, furnish copies of the same free of cost to the Engineer for his information and/or approval, without meaning thereby the shifting of Contractor's responsibility on the Engineer in any way whatsoever.

Contractor to prepare working / progress drawings

4.6 The Contractor shall not directly or indirectly transfer, assign or sublet the Contract or any part thereof without the written permission of the Engineer. Even if such permission be granted, the Contractor shall remain responsible (a) for the acts, defaults and neglect of any sub-contractor, his agents, servants or workmen as fully as if these were the acts, defaults or neglects of the Contractor himself or his agents, servants or workmen and (b) for his full and entire responsibility of the contract and for active superintendence of the works by him despite being sublet, provided always that the provision of labourers on a "piece rate" basis shall not be deemed to be sub-letting under this clause.

Contractor cannot sub-let the work

4.7 Unless otherwise specified, the Contractor shall be deemed to have included in his Tender/Offer all his cost for supplying and providing all constructional plant, temporary work. Materials both for temporary and permanent works, labour including supervision thereof, transporting to and from the site and in and about the work, including loading, unloading, fencing, watching, lighting, payment of fees, taxes and duties to the appropriate authorities and other things of every kind required for the construction, erection, completion and maintenance of the work.

Contractors' price is inclusive of all costs

4.8 The Contractor shall be solely responsible for the adequacy, stability and safety of all site operations and methods of construction, even if any prior approval thereto has been taken from the Engineer or his Representative. The Contractor shall not be responsible for the correctness of the design or specification of the Temporary and Permanent works formulated by the Engineer; but the Contractor shall be fully responsible for the correct implementation thereof, as also for any design and specification prepared/proposed/used by the Contractor.

Contractor is responsible for all construction process, except for correctness of design and specification formulated by the Engineer

4.9 Whenever required by the Engineer or his representative, the Contractor shall submit to him the details of his (a) programme for execution of the work, (b) proposed procedure and methods of work, (c) proposed deployment of plant, equipment, labour, materials and temporary works. The submission to and/or any approval by the Engineer or his Representative to any such programme or particulars shall not relieve the Contractor of any of his obligations under the contract.

Contractor to submit his programme of work

If for any reason the contractor be unable to adhere to his earlier programme, he shall submit his revised programme for completion of work within the stipulated time whenever asked to do so.

4.10 Necessary and adequate supervision shall be provided by the Contractor during execution of the works and as long thereafter as the Engineer or his representative shall consider necessary during the maintenance period. The Contractor or his competent and authorised agent or representative shall be constantly at site and instructions given to him by the Engineer or his representative in writing shall be binding upon the Contractor subject to limitation in Clause 2.5 hereof. The Contractor shall inform the Engineer or his representative in writing about such representative/agent of him at site.

Contractor to supervise the works

4.11 The Contractor shall employ in execution of the Contract only qualified careful and experienced persons and the Engineer shall be at liberty to direct the Contractor to stop deployment of any of is staff, workmen or official at site and the Contractor shall within 48 hours comply with such instruction without any demur whenever the Engineer shall feel that the deployment of the person concerned will not be conducive to the proper and timely completion of the work.

Contractor to deploy qualified Men and Engineer's power To remove Contractor's men

4.12 The Contractor shall be responsible for the true and proper setting out of the works in relation to reference points/lines/levels given by the Engineer in writing. The checking of any setting-out or of any alignment or level by the Engineer or his Representative shall not in any way relieve the contractor of his responsibility for the correctness thereof and he shall fully provide protect and preserve all stakes, templates, bench marks, sight rails, pegs, level marks, profile marks and other things used in setting out the works.

Contractor is responsible for line, level, setting out etc.

4.13 From the commencement of the works till issue of the completion certificate in Form G.C.1, vide Clause 5.12 hereof, the contractor shall take full responsibility for the care thereof. Save for the excepted risks, any damage, loss or injury to the work or any part thereof shall be made good by the Contractor at his own cost as per instruction and to the satisfaction of the engineer, failing which the Engineer or his Representative may cause the same to be made good by any other agency and the expenses incurred and certified by the Engineer shall deem proper. This Clause will not apply to that part of the work, which might have been taken over by the Trustees on partial completion of the work and in such case the Contractor's obligation will be limited to repairs and replacement for manufacturing or construction defects during the Maintenance period (Guarantee Period) as per the directions of the Engineer as also for defects/damages if any caused to the work by the Contractor during such repairs and replacement in the maintenance period.

Contractor is responsible to protect the work

4.14 The Contractor shall at his own cost protect support and take all precautions in regard to the personnel or structure or services or properties belonging to the Trustees or not which may be interfered with or affected or disturbed or endangered and shall indemnify and keep indemnified the Trustees against claim for injury, loss or damage caused by the Contractor in connection with the execution and maintenance of the work to the aforesaid properties, structures and services and/or to any person including the Contractor's workmen. Cost of Insurance Cover, if any, taken by the Contractor shall not be reimbursed by the Trustees, unless otherwise stipulated in the Contract.

Contractor is responsible for all damages to other structures / Persons caused by him in executing The work.

4.15 The Contractor shall immediately inform the Engineer's Representatives if any fossil, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological importance be discovered at site which shall remain the property of the Trustees and protect them from being damaged by his workmen and arrange for disposal of them at the Trustees' expense as per the instruction of the Engineer's Representative.

Fossils, Treasure travois, etc. are Trustees' property

4.16 The Contractor shall be deemed to have indemnified and shall indemnify the Trustees against all claims, demands, actions and proceedings and all costs arising there from on account of:

Contractor to Indemnify the Trustees against all claims for loss, damage, etc.

(a) Infringement of any patent right, design, trademark or name or other protected right in connection with the works or temporary work.

(b) Payment of all royalties, rent, toll charges, local taxes, other payments or compensation, if any, for getting all materials and equipment required for the work.

(c) Unauthorised obstruction or nuisance caused by the contractor in respect of Public or Private or Private road, railway tracks, footpaths, crane tracks, waterways, quays and other properties belonging to the Trustees or any other person.

(d) Damage/injury caused to any highway and bridge on account of the movement of Contractor's plants and materials in connection with the work.

(e) Pollution of waterway and damage caused to river, lock, sea-wall or other structure related to waterway, in transporting contractor's plants and materials.

(f) The Contractor's default in affording all reasonable facilities and accommodation as per the direction of the Engineer or his Representative to the workmen of the Trustees and other agencies employed by or with the permission and/or knowledge of the Trustees on or near the site of work.

4.17 Debris and materials, if obtained by demolishing any property, building or structure in terms of the Contract shall remain the property of the Trustees.

Dismantled materials Trustees' property

4.18 The Contractor's quoted rates shall be deemed to have been inclusive of the following:

Contractor's quoted rates/price Must be all inclusive

(a) Keeping the site free of unnecessary obstruction and removal from site of constructional plant wreckage, rubbish, surplus earth or temporary works no longer required.

(b) Cleaning and removal from site all the surplus materials of every kind to leave the site clean and tidy after completion of the work, without which payment against final bill may be liable to be withheld.

(c) Precautionary measures to secure efficient protection of Docks, the River Hooghly and other waterways against pollution of whatever nature during execution and maintenance of the works and to prevent rubbish, refuse and other materials from being thrown into the water by the Contractor's men or those of his agency.

(d) Making arrangements for deployment of all labourer and workers, local or otherwise including payment for their wages, transport, accommodation, medical and all other statutory benefits and entry permits, where ever necessary.

(e) Making arrangements in or around the site, as per the requirements of local authority or the Engineer or his Representative for preventing (i) spread of any infectious disease like smallpox, cholera, plague or malaria by taking effective actions for destruction of rats, mice, vermin, mosquitoes, etc. and by maintaining healthy and sanitary condition, (ii) illegal storage and distribution of Drugs, Narcotics, Alcoholic liquor, Arms and Ammunitions, (iii) unlawful, riotous or disorderly conduct of the Contractor's or his Sub-Contractor's workmen, (iv) deployment of workmen of age less than 16 years.

4.19 Every direction or notice to be given to the Contractor shall be deemed to have been duly served on or received by the Contractor, if the same is posted or sent by hand to the address given in the tender or to the Contractor's Site Office or to the Registered Office of the Contractor. The time mentioned in these conditions for doing any act after direction or notice shall be reckoned from the time of such posting or despatch.

Notice to Contractor

4.20 The Contractor and his Sub-contractor or their agents and men and any firm supplying plant, materials and equipment shall not publish or caused to be published any photographs or description of the works without the prior authority of the Engineer in writing.

Contractor not to publish photograph or particulars of work

4.21 The Contractor shall at the Trustees' cost to be decided by the Engineer render all reasonable facilities and Co-operation as per direction of the Engineer or his representative to any other Contractor engaged by the Trustees and their workmen to the Trustees' own staff and to the men of other Public Body on or near the site of work and in default the Contractor shall be liable to the Trustees for any delay or expense incurred by reason of such default.

Contractor to provide facilities to outsiders

4.22 The work has to be carried out by the Contractor causing the minimum of hindrance for any maritime traffic or surface traffic.

Work to cause minimum possible hindrance to traffic movement

4.23 All constructional plants, temporary works and materials when brought to the site by the Contractor shall be deemed to be the property of the Trustees who will have lien on the same until the satisfactory completion of the work and shall only be removed from the site in part or in full with the written permission of the Engineer or his Representative.

Trustees' lien on Contractor's Plant & Equipment.

5.0 COMMENCEMENT, EXECUTION AND COMPLETION OFWORK.

5.1 The Contractor shall commence the work within 7 days of the receipt of Engineer's letter informing acceptance of the Contractor's tender/offer by the Trustees or within such preliminary time as mentioned by the Contractor in the Form of Tender or the time accepted by the Trustees. The Contractor shall then proceed with the work with due expedition and without delay, except as may be expressly sanctioned or ordered by the Engineer or his Representatives, time being deemed the essence of the contract on the part of the contractor.

Preliminary time to commence work an maintenance of steady rate of progress

5.2 The Contractor shall provide and maintain a suitable office at or near the site to which the Engineer's Representative may send communications and instructions for use of the Contractor.

Contractor's site office

5.3 Unless specified otherwise in the contract or prior permission of the Engineer has been taken, the contractor shall not execute the work beyond the working hours observed by the Engineer's Representative and on Sundays and Holidays observed in the Trustees' system, except in so far as it becomes essential on account of tidal work or for safety of the work. If the progress of the work lags behind schedule or the work has been endangered by any act or neglect on the part of the contractor, then the Engineer or his Representative shall order and the contractor at his own expense shall work by day and by night and on Sundays and Public Holidays. Any failure of the Engineer or his Representative to pass such an order shall not relieve the contractor from any of his obligations. The Engineer's decision in this regard shall be final binding and conclusive.

Contractor to observe Trustees' working hours

5.4 Unless stipulated otherwise in the contract all materials required for the work shall be procured and supplied by the contractor with the approval of the Engineer or his Representative and subject to subsequent testing as may be required by the Engineer or his Representative. The Engineer shall exercise his sole discretion to accept any such materials.

Contractor to supply all materials as per requirement of the Engineer or his representative

5.5 Unless stipulated otherwise in the contract all materials, workmanship and method of measurement shall be in accordance with the relevant Codes (Latest Revision) of the Bureau of Indian Standards and the written instructions of the Engineer or his Representative. Where no specific reference is available in the contract, the material and workmanship shall be of the best of their respective kinds to the satisfaction of the Engineer.

Materials &Works

5.6 Samples shall be prepared and submitted for approval of the Engineer or his representative, whenever required to do so, all at the Contractor's cost.

Contractor to submit samples for approval

Unless stipulated otherwise in the contract, the cost of any test required by the Engineer or his representative in respect of materials and workmanship deployed on the work, shall be borne by the Contractor.

Contractor to arrange all testing at his own cost.

5.8 Regarding the supply of any materials by the Trustees to the contractor in accordance with the contract, the following conditions shall apply:

(a) The Contractor shall, at his own expense, arrange for transporting the materials from the Trustees' Stores, watching, storing and keeping them in his safe custody, furnishing of statement of consumption thereof in the manner required by the Engineer or his representative, return of surplus and empty container to the Trustees' Stores as per the direction of the Engineer or his Representative.

The Contractor shall account for and look after the Trustees' materials

(b) Being the custodian of the Trustees' materials, the contractor shall remain solely responsible for any such materials issued to him and for any loss or damage thereof for any reason other than "Excepted Risks", the Contractor shall compensate the Trustees' in the manner decided by the Engineer and shall at no stage remove or cause to be removed any such material from the site without his permission in writing.

Contractor to compensate for loss and damage to Trustees' materials

(c) The Trustees' materials will generally be supplied in stages and in accordance with the rate of progress of work but except for grant of suitable extension of completion time of work as decided by the Engineer. The Contractor shall not be entitled to any other compensation, monetary or otherwise, for any delay in the supply of Trustees' materials to him. The Contractor shall, however, communicate his requirement of such materials to the Engineer from time to time.

Delay in supply of Trustees' materials will only entitle the Contractor for extension of completion time of work

(d) Unless stipulated otherwise in the contract, the value of the Trustees' materials issued to the contractor shall be recovered from the contractor's bills and/or any of his other dues, progressively according to the consumption thereof on the work and/or in the manner decided by the Engineer or his representative and at the rate/s stipulated in the contract. These rates shall only be considered by the contractor in the preparation of his tender/offer and these will form the basis of escalation/variation, if in future the contractor is required to procure and provide any such material on the written order of the Engineer consequent on the Trustees' failure to effect timely supply thereof.

Recovery from Contractor for Trustees' materials under normal circumstances

(e) If the Engineer decides that due to the contractor's negligence, any of the Trustees' materials issued to the contractor has been – (i) lost or damaged, (ii) consumed in excess of requirement and (iii) wasted by the contractor in excess of normal wastage, then the value thereof shall be recovered from the contractor's bills or from any of his other dues, after adding 19 ¼% extra over the higher one of the followings-

1. The issue rate of the materials at the Trustees' Stores and
2. The market price of the material on the date of issue as would be determined by the Engineer.

Recovery from Contractor for Trustees' materials under other circumstances

5.9 The Engineer or his Representative shall have the power to insect any material and work at any time and to order at any time – (i) for removal from the site of any material which in his opinion is not in accordance with the contract or the instruction of the engineer or his representative,
(ii) for the substitution of the proper and suitable materials, or (iii) the removal and proper re-execution of any work which in respect of material and workmanship is not in accordance with the contract or the instructions of the Engineer. The Contractor shall comply with such order at his own expense and within the time specified in the order. If the contractor fails to comply, the Engineer shall be at liberty to dispose any such materials and re-do any work in the manner convenient to the Trustees by engaging any outside agency at the risk and expense of the contractor and after giving him a written prior notice of 7 days.

Contractor to replace materials/work not acceptable to the Engineer or his Representative

5.10 No work shall be covered up and put out of view by the contractor without approval of the Engineer or his Representative and whenever required by him, the contractor shall uncover any part or parts of the work or make openings in or through the same as may be directed by the Engineer or his representative from time to time and shall reinstate or make good those part of works thus affected to the satisfaction of the Engineer, all at the cost of the contractor.

The Trustees shall reimburse such cost as determined by the Engineer, if the initial covering up was with prior written order of the Engineer or his Representative.

Contractor to seek Approval of Engineer or his Representative before covering up any portion of work

5.11 On a written order of the Engineer or his Representative, the contractor shall delay or suspend the progress of the work till such time the written order to resume the execution is received by him. During such suspension the contractor shall protect and secure the work to the satisfaction of the Engineer or his Representative. All extra expenses in giving effect to such order shall be considered by the Trustees, unless such suspension is –

Contractor to suspend work on Order from Engineer or his Representative

(a) otherwise provided for in the contract, or
(b) necessary by reason of some default on the part of the contractor, or
(c) necessary by reason of climatic conditions on the site, or
(d) necessary for proper execution of the works or for the safety of the works or any part thereof.

The Engineer shall settle and determine such extra payment and/or Extension of completion time to be allowed to the contractor, as shall, in the opinion of the Engineer be fair and reasonable, and the same shall be final and binding on the Contractor.

5.11.1 If at any time before or after commencement of the work the Trustees do not require the whole of the work tendered for the Engineer shall notify the same to the contractor in writing and the contractor shall stop further works in compliance of the same. The Contractor shall not be entitled to any claim for compensation for underived profit or for such premature stoppage of work or on account of curtailment of the originally intended work by reason of alteration made by the Engineer in the original specifications, drawings, designs and instructions.

5.12 When the whole of the work has been completed to the satisfaction of the Engineer and has passed any final test prescribed in the contract, the contractor shall, within 21 days of submission of his application to the Engineer, be entitled to receive from him a certificate for completion of work in Form G.C.1, annexed hereto. If any part of the total work having been completed to the satisfaction of the Engineer, be taken over and/or used by the Trustees, the Contractor shall on application be entitled to partial completion certificate in the Form G.C.1 indicating the portion of the work covered by it, so that the Contractor's liability during maintenance period of the contract, if any, shall commence from the date mentioned in such certificate so far as the completed portion of the work is concerned.

Completion Certificate G.C.1.

6.0 TERMS OF PAYMENT:

6.1 No sum shall be considered as earned by or due to the Contractor in respect of the work till final and satisfactory completion thereof and until a certificate of final completion in Form G.C.2 has been given by the Engineer.

All interim payments are advances till issue of Certificate in Form G.C.2

On account payments, if any, made prior to issue of the certificate in Form G.C.2, shall all be treated as mere advance, which shall stand recoverable in full or in part, if the Engineer so decides in the context of Contractor's unfulfilled contract condition, if any.

6.2 All payments shall be made to the Contractor only on the basis of measurements of actual work done, as recorded in the Trustees' measurement books and at accepted tendered or at agreed rates, as the case may be, except as otherwise provided in the contract and when the Engineer decides any other rate for change in the scope of work or omission, if any, on the part of the Contractor.

Payment on the Basis of measurements at agreed rates.

6.3 For work of sanctioned tender value more than Rs.50,000/- or having an initially stipulated completion period of 4 months or more, on account payments may be made sat the discretion of the Engineer or his Representative at intervals deemed suitable and justified by him. Provided always that subject to execution of work of substantial value in the context of the contract price, the interval of such on account payments shall be decided by the Engineer or his Representative, which shall ordinarily not be less than 1 month in between single payments for on account bill and/or advance.

Limitation for on account payment

6.4 Measurement for works done shall be progressively taken by the Engineer's Representative and entered in the Trustees' Measurement Book, at intervals deemed suitable and proper by him and/or the Engineer. The Contractor or his duly accredited Representative or Agent shall remain present at the time of such measurement and assist the engineer's Representative in every manner required by him. After the measurements taken have been entered in the Measurement Book, the Contractor or his Agent shall sign the Measurement Book at the wend of such Measurements over the Contractor's Rubber Stamp as a token of acceptance of all such measurements, recorded above and prior to such signature. If the Contractor or his Agent fails to participate even after 3 days written notice from the Engineer's Representative, the measurement shall be taken ex-parte by the Engineer's Representative and those shall be accepted by the Contractor.

Recording of measurements

6.5 Based on the quantum of work and the value thereof computed in the Measurement Book, the Contractor shall type out his bill in the proforma approved by the Engineer and submit the same to the Engineer's Representative in quadruplicate, duly signed by him or his accredited Agent over his Rubber Stamp. The Engineer or his Representative may in his absolute discretion, allow advance payment against such bill to the extent of an amount not exceeding 75% of the "net payable" sum of the said bill, subject to adjustment thereof against the bill at the time of checking and auditing the bill at the Trustees' end. The measurement Book will not be handed over to the Contractor; but he will obtain the abstracts of quantities, amounts and recoveries to type out the bill.

Contractor to prepare and submit his bills

6.6 At the discretion of the Engineer or his Representative and only in respect of accepted offers/where estimated amount put to tender would be Rs.2,00,000/- or more, advance payment may be made to the extent of 75% of the value of any material purchased and brought to the site by the Contractor. Provided always that –

Advance payment against Non-perishable materials

i) Advance payment against Non- perishable materials.

ii) the value of such materials shall be assessed by the engineer or his Representative at their own discretion,

iii) a formal agreement has been drawn up with the contractor, under which the Trustees secure a lien on the contractor's materials,

iv) the materials are safe-guarded by the contractor against losses, shortage and misuse due to the contractor postponing the execution of the work or otherwise,

v) in the event of storage of such materials within the Trustees' protected areas in the Docks, the contractor shall submit an Indemnity Bond in the proforma and manner acceptable to Trustees' whereby the contractor shall indemnify the Trustees against all financial loss/damage, on account of loss/damage to such materials for whatever reasons,

GC-20

vi) in the event of storage of such materials outside the Trustees' protected areas the Contractor shall submit to the Engineer an irrevocable Bank Guarantee favouring the Trustees and for the same sum as is being advance, in the proforma and manner acceptable to the Trustees. The Guarantee shall be of a Calcutta/Haldia Branch of any Nationalised Bank or a Schedule Commercial Bank, as the case may be, acceptable to the Trustees and shall remain valid till the anticipated period of consumption of such materials in the work. The Bank Guarantee must bear an undertaking by the issuing Bank guaranteeing automatic payment of the guaranteed sum to the Trustees by the Bank on the date of expiry of the validity of the Guarantee, unless with the prior written approval of the Engineer on behalf of the Trustees, the Bank has extended the validity of the Guarantee.

vii) The amount of advance shall be recoverable from the contractor's bills or any other dues, progressively with the consumption of the materials on the basis

of quantity consumed. Consequent on full recovery of the advance the Indemnity Bond/Bank Guarantee, vide Sub-clause (v) & (vi) above, shall be returned to the Contractor duly discharged by the Engineer on behalf of the Trustees.

6.7 No certificate of the Engineer or his representative shall protect the Contractor against or prevent the Trustees from obtaining repayment from the Contractor, in case the Engineer or his representative should over certify for payment or the Trustees should over-pay the Contractor on any account.

Recovery for wrong and over payment

6.8 No claim for interest shall be admissible or payable to the Contractor at any stage and in respect of any money or balance or Bank Guarantee, which may be due to the Contractor from the Trustees, owing to dispute or otherwise or for any delay on the part of the Trustees in making interim or final payment or otherwise.

Interest not admissible to Contractor

7.0 VARIATION AND ITSVALUATION:

7.1 The Quantities set out in the Bill of Quantities of the tender shall be treated as estimated quantities of the work and shall never be deemed as actual or correct quantities of the works to be executed by the contractor in fulfillment of his obligation under the contract.

Quantities in Bill of Quantities of Tender

7.2 The Engineer shall have the power to order the Contractor in writing to make any variation of the quantity, quality or form of the works or any part thereof that may, in his opinion, be necessary and the Contractor upon receipt of such an order shall act as follows:

Engineer's power to vary the works

GC-21

7.2 a) Increase or decrease the quantity of any work included in the contract.

b) Omit any work included in the contract.

c) Change the Character or quality or kind of any work included in the contract.

d) Change the levels, lines, position and dimensions of any part of the work, and

e) Execute extra and additional work of any kind necessary for completion of the works

7.3 No such variation shall in any way vitiate or invalidate the contract or be treated ass revocation of the contract, but the value (if any) of all such variations evaluated in accordance with the Engineer's sole decision shall be taken into account and the contract price shall be varied accordingly.

Variation by engineer do not Vitiate the contract

7.4 Provided always that written order of the Engineer shall not be required for increase or decrease in the quantity of any work upto 15% where such increase or decrease is not the result of any variation order given under this clause but is the result of the quantities exceeding or being less than those stated in the bill of quantities. Provided also that verbal order of variation from the Engineer shall be complied with by the Contractor and the Engineer'' subsequent written confirmation of such verbal order shall be deemed to be an order in writing within the meaning of this clause.

Where written Order for variation is not Needed

7.5 a) The Contractor shall not be entitled to any claim of extra or additional work unless they have been carried out under the written orders of the Engineer.

Payment for Extra or additional, or omitted work or substituted work,

b) The Engineer shall solely determine the amount (if any) to be added to or deducted from the sum named in the tender in respect of any extra work done or work omitted by his order. ***Engineer's powers***

c) All extra, additional or substituted work done or work omitted by order of the Engineer shall be valued on the basis of the rates ad prices set out in the contract, if in the opinion of the Engineer, the same shall be applicable. If the contract does not contain any rates or prices directly applicable to the extra, additional or substituted work, then the Engineer may decide the suitable rates on the basis of Schedule of Rates (including surcharge in force at the time of acceptance of tender), if any, adopted by the Trustees with due regard to the accepted contractual percentage, if any thereon. In all other cases the Engineer shall solely determine suitable rates in the manner deemed by him as fair and reasonable, and his decision shall be final, binding and conclusive.

GC-22

d) If the nature or 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 of prices contained in the contract for any item of the works or the rate as evaluated under sub-clauses (b) and (c) of this clause, is by reason of such omission or addition rendered unreasonable or in-applicable, the Engineer shall fix such other rate or price as he deems proper and the Engineer's decision shall be final, binding and conclusive.

8.0 DELAY / EXTENSION OF COMPLETION TIME / LIQUIDATED DAMAGE / TERMINATION OFCONTRACT

8.1 Should the quantum of extra or additional work of any kind or delayed availability of the Trustees' materials to be supplied as per contract or exceptionally adverse climatic conditions and natural phenomenon or strikes, lock-outs, civil commotion or other special circumstances of any kind beyond the control of the Contractor, cause delay in completing the work, the contractor shall apply to the Engineer in writing for suitable extension of completion time within 7 days from the date of occurrence of the reason and the Engineer shall thereupon consider the stated reasons in the manner deemed necessary and shall either reject the application or determine and allow in writing the extension period as he would deem proper for completion of the work with or without the imposition of "Liquidated Damage" Clause (No.8.3 hereof) on the Contractor and his decision shall be final and binding on the Contractor. If an extension of completion time is granted by the Engineer without imposition of liquidated damage, from the Clause No.8.3 of the Liquidated damage shall apply from its date of expiry, if the work be not completed within the extended time, unless stated otherwise in the decision communicated by the Engineer, as afore said. ***Extension of completion time***

8.2 a) If the Contractor fails to complete the work within the stipulated dates or such extension thereof as communicated by the Engineer in writing, the Contractor shall pay as compensation (Liquidated Damage) to the Trustees and not as a penalty, ½% (half percent) of the total value of work (contract piece) as mentioned in the letter of acceptance of the tender/offer, for every week or part thereof the work remains unfinished. Provided always that the amount of such compensation shall not exceed 10% of the said value of work. The amount of Liquidated damages shall be determined by the Engineer, which shall be final and binding. ***'Liquidated Damage' and other compensation due to Trustees***

8.2 b) Without prejudice to any of their legal rights, the Trustees shall have the power to recover the said amount of compensation/damage in Sub- clause (a) of this clause, from any money due or likely to become due to the Contractor. The payment or deduction of such compensation/damage shall not relieve the Contractor from his obligation to complete the work or from any of his other obligations/liabilities under the contract and in case of the Contractor's failure and at the absolute discretion of the Engineer, the work may be ordered to be completed by some other agency at the risk and expense of the Contractor, after a minimum three days notice in writing has been given to the Contractor by the Engineer or his Representative.

Default of the Contractors remedies & powers/ Termi Nation of Contract

8.3 Without being liable for any compensation to the Contractor, the Trustees may, in their absolute discretion, terminate the contract and enter upon the site and works and expel the Contractor there from after giving him a minimum 3 days' notice in writing, due to occurrence of any of the following reasons and decision of the Trustees in this respect, as communicated by the Engineer shall be final and conclusive:

i) The Contractor has abandoned the contract.

ii) In the opinion of the Engineer, either the progress of work is not satisfactory or the work is not likely to be completed within the agreed period on account of Contractor's lapses.

iii) The Contractor has failed to commence the works or has without any lawful excuse under these conditions has kept the work suspended for at least 15 days despite receiving the Engineer'' or his Representative'' written notice to proceed with the work.

iv) The Contractor has failed to remove materials from site or to dismantle or demolish and replace work for 7 days after receiving from the Engineer or his representative the written notice stating that the said materials or work were condemned and rejected by him under these conditions.

v) The Contractor is not executing the works in accordance with the contract or is persistently or flagrantly neglecting to carry out his obligations under the contract.

vi) Any bribe, commission, gift or advantage is given, promised or offered by or on behalf of the contractor t any officer, servant or representative of the Trustees or to any person on his or their behalf in relation to the obtaining or to the execution of the contract.

vii) The Contractor is adjusted insolvent or enters into composition with his creditors or being a company goes into liquidation either compulsory or voluntary.

8.3.1 Upon receipt of the letter of termination of work, which may be issued by the Engineer on behalf of the Trustees, the Contractor shall hand over all the Trustees' tools, plant and materials issued to him at the place to be ascertained from the Engineer, within 7 days of receipt of such letter.

8.3.2 In all such cases of Termination of work, the Trustees shall have the power to complete the work through any other agency at the Contractor's risk and expense and the Contractor shall be debited any sum or sums that may be expended in completing the work beyond the amount that would have been due to the Contractor, had he duly completed the work of the work in accordance with the contract.

8.3.3 Upon termination of contract, the Contractor shall be entitled to receipt payment of only 90% of the value of work actually done or materials actually supplied by him and subject to recoveries as per contract, provided the work done and materials conform to specifications at the time of taking over by the Trustees. The payment for work shall be based on measurements of actual work done and priced at approved contract rates or other rates, as decided by the Engineer. The payment for materials supplied shall be at the rates as decided by the Engineer, which shall I in no case be more than market rates prevailing at the time of taking over by the Trustees. The Engineer's decision in all such case shall be final, binding and conclusive.

8.3.4 The Trustees shall have the power to retain all moneys due to the Contractor until the work is completed by other agency and the Contractor's liabilities to the Trustees are known in all respect.

9.0 MAINTENANCE AND REFUND OF SECURITYDEPOSIT

Contractor's obligation for maintenance of work.

9.1 On completion of execution of the work the Contractor shall maintain the same for a period, as may be specified in the form of a Special Condition of the Contract, from the date mentioned in the Initial Completion Certificate in Form G.C.1. Any defect/fault, which may appear in the work during aforesaid maintenance period, arising, in the sole opinion of the Engineer or his representative, from materials or workmanship not in accordance with the contract or the instruction of the Engineer or his representative, shall, upon the written notice of the Engineer or his representative, be amended and made good by the Contractor at his own cost within seven days of the date of such notice, to the satisfaction of the Engineer or his representative, failing which the Engineer or his representative shall have the defects amended and made good through other agency at the Contractor's risk and cost and all expenses, consequent thereon or incidental thereto, shall be recoverable from the Contractor in any manner deemed suitable by the Engineer.

9.2 The Contractor shall not be considered completed and the work shall not be treated as finally accepted by the Trustees, until a Final Completion Certificate in Form G.C.2 annexed hereto shall have been signed and issued by the Engineer to the contractor after all obligations under the Contract including that in the maintenance period, if any, have been fulfilled by the Contractor. Previous entry on the works or taking possession, working o using thereof by the Trustees shall not relieve the Contractor of his obligations under the contract for full and final completion of the work.

Certificate of final completion

9.3 On completion of the contract in the manner aforesaid, the Contractor may apply for the refund of his Security Deposit by submitting o the Engineer (I) The Treasury Receipts granted for the amount of Security held by the Trustees, and (ii) his "No further claim" Certificate in Form G.C.3 annexed hereto(in original),where upon the Engineer shall issue Certificate in Form G.C.2 and within single months of the Engineer's recommendation, the Trustees shall refund the balance due against the Security Deposit to the Contractor, after making deduction there from in respect of any sum due to the Trustees from the Contractor.

Refund of Security Deposit

10.0 INTERPRETATION OF CONTRACT DOCUMENTS, DISPUTES AND ARBITRATION

10.1 In all disputes, matters, claims, demands or questions arising out of or connected with the interpretation of the Contract including the meaning of Specifications, drawings, designs and instructions or as to the quality of workmanship or as to the materials used in the work or the execution of the work whether during the progress of the works or after the completion and whether before or after the determination, abandonment or breach of the contract the decision of the Engineer shall be final and binding on all parties to the contract and shall forthwith be given effect to by the Contractor.

Engineer's decision

10.2 If the Contractor be dissatisfied with any such decision of the Engineer, he shall within 15 days after receiving notice of such decision require that the matter shall be referred to Chairman, who shall thereupon consider and give a decision.

Chairman's award.

10.3 If, however, the Contractor be still dissatisfied with the decision of the Chairman, he shall within 15 days after receiving notice of such decision require that within 60 days from his written notice, the Chairman shall refer the matter to an Arbitrator of the panel of Arbitrators to be maintained by the Trustees for the purpose and any such reference shall be deemed to be a submission to arbitration within the meaning of Indian Arbitration Act, 1940 or any statutory modification thereof.

Arbitration

10.3.1 If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever, another person from panel shall be appointed as Sole Arbitrator and he shall proceed from the stage at which his predecessor left it.

10.3.2 The Arbitrator shall be deemed to have entered on reference on the date he issues notice to both the parties fixing the date of first hearing.

10.3.3 The time limit within which the Arbitrator shall submit his award shall normally be 4 months as provided in Indian Arbitration Act, 1940 or any amendment thereof. The Arbitrator may, if found necessary, enlarge the time for making and publishing the award, with the consent of the parties.

10.3.4 The venue of the arbitration shall be either Calcutta or Haldia as may be fixed by the Arbitrator in his sole discretion. Upon every or any such reference the cost of any incidental to the reference and award respectively shall be in the discretion of the Arbitrator who may determine, the amount thereof or by whom and to whom and in what manner the same shall be borne and paid.

10.3.5 The Award of the Arbitrator shall be final and binding on all parties subject to the provisions of the Indian Arbitration Act 1940 or any amendment thereof. The Arbitrator shall give a separate award in respect of each item of disputes and respective claim referred to him by each party and give reason for the award.

10.3.6 The Arbitrator shall consider the claims of all the parties to the contract – within only the parameters of scope and conditions of the contract in question.

10.3.7 Save as otherwise provided in the contract the provisions of the Arbitration Act, 1940 and rules made there under, for the time being in force, shall apply to the arbitration proceedings under this Clause.

10.4 The Contractor shall not suspend or delay the work and proceed with the work with due diligence in accordance with Engineer's decision. The Engineer also shall not withhold any payment, which, according to him, is due or payable to the Contractor, on the ground that certain disputes have cropped up and are likely to be referred to arbitration.

10.5 Provided always as follows:

[a] Nothing of the provisions in paragraphs 10.3 to 10.3.7 hereinabove would apply in the cases of contracts, where tendered amount appearing in the letter of acceptance of the tender / offer is less thanRs.40,00,000/-.

[b] The Contractor shall have to raise disputes or differences of any kind whatsoever in relation to the execution of the work to the Engineer within 30 days from the date of occurrence of the cause of dispute and before the preparation of the final bill, giving detailed justifications, in the context of contract conditions.

[c] Contractor's dispute if any arising only during the maintenance period, if any, stipulated in the contract, must be submitted to the Engineer, with detailed justification in the context of contract conditions, before the issuance of final completion certificate in Form G.C.-2ibid.

No dispute or difference on any matters whatsoever, the Contractor can raise pertaining to the Contract after submission of certificate in form G.C.3 by him.

[d] Contractor's claim / dispute raised beyond the time limits prescribed in sub-clauses 10.5[b] and 10.5 [c] hereinabove, shall not be entertained by the Engineer and / or by any Arbitrator subsequently.

[e] The Chairman / Trustees shall have the right to alter the panel of Arbitrators, vide Clause 10.3 hereinabove, on their sole discretion, by adding the names of new Arbitrators and/ or by deleting the names of existing Arbitrators, without making any reference to the Contractor.

SECTION – VIII

SPECIAL CONDITIONS OF CONTRACT (SCC)

The following **Special Conditions of Contract (SCC)** shall supplement the **General Conditions of Contract (GCC)**. Whenever there is a conflict, the provisions herein shall prevail over those in the **GCC**.

8.1 Tenderers must take care of the following points into consideration:

8.1.1 The successful Tenderer shall mobilize men, materials, machines, tools & tackles, etc. at site within 21 (Twenty One) days from the date of issuance of LOA/LOI.

8.1.2 No transport, accommodation and canteen facility will be provided to the contractor and / or their staff.

8.1.3 The Tenderers shall indicate clearly in their offers the estimated number of workmen, supervising personnel that they would deploy for successful execution of the job.

8.1.4 The successful Tenderer has to maintain all relevant records in the Daily Log Book and produce the same as and when required and the Daily Log Book should be duly certified by Engineer's representative or his authorized representative.

8.1.5 A log book to be maintained at site for recording the actual time of deployment of equipment by HDC and the same would be jointly signed certified by Engineer's representative or his authorized representative and the Contractor.

8.2 Working facilities:

The following facilities will be provided to the contractor under the following terms and conditions:-

8.2.1 A token License Fee of Rs.100/-per month will be applicable, for the open space. For covered space/ office will be provided as per S.O.R of HDC at the time.

8.2.2 Electricity & water for the operation and maintenance work will be provided at free of cost from the designated source of MCHP. However, the contractor shall have to arrange the same from the source to the working point at MCHP. However, usage of electricity and water except for operation and maintenance work will attract the charges as per S.O.R. Arrangement for electricity and water from the designated source at MCHP will have to be done by the contractor at their own cost and risk.

8.2.3 Accommodation, transportations etc. for personnel of contractor engaged in discharging subject tender work shall have to be provided by the contractor.

8.3 Contract Period:

The contract shall remain valid for a period of 2 years, counted from the date of commencement of work at site. The contract may be extended, at the sole discretion ofHDC, for further 1(One) year at the same rate and terms & conditions. No rate escalation will be entertained during contract period, including extension period of 1(One) year.

8.4 Termination: During contract period, the contract may be terminated, at the sole discretion of the HDC, after serving **3 (three) month's prior notice to the contractor**. No compensation arising out of termination will be provided to Contractor.

8.5 **Payment Terms:** Payment will be made on monthly basis after deduction, if any, and on the basis of BoQ wise actual services/work rendered/carried out, within 30 (Thirty) days from the date of submission of clear, unambiguous certified bills. For this purpose minimum one shift of service/work for operation will be considered for certification. In case of part operation i.e. single route & two route in a same shift, for the purpose of certification & payment, value of two routes operation will be considered for that shift. Certification of the same will be done by Engineer's representative or his authorized representative, HDC. No escalation will be entertained at any stage.

The bills should be submitted, in quadruplicate, to the office of the Sr. Dy. Manager (P&E), along with all relevant documents like attendance sheet, duly certified maintenance log, wage register, EPF, ESI and other statutory payment receipt etc.

Payment will be made in Indian Rupees through the banker of the contractor i.e. through ECS. During submission of bill(s), the following information must be submitted by the Contractor regarding their banker:

(i) Savings/Current Account Number:
(ii) Name of the Bank:
(iii) Name of the Branch and address thereof:
(iv) RTGS Code of the Branch

8.6 **Removal of Scrap:** Dismantled / damaged scrap materials/ Splillage materials generated to be shifted to a store/scrap yard/ storage yard within HDC boundary area by the contractor immediately after execution of the job, at their own cost and arrangement. Joint record to be maintained for deposition of generated scrap. The store / scrap yard would be shown by the site representative. The work-place shall be kept clean and free from such scrap materials by the contractor.

8.7 **Workmen's Compensation:** The contractor shall indemnify HDC in the event of HDC being held liable to pay compensation for injury to any contractor's servants or workmen under the Indian Workmen's Compensation Act, 1923, as amended from time to time, and shall take out an insurance policy covering all risks under the Act. The contractor shall keep the insurance policy renewed, from time to time as necessary, for the duration of the contract and produce the same to the Engineer.

8.8 The Tenderer to himself fully:

8.8.1 This Tender Document includes all Instructions, General Conditions of Contract, Special Conditions of Contract, Scope of Work, etc.), considering all addenda (if any) required to be issued subsequently. The Tenderer shall clearly understand that they will be strictly required to conform to all terms & conditions of the Tender Document [considering all addenda (if any) issued] as contained in each of its Clauses and plea of "Customs Prevailing" will not be, in any case, admitted as excuse on their part for infringing of any of the terms & conditions.

8.8.2 The Tenderer shall be deemed to have examined the Tender Document [including all Instructions, General & Special Conditions of Contract, Scope of Work, etc.], considering all addenda (if any) issued, visited the site and surroundings and to have obtained all necessary information in all the matters whatsoever that might influence while carrying out the works as per the conditions of the tender and to satisfy themselves to sufficiency of their tender, etc.

The Tenderer is advised to acquaint themselves with the job involved at the site, like availability of labour, means of transport, communication facilities, laws and bye laws in force from Government of West Bengal and Govt. of India and other statutory bodies from time to time. The Tenderer shall be deemed to have examined and collected all necessary

information as to risk, contingencies and other circumstances, which may influence or affect the tender.

Failure to comply with the requirement of the Tender submission will be at the Tenderer's own risk.

Failure to visit the site will no way relieve the contractor of any of their obligation in performing the work and liabilities and responsibilities thereof in accordance with the contract.

8.8.3 Tenderer shall bear all costs associated with the preparation and submissionof their tender and HDC will in no case be responsible or liable for these costs,regardless of the conduct or outcome of the tendering process.

8.8.4 The Tenderers are requested to ensure that the Tender (both Techno- Commercial Bid and Price Bid) are submitted after full consideration/understanding of the work envisaged in the job related to Repairand Maintenance of conveyor belts and conveyor structures of Coal Handling Plant for Single years, by engaging out side agency through open tendering process.

8.9 Permit Charges for workmen, vehicle etc. for execution of job inside Dock area would be payable by the Contractor as per the existing Scale of Rate of HDC, SMP, Kolkata.

8.10 Performance Guarantee/Security deposit:

8.10.1 Successful Tenderer will submit Security Deposit **@ 3% of the contract value** in Demand Draft / Banker's Cheque drawn in the name of "Haldia Dock Complex, SMP, Kolkata" payable at Haldia. The Security Deposit may also be submitted in the form of Bank Guarantee as per the enclosed format executed by Kolkata / Haldia branch of any scheduled Bank of India. In case of submission of Security Deposit in the form of Bank Guarantee, the same shall remain valid for 3 months after the final expiry of the contract including guarantee period. The Security Deposit will be released within 60 days after successful completion of the contract period.

8.10.2 HDC shall encash the Bank Guarantee in the event of the contractor failing to complete the work as per tender specification, at the order of Engineer or his authorized representative, or when the contractor has defaulted for more than 30 days or when any amount is to be recovered from the Contractor as penalty or deduction and the contractor fails to remit such amount within 30 days after due notice given to him in this regard.

8.10.3 The Engineer In-charge (EIC) or his authorized representative shall have the right to ask for the extension of the above Bank Guarantee till such time the Contractual obligations are fulfilled and the Contractorwill be duty bound to extend the same.

8.10.4 After the issuance of LOI, Security Deposit will have to be submitted within 14 (Fourteen) working days.

8.10.5 The contractor shall commence the work within **21 (Twenty One) days** from the date of issuanceof LOA/LOI.

8.10.6 Trustee's are not bound to accept the lowest or any tender and no reason would be assigned in this regard.

SECTION-IX

BIDDING FORMS

BIDDING FORM – I

MINIMUM ELIGIBILITYCRITERIA

[To be filled up and uploaded, duly signed & stamped]

(I) ANNUAL TURNOVERSTATEMENT

The annual turn over of .....(name of the bidding firm), **for the years 2018-19, 2019-20 and 2020-21**, based on the **Balance Sheets and Profit & Loss Accounts, are given below:**

Financial years	**Turnover** (as per Auditor's Report / Balance Sheet) **[in Rs]**
2018-2019	
2019-2020	
2020-2021	
Total	
Average Annual Turnover	

SIGNATURE OFCHARTEREDACCOUNTANT ::

NAME OFCHARTEREDACCOUNTANT ::

(COMPANY SEAL)

NOTE: Copy of Balance Sheets and Profit & Loss Accounts enclosed with sealed & signed

(II) TECHNICALEXPERIENCE

Sl. No.	Contract No. / Order No. and date	Name of the Employer and Place of work	Contract value [in Rs.]	Date of completion of work	Page number(s) of reference / supporting document (s), uploaded.

BIDDING FORM-II

OTHER DOCUMENTS

[To be filled up and uploaded, duly signed & stamped]

	Requirement	Submitted/Not submitted [Put √ if submitted & X if not submitted]	Validity/ For the month of
a)			
i)	**GST Registration Certificate**.	If submitted, **Page Number(s)**:	Not applicable.
ii)	Document in support of non-applicability.	If submitted, **Page Number(s)**:	Not applicable.
b)			
i)	**Profession Tax Clearance Certificate (PTCC)** **OR** **Profession Tax Payment Challan (PTPC)**	If submitted, **Page Number(s)**:	
		If submitted, **Page Number(s)**:	
ii)	Document in support of non-applicability.	If submitted, **Page Number(s)**:	Not applicable.
c)			
i)	Certificate for allotment of **EPF7 Code No.**	If submitted, **Code No.**: **Page Number(s)**:	Not applicable.
ii)	Latest **EPF Payment Challan**.	If submitted, **Page Number(s)**:	
iii)	Document in support of non-applicability.	If submitted, **Page Number(s)**:	Not applicable.
d)			
i)	**Registration Certificate** of **ESI authority**	If submitted, **Code No**: **Page Number(s)**:	Not applicable

	Requirement	Submitted/Not submitted [Put √ if submitted & X if not submitted]	Validity/ For the month of
ii)	Affidavit, Declaration andIndemnity Certificate.	☐ If submitted, **Page Number(s)**:	Not applicable.
e)	**PAN Card**	☐ If submitted, **PAN No.**: **Page Number(s)**:	Not applicable.
f)	**MSME / MSE / DIC / SSI / NSIC** certificate	☐ If submitted, **Page Number(s)**:	
g)	**Power of Attorney**	☐ If submitted, **Page Number(s)**:	
h)	**Bid security declaration**	☐ If submitted, **Page Number(s)**:	

BIDDING FORM-III

GENERAL INFORMATION OF THE BIDDER

[To be filled up and uploaded, duly signed & stamped]

1.	Bidder's Legal Name (IN CAPITALLETTERS)		
2.	a)	Country of registration.	
	b)	Year of registration.	
	c)	Legal address in country of registration.	
	d)	URL of the bidder.	
3.	Information regarding bidder's authorised representative(s) / contact person(s)		
	a)	Name(s)	
	b)	Address(es)	
	c)	Telephone number(s)	
	d)	Facsimile number(s)	
	e)	Electronic mail address	
4.	a)	Address of the branch office, if any	
	b)	Name of the contact person at branchoffice	
	c)	Telephone number(s)	
	d)	Facsimile number(s)	
	e)	Electronic mail address	

5.	Whether the bidder is a **Proprietorship Firm** or **Partnership Firm** or **Limited Company**.		
6.	**Details of the Banker(s)** :		
	a)	Name of the Banker(s) in full.	
	b)	Address(es) of the Banker(s)	
	c)	Telephone number(s)	
	d)	Facsimile number(s)	
	e)	Electronic mail address	
	f)	Name(s) of the contact person(s)	
7.	**Bank details for ECS payment** :		
	a)	Bank Account number.	
	b)	Name of the bank.	
	c)	Name of the branch.	
	d)	Address of the branch.	
	e)	RTGS code of the branch.	
	f)	MICR code of the branch.	
8.	**Income Tax** and **Goods & Services Tax (GST)** details (if applicable):		
	a)	**Permanent Account Number** (**PAN**)	
	b)	**GST Registration Number (GSTIN)**	
9.	**Employees' Provident Fund** (**EPF**) **Code No**.		
10	**Employees' State Insurance** (**ESI) Code No**.		
11	Mainlines of business		

BIDDING FORM-IV

FORMAT FOR DECLARATION

[To be printed on the bidder's Letter Head and uploaded after signing]

To,

General Manager (Engineering)
Haldia Dock Complex,
Syama Prasad Mookerjee Port, Kolkata

Name of Work: "Operation & Maintenance of Mechanized Coal Handling Plant, for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata".

Tender No. SDM(P&E)/T/12/2022-23

I ....., the authorized signatory of the ……. (Name of the Company /Firm) do hereby declare / confirm that :

***** I / We have not been **debarred**, **banned** or **delisted** by any Government or Quasi-Government Agencies or Public Sector Undertakings in India**.**

I / we have not made any **addition / modification / alteration** in the **Bidding Documents** (including Bidding Forms & Contract Forms) hosted in the websites.

The prices have been quoted in the Price Bid, electronically, through the website https://kopt.enivida.in only and no direct or indirect mention of the prices has been made by me / us anywhere else in my / our bid.

No extraneous conditions (like "Not Applicable", conditional rebate, etc.), regarding the Price Bid, have been mentioned anywhere in our bid.

Signature of authorised person of the bidder
(with office seal)

- In case the **firm** has been debarred or banned or delisted by any Government or Quasi-Government Agencies or Public Sector Undertaking in India, then the same should be declared properly, after modifying the sentence, suitably.

BIDDING FORM-V

FORM OF TENDER

[To be printed on the bidder's Letter Head and uploaded after signing]

To,

General Manager
(Engineering)Haldia Dock
Complex, Syama Prasad
Mookerjee Port, Kolkata

Name of Work: " Operation & Maintenance of Mechanized Coal Handling Plant (modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata".

Tender No.: SDM(P&E)/T/12/2022-23

I/We …..……. (Name of the bidder)..... of ……..……(Address of the bidder) .....Having **examined the site of work**, **inspected the** drawings and read the **bidding documents**[including **all addenda / corrigenda,** issued i.e ..... {insert Addendum /Corrigendum /Extension No(s)}], hereby bid and undertake to execute & complete all the work related to **"** Operation & Maintenance of Mechanized Coal Handling Plant, for handling of Iron Ore, at Haldia Dock Complex**"** required to beperformed in accordance with the **Technical Specification**, **General Conditions of Contract(GCC)**, **Special Conditions of Contract (SCC),** etc., at the **rates & prices** quoted in the **Price Bid** [*submitted electronically, through the website https://kopt.enivida.in*], within..... month from thedate of order to commence the work , in the event of our bid being accepted.

I/we also undertake to enter into a **Contract Agreement** in the form hereto annexed [**Section XI**] with such alterations or additions thereto, which may be necessary to give effect to the acceptance of the bid and incorporating such **Technical Specification**, **General Conditions of Contract (GCC)**, **Special Conditions of Contract (SCC),** etc. and I/we hereby agree that until such **contract agreement** is executed, the said **Technical Specification, General Conditions of Contract (GCC)**, **Special Conditions of Contract (SCC),** etc. and the bid, together with the acceptance thereof in writing, by or on behalf of the Employer, shall be the contract.

I / We require ……..days preliminary time to arrange and procure the materials, tools & tackles, etc. required by the work, from the date of acceptance of bid, before I/we could commence the work.

I / We have submitted "Bid Security Declaration" towards EMD, duly filed in, signed & stamped,as per format attached.

I/We agree that the period for which the bid shall remain open for acceptance, shall not be lessthan..... **Days**, from the last date of submission of bid.

(Signature of authorized person of the bidder)

WITNESS:

Signature: Name:_____

Name: Designation:_____
(In Block Letters)

Address: Date:_____

Occupation:

(Office Seal)

BIDDING FORM-VI

PRICE SCHEDULE

[To be filled up and uploaded, duly signed & stamped]

SL. NO.	BOQ Particulars	Unit	Quantity	Estimated Rate (INR)	Total price (INR)	% rate above(+)/below(-) /par with the estimated amount
1.	Maintenance of modified CHP as per Scope of work and Terms & Conditions of the Tender.	Monthly Lumsum	24	11,08,862.20	26,612,692.80	The bidder is requested not to quote in this page. The price bid will be quoted online.
2.	Only single Route operation of Modified CHP as per Scope of work and Terms & Conditions of the Tender.	Shift	1095 (365 x 3)	35,851.00	39,256,845.00	
3.	Only two Route operation of Modified CHP as per Scope of work and Terms & Conditions of the Tender.	Shift	1095 (365 x 3)	61,757.00	67,623,915.00	
				Total estimated amount =	**133,493,452.80**	

(Rupees Thirteen Cores Thirty-four Lakh Ninety-three Thousand Four Hundred Fifty-two and Eighty paisa only.)

BIDDING FORM-VII
Integrity Pact
Between

Kolkata Port Trust (SMP Kolkata) hereinafter referred to as "**The Principal/ Employer**".

And

…….. hereinafter referred to as "**The Bidder/Contractor**"

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for ……. The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and/or Contractor(s).

In order to achieve these goals, an Independent External Monitor (IEM) appointed by the principal, will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

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 the PRINCIPAL/EMPLOYER to get the contractual work executed and/or to obtain/dispose the desired said stores/ equipment at a competitive price in conformity with the defined specifications/ scope of work by avoiding the high cost and the distortionary impact of corruption on such work /procurement/ disposal and Enabling BIDDERs/ CONTRACTORs 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 the PRINCIPAL/EMPLOYER will commit to prevent corruption, in any form, by its officials by following transparent procedures.

Section 1 – Commitments of the Principal/ Employer.

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:

a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will, in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information

through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal Code (IPC)/Prevention of Corruption (PC) Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section-2 –Commitments of the Bidder(s) / Contractor(s)

(1) The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

a. The Bidder(s) /Contractor(s) will not directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b. The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contract, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly the Bidder(s)/Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principles, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines, all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is annexed and marked as Annex-A.

e. The Bidder(s)/Contractor(s) will when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2). The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section-3-Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/Contractor(s) before award or during execution has committed a transgression through a violation of Section 2 above, or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as considered appropriate.

Section 4-Compensation for damages

(1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Bid Security.

(2) If the Principal has terminated the contract according to Section 3 or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5-Previous transgression

(1) The Bidder declares that no previous transgressions occurred in the last 3 years from the date of signing the Integrity pact with any other Company in any country conforming to the anticorruption approach or with any other Public Sector Undertaking / Enterprise in India, Major Ports/ Govt. Departments of India that could justify his exclusion from the tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as considered appropriate.

Section 6- Equal treatment of all Bidders/Contractors/Sub-Contractors

(1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

(2) The Principal, will enter into agreements with identical conditions as this one with all Bidders, Contractors and Sub-contractors.

(3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7- Other Legal actions against violating Bidder(s)/ Contractor(s)/ Sub Contractor(s)

The actions stipulated in this Integrity pact are without prejudice to any other legal action that may follow in accordance with provisions of the extant law in force relating to any civil or criminal proceedings.

Section 8 – Role of Independent External Monitor (IEM):

(a) 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.

(b) The Monitors shall not be subject to instructions by the representatives of the parties and shall perform their functions neutrally and independently.

(c) Both the parties accept that the Monitors have the right to access all the documents relating to the contract.

(d) As soon as the Monitor notices, or has reason to believe, a violation of this pact, he will so inform the authority designated by the Principal and the Chief Vigilance Officer of Kolkata Port Trust.

(e) The BIDDER/ CONTRACTOR(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the PRINCIPAL including that provided by the BIDDER/ CONTRACTOR. The BIDDER/ CONTRACTOR will also grant the Monitor, upon

his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation, if any. The same is applicable to sub-contractors. The Monitor shall be under contractual obligation to treat the information and documents of the Bidder/Contractor/ Subcontractor (s) with confidentiality.

(f) The Principal/ Employer will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor, the option to participate in such meetings.

(g) The Monitor will submit a written report to the designated Authority of Principal/ Employer/ Chief Vigilance Officer of Kolkata Port Trust within 8 to 10 weeks from the date of reference or intimation to him by the Principal/ Employer/ Bidder/ Contractor and should the occasion arise, submit proposals for correcting problematic situation. BIDDER/ CONTRACTOR can approach the Independent External Monitor (s) appointed for the purposes of this Pact.

(h) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or to take corrective action, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(i) If the Monitor has reported to the Principal substantiated suspicion of an offence under the relevant IPC/PCA, and the Principal/ Employer has not, within reasonable time, taken visible action to proceed against such offence or reported to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

(j) The word 'Monitor' would include both singular and plural.

Section 9 – Facilitation of Investigation:
In case of any allegation of violation of any provisions of this Pact or payment of commission, the PRINCIPAL/EMPLOYER or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER/CONTRACTORS and the BIDDER/CONTRACTOR shall provide necessary information and documents **in English** and shall extend all possible help for the purpose of such examination.

Section 10 – Pact Duration:
The pact beings with when both parties have legally signed it and will extend upto 2 years or the complete execution of the contract including warranty period whichever is later. In case bidder/contractor is unsuccessful, this Integrity Pact shall expire after 6 months from the date of signing of the contract. If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairman, SMP Kolkata.

Section 11 – Other Provisions:
(1) This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal in Kolkata.

(2) Changes and supplements as well as termination notices need to be made in writing in English.

(3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners

or consortium members.

(4) Should one or several provisions of this agreement turn out to be invalid, the reminder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & on behalf of the Principal) (Office Seal)	(For & on behalf of Bidder/Contractor). (Office Seal)

Place :

Date :

Witness 1:
(Name & Address) ……..
……
……

Witness 2:
(Name & Address) ……
…….
…….

SECTION –X

CHECKLIST

Before scanning and upload the following required documents, all pages are to be signed by a person duly authorised to sign on behalf of the bidder, and are to be embossed with their official seal, owing responsibility for their correctness / authenticity. All pages of the aforesaid documents should be serially marked.

*The offered prices would be given in the "**Price Bid**" electronically, through the website of **E-NIVIDA** only.*

Sl. No.	Particulars	Submitted/ Not submitted [Put √ if submitted and put X if not submitted]	If submitted, page numbers
1.	**Filled up checklist.**	☐	☐
2.	Proof of **Bid Document Fee**.	☐	☐
3.	Poof of **Earnest Money Deposit** (EMD).	☐	☐
4.	Certificate of getting benefit by MSME / DCI / NSIC for exemption of **Bid Document Fee.**	☐	☐
5.	**Bidding Forms**		
	i) **Bidding Form – I**	☐	☐
	ii) **Bidding Form - II**	☐	☐

	iii)	**Bidding Form – III**	☐	☐
	iv)	**Bidding Form - IV**	☐	☐
	v)	**Bidding Form – V**	☐	☐
	vi)	**Bidding Form - VI**	☐	☐
	vii)	**Bidding Form - VII**	☐	☐

SECTION – XI

CONTRACT FORMS

FORM OF AGREEMENT

(To be submitted on Non- Stamp Paper of worth not less than INR 50.00)

CONTRACT NO. : GM(E)/…… /AGMT/……./……..

TENDER REFERENCE:

Tender No. SDM(P&E)/T/12/2022-23
"Operation & Maintenance of Mechanized Coal Handling Plant, for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata"

"ORDER REFERENCE:…… / /O-…

dated……

This agreement made this …….. day of …….. ,Single thousand ..... ,

BETWEEN

The Board of Trustees for the Syama Prasad Mookerjee Port, Kolkata, a body corporate -- constituted by the Major Port Trust Act, 1963 (hereinafter called the '**Trustees**', which expression shall unless excluded by or repugnant to the context be deemed to include their successors in office) of the one part

AND

……..
(hereinafter called the "**Contractor"**, which expression shall unless excluded by or repugnant to the context be deemed to include its heirs, executors, administrators, representatives and assignees or successors in office) of the other part

[Together hereinafter the "Parties"]

WHEREAS

The Trustees are desirous that certain works should be executed by the Contractor, viz. **"Operation and Maintenance of mechanized Coal Handling Plant for handling of iron ore at Haldia Dock Complex"** and have accepteda Bid / offer by the Contractor for execution, completion and maintenance of such works, including remedying any defects therein, during the Defect Liability Period.
NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement words expressions shall

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this agreement words and expression shall have the same meanings as are respectively assigned to them in **Conditions of Contract** hereinafter referred to.

2. The following documents shall be deemed to form and be read and construed as part of this agreement :

a) The said bid /offer.
b) The Letter of Acceptance of the bid /offer [vide Order No...../ …../…….../O-…dated .....]
c) The Conditions of Contract and **Technical Specification** [all terms and conditions of Tender No. **SDM(P&E)/T/12/2022-23**

d) Addenda [Please insert Addenda Nos.....]

e) "Price Comparative Statement", showing the prices quoted (electronically, through the website (https://kopt.enivida.in) by the Successful Bidder, in the Price Bid.

f) All correspondence, by which the contract is added, amended, varied or modified, in any way, by mutual consent.

3. In Consideration of the payments to be made by the Trustees to the Contractor as hereinafter mentioned, the Contractor hereby covenant with the Trustees to execute, complete & maintain the work, including remedy any defects therein (during the Defect Liability Period"), in conformity with the provisions of the Contract, in all respects.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed the day and year first before written.

The parties hereunto affixed their respective Common Seals (or have hereunto set their respective hands and seals).

For and on behalf of	For and on behalf of
	CONTRACTOR)
HALDIA DOCK COMPLEX KOLKATA PORT TRUST	**SEAL**
(TRUSTEES)	
SEAL	
In presence of	In presence of

(

INDEMNITY BOND

[To be submitted on Non-judicial Stamp Paper of worth not less than INR 50.00, **duly notarised**]

Reference: Order No.: ……../……./……./O-… dated ……. For **"Operation & Maintenance of Mechanized Coal Handling Plant (modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata"**

Senior Deputy Manager (P&E),
Haldia Dock Complex,
Operational Administrative Building (1st Floor),
Chiranjibpur, P.O.: Haldia,
Dist.: Purba Medinipur ,
West Bengal, India
PIN : –721 604

This deed of **Indemnity Bond** made on.....by ……. Having their office at …… (hereinafter called "the **Contractor**").

Whereas the General Manager (Engineering), **Haldia Dock Complex**, SMP, **Kolkata** , Dist.: Purba Medinipur, West Bengal (hereinafter call "the **Engineer**") has placed an order, bearing no. …… /……./O-… dated ……. And some materials, spare parts, components, sub-assemblies, etc. are required to be taken **outside** of **Haldia Dock Complex** premises for some specialized servicing, repairing, overhauling, etc. or **fault diagnosis** &**remedial measures** by the Contractor, as per the terms & conditions mentioned in the said order, and which have been mutually agreed upon by the parties hereto,

AND

Whereas in consideration of the said contract, the Contractor has agreed to execute an **Indemnity Bond** for the safe custody on receipt of the said materials, spare parts, components, sub-assemblies, etc., from the **Engineer** until the **completion of servicing / overhauling / repairing / remedial work** and returning back to the Engineer as hereinafter appearing.

Now this deed witnessed that in pursuance of the said agreement and in the premises, the Contractor agrees to indemnify Engineer and at all the terms, to hold themselves liable for all the **damages**, **loss** due to **pilferage** / **fire** or negligence on the part of the Contractor or their employees, agents and representatives or from whatever cause, with all losses, interest charges and expenses incurred by the said Engineer on account of the material(s) issued to the Contractor,

AND

It is in terms of the said contract and this **Deed of Indemnity,** the material(s) issued free tothe Contractor for servicing/overhauling/repairing/**fault diagnosis & remedial work,** thereon shall be deemed to be the **property of the Engineer**.

It is hereby agreed that the Contractor shall be liable for all injury, losses and damages that may be caused to the ....., from whatever cause and further that the Contractor shall not part with or delivery possession of the said material(s) to any other party or person, save in compliance with and in performance & provision of contract in respect of which this **Indemnity Bond** is executed, the Contractor having undertaken to delivery the said material

(s) in all respect in compliance with the terms of the contract.

This bond and the trust hereby created shall remain valid and binding on the Contractor till such time as the above said order has been fully and finally executed and Contractor has delivered the …….. complete thereon to the Engineer under the terms of the contract.

For and on behalf of (name of the Contractor), under the common seal of the company.

WITNESS

(Signature of the authorised person on behalf of the Contractor)

(Signature)

Name :

Designation

Name :

Designation

Signed in my presence and identified by me

BANK GUARANTEE FOR PERFORMANCE GUARANTEE

[To be submitted on Non-judicial Stamp Paper of worth not less than INR 50.00]

To
The Board of Trustees,
Syama Prasad Mookerjee
Port, Kolkata.

BANK GUARANTEE NO.....DATE.....

Name of IssuingBank.....

Name of Branch..... ……

Address.....

In consideration of the **Board of Trustees for the Syama Prasad Mookerjee Port, Kolkata**, a body corporate – duly constituted under the Major Port Trusts Act, 1963 (Act 38 of 1963), (hereinafter referred to as "**The Trustees**") having awarded to Shri / Messrs **……,** a Proprietary/ Partnership/Limited / Registered Company, having its Registered Office at **……** (hereinafter referred to as "**The Contractor**", which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns), a **CONTRACT** by issue of Trustees' Work Order No……. / ……./……./O-….. dated For **"Operation & Maintenance of Mechanized Coal Handling Plant, for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata"** and the same having been unequivocally accepted by the Contractor resulting in a **CONTRACT** bearing No. **GM (E)/ / /AGMT/……./……..** and the Contractor having agreed to provide a **BANK GUARANTEE** from a Nationalized / Scheduled Bank of India, in prescribed format for **Rs. …… (Indian Rupees …….)** only, for the faithful and satisfactory performance of the entire contract.

We, ... Branch, Kolkata ...../Haldia, do, on the advice of the Contractor, hereby undertake to indemnify and keep indemnified the Trustees to the extent of the said sum of **Rs ……. (Indian Rupees …….)** only. We, ... ……..... .....Branch, Kolkata ...../Haldia,further agree that if a written demand is made by the Trustees through any of its officials for honouring the Bank Guarantee constituted by these presents, we,.....Branch, Kolkata ...../Haldia, shall have no right to decline to cash the same for any reason whatsoever and shall cash the same and pay the sum so demanded to the Trustees within a week from the date of such demand by an A/c Payee Banker's Cheque drawn in favour of "Kolkata Port Trust", without any demur. Even if there be any dispute between the Contractor and the Trustees, this would be no ground for us, ...
..... (Name of Bank), ...Branch, Kolkata ...../Haldia,to

decline to honour the Bank Guarantee in the manner aforesaid. The very fact that we, ...Branch, Kolkata..... ...../Haldia, decline or failor neglect to honour the Bank Guarantee in the manner aforesaid, shall constitute sufficient reason for the Trustees to enforce the Bank Guarantee unconditionally without any reference, whatsoever, tothe Contractor.

2. We, ...' Branch, Kolkata..... /Haldia, further agree that a mere demand by the Trustees at anytime and in the manner aforesaid, is sufficient for us, ...Branch,Kolkata ..... /Haldia, to pay the amount covered by this Bank Guarantee in full and in the manner aforesaid and within the time aforesaid without reference to the Contractor and no protest by the Contractor, made either directly or indirectly or through court, can be valid ground for us,..... .....Branch, Kolkata..... /Haldia, to decline or fail or neglect to make payment to the Trustees in the manner and within the time aforesaid.

3. We,.....Branch,Kolkata ..... /Haldia, further agree that the Bank Guarantee herein contained shall remain in full force and effect, during the period that is taken for the due performance of the said contract by the Contractor and that it shall continue to be enforceable till all the dues of the Trustees under and/or by virtue of the terms and conditions of the said contract, have been fully paid and its claim satisfied and/or discharged in full and/or till the Trustees certify that the terms and conditions of the said contract have been fully and properly observed/fulfilled by the Contractor and accordingly, the Trustees have discharged the Bank Guarantee, subject however, that this guarantee shall remain valid upto and inclusive of .....day of..... ….....and subject all so that the provision that the Trustees shall have no right to demand payment against this guarantee after the expiry of 6 (six) calendar months from the expiry of the afore said validity period upto ..... or any extension thereof made by us, ...Branch,Kolkata ..... /Haldia, in further extending the said validity period of this Bank Guarantee on Non-judicial Stamp Paper of appropriate value, as required / determined bythe Trustees, only on a written request by the Trustees to the Contractor for such extension of validity of this Bank Guarantee.

4. We,.....Branch,Kolkata ..... /Haldia, further agree that, without our consent and without affecting in any manner our obligations hereunder, the Trustees shall have the fullest liberty to vary from time to time any of the terms and conditions of the said contract or to extend the time for full performance of the said contract including fulfilling all obligations under the said contract by the Contractor or to postpone for any time or from time to time any of the powers exercisable by the Trustees against the Contractor and to forebear or enforce any of terms and conditions relating to the said contract and We,.. ... ...Branch,Kolkata..... /Haldia, shall not be relieved from our liability by reason of any such variation or extension being granted to the Contractor or for any fore- bearance, act or commission on the part of the Trustees or any indulgence by the Trustees to the Contractor or by any such matter or thing of whatsoever nature, which under the law relating to sureties would, but for this provision,haveeffectofsorelievingus,..... ...Branch,Kolkata ..... /Haldia.

5. We, ……. Branch, Kolkata ... ./Haldia do also agree that the TrusteesattheiroptionshallbeentitledtoenforcethisGuaranteeagainstus.....
... ...Branch, Kolkata ... ./Haldia as principal debtor in the first instance without producing against the Contractor and notwithstanding any security or other guarantee that the Trustees may have in relation to the Contractor's liabilities.

6. We,.....-.....Branch,Kolkata. ...../Haldia,lastly
undertake not to revoke this Bank Guarantee during its currency except with the previous consent of the Trustees in writing.

SIGNATURE... .....
NAME……..
DESIGNATION.....
(Duly constituted attorney for and on behalf of)

BANK. . . .., ...
BRANCH... ……..
KOLKATA..... /HALDIA

(OFFICIAL SEAL OF THE BANK)

Bid Security Declaration Format

Tender No.: SDM(P&E)/T/12/2022-23

for

Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex, SMP, Kolkata.

To,
General Manager (Engineering),
Haldia Dock Complex,
Syama Prasasd Mookerjee Port, Kolkata

I/We, the undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of three years from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid duringthe period of bid validity specified in the form of Bid; or
b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity

(i) fail or refuse to execute the contract, if required, or
(ii) fail or refuse to furnish the Performance Security, in accordance with the Instructionsto Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of

(i) the receipt of your notification of the name of the successful Bidder; or
(ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)

Name: (insert complete name of person signing he Bid Securing Declaration)

Dated on_____day of_____(insert date of signing)

Corporate Seal:

Syama Prasad Mookerjee Port,Kolkata

Haldia Dock Complex

CERTIFICATE OF COMPLETION OF

WORK (FORM G.C-1)

Contractor :_____

Address :_____

_____

Date of completion :_ _____

Dear Sir,

Subject: "Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex**".**

Reference : i) **Work Order No**.: ...../……./……./O-… dated ……

ii) **ContractNo./AgreementNo**.:...../……/...../AGMT/ ……/

This is to certify that the above work which was carried out by you is, in the opinion of the undersigned, complete in every respect on the day of _____20_____,in accordancewithtermsofthecontractandyouarerequiredtomaintaintheworkinaccordancewith **Clause No. 62** of the General Conditions of Contract and under provisions of the contract.

(Signature of the Engineer/Engineer's Representative)

Name: ……..……..…..

Designation: ……

Date: ……

(OFFICIAL SEAL)

Syama Prasad Mookerjee Port,Kolkata

Haldia Dock Complex

CERTIFICATE OF FINAL

COMPLETIONFORM G.C-2

General Manager (**Finance**),
Haldia Dock Complex (**HDC**),
Syama Prasad Mookerjee Port, Kolkata
Jawahar Tower Complex,
P.O: **Haldia Township**,
Dist.: **Purba Medinipur**,
PIN – 721 607,
West Bengal, **India**.

Subject: **"Operation & Maintenance of mechanized Coal Handling Plant (Modified), for handling of iron ore at Haldia Dock Complex"**

Reference:

i) **Work Order No**.: ...../……../……./O-… dated……

ii) **Contract No./ Agreement No**. : ...../……/……/AGMT/...../

This is to certify that the above work, which was carried out by ..... is now complete in every respect, in accordance with the terms of the contract and that all obligations under the contract have been fulfilled by the Contractor.

(Signature of the Engineer/Engineer's Representative)

Name: …….……..…..

Designation: ……

Date: ……

(OFFICIAL SEAL)

Syama Prasad Mookerjee Port,Kolkata

Haldia Dock Complex

("NO CLAIM CERTIFICATE" FROM CONTRACTOR)

FORM G.C-3

[To be submitted on Bidder's Letter Head]

General Manager (Finance),

Haldia Dock Complex (HDC),

Syama Prasad Mookerjee Port, Kolkata Jawahar Tower Complex,

P.O: Haldia Township, Dist.: Purba Medinipur, PIN – 721 607,

West Bengal, India.

Dear Sir,

Subject: "Operation & Maintenance of Mechanized Coal Handling Plant (Modified), for handling of Iron Ore, at Haldia Dock Complex**"**

Reference: i) **Work Order No**.: ...../……../……./O-…
dated……

ii) **Contract No./ Agreement No**. : ...../……/ ...../
AGMT /
……./

I/We do hereby declare that I/we have received full and final payment from Haldia Dock Complex, SMP Kolkata, for the execution of the subject work, and I/we have no further claim against Haldia Dock Complex, Syama Prasad Mokkerjee Port, Kolkata in respect of the above mentioned job.

Yours faithfully,

(Signature of Contractor)

Date : ……
Name of Contractor : ……
Address : ……..

(OFFICIAL SEAL OF THE CONTRACTOR)

SECTION-XII

1. TECHNICAL DETAILS OF MECHANISED COAL HANDLING PLANT

METEOROLOGICAL DATA:

Maximum Temperature	:	41^{o} C
Minimum Temperature	:	8.9^{o} C
Annual Rainfall (Average)	:	1500 mm
Minimum Tide	:	0.40 mtr.
Maximum Tide	:	3.46 mtr.
Average Wind Speed (Summer)	:	35 - 42 km/hour
Average Wind Speed (Winter)	:	18 - 24 km/hour
Maximum Wind Speed	:	180 km/hour [as recorded on 29.10.1999]

The Port [Haldia Dock Complex (HDC), Kolkata Port Trust (KoPT)] may experience strong winds and gales when any depression, storm or cyclone develops in the Bay of Bengal and come close to the Haldia coast.

If any other technical detail(s) is/are required by the bidder, in this context, the same may be obtained by the bidder from the Meteorological Department.

INTRODUCTION ABOUT THE MECHANISED COAL HANDLING PLANT (Modified):

HDC, SMPK has a fully Mechanized Coal Handling Plant (MCHP), with an annual design handling capacity of 3.5 Million MT. The MCHP had been commissioned in and around 1978. The said plant was under commercial operation upto August 2021, working on a 3 (three)shift basis, handling Thermal Coal a/c Tamil Nadu Generation And Distribution Corporation Limited (TANGEDCO) / NTPL (authorized agency : KCT).

The MCHP consists of 2 (two) Wagon Tipplers, 2 (two) Yard Conveyors, 2 (two) Stacker-cum-reclaimers [i.e. 1 (one) on each Yard Conveyor], 2 (two) Shiploaders and their associated Conveyor system. The system can unload 2 (two) BOXN wagons simultaneously [i.e. 1 (one) through each Wagon Tippler] and can load 1 (one) vessel at Berth No. 3 [through 1 (one)/2 (two) Shiploader(s), as per requirement]. The stacking, reclaiming and vessel loading capacities are 1,500 TPH in each stream, with an annual design plant capacity of 3.5 Million MT.

Apart from the aforesaid equipment, the plant has facilities for fire detection and fire-fighting system, air-conditioning system, communication system, water supply, drainage, approach roads control, including measuring and monitoring instruments.

SALIENT FEATURES OF THE MECHANISED COAL HANDLING PLANT (modified), for handling Iron Ore:

Rated plant capacity	:	2 x 1,500 TPH
No. of streams	:	2

Mode of receipt	:	By Railway BOXN Wagons
No. of wagon unloading hoppers	:	4
Type and capacity of rake	:	58 / 59 nos. x BOXN Wagon
Mode of unloading	:	In motion / indexing storage
Stockyard capacity	:	1.5 Lakh MT (approx..)
No. of stock piles	:	4
Size of vessel	:	65,000 DWT (PANAMAX) & Handimax
Berth length	:	210 mtrs. continuous
Type of berth	:	Deck-on-piles
No. of working days/year	:	365
No. of working shift/day	:	3 (three) [8 (eight) hour each]

3.0 SYSTEM DESCRIPTION:

3.1 GENERAL:

The MCHP consists of the following major equipment/system/building:

3.1.1 Machine/Equipment/System:

Sl. No.	Equipment	Quantity
1	Marshalling Beetle	2
2	Charging Beetle	2
3	Belt Conveyor	15
4	Apron Conveyor	1
5	Scrapper Conveyor	1
6	Wagon Tippler	2
7	Stacker-cum-reclaimer	2
8	Single-way Chute (Wagon Tippler)	3
9	Single-way Chute (Stacker-cum-reclaimer)	2
10	Single-way Chute (Conveyor system)	2
11	Rack & Pinion Gate	1
12	Vibro-feeder	4
13	EOT Crane	1

14	Sizer	1
15	Hopper (Wagon Tippler)	4
16	Shiploader	2
17	Belt Weighing Machine	4
18	Ventilation and Air Conditioning System	8
19	Dust Suppression System	1
20	Water Sprinkling Pump & Tunnel Pit Pump & others dry pit pump	4 + 2+4
21	Electrical, Electronics, Control, Illumination and Communication System	-
22	Fire fighting pump (Diesel & Electric)	3+2

3.1.2 **Buildings/Galleries/Sub-stations**:

Sl. No.	Description
1	Rail Receival Station and Tunnel
2	Transfer Tower TT#1
3	Transfer Tower TT#2
4	Transfer Tower TT#3
5	Drive House DT#4
6	Drive House DT#5
7	Transfer Tower TT#6
8	Transfer Tower TT#7
9	Transfer Tower TT#8
10	Drive House DT#9
11	Conveyor Galleries
12	Sub-station – 2 (single) nos.
13	Plant Monitoring Room
14	Stores & Workshop
15	Amenity Building, Change Room, Compressor Room, Pump Houses, Building at up & down Railway Point, Watch Tower Building, Belt Weigher Room near TT#8, etc.

3.2 Wagon Tipplers:

3.2.1 Railway:

BOXN Wagons in a Rake of 59 or less Wagons are received by Railway Divisionof HDC, from South Eastern Railway (SER). After checking and brake releasing, the aforesaid Wagons are placed at the Feeder Lines of the Wagon Tipplers, by Railway Division. The Marshalling Beetle arrests around 15 (fifteen) Wagons from the Feeder Line and feeds to the Charging Beetle, for subsequent placement at the Cradle of the Tippler by Charging Beetle. Then the Wagon is tippled and cargo is fed to the Hopper and Apron Conveyor, for subsequent movement to Vibro-feeder and Sizer respectively.

3.2.2 Technical data of Train unloading/Rail receival:

Train sizing	:	58 / 59 x BOXN Wagons
No. of Wagon unloading system	:	2 (single)
Manufacturer of train unloading system	:	TRF
Limited		

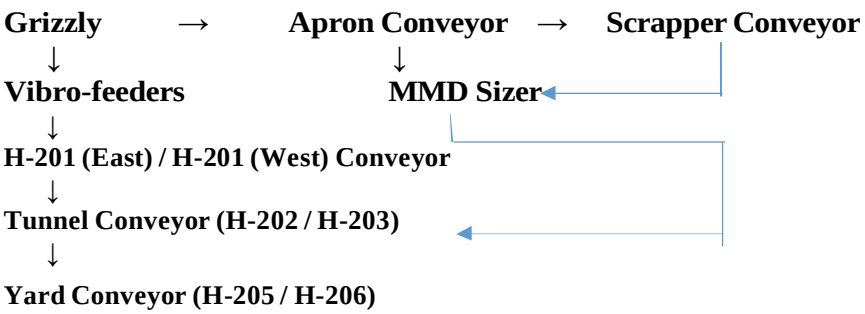
3.2.3 Wagon Tippler:

There are 2 (single) independent Wagon Tipplers, with individual Feeder Lines and Release Tracks. Presently, Thermal Coal is delivered in Rakes, of approximate 3,658 tonne payload each, comprising 58/59 nos. of 62 tonne BOXN Wagons.

There are 2 (single) Hoppers in each Wagon Tippler, each with a capacity of 180 tonnes. The Hoppers are covered with inclined Grizzly of size – 300 mm. Thermal Coal < 300 mm size passes through Grizzly to the Hopper. There are 2 (single) Vibro-feeders in each Wagon Tippler, installed below the Hoppers and each is being fed by 1 (one) Hopper. There is 1(one) Belt Conveyor [H-201 (East)/H-201 (West)] in each Wagon Tippler, which is being fed by the 2 (single) Vibro-feeders of each Wagon Tippler simultaneously. The Belt Conveyors feed the cargo to either of the Tunnel Conveyors [H-202/H-203] by single-way Chute operated manually. H-203 Tunnel Conveyor delivers the cargo directly to the Yard Conveyor (H-206), while H-202 Tunnel Conveyor feeds the cargo to a connecting Conveyor (H-204), which, in turn, delivers the cargo to H-205 Yard Conveyor.

Thermal Coal > 300 mm size are segregated at Grizzly and is fed to the Apron Conveyor (Plate-type Conveyor), which, in turn, feeds the cargo to the Sizer. There is a Scrapper Conveyor underneath of Apron Conveyor, which collects the spillage cargo and delivers the same to the Sizer.

Flow chart of cargo at coal tippler :-



3.3 STOCK PILING:

3.3.1 Technical data of Conveyor system: Type of

Belt	:	Nylon-Nylon
Grade	:	M24
Belt width	:	1,400 mm
Duty	:	Heavy
Conveyor length	:	6 km (approx.)
No. of Transfer Towers	:	6 (six)
No. of Sub-stations	:	2 (single)

There are total 15 (fifteen) Belt Conveyors in 2 (single) streams. There are 16 (sixteen) routes of operation for stacking, reclaiming and direct feeding from Wagon Tipplers to the vessel at Berth No. 4.

Each Belt Conveyor [other than those for Shiploader Boom, Stacker-cum-reclaimer Boom and Mobile Conveyor {H-201 (East) & H-201 (West)}] is operated by 3.3 kV HT Motors. Power supply of the Motors is from the Brakers of Master Control Sub-station (MCSS) or Tippler Sub-station (TSS).The entire Conveyor system is operated by an Operator from Master Control Tower (MCT). The Operator at MCT can see the position of the Conveyors from the Mimic Board at MCT.

3.3.2 Technical data of Thermal Coal stockyard:

No. of stockpiles	:	4 (four) [1,152 m x 53 m each]
Type	:	Triangular / Trapezoidal
Capacity of stockyard	:	1.5 Lakh MT
Height of stockpile	:	6 mtrs. (Normal) 11 mtrs (Maximum) [10 mtrs above Rail level 1 mtr below Rail level]

3.3.3 Technical data of Stacker-cum-reclaimer:

Manufacturer	: TRF Limited
No. of machine	: 2 (single)
Capacity (MTPH)	: Stacking – 1,500 MTPH (Rated)
	Reclaiming – 1,500 MTPH (Rated)
Boom length	: 24.6 mtr. (Slew center to axis of rotationof Bucket Wheel)
Boom inclination	: + 11^{O} to - 13^{O}
Boom slewing	: +/- 105^{O} (from center line of Track)
Total installed Power per m/c	: 996 kW / 500 kVA
Bucket Wheel diameter	: 6.8 mtr. (SCR#1) / 7.5 mtr. (SCR#2)No.
of Buckets	: 8 nos. in SCR#1 and 9 nos. in SCR#2

Stacker-cum-reclaimer No. 1 has the following Drives:

1) Bucket Wheel : Electro-mechanical
2) Slew : Electro-mechanical, controlled by VVVF Drive
3) Long Travel : Electro-mechanical
4) Boom Conveyor : Electro-mechanical
5) Luffing operation : Electro-hydraulic

Stacker-cum-reclaimer No. 2 has the following Drives:

1) Bucket Wheel : Electro-hydraulic, controlled by PLC
2) Slew : Electro-hydraulic, controlled by PLC
3) Long Travel : Electro-mechanical VVVF Drive, controlled by PLC
4) Boom Conveyor : Electro-mechanical
5) Luffing operation : Electro-hydraulic, controlled by PLC

The 2 (single) Rail-mounted travelling, slewing and luffing Stacker-cum- reclaimers operate along the Track Lines. Stacker-cum-reclaimer No. 1 isinstalled on H-205 Yard Conveyor and can operate on Plot Nos. 1 & 2. Similarly, Stacker-cum-reclaimer No. 2 is installed on H-206 Yard Conveyorand can work on Plot Nos. 3 & 4.

Stacker-cum-reclaimer No. 1 can stack the cargo from Wagon Tippler (by keeping its Single-way Chute in stacking mode) or can directly feed to the vessel from Wagon Tippler (by keeping its Single-way Gate in direct mode).The Single-way Gate can be operated through Electro-mechanical Actuator.Similarly, it can reclaim to feed the vessel in case of no feeding of cargo from Wagon Tippler as well as to supplement during direct feeding of cargofrom Wagon Tippler.

Stacker-cum-reclaimer No. 2 can stack the cargo from Wagon Tippler (by keeping its Trailing Tripper in stacking mode) or can directly feed to the vessel from Wagon Tippler (by keeping its Trailing Tripper in direct mode).The Trailing Tripper can be operated through Electro-mechanical Actuators. Similarly, it can reclaim to feed the vessel in case of no feeding of cargo from Wagon Tippler as well as to supplement during direct feeding of cargofrom Wagon Tippler.

The 2 (single) Bucket Wheel Stacker-cum-reclaimers are capable of controlled

reclaiming, in the range from 100 TPH to 1,500 TPH, to enable loading ofships with limited ballast pumping capacity.

3.3.4 Stockpiling operation:

Stacker-cum-reclaimer No. 1 can stack at Plot Nos. 1 & 2 while Stacker- cum-reclaimer No. 2 can stack at Plot Nos. 3 & 4. Stacking operation at Plot Nos. 1 & 2 is done by placing Stacker-cum-reclaimer No. 1 in the respective plot and feeding the cargo from Wagon Tippler. Similar operation is carriedout in case of stacking by Stacker-cum-reclaimer No. 2 at Plot Nos. 3 & 4.

During stacking and reclaiming operations, First In First Out (FIFO) principle is to be maintained to eliminate fire hazard. During stacking by Stacker- cum-reclaimer No. 1, the cargo is fed from Wagon Tippler to H-202 Tunnel Conveyor to H-204 Conveyor to H-205 Yard Conveyor. Similarly, during stacking by Stacker-cum-reclaimer No. 2, the cargo is fed from Wagon Tippler to H-203 Tunnel Conveyor to H-206 Yard Conveyor.

During reclaiming by Stacker-cum-reclaimer No. 1, reclaimed cargo is fedto H-208 Conveyor to H-209/H-210 Jetty Conveyor and in turn to Shiploader No. 1/2. Similarly, during reclaiming by Stacker-cum-reclaimer No. 2, reclaimed cargo is fed to H-207 Conveyor to H-209/H-210 Jetty Conveyor and in turn to Shiploader No. 1/2.

3.4 SHIP LOADING:

3.4.1 Technical data of Shiploader:

Manufacturer	:	Larsen & Toubro Limited
No. of Shiploader	:	2 (single)
Capacity	:	1,500 TPH each
Total machine weight	:	349 tonne
Rail Track gauge	:	13.716 mtrs.
Travel speed	:	0 – 5 mtr./second
No. of Drives	:	16 (sixteen)
Boom length	:	

A) In Shuttle extended position : 26.89 mtr. from water side Rail

B) In Shuttle retracted position : 11.89 mtr. from water side RailBoom inclination : +65 / - 15º

Maximum Power demand at full load : 362.61 kVA

The 2 (single) Rail-mounted, luffing and shuttling Shiploaders operate on thewharf to load vessels between 30,000 DWT to 60,000 DWT. Each Shiploader is supplied by a separate ship loading conveying system i.e. H-209 Conveyor or H-210 Conveyor.

3.4.1 Ship loading operation:

Ship loading Conveyors H-209 & H-210 receive feed in Transfer Tower GC,either from H-207 or H-208 Conveyor, which, in turn, receive feed eitherfrom Stacker-cum-reclaimer No. 1/2 or direct feeding from Wagon Tippler. During direct feeding from Wagon Tippler, the entire Conveyor system from Shiploader to Vibro-feeder at Wagon Tippler are started one by one. In case of reclaiming by the Stacker-cum-reclaimer(s), the respective Conveyors from Shiploader to Stacker-cum-reclaimer are started one by one. All theConveyors are interlocked with their preceding Conveyor, so that in caseof stoppage of the forward Conveyor, the rear Conveyors are stopped.

3.5 ELECTRICAL SYSTEM:

The existing 33/3.3 kV Sub-station, with 3 (three) 6 MVA, 33 kV/3.3 kV Transformers, caters to the power requirement for the MCHP, Lock Entrance Sub-station, 2nd Oil Jetty Sub-station and Phosphate Berth Sub-station of HDC.

For the MCHP, there is also another Sub-station, namely Wagon Tippler Sub-station (WTSS).

HT/LT Switchgear, Power Distribution Boards, Motor Control Centers, ACDB, DCDB, LPDB, etc., as per requirement, are located in the Sub-stations.

3.5.1 Demand and loading factor of MCHP:

1) Total connected load of the MCHP is 6 MVA (approx.).
2) Total operational load of the 2 (single) Receiving Streams and the 2(single) Shipping Streams is 4 MVA (approx.), at peak load.

Main machines like Stacker-cum-reclaimers, Shiploaders, etc. have their own Electrical Transformers, MCC Panels, PLC Panels, VVVF Controllers, LPDB, HT Isolator, etc. installed on the machine itself.

In addition to the main machines/equipment/systems, the plant also has many auxiliary systems, with associated Electrical Drives and Control, like Air-conditioning System, Ventilation System, Dust Suppression System, Fire-detection and Alarm System, Inter-plant Communication System, Plant Illumination, etc.

3.6 CENTRALISED MONITORING:

The entire Conveyor system is being operated by an Operator from Master ControlTower. The Operator at Master Control Tower can see the position of the Conveyors from the Mimic Board at Master Control Tower.

3.6.1 Control Philosophy:

The Coal transfer system has been designed to operate as 2 (single)independent parallel streams, but routes can be set up using elements from both streams.

All drives onboard the machines are controlled by machine Operators. Allapplicable routes can be selected or deselected by the Operators at eitherend of the route or from Plant monitoring room. The selection of a routewill not start any drives. Since all sequences depend upon the downstreamdrives operating, the downstream machine Operator [Stacker-cum- reclaimers (Stacking option) or Shiploaders] is required to initiate the route sequence start from on-board machine. The Boom Conveyor on the downstream machine will then start up, followed by the subsequent plantdrives along the selected route. With all downstream plant and drives running, the up-stream operator [Stacker-cum-reclaimers (Reclaimingoption) or Wagon Tipplers] may then start the source of Coal. A sequencestop of the route can be initiated from Operators at either end of the route.

3.7 PLANT OPERATION MODES:

3.7.1 Manual/Local Mode (for fixed plant):

Control of the individual drives will depend upon the mode of operation

selected. Each individual drive in the fixed plant (i.e. Wagon Tippler, Sizer, Conveyor, Feeder, Stacker-cum-reclaimers, Shiploaders, etc.) shall have an associated manual/local mode.

These modes of control are defined as follows:

Local: In Local Mode, each drive shall be started and stopped from a LocalStart/Stop Station adjacent to the drive Motor. Only hardwired interlocksfor each drive, such as overload, emergency stop, travel limits and statutory safety devices, will remain part of the Motor Control Circuit. This mode is to be used during maintenance, testing and for local control.

Manual: In Manual Mode, each drive shall be started and stopped as part ofa manual sequence of the selected route.

For process stream drives (Wagon Tippler, Sizer, Conveyor, Feeder,Stacker-cum-reclaimers, Shiploaders), manual/local selection will occur upon selection/de-selection of routes respectively, i.e. all drives comprising a selected route will be set to manual mode. A route cannot beselected, if any of the required plant drives are running in local or is faulted.

3.7.2 Manual/Local Mode (for mobile machines):

Each Stacker-cum-reclaimers and Shiploader will be controlled by an Operator from the on-board Control Cabin and will be equipped with its own PLC and Operator Interface Screens. The machines shall be capable of being operated in manual/local mode. In manual mode, each drive will bestarted and stopped as part of the automatic PLC controlled sequence, inresponse to commands from the Operator. The local mode is same as for fixed plant machines and is meant for maintenance purpose.

3.7.3 Plant Control Points:

The Control System Philosophy is designed for efficient operation of the plant and alteration in the field parameters. The plant controls are performed from the Plant Monitoring Room (PMR), Wagon Tippler, Stacker- cum-reclaimers and/or Shiploaders, depending upon the route in operation.

Plant control includes the following operations:

(a) Selecting plant routes
(b) Starting/stopping machines and plant routes
(c) Machine movement (Travel, Slew, Luff, Shuttle) and modes (Manual/Local)
(d) Acknowledging alarms
(e) Setting plant variables (i.e. feed rates, etc.)

3.7.4 Wagon Tippler:

Wagon Tipplers can unload Coal either to stockpiles by stacking via theStacker-cum-reclaimers or directly to the ship via the Shiploaders.

The Wagon Tippler station is equipped with 3 (three) Operator Interface.

There are 2 (single) Charger/Marshal Cabin Operator Interface and 1 (one) Main Cabin Operator Interface at the Wagon Tipplers.

After getting clearance of wagon from HDC Railways, the Charger/MarshalCabin Operator arrests around 15 (fifteen) wagons by Marshalling Beetle. Then the respective Operator places a single wagon at East Tippler (T1) orWest Tippler (T2), as the case may be. Then he gives clearance to the Main Cabin Operator, for tippling, after reversing the Charging Beetle to its parking zone as well as placement of loaded wagon to safe position on theCradle.

After getting clearance from the Charger Cabin Operator, the Main CabinOperator tipples the wagon, subject to prior starting of Conveyor route, Vibro-feeder, Apron Conveyor, Sizer, etc.

Scrapper Conveyor needs to be operated, as per requirement, to remove accumulated spillage.

All drives and equipment, used to transfer Coal from the Tippler area to the Stacker-cum-reclaimers or direct to the Shiploaders, are monitored from the Master Control Tower Station Operator Interface. All associatedroute selections may be selected from either of these Operator interfaces. However, the Stacker-cum-reclaimer or Shiploader Operator will initiate the sequence starting of these routes.

Indication of the current status of drives in each part is displayed at the Mimic Board of Master Control Tower, to enable the Operator to select a flow path for the Coal, when commencing Rail unloading operation.

3.7.5 Stacker-cum-reclaimers and Shiploaders:

Control of the operation functions of each of these machines is performedby the respective on-board Operator.

Each machine is equipped with a Control Desk. The Operator Control Deskprovides machine positional status, drive status and alarm indication.

3.7.6 Master Control Tower (Plant Monitoring Room):

The MCHP system monitoring and co-ordination is performed at the MasterControl Tower.

The function of the Plant Monitoring Room (PMR), at the Master Control Tower, is to provide a centralized point for plant co-ordination, system performance monitoring, reporting and alarm logging.

3.7.7 Local Stop/Start Stations:

Adjacent to each drive is a Local Start/Stop Control Station, with start and lockout stop push buttons. The start push button shall only be effective when the drive is in Local Mode.

When operating from the Local Start/Stop Station adjacent to the drives, all hardwired interlocks and protection devices, such as emergency stop,pull wire and isolation switches, will be operable, but no drive to drive interlocking or blocked chute interlocking is provided.

3.8 PLANT SEQUENCING:

3.8.1 General:

On receipt of a route sequence start command from the downstream machine Operator, all selected Conveyor equipment will start in sequence, from the downstream through to the most upstream. Immediately preceding the start of each drive, the respective warning Siren shall be sounded. All equipment shall be interlocked in Auto Mode such that it cannot run without its immediate downstream drive running.

A route sequence stop command will drain the system of Coal and subsequently shutdown the plant in a controlled sequence.

The plant control system incorporates trip sequences, which will shut down necessary plant, if any stoppage occurs in any part of the plant. A stoppage may be caused by deselecting a route, by switching a machine to local, bypressing the emergency stop or by any one of the protective trips. All upstream equipment will immediately stop. The downstream equipment from such a fault will continue to operate for a pre-determined time period or until the fault is rectified and reset. The upstream drives can then be restarted by initiating another route sequence start command from the downstream machine. For this purpose, the status of the relevant routes must be clearly displayed to the machine Operators.

3.8.2 Route selection:

Each Wagon Tippler, Stacker-cum-reclaimer and Shiploader Operator shallbe able to select one of the single possible routes for their respective equipment. Routes may be selected by Operators at either end of the Coalflow path.

Any drive with provision for controlled feed rates, such as Wagon TipplerBelt Feeders, Stacker-cum-reclaimer Belt Feeders, shall ramp up at a controlled rate from the minimum value to the desired set point, as set bythe respective Operator.

3.8.3 Route sequence start:

Sequence is started beginning with the most downstream drive in the selected route. Successive upstream drives are started after the precedingdrive is running and required minimum speed has achieved. Route sequence starts or restarts can only be initiated from the Operator for the downstream machine (Stacker-cum-reclaimer and Shiploader). For the start sequence to commence, the route must be successfully set, no required drives faulted and the downstream must be ready.

3.8.4 Route sequence stop:

A route sequence stop shall have set time delays between each Conveyorstopping, to allow the plant equipment to completely empty Coal from the Conveyors. Route sequence stops may be initiated from Operators at either end of the route. Selection of a sequence stop shall be clearly displayed toboth Operators on the route.

3.8.5 **Sequence trips**:

In the event of a fault occurring on a selected drive, the faulted drive plusthe upstream drives shall stop immediately. Downstream drives shall continue to operate for a pre-set time delay before shutting down. Restarting part of or the entire route shall be by the downstream Operator's route sequence start command.

3.8.6 **Fault detection**:

As most of the likely faults and their cause are programmed in the Software, the system helps in identification of almost all faults in the CoalShiploaders and Stacker-cum-reclaimer No. 2.

Whenever a fault occurs in other places in the plant, then fault will be located as per testing, through relevant drawings.

3.9 **ANTI-COLLISION SYSTEM**:

As the 2 (single) Shiploaders travel on the same track, Anti-collision Sensors are provided to prevent collision between the 2 (single) machines.

3.10 **WEGHING SYSTEM**:

In order to maintain accurate accounts of loading and stockpile inventory, weighing systems have been incorporated into the Coal handling system, which are in H-209& H-210 Conveyor system and in Boom Conveyor & Tipper Conveyor of Stacker-cum- reclaimer No. 2. The weighing systems work on the principle of Load Cells.

3.11 **AIR-CONDITIONING SYSTEM**:

Air-conditioning systems have been provided at Master Control Tower, Operator Cabin & E-house of Stacker-cum-reclaimer No. 2 and Machinery House of Shiploader Nos. 1 & 2.

3.12 **GENERAL & ANCILLARY ELEMENT SYSTEM**:

3.12.1 **Fire detection and alarm system**:

Fire detection and alarm system is installed in Stacker-cum-reclaimer No. 2.

For extinguishing small local fires, Portable Fire Extinguishers are provided at various locations of the MCHP, including machines/ equipment.

There is plant Hydrant system for Conveyors, Transfer Towers and Wagon Tippler station. These Hydrants are fed from a common header for process water, dust suppression and fire-fighting. From these Hydrant Valves, water is directed to the fire, through Hose and Nozzle.

4.0 TECHNICAL DETAILS OF EQUIPMENT, MACHINES, SYSTEMS, ETC.:

4.1 MAIN SYSTEM (SHIPPING & RECEIVING STREAMS)	
4.1.1	Stacker-cum-reclaimer No. 1 (SR-1)
4.1.2	Stacker-cum-reclaimer No. 2 (SR-2)
4.1.3	Shiploader No. 1 (SL-1) and Shiploader No. 2 (SL-2)
4.1.4	Wagon Tippler No. 1 (WT-1) and Wagon Tippler No. 2 (WT-2)
4.1.5	H-201 (East & West) Conveyor
4.1.6	H-202 Conveyor
4.1.7	H-203 Conveyor
4.1.8	H-204 Conveyor
4.1.9	H-205 Conveyor
4.1.10	H-206 Conveyor
4.1.11	H-207 Conveyor
4.1.12	H-208 Conveyor
4.1.13	H-209 Conveyor
4.1.14	H-210 Conveyor
4.1.15	Master Control & Wagon Tippler Sub-station
4.1.16	Technical details of PLC system
4.1.17	Belt Weighing System
4.2 Air Conditioning	
4.3 Illumination	
4.4 EOT Crane with Hook Block	
4.5 Communication facility, VHF Communication, Intercom, etc.	
4.6 Cleanliness / Housekeeping	
4.6.1	Grass and bush cutting details

4.1 MAIN SYSTEM (SHIPPING & RECEIVING STREAMS):

4.1.1 Stacker-cum-reclaimer No. 1 (SR-1):

Name of Manufacture : TRF Limited, Jamshedpur

No. of Equipment : 01 No.

Stacker Cum-reclaimer No. 1 runs on Long travel rail track installed onconcrete base

structure on both side of the yard conveyor H-205.

Stackers Cum-reclaimer consists of the following main assembly units

1. Bogie assembly and Long travel drive units
2. Main Structure
3. Slew deck and Slew drive unit.
4. Boom Assembly
5. Conveyors
6. Boom support and Luff Super Structure
7. Hydraulic system for Luff Operation
8. Tripper Assembly
9. Bucket wheel & Drive assembly
9. Electric equipment installation house
10. Chutes & Skirt boards
11. Other Accessories
    a) Power and Control cable reeling drum
    b) Manual & Auto Control lubrication system.
    c) Belt cleaning system

A) <u>MAIN PARAMETERS</u>:

Stacking Capacity (Avg.)	: 1500 TPH
Stacking Capacity (Designed)	: 1650 TPH
Total M/c weight	: 250 MT
Stock Pile Shape	: Trapezoidal/Triangular
Maximum Height	: 11 meters.
Length of Stockpile	: 491.982 meters.
Track gauge	: 6 meters.
Rail Size	: CR-80
Length of the Travel	: 495 meters
No of points of support of main frame	: 3

B) <u>LONG TRAVEL</u>:

Total no of wheel	: 28 nos.
No. of drive Bogie unit	: 6 nos.
No. of non-drive bogie unit	: 4 nos.
No of drive wheels	: 12 nos.
No of non-drive wheels	: 16 nos.
Wheel model	: Double flanged type
Wheel tread dia	: 630 mm

Travel speed	: 5-15 m/min
Travel wheel bearing type	: Double Row Spherical Roller Bearing

Long travel provided with rail cleaners and storm lock.

Motor:

Make	: Kirloskar
Maximum Power	: 7.5 KW
Rpm Maximum	970

Gear box:

Make	: Flender Mcneil Gears Ltd. (Siemens)
Type	: Bevel Helical Hollow Shaft
Speed ratio	: 80:1
Gear type	: Helical gear
Oil grade	: SERVO MESH SP 220
High Speed Coupling	: Flexible Resilient (Type 124) – between Motor and Gear Box.
Input Shaft Bearing	: NU2306E.C3 – 1 (one) no.
	31306 – 2 (single) nos.
1st Int. Shaft Bearing	: 33208 – 2 (single)
nos.2nd Int. Shaft Bearing	: 32311 – 2 (single)
nos.3rd Int. Shaft Bearing	: NCV2926 V.CV – 2 (single)
nos.Oil Seal	: Ø25 x Ø35 x 7

Brake:

Type	: 18.2 kg Electro Hydraulic Thruster Brake
Drum Size	: Ø200 x 95 mm Width

C) PCRD:

Nos.	1
Make of motor	: Demag, Germany
Type	: Barrel (Motorized cable reeling)
Size	: Ø2000 x 3000 x 4 mm

Gearbox:

Make	: Radicon Greaves Limited
Type	: Worm Reducer (A 287)
Speed ratio	: 10/1 RA, 11
Oil Qty & grade	: 3 (three) liters & SERVOMESH SP 220

D) CCRD:

Nos.	: 1
Make	: Electro Zavod
Type	: Barrel (Motorized cable reeling)
Size	: Ø1200 x 2300 x 4 mm

Gear box:-

Make	: Radicon Greaves Limited
Type	: Worm Reducer (A 237)
Speed ratio	: 10/1 ALA, 11
Oil Qty & grade	: 2 (single) liters & SERVOMESH SP 220

E) SLEWING:

Slewing speed	: 10-30 mtrs./min. at Bucket wheel tip
Slewing angle	: +/- 105°

Slew Bearing:

Make	: Rothe Erde, Germany
Type	: Antifriction with external gear rim190 teeth, Module – 18, Brg. No. 011-50-3167-001-49-1502
Dia. Of Slew bearing	: ID - Ø4370 : OD - Ø7500

Slew Drive:

No of drive unit	: 02 nos. (VVVF Type speed control)
Drive	: Electro Mechanical drive

Motor:

Make	: ABB
Frame	: 160 ML
Power	: 15 kW
Rpm	: 1450

H.S. Coupling:

Make	: AMTECH
Type	: Pin Bush type, with integral Brake Drum

Brake:

Make	: Bluemax
Model	: 18.2 kg Electro Hydraulic Thruster Brake
Drum dia	: 250 mm

Gearbox:

Type	: Bevel Helical Hollow shaft
No. of Drive units	2
Make	: Flender-Mcneil Gears (Siemens)
Model	
Ratio	: 630:1
Type of lubrication	: Immersed
Oil grade	: SERVO MESH SP 220

F) LUFFING:

Hydraulic Luff Cylinder:

No. of cylinder	: 2 No.
Luffing angle	: +11° /-13°
Make	: VICKERS system internation ltd.
Oil grade	: SERVO SYSTEM 68
Size of the cylinder	: Ø160 X Ø280 X 1105 mm
Bore dia of cylinder	: Ø 200 mm
Piston rod Dia.	: Ø 140 mm
Stroke length	: 1860 mm

Power Pack Unit:

Motor:

Make	: ABB Ltd.
Motor power	: 22 kW
Rpm	1480
Frame size	: 180 ML

Pump:

Make	: VICKERS system internation ltd.
Model	: **PVH57Q1C-RSF-IS-10-C-25V-31**
Type	: Radial Piston
Working pressure	: 160 bar (approx..)

G) BOOM CONVEYOR DRIVE ARRANGEMENTS:**Motor**:

Make	: Marathon Motors
Type	: 3 Ph. Squirrel cage induction motor
Power	: 55 kW
RPM	1480
Volt	: 415 V
Frame	: 250 M

Gearbox:

Make : Flender-Mcneil Gears (Siemens)

Speed ratio : 18:1

Oil Grade : Servo Mesh 220

Installed Qty : 1 No.

Type of Gear : Bevel/Helical

Input Shaft Bearing : NU2309E.C3 – 1 (one) no.
31309 – 2 (single) nos.

1st Int. Shaft Bearing : 33209 – 2 (single)

nos.2nd Int. Shaft Bearing : 32312 – 2 (single)

nos.3rd Int. Shaft Bearing : NCF2928CV – 2 (single) nos.

H.S coupling:-

Drive side coupling : Resilent coupling, Size 152, Type A

Pulleys:

Name of Pulley	Dia. of Drum (in mm)	Shell length (in mm)	Bearing C-C (in mm)	Bearing Housing	Bearing No.	Sleeve
Drive Pulley (Lagged)	630	1600	1950	Split	22236CCK/ W33	H3136
Snub Pulley	400	1600	1950	Split	22222CCK/ W33	H322
Bend Pulley	400	1600	1950	Split	22222CCK/ W33	H322
Deflector Pulley	215	1600	1950	Split	1315K	H315
Bend Pulley	400	1600	1950	Split	22222CCK/ W33	H322
Discharge Pulley	630	1600	1950	Split	22222CCK/ W33	H322

Lagging:

- ¤ 16 mm Thickness with diamond groove lagging for Drive pulley
- ¤ 12 mm Thickness with plain lagging for Non Drive pulley

Belt:

Length : 58 mtrs.

Belt speed : 2.65 mtr/sec

Take up type & travel length : Sliding with screw 800 mm

Width : 1400 mm

Type & strength : Nylon-Nylon, 800/4 ply, M24

Belt Cleaners: Conventional type with rubber.

Idlers:

No of troughing idlers	:	120 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
No of Return idlers	:	6 nos.
Size of the idlers	:	Ø152.4 mm x 1600 mm

Idler Frame:

No of troughing idler frame (BKT1)	:	40 nos.
No of troughing self-alignment frame	:	2 nos. No of
return idler frame	:	6 nos.

H) TRIPPER CAR:

Idlers:

No of troughing idlers	: 102 nos.
Size of the idlers	: Ø152.4 mm x 490 mm
Bearing no	: BBIB 420206 SKF-make or equivalent

Idler Frame:

No of troughing idler frames (BKT1)	: 34 nos.
No of troughing self alignment frames	: 3 nos.
No of return idler frames	: 10 nos.
No of return self alignment frames	: 1 no.

I) BUCKET WHEEL & DRIVE:

Type of Bucket	:	Cell-less
Bucket Lip Diameter	:	6.8 m
No. of Bucket	:	8
Volumetric Capacity	:	0.7 m^3

Gear Box:

Type	:	Bevel Helical
Input Power	:	85 kW
Input RPM	:	1500
Output RPM	:	7.524
Make	:	Flender McNeil Gears (Siemens)

Fluid Coupling:

No.	:	1 (one)
Model	:	FCU - 20

Shrink Disc Assembly:

No.	:	1 (one)
Power	:	85 kW
Input RPM	:	1500
Output RPM	:	7.524
Make	:	Siemens

Ringfeeder:

Size	:	320 mm x 405 mm x 78 mm
Locating Ring	:	ID 350 mm x OD 400 mm x Width 242.5 mm – 1 (one) no. ID 375 mm x OD 400 mm x Length 275 mm – 1 (one) no. ID 381 mm x OD 451 mm x Width 35 mm – 1 (one) no.

J) ELECTRICAL SYSTEM:

1. The machine is fed from a land mounted 3.3 KV Junction Box located at midpoint of travel through 3.3 KV flexible trailing cable and onboard barrel type PCRD for reeling and unreelingof the trailing cable while the machine is traveling. The PCRD feeds 3.3 KV Power to on machine 3.3KV load break switch located inside the onboard E house and in turn to the Oil immersed type (ONAN) transformer with Class F insulation. The transformer is located outside the E house but provided with suitable enclosure with proper ventilations. The transformer steps down the 3.3 K.V. power to 433V +/- 5% and the L.T. power is fed to the MCC located inside the electric house.
2. All the motors required for running of the machine as well as allied auxiliary is fed from MCC through a combination of Armoured and flexible cables.
3. Voltage and power supply conditions: Low voltage supply

Voltage (V)	:	433V ± 5%
Frequency	:	50 Hz ± 5%
Phases	:	3
Neutral	:	Earthed through earth shoe on both side rails.
Auxiliary voltages	:	230 +/- 10%
Control (V)	:	220 V, AC
Lighting (V)	:	230 V
Solenoid valves (V)	:	48V DC
Electronic equipment (V)	:	48V DC (VVVF Drive)

4. Degree of protection:

All outdoor panels	:	IP 65
All indoor panels	:	IP 54
All field devices	:	IP 65
All Motors	:	IP 65

5. Operation of the machine is achieved through control desk at the operators cabin.

6. The machine is controlled by an operator control desk havingjoysticks and push buttons.
7. Hardware signal exchange between the stacker machine and the Central Control room of the Plant is achieved through a control trailing cable and CCRD to the land mounted control Junction Box.
8. Operational and safety limits of the drives and their motions are cut off by a no. of limit switches, located strategically allover the machine.
9. Slew drives of the machine is controlled through variable voltage variable frequency (VVVF) Drive located inside the Electric house for wide range of speed control.
10. Travel position, slew position, luffing position of machine is located from operators cabin.
11. Communication within the machine and with Central control station is achieved via VHF Walkie-talkie sets.
12. **HT Isolator details**:

Installed Qty.	:	1 No.
Make	:	Siemens
Year of Manufacture	:	1998
Type	:	TKL3
Un	:	12 KV
Ith	:	31.5 KA
In	:	630 A

13. **MCC Panel (Draw-out type)**:

Sl. No.	Description	Type of switchgear	Type of Starter	Type of overload protection
1	Incomer	ACB	-	With shunt trip,O/L and E/F tripping
2	Conveyor	MCCB	DOL	Bi-metallic thermaltype overload relay.
3	Boom Luffing	MCCB	DOL	Bi-metallic thermaltype overload relay.
4	Long Travel	MPCB	DOL	Motor ProtectionCircuit Breaker foreach motor and alsooverload relay.
5	Slewing	MCCB	VVVF Control	O/L protection ofthe VVVF Drive.
6	Lighting transformer	SFU		
7	Welding sockets	SFU		
8	Control transformer	SFU		

14. **Power Transformer**:

Rating	:	400 kVA
Voltage HV/LV	:	3.3 / 0.433 kV
No. of Phases/Frequency	:	3 Ph, 50 Hz
Insulation Class	:	B

K) Manual Lubrication system has been provided for bogie assemblies.

4.1.2 **Stacker-cum-reclaimer No. 2 (SR-2)**:

Make : TRF Limited, Jamshedpur

No. of equipment : 01 No.

The SR-2 runs on single rails (single track on each side) with the base frame being supported at three points through equalizing beam and fully compensated bogies. The base frame carries a live roller slew bearing withexternal gear ring. The upper half of the slew ring carries the boom and slew structure. The counterweight is connected to the tail boom, so that the stability of machine is maintained under all conditions of operation. The boom and luff superstructure are raised and lowered by means of twin double acting hydraulic cylinders. The combined center of gravity is at all times within the slew ring diameter. The boom carries a bucket wheel assembly along hydraulic motor, chutes, etc at the extreme end of the boom.The reclaimed material from the bucket wheel is fed to a boom conveyor which in turn feeds to yard conveyor via central chute of the SR-2. The operator's cabin located on the boom tip provides the optimum visibility for the operator. Access to all components requiring maintenance and inspection is provided.

Stacker Cum-Reclaimer no. 2 consists of the following main assembly units

1. Bogie Assemblies, Balancers and Long Travel Drive Units
2. Main Structure
3. Slew Deck/Structure and Slew Drive Unit
4. Boom Assembly
5. Boom Conveyors
6. Boom support and Luff Super Structure
7. Counter Weight Boon and Counter Weight
8. Bucket Wheel and Drive
9. Bucket Wheel Chute
10. Impact Table
11. Operator Cabin
12. Hydraulic system for Luff Operation
13. Chutes & Skirt boards
14. E-House
15. Other Accessories
    a) Power and Control cable reeling drum
    b) Manual & Auto Control lubrication system.Belt cleaning system
    c) Operator cabin hydraulic system
    d) Air Conditioning System
    e) Hanging frame, etc.
    f) Fire protection system

A) MAIN PARAMETERS:

Reclaiming capacity (Avg.)	: 1500 TPH
Stacking capacity	: 1500 TPH
Total m/c weight	: 250 MT
Stockpile shape	: Trapezoidal / Triangular
Stockpile height	: 11 meter (10 meter above Rail leveland 1 meter below Rail level)
Length of stockpile	: 495 meter
Width of stockpile	: 30 meter
Track Gauge	: 6 meters
Rail Size	: CR-80
Counter weight	: 96 MT
Nos. of points of support of main frame	: 3

B) LONG TRAVEL:

Total no of wheel	: 36 nos.
No of drive	: 18 nos.
No of driven	: 18 nos.
Wheel model	: Double flanged type
Travel speed	: 0-20 m/min.

Motor:

Make	: Siemens, GERMANY
Power	: 4 KW
Rpm	1480

Gearbox:

Make	: Siemens, GERMANY
Type	: Bevel Helical Geared Motor.
Speed ratio	: 70.54:1
Gear type	: Bevel Helical Geared Motor

Brake:

Type	: Inbuilt Electro Magnetic disc brake

C) PCRD:

Nos.	1
Make	: Bengal Technocrat
Type	: Barrel (Motorized cable reeling)
Size	: Ø2000 x 3000 x 4 mm

Motor:

Make	: Demag, Stall Torque

Gearbox:

Make	: I C BAUER
Type	: G52-10-SN
Speed ratio	: 19.28:1
Oil grade	: SERVOMESH SP 220
Qty.	: 3.5 Liters

D) **CCRD**:

Nos.	1
Make	: Bengal Technocrat
Type	: Barrel (Motorized cable reeling)
Size	: Ø1200 x 2300 x 4 mm

Motor:

Make	: Demag, Stall Torque

Gearbox:

Make	: I C BAUER
Type	: G22-10-SN
Speed ratio	: 25.55:1
Oil Qty & grade	: 0.9 Liters & SERVOMESH SP 220

Oil Seal No.:

Input	: 35x62x7, 38x55x7
Output	: 42x62x8
Bearing No.	: 6206 – 02 Nos
	: 6306 – 01 No

E) **SLEWING**:

Slewing range	: +-105 degree
Slew bearing	: 3 row roller type
Make	: Rothe Erde
Type of bearing	: Roller bearing

Slew Drive:

No of drive unit	: 2 nos. (Electro Hydraulic)
Drive	: Electro Hydraulic drive

Hydraulic Motor:

Make	: Hagglunds
Power	: 22 KW

	Rpm	: 1480

F) **LUFFING**:

Hydraulic Luff Cylinder:

No of cylinder	: 2 nos
Make	: Rexroth
Size of the cylinder	: Ø180 x Ø250 X 1535 mm
Piston Dia.	: Ø360 mm
Piston rod Dia.	: Ø180 mm
Stroke length	: **1535** mm
Working pressure	: **167** Bar

Power Pack unit:

Motor:

Make	: ABB
Motor power	: **30** KW
Rpm	: 1480

Pump:

Make	: Rexroth
Pump type	: Geared pump
Working pressure	: 167 Bar

G) **BOOM CONVEYOR ARRANGEMENTS:Motor:-**

Name	:	Marathon
Type	:	3 Ǿ Squirrel Cage Induction Motor
Power	:	75 kW
RPM	:	1485
Volt	:	415 V
Frame	:	315 L

Fluid coupling:-

Make	:	Premium Transmission
Model	:	FCU-17.75 (with Brake Drum dia. 400 mm)
Type	:	Constant Fill Traction
Installed Qty	:	01 No.

Gear box:-

Make	:	Premium Transmission
Type	:	Bevel/Helical B2 SF-225 (Fan cooled) [Hollow Output Shaft]

Speed ratio : 12.6:1
Installed Qty : 01 No.

Brake:

Make : Electromag
Model : ET-275
Braking Torque : 100 kgm
Thruster : 34 kg Electro Hydraulic Thruster Brake

Pulleys:-

Name of Pulley	Dia. of Drum (in mm)	Shell length (in mm)	Bearing C-C (in mm)	Bearing Housing	Bearing No.	Sleeve
Drive Pulley (Lagged)	630	1600	1950	Split	22232CCK/W33	H3132
Bend Pulley	630	1600	1950	Split	22226CCK/W33	H3126
Take-up Pulley (Lagged)	630	1600	1950	Split	22226CCK/W33	H3126
Bend Pulley	630	1600	1950	Split	22226CCK/W33	H3126
Discharge Pulley (Lagged)	630	1600	1950	Split	22232CCK/W33	H3132

Lagging:

- ¤ 12mm Thickness with diamond groove lagging for Drive pulley
- ¤ 12mm Thickness with plain lagging for Non Drive pulley

Belt :-

Width	:	1400 mm
Strength	:	800/4, Top 5 mm, Bottom 3 mm, M24 grade
Length of belt	:	**60** meters
Speed	:	**3.5** m/sec
Boom length	:	25.4 meter
Belt thickness	:	15 mm
Take up type	:	Screw Take-up with hydraulic jack
Take up travel	:	700 mm

Idlers:-

Installed qty of idlers:-

Troughing idler	:	**20** nos.
Impact idler	:	16 nos.
Return idlers	:	10 nos.

	No of troughing self alignment frames : No of return self alignment frames : No of impact frames : ***Belt cleaners:-***	03 nos. 02 nos. 08 nos
	Primary Cleaner :	1set, Hosch / Thejo Martin Make
	Secondary Cleaner :	1set, Hosch / Thejo Martin Make
	Return Belt Cleaner :	1 set, Hosch/ Fabricated "V" Scrapper.
	Fabricated Belt scrapper :	1 no.
	Fabricated return Belt scrapper :	1 no.
H)	***BUCKET WHEEL DRIVE:***	
	Motor:	
	Name :	ABB
	Type :	3 Ø Squirrel Cage induction motor
	Power :	185 KW
	RPM :	1480 rpm
	Volt :	415V
	Hydraulic Motor:	
	Make :	Hagglunds
	Size :	CB 840C with Srink Disc
	Torque Arm :	
	Make :	Hagglunds
	Shrink Disc Element Make :	MBB Engg. Infotech Ltd.
	Locking Assembly Make :	MBB Engg. Infotech Ltd.

	Bucket:-		
	Dia. Of Wheel / Type	:	7.5 meter / Cell-less
	RPM	:	5.78
	Make	:	MS Body with Alloy steel Lip
	Numbers	:	9 Nos
	Capacity	:	850 Liters

I) ELECTRICAL SYSTEM:

The machine is fed from a land mounted 3.3KV Junction Box located at midpointof travel through 3.3 KV flexible trailing cable and onboard barrel type CRD for reeling and unreeling of the trailing cable while the machine is traveling. The CRD feeds 3.3 KV Power to on machine 3.3 KV load break switch and vacuum circuit breaker located inside the onboard E house and in turn to the dry type transformer with Class F insulation. The transformer is located outside the E house but provided with suitable enclosure with proper ventilations. The transformer steps down the 3.3 K.V. power to 433V +/- 5% and the L.T. power is fed to the MCC located inside the E-house.

2. All the motors required for running of the machine as well as allied auxiliary isfed from MCC through a combination of Armoured and flexible cables.
3. Voltage and power supply conditions:Low voltage supply

Voltage (V)	:	433V
Voltage fluctuations %	:	± 5%
Frequency	:	50 Hz
Frequency fluctuations	:	± 5%
Phases	:	3
Neutral	:	Earthed through earth shoeon both side rails.

Auxiliary voltages	:	230 +/- 10%
Control (V)	:	220 V, 48V DC
Lighting (V)	:	230 V
Solenoid valves (V)	:	48V DC
Electronic equipment (V)	:	48V DC (PLC)
Control voltages	:	48V DC
Digital I/O(V)	:	48V DC
Signal lamp (V)/Field devices	:	48V DC
Degree of protection:		48V DC
All outdoor panels	:	
4. All indoor panels	:	IP 65
All field devices	:	IP 54
All Motors	:	IP 65
		IP 65

5. Operation of the machine is achieved by a PLC system having a Central processing Unit located inside the electric house and a remote I/O panel locatedinside the operator's cabin connected by a RIO Link cable for communication.

6. The machine is controlled by an operator control desk having joysticks and pushbuttons and HMI.
7. Hardware signal exchange between the stacker machine and Master Control Tower of the Plant is achieved through a control trailing cable and control CRD to the land mounted control Junction Box.
8. Operational and safety limits of the drives and their motions are cut off by a no.of limit switches, proximity switches located strategically all over the machine.
9. Long travel of the machine is controlled through variable voltage variable frequency (VVVF) Drive located inside the E-house for wide range of speed control.
10. Travel position, slew position, luffing position of machine are detected bythrough HMI.
11. Communication within the machine and Master Control Tower, Office etc. is achieved through VHF Walkie-Talkie set.

12. <u>HT Iisolator details:</u>

Installed Qty.	:	1 No.
Un	:	12 kV
Ith	:	31.5 KA
In	:	630 A
Make	:	Panickker
Year of Manufacture	:	2015

13. MCC Panel (Non drawn out type) of SR- 2

Sl. No.	Description	Type of switch gear	Type of Starter	Type of overload protection
1	Incomer	ACB	-	With shunt trip, O/L and E/F tripping.
2	Conveyor	MCCB	DOL	Thermal O/L Relay.
3	Boom Luffing	MCCB	DOL	Microprocessor based Overload and E/F Relays.
4	Bucket Wheel	MCCB	DOL	Microprocessor based O/L and E/F protection, MPCB with O/L protection, MCCB O/L & E/F.
5	Long Travel	MCCB	VVVF Control	Microprocessor based O/L and E/F protection, MPCB with O/L protection, MCCB O/L & E/F.
6	Slewing	MCCB	DOL	Microprocessor based O/L and E/F protection.
9	Lighting transformer	SFU		
10	Welding sockets	SFU		
11	Control transformer	MCCB (Incomingand outgoing)		

14. **Power Transformer**:

Rating	:	400 kVA
Voltage HV/LV	:	3.3 / 0.433 kV
No. of Phases/Frequency	:	3 Ph, 50 Hz
Insulation Class	:	B

K) Manual Lubrication system has been provided for bogie assemblies.
Auto lubrication system has been provided for slewing system and bucket wheelsystem.

4.1.3	**SHIP LOADER-1 & 2:**		
	Name of the manufacturer	:	Larsen & Toubro Ltd.2
	No. of equipment	:	Nos.

Ship-loaders consists of the following main assembly units

1. Travel Gear
2. Portal
3. Boom luffing arrangement
4. Hoisting drive
5. Boom Conveyor / Drive system
6. Shuttle Head
7. Belt Conveyor on the Boom and in the Shuttle Head
8. Loading Chute
9. Tripper Car
10. Accessories
    a) Power and Control Cable Reeling Drum
    b) E-house
    d) Fire-fighting system
    e) Belt cleaning system
    f) Operator Cabin Hydraulic system
    g) Long Travel Rail Clamps
    h) Storm Tie Down arrangement
    i) Lubrication system

A)	**MAIN PARAMETERS:**		
	Capacity	:	1500 TPH
	Type of vessels Handled	:	30,000 MT to 60,000 MT
	Total Machine Weight	:	**349 MT**
	Total Installed Power	:	**500 KVA**
B)	**LONG TRAVEL:**		
	Track gauge	:	13.716 meters
	Travel Speed	:	0 to 0.5 Mtr/Sec.
	No of Wheels in water Side	:	10 nos.
	No of Wheels in land Side	:	8 nos.
	Total No. of Wheels	:	27
	No of Drive Wheel	:	16
	Size of the Wheel (Tread)	:	630 mm
	No. of Rail Clamp	:	01 (EACH SIDE)
	No. of Motor	:	16
	Wheel Bearing No.	:	23226 CC/W33
	No. of Gear Box	:	16
	No. of Electro magnative Brake	:	16
	No. of Track Cleaner	:	4

LT motor:-

Type & MAKE	:	TEFC SCIM, AMKW 180 M NGEF
Power	:	15 KW
Rpm	:	1460
Voltage	:	415 V
Efficiency	:	99%

Gear box:

No.	:	16 nos. (8 RH + 8 LH) for each Loader
Make	:	Elecon
Type	:	KCA 225 - Vertical Bevel Helical, Hollow Shaft
Ratio	:	100 : 1
Oil used	:	SP - 320

Brake:-

Brake type	:	EM Disc type, In-built in motor
Make	:	EMCO

Rail clamps:-

Runner wheel for rail clamp side)	:	02(each
No of hydraulic rail clamp	:	02

Power Cable Reeling Drum (PCRD):-

Reeling drive type	:	Mono spiral
Drum diameter	:	1800 mm
Motor type	:	Stall torque

Control Cable Reeling Drum (CCRD):-

Reeling drive type	:	Mono spiral
Diameter	:	1000 mm
Motor type	:	Stall torque

C)	**Trailing Tripper:** Length of tripper	:	69 meters
	No wheels	:	4 nos.
	No of troughing idlers	:	174 nos.
	No of impact idler	:	01 no.
	No of return idlers using in tripper car	:	04 nos.
	Size of troughing idler	:	¤¤¤¤¤¤x¤490mm
	Size of impact idler	:	¤¤¤¤¤¤x¤490mm
	Size of return idler	:	¤¤¤¤¤¤¤x¤¤¤¤0mm
	Bearing designation	:	23122CC/C3 W33
	Bearing housing type	:	In-built in bogy steel structure
	Tripper Car Pulleys: Discharge pulley	:	1 no.
	Discharge pulley dimension	:	Ø800 x 1600 mm
	Bearing housing type	:	In-built in bogie steel structure.

	Bearing no	:	23122 CC/C3 W33
	Bend pulley	:	2 nos.
	Bend pulley dimension	:	Ø630X1600mm
	Bearing housing for bend pulley	:	SD3144
	Hold down pulley	:	1 no
	Dimension of hold pulley	:	Ø400X1800mm

E)	**BOOM CONVEYOR OF SHIP LOADER:** **Boom and shuttle conveyor:-**	
	Boom Conveyor speed :	3.60 m/Sec
	Belt Width :	1400 mm
	Belt length :	105/115 meters
	Type of belt :	1000/5, Top 8 mm, Bottom 4 mm, M24 grade Nylon-Nylon, Nominal circus thickness 7.0 mm
	Boom length at the stage of extended :	26.89 meters
	Boom length at the stage of retracted :	11.89 meters
	No of frames using in carrying :	28 nos.
	No of troughing idlers (TR-1)	84 nos.
	Troughing idler dimension :	Ø152.4 mm x 490 mm
	No. of return roller (BR-1)	16
	Pulley:-	

Name of Pulley	Dia. of Drum (in mm)	Shell length (in mm)	Bearing C-C (in mm)	Bearing Housing	Bearing No.	Sleeve	Ring feeder ID / OD
Drive Pulley (Lagged) [SL-1]	630	1600	1950	Split	23128CCK/ W33	H3128	150 / 200
Drive Pulley (Lagged) [SL-2]	630	1600	1950	Cylindrical	22224S.MB	-	-
Discharge Pulley	630	1600	1950	Split	23128CCK/ W33	H3128	140 / 190
Shuttle Tail Pulley	630	1600	1950	Split	23228CCK/ W33	H2328	140 / 190
Diversion Pulley Pulley	630	1600	1950	Split	23228CCK/ W33	H2328	140 / 190
Top Snub Pulley	400	1600	1950	Split	23024CCK/ W33	H3024	130 / 80
Pressure Pulley	400	1600	1950	Split	23024CCK/ W33	H3024	130 / 80
CWT 1st Snub Pulley	630	1600	1950	Split	22222CCK/ W33	H322	-
CWT Hold Down Pulley	630	1600	1950	Split	22222CCK/ W33	H322	-
CWT 2nd Snub Pulley	630	1600	1950	Split	22222CCK/ W33	H322	-
Non-drive Pulley	400	510	800	Split	22213EK/ W33	H313	-

Boom Conveyor:

Motor:

Make	:	NGEF/Crompton Greaves
Type	:	315L
Power	:	132 KW
Speed	:	1480 Rpm

Fluid coupling: (Between Motor and Gear Box Input Shaft)

Make	:	Fluidomat
Type	:	**150 kW / Constant Fill Traction**
Oil Grade	:	**SS 32**

Gear box:

Make	:	Elecon
Type	:	Bevel Helical
Power	:	**45** kW
Ratio	:	71:1
n1	:	1000 Rpm
Oil	:	Servo mesh sp 320 / 90 litres capacity

Shuttle head:-

Travelling speed	:	0.33 m/sec (Maximum)
Travel length	:	15 meter

Motor:-

Make	:	NGEF/Crompton greaves
Type	:	AMKW 280 S
Power	:	45 KW
Speed	:	980 Rpm

Brake:-

Design	:	Ø500 mm Calliper Disc Brake ; 50 kg Thruster / 50 mm Stroke
No of drums	:	2

Brake lever:-

Make	:	Electromag/Bluemax.
Type	:	Electro Hydraulic operated disc brake.

Gear box:-

Make	:	Elecon
Type	:	**Spiral** Bevel Helical/KCN-355
Power	:	2 x 45 kW
Reduction ratio	:	71:1
n1	:	980 Rpm
Oil grade	:	Servo mesh sp 320 / 90 litres

Coupling:

Input Coupling	:	High Speed Gear Coupling BZBG – 560
Output Coupling	:	Hollow Shaft Multi Disc Coupling

Bearing:

Input Shaft	:	31314 – 2 nos. / 22314 – 1 no.
1st Intermediate Shaft	:	32317 – 2 nos.
2nd Intermediate Shaft	:	30324 – 2 nos.
Output Shaft	:	32034 – 2 nos.

Oil Seal:

Input	:	65 x 85 x 10
Output	:	170 x 200 x 15

H) ELECTRICAL ARRANGEMENTS OF MACHINES

1. The machine is fed from a land mounted 3.3KV Junction Box located at midpoint of travel thtrailing cable and onboard barrel type CRD for reeling and unreeling of the trailing cable while theThe CRD feeds 3.3 KV Power to on machine 3.3 KV Isolator located inside the below the E-house type transformer with Class F insulation. The transformer is located outside the E-house but penclosure with proper ventilations. The transformer steps down the 3.3 K.V. power to 433V +/- 5is fed to the MCC located inside the E-house.
2. All the motors required for running of the machine as well as allied auxiliary is fed from MCC throArmored and flexible cables.
3. Voltage and power supply conditions: Low voltage supply

Voltage (V)	:	433V
Voltage fluctuations %	:	± 5%
Frequency	:	50 Hz
Frequency fluctuations	:	± 5%
Phases	:	3
Neutral	:	Earthed through earth shoe on both side rails.
Auxiliary voltages	:	230 +/- 10%
Control (V)	:	220 V
Lighting (V)	:	230 V
Electronic equipment (V)	:	24 V, 48V DC (PLC) Digital I/O(V) : Field devices : 48V DC

4. Degree of protection:

All outdoor panels	:	IP 65
All indoor panels	:	IP 54
All field devices	:	IP 65
All Motors	:	IP 65

5. Operation of the machine is achieved by a PLC system having a Central processing Unit located inside the E-House and I/O panel also locatedinside the E-House.
6. The machine is controlled by an operator control desk having joysticks and push buttons.
7. Hardware signal exchange between the Shiploader and the Master Control Tower of the Plantcontrol trailing cable and control CRD to the land mounted control Junction Box.
8. Operational and safety limits of the drives and their motions are cut off by a no. of limit switchlocated strategically all over the machine.
9. Long travel, Shuttle drive and Boom luff drive of the machine are controlled through varfrequency (VVVF) drives located inside the E-House for wide range of speed control.
10. Travel position, luffing position & Boom shuttle position of machine are detected by the operatoCabin.
11. Communication within the machine and with Master Control Tower, Wagon Tippler Cabin & Office Walkie-Talkie Set.

12. HT Isolator details:

Installed Qty.	:	2 Nos.
Type	:	DTP90/630 A
Un	:	3.3 kV
Ith	:	31.5 KA
In	:	630 A
Make	:	Driescher Panickker
Year of Manufacture	:	1999

13. MCC Panel (draw out type) of Shiploader-1 & 2

Sl. No.	Description	Type switch of gear	Type of Starter	Type of overload protection
1	Incomer	ACB	-	With shunt trip, O/L and E/F module.
2	Conveyor	MCCB	DOL	Thermal O/L Relay.
3	Boom Luffing	MCCB	VVVF Control	Microprocessor based Relay.
5	Long Travel	MPCB	VVVF Control	Microprocessor based Relays.
7	Shuttle drive	MCCB	VVVF Control	Microprocessor based Relays.
9	Lighting transformer	SFU		
10	Welding sockets	SFU		
11	Control transformer	MCCB (Incoming & Outgoing)		

4.1.4 Wagon Tippler: 1 & 2

Cradle Hoist:

Motor:-

Make	:	Siemens/Crompton Greaves
Type	:	355 S
Power	:	110 kW
Speed	:	980 Rpm

Brake:-

Make	:	M/s. Witton (Made in England)
Type	:	Electro Magnetic.

No of drums	:	1 no.
Size of Drum	:	18" Dia. (Ø457 mm x 210 mm Width)

Gear box:-

Make	:	Allenmax – New Allenberry Works
Type	:	Bevel Helical
Power	:	274 HP
Reduction ratio	:	36.5:1
n1	:	740/720 RPM
Oil grade	:	Servo mesh sp 220

High Speed Fluid Coupling:

No.	:	1 (one) no. in each Tippler
Make	:	Pembril
Size	:	FCU-23
Oil Grade	:	SS-46
Type	:	Constant Fill Traction
Safety Device	:	Fusible Plug

Rope Pulleys for Counter Weight:

PCD 950 mm x Pin dia 150 mm suitable for 44 mm rope dia. – 4 nos. for each Tippler.PCD 950 mm x Pin dia 170 mm suitable for 44 mm rope dia. - 4 nos. for each Tippler.

Winch Drum:

Single nos. winch drum (One left hand and one right hand drum).

Forward Winch Drum supported on both end by Bush Bearing and Cylindrical Plummer Block.Reverse Winch Drum supported on both end by Bush Bearing and Cylindrical Plummer Block. Clutch Unit – Electro Mechanical Liner type.

High Speed Coupling between Motor and Gear Box – Flexible Resilient FX126, similar to Wellman.Low Speed Coupling – Oldham Coupling.

Cardan shaft:

Extended from both ends of Gear Box Output and fitted with both ends of Counter Weight Shaft.

Side Bolster fitted with Rubber Fender [No. of Bolt – 35 nos.].

End Frame: 2 (single) nos.

Longitudinal Beam: 1 (one) no.

Transverse Beam: 4 (four) nos.

Rubber Pad for Transverse Beam:

Size: 985 mm x 150 mm x 75 mm thick - 4 (four) nos.Size:
685 mm x 150 mm x 75 mm thick - 4 (four) nos.

Hoist Equalizer for Cradle Hoist Rope attachment: 2 (single) nos.

Counter Weight Rope attachment: 2 (single) nos.

Cradle Roller: 2 (single) nos.

Cradle Slotted Bearing: 2 (single) nos.

Counter Weight Rope:

Steel Wire Rope - 44 mm Dia. / 6 x 36 Construction / RHO/LHO / Tensile Strength - 1770 N/mm^2 / FMC / 39 m Length / One end Socket fixing and other end free – 2 (single) nos. for each Tippler [1 (one) RH

Cradle Hoist Rope:

Steel Wire Rope - 44 mm Dia. / 6 x 36 Construction / RHO/LHO / Tensile Strength - 1770 N/mm^2 / FMC / 28 m Length / One end Socket fixing and other end free – 4 (four) nos. for each Tippler [2 (single) RH

MMD Sizer (Crusher):

Make	:	**MMD Mineral Sizing Limited, England**
Rating	:	**Heavy Duty**
Model	:	**MMD 006 Series Twin Shaft Sizer**
Gear Box	:	Serial No. 0060043
		Ratio : 30:1 Integral Gear Box
		Type of Oil used : Servo System – SS 320Oil
		capacity : 550 litres
Capacity	:	**1,500 TPH**
Input size of Coal	:	1,500 mm
Output size of Coal	:	200 mm

Breaker Shaft : **MMD 750 Series (750 mm Centres)**:

Breaker Shaft	Description	Tooth Cap
Drive	4 Tooth x 8 Ring	32 nos.
Driven	4 Tooth x 8 Ring	32 nos.

Bearings used in Gear Box and Breaker Shaft:

Bearing No. (SKF-make)	Description	No.
Double Row Spherical Roller Brg. 22318 CC/W33	Input Shaft	2
Ball Bearing 61824	Input Shaft	1

Double Row Spherical Roller Brg. 24124 CC/W33	2nd Redn. Pinion Shaft	2
Double Row Spherical Roller Brg. 24130 CC/W33	3rd Redn. Pinion Shaft	2
Double Row Spherical Roller Brg. 24048 CC/W33	4th Redn. Pinion Shaft	2
Double Row Spherical Roller Brg. 23152 CC/W33	Drive Breaker Shaft	2
Double Row Spherical Roller Brg. 23152 CC/W33	Driven Breaker Shaft	2

Oil Seals used in the Gear Box and Breaker Shafts:

Oil Seal No. (SKF-make)	Description	No.
80 x 110 x 12 / 13	Input Shaft	2
300 x 340 x 20	Breaker Shafts	8

Lubrication of Breaker Shaft Bearings [4 (four) nos.] by Servo Gem EP – 2 Grease or Lithium ComCentury Lupus Regular A2 or Silkolene G 62 Lithium Base.

Fluid Coupling:

Make : Pembril
Size : FCU - 23
Type : Constant Fill TractionOil
Grade : SS 46 / Shell Tellus 46
Safety Device : Fusible Plug

Apron Conveyor:

The Apron Conveyor comprises a specially fabricated frame, on which 2 (single) Heavy Duty Endless Link The Apron Flights of Rolled Steel are bolted on the Chains and are used for conveying the material. T the Flights are supported and guided on top of the frame by Deck Rollers and are supported on the Rollers. The drive arrangement is connected to the Counter Shaft of the Apron Conveyor by Couplin in turn, drives the Drive Shaft, by means of a Pinion and Bull Gear. On the rear end of the Apron CoWheel Assembly, for guiding the Link Assemblies. The Deck Assemblies slack adjustment is done by Adjusting Hydraulic Cylinders.

Make	:	Larsen & Toubro Limited
Design capacity	:	1,000 TPH
Inclination	:	0 degree
Material	:	Coal, R.O.M
Bulk Density	:	0.8 T/cu.m
Center distance	:	24,500 mm
Pan Width	:	1,800 mm
Pan Width inside Skirt Board	:	1,700 mm
Skirt Board Length	:	8,940 mm

Maximum Deck Speed	:	16.51 m/min
Model	:	T 50
Open Gear Pair Reduction Ratio	:	83:15
No. of Apron Flight of Rolled Steel	:	229 nos.

No. of Conveyor Deck Rollers : 74 nos.No. of

Conveyor Return Rollers : 36 nos.**Gear Box**:

Make	:	Elecon / New Allenberry Works
Type	:	KCN – 315 (LH) Spl.
Rating	:	100 HP
Gear Box Ratio	:	45:1
Type of Oil used	:	Servo Mesh SP - 220
High Speed Coupling (between Motor and Gear Box)	:	FENNER Fenaflex Tyre type Flexible Coupling – F120.
Low Speed Coupling (between Gear Box output and Apron Conveyor Counter Shaft)	:	Concord GC – OLSP – 100 ; Shear Pin type Flexible Gear Coupling ; Shear Torque – 2741 ± 274 kgf-m.

Bearing:

Drive Shaft/Counter Shaft	:	23048 CCK/W33 + H3048
Tail End Drum/Take-up Drum	:	23024 CK + H3024

Scrapper Conveyor:

The Scrapper Conveyor consists of a trough assembly, within which a scrapper chain assembly travels and fabricated plate assembly runs on scrapper trough while conveying spillage and on roller and returning. The drive arrangement directly rotates the drive shaft through motor and reduction gearthe scrapper tail wheel assembly guides the round link chain assembly, which is also used for chaintake-up.

Make	:	Larsen & Toubro Limited
Design capacity	:	10 TPH
Inclination	:	0 degree
Material	:	Coal spillage from Apron Conveyor
Center distance	:	24,033 mm
Width of Scrapper Trough	:	2,240 mm
Maximum speed of Conveyor	:	11.01 m/min
No. of Scrapper Flight	:	44 nos.

No. of Chain (19 Segment)	:	88 nos.
No. of Chain (9 Segment)	:	88 nos.
No. of Chain Shackles fitted with Hex. Nut and Distance Plate	:	176 nos.
Gear Box Ratio	:	70:1
Coupling	:	Pin Bush type

Marshalling Beetle:

Used for hauling around 15 (fifteen) nos. loaded BOXN Wagons, each carrying approximately 62 Charger Beetle. It consists of single body, fitted with 2 (single) nos. Propelling/Sector Arm [BeariArm – 22213 CC/W33].

Forward drive:

Motor	: 37 kW
Make	: GEC
Gear Box:	
No.	: 2 (single) nos.
Make	: New Allenberry Works, Kolkata
Type	: C-112
Input RPM	960
Input HP	: 49.6
Ratio	: 100:1
Forward Rope Pulley	: 3 (three) nos. each / 760 PCD / Bearing No.: 30224

Reverse drive:

Motor	: 22 kW
Make	: Siemens
Gear Box:	
Make	: Radicon
Type	: Worm Reducer (U-1400)
Ratio	: 60:1 L/R
Reverse Rope Pulley	: 5 (five) nos. each / 500 PCD / Bearing No.: 30217

Winch Drum:

Forward (One at East side & other at West side): Fitted with Steel Wire Rope - 38 mm Dia. Tensile Strength 1,770 N/mm^2 / Galvanizedend Socket fixing and other end free.

Reverse (One at East side & other at West side): Fitted with Steel Wire Rope - 20 mm Dia. Tensile Strength 1,770 N/mm^2 / Galvanized /end free.

Brake Unit:

Type : Electro Hydraulic Thruster / Band Brake
Capacity : 34 Kg
Dia. of Brake Drum : 400 mm
Coupling : Flexible Resilient Coupling – 2 (single) nos.

Charging Beetle:

Used for placement of 1 (one) loaded Wagon on Tippler Cradle. During placement of loaded Wa on the Cradle is pushed automatically towards the Empty Line. It consists of 3 (three) part body, f Propelling/Sector Arm [Bearing of Propelling/Sector Arm – 22213 CC/W33].

Forward (One at East side & other at West side): Fitted with Steel Wire Rope - 32 mm Dia. Tensile Strength 1,770 N/mm^2 / Galvanized / Socket fixing and other end free.

Reverse (One at East side & other at West side): Fitted with Steel Wire Rope - 32 mm Dia. Tensile Strength 1,770 N/mm^2 / Galvanizedend Socket fixing and other end free.

The Forward & Reverse Ropes are winded on the same Winch Drum.

Brake unit:

Type : Electro Hydraulic Thruster
Capacity : 34 Kg
Dia. of Brake Drum : 400 mm

Vibro Feeder:

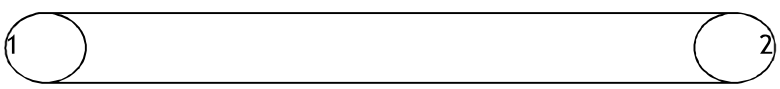
Make : TRF Limited
Type : TE-11
Stroke : ½''
RPM : 800 mm
Pulley : 'V' groove, 3 x C-124 belt.
Motor : 2 (single) nos., 22 kW for each Vibrofeeder.
Vibro Feeder Drive Shaft/
Non-drive Shaft Bearing No.: 22322 EJA/VA/405 OR 22322 E

Grizzly:

Size : (300 x 300) mm pocket size.
No. installed : Intermediate 4 (four) nos. on each side.
Corner Grizzly : 2 nos. (one left hand and one right hand) on each side.Hopper : 2 (single) nos. on each side, placed below the Grizzly.

4.1.5 H-201 (East & West)CONVEYOR

BELT MOVING DIRECTION



1. DRIVE PULLEY (Lagged) 2.Tail Pulley with Screw Take-up arran

1. Motor:-

Make	:	Marathon/Crompton greaves
Type	:	3 Ø Squirrel Cage inductions motor
Power	:	**3**0 KW
RPM	:	**1480** rpm
Volt	:	415V
Frame	:	280 S

2. Gear coupling:- [1 (one) no. on each side]

Size	:	GC-8
Type	:	Spur toothed

3. Gear box:- [1 (one) no. on each side]

Make	:	New Allen Berry
Type	:	BH-65R/GS 50D
Speed ratio	:	20:1
Hold back unit	:	Fitted at intermediate shaft.
Oil	:	Servo mesh SP220

4. Flexible resilient coupling:- [1 (one) no. on each side]

High Speed Coupling : Fitted between motor shaft & Gear box input

5. Pulleys:- (for each side)

Pulley Name	Drum dia (in mm)	Brg. Dia (in mm)	Total shaft lg.(i	Brg. C-C (in mm)	Bearing Housing	Bearing number	Sleeve
Drive (D1)	800	140	2100	1950	Cylindrical	22228C	No
Tail (N1)	630	80	2000	1925	THD Take-up	22316	No

6. Belt :-

Length	:	45/45.5 m
Width	:	1400 mm
Strength	:	800/4
Rubber thickness	:	5 mm Top/3 mm Bottom
Grade	:	M-24, Heavy duty, Nylon-Nylon
Nominal Carcass thickness	:	6.0 mm
Type of edge	:	Cut edge construction
Speed	:	2.75 m/sec

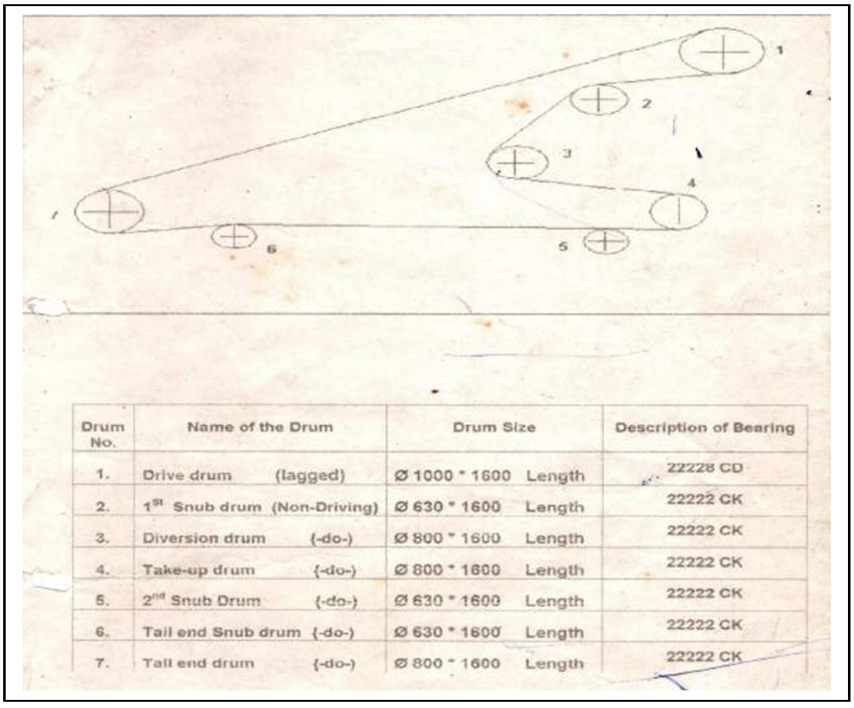
7. Idlers:- (for each side)

Frame Type	:	BKT1

No. of Bracket	:	25 nos.
Size of Impact idler	:	Ø152.4 mm x 490 mm
Installed qty of idlers	:	75 nos.
Installed qty of return roller	:	7 (seven) nos.
Size of return roller	:	Ø152.4 mm x 1600 mm

4.1.6 H-202 CONVEYOR

BELT MOVING DIRECTION ⟶



Drum No.	Name of the Drum	Drum Size	Description of Bearing
1.	Drive drum (lagged)	Ø 1000 * 1600 Length	22228 CD
2.	1st Snub drum (Non-Driving)	Ø 630 * 1600 Length	22222 CK
3.	Diversion drum (-do-)	Ø 800 * 1600 Length	22222 CK
4.	Take-up drum (-do-)	Ø 800 * 1600 Length	22222 CK
5.	2nd Snub Drum (-do-)	Ø 630 * 1600 Length	22222 CK
6.	Tail end Snub drum (-do-)	Ø 630 * 1600 Length	22222 CK
7.	Tail end drum (-do-)	Ø 800 * 1600 Length	22222 CK

1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ǿ Squirrel Gauge induction motor
Power	:	150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Fluidomat
Model	:	T12/08
Rating	:	150 kW
Type	:	Constant Fill Traction
Installed qty	:	1 (one) no.
Oil Qty	:	15 ltrs.
Oil Grade	:	SS - 32
Safety devices	:	FUSIBLE TRIP $145^{0} \pm 5^{0}$ FUSIBLE PLUG $165^{0} \pm 5^{0}$

3. Gear box:-

Make	:	New Allen Berry Works
Type	:	CG-85/SC-V
Rating	:	150 KW/201 HP
Inst. Qty of gear box	:	01 No.
Speed ratio	:	28:1
Hold back unit	:	Fitted at intermediate shaft.
Oil Qty & grade	:	80 Liters & Servo mesh – SP220
Type of Gear	:	Double Helical

4. Gear coupling: : GC-10 [Spur Toothed] – 1 (one) no.
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	219 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Nominal Carcass Thickness	:	6.0 mm
Type of edge	:	Cut edge construction
Troughing angle	:	30^{O}
Speed	:	2.75 m/sec

7. Idler:-

No. of troughing idlers (TR-1)	:	288 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
No of return rollers (BR-1)	:	35 nos.
Size of the rollers	:	Ø152.4 x 1600 mm
No of garland idlers	:	4 nos.
Size of the idlers	:	Ø152.4 mm x 700 mm

8.Idler's frame s:-

No of troughing idler frames (BKT-1)	:	96
No of return roller holding bracket	:	……..
No of return self alignment frames	:	……
No of garland idler links	:	……..

4.1.7 H-203 CONVEYOR

1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ó Squirrel Gauge induction motor
Power	:	150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Fluidomat
Model	:	T12/08
Rating	:	150 kW
Type	:	Constant Fill Traction
Installed qty	:	1 (one) no.
Oil Qty	:	15 Ltr.
Oil Grade	:	SS - 32
Safety devices	:	FUSIBLE TRIP $145^0 \pm 5^0$ FUSIBLE PLUG $165^0 \pm 5^0$

3. Gear box:-

Make	:	New Allen Berry Works
Type	:	C-138 Special / G-125
Rating	:	220 kW / 295 HP
Inst. Qty of gear box	:	1 (one) no.
Speed ratio	:	29.4 : 1
Hold back unit	:	Fitted at intermediate shaft.
Oil Qty & grade	:	270 Liters & Servo mesh – SP220
Type of Gear	:	Double Helical
Scheme	:	V

4. Gear coupling: : GC-10 [Spur Toothed]
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	241 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Type of edge	:	Cut edge construction
Carcass thickness	:	6.0 mm
Troughing angle	:	30^O
Speed	:	2.75 m/sec

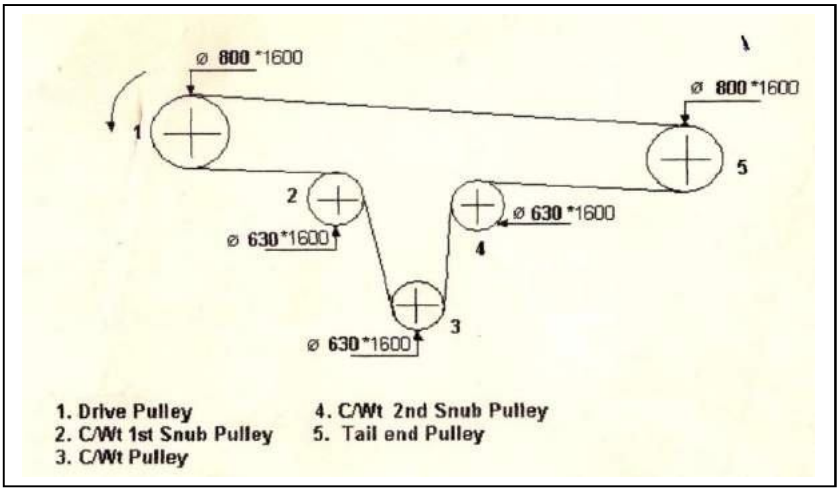
7. Idler:-

No. of troughing idlers (TR-1)	:	321 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
Bearing no	:	BBIB 420206
No of return rollers (BR-1)	:	37 nos.
Size of the rollers	:	Ø152.4 mm x 1600 mm
Bearing no	:	BBIB 420206
No of garland idlers	:	4 nos.
Size of the idlers	:	Ø152.4 mm x 730 mm
Bearing no	:	BBIB 420206

8.Idl er's frame s:-

No of troughing idler frames (BKT-1) : 107
No of return roller holding bracket : 74
No of return self alignment frames : 3
No of garland idler links : ……..

4.1.8 H-204 CONVEYOR



1. Motor:-

Make : Siemens
Type : 3 Ǿ Squirrel Gauge induction motor
Power : 75 kW
RPM : 1480 rpm
Volt : 415 V

2. Fluid coupling:-

Make : Pembril Model :
FCU 17.75
Type : Constant Fill Traction
Installed qty : 1 (one) no.
Oil Qty : 15 Ltr.
Oil Grade : SS - 46
Safety devices : FUSIBLE PLUG $165^0 \pm 5^0$

3. Gear box:-

Make : New Allen Berry Works
Type : BH-85 Special / CG-85
Rating : 150 kW / 201 HP
Inst. Qty of gear box : 1 (one) no.
Speed ratio : 23:1
Hold back unit : Fitted at intermediate shaft.
Oil Qty & grade : 65 Liters & Servo mesh – SP220
Type of Gear : Double Helical

4. Gear coupling: : GC-10 [Spur Toothed]
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	132 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Carcass thickness	:	6.0 mm
Troughing angle	:	30^{O}
Speed	:	2.75 m/sec

7. Idler:-

No. of troughing idlers (TR-1)	:	159 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
Bearing no	:	BBIB 420206
No of return rollers (BR-1)	:	18 nos.
Size of the rollers	:	Ø152.4 mm x 1600 mm
Bearing no	:	BBIB 420206
No of garland idlers	:	5 nos.
Size of the idlers	:	Ø152.4 mm x 730 mm
Bearing no	:	BBIB 420206

8.Idl er's frame s:-

No of troughing idler frames (BKT-1)	:	53
No of return roller holding bracket	:	36
No of return self alignment frames	:	2
No of garland idler links	:	……..

4.1.9 H-205 CONVEYOR:

1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ǿ Squirrel Cage induction motor
Power	:	2 (single) nos. 150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Pembril Model : FCU-20
Type	:	Constant Fill Traction
Installed qty	:	2 (single) nos.
Oil Qty	:	15 Ltr.
Oil Grade	:	SS - 46
Safety devices	:	FUSIBLE TRIP $145^{0} \pm 5^{0}$ FUSIBLE PLUG $165^{0} \pm 5^{0}$

3. Gear box:-

Make	:	NEW ALLENBERRY WORKS[type : CSC-600 (SPL)]
Type	:	Helical
Rating	:	220 kW
Inst. Qty of gear box	:	2 (single) nos.
Speed ratio	:	35.6:1
Hold back unit	:	Fitted at intermediate shaft.
Oil grade	:	Servo mesh – SS320

4. Gear coupling: **:** GC-12 [2 (single) nos.]
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	1256 m
Width	:	1400 mm
Strength	:	1000/5 ply, 8 mm top, 4 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Carcass thickness	:	7.0 mm
Troughing angle	:	30^{O}
Speed	:	2.75 m/sec

7. Idler:-

No. of troughing idlers (TR-1)	**:**	**1485** Nos.
Size of the idlers	**:**	¤¤¤¤¤¤X490mm
Bearing no	**:**	……
No of return rollers (BR-1)	**:**	**.....**nos
Size of the rollers	**:**	¤¤52.4X1600mm
Bearing no	**:**	**……..**

8.Idler's frame s:-

No of troughing idler frames (BKT-1)	**:**	**……**
No of return roller holding bracket	**:**	**…….**
No of return self alignment frames	**:**	……

4.1.10 H-206 CONVEYOR:

1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ǿ Squirrel Cage induction motor
Power	:	2 (single) nos. 150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make : Pembril Model :
FCU-20
Type : **…….**
Installed qty : 2 (single) nos.
Oil Qty : **15 Ltr.**
Safety devices : FUSIBLE TRIP $145^0 \pm 5^0$ FUSIBLE PLUG $165^0 \pm 5^0$

3. Gear box:-

Make : New Allen Berry Works
Type : C-138 / GS 125
Rating : 220 kW
Inst. Qty of gearbox : 2 (single) nos.
Speed ratio : **35.6**:1
Hold back unit : Fitted at intermediate shaft.Oil grade : Servo mesh – SP220

4. Gear coupling: : GC-12 [2 (single) nos.]
(Fitted between Motor & Gear Box input)

6. Belts:-

Length : 1275 m
Width : 1400 mm
Strength : 1000/5 ply, 8 mm top, 4 mm bottom
Grade : M-24
Duty : Heavy, Nylon-Nylon
Carcass thickness : 7.0 mm
Troughing angle : 30^O
Speed : 2.75 m/sec

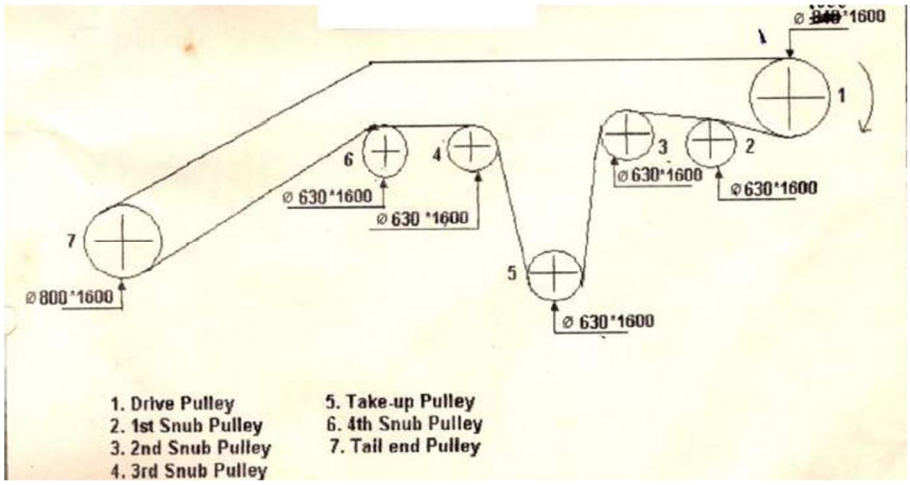
7. Idler:-

No. of troughing idlers (TR-1) : **…….** Nos.
Size of the idlers : ¤¤¤¤¤¤X490mm
Bearing no : ……
No of return rollers (BR-1) : **……..** nos
Size of the rollers : ¤¤52.4X1600mm
Bearing no : **……..**

8.Idler's frame s:-

No of troughing idler frames (BKT-1) : **……**
No of return roller holding bracket : **…….**
No of return self alignment frames : ……

4.1.11 H-207 CONVEYOR:



1. Motor:-

Make	:	Jyoti Ltd
Type	:	3 Ó Squirrel Cage induction motor
Power	:	110 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Pembril Model : FCU-20
Type	:	Constant Fill Traction
Installed qty	:	1 (one) no.
Oil Qty	:	15 Ltr.
Oil Grade	:	
Safety devices	:	FUSIBLE TRIP $145^0 \pm 5^0$ FUSIBLE PLUG $165^0 \pm 5^0$

3. Gear box:-

Make	:	New Allen Berry Works
Type	:	Helical
Rating	:	150 kW
Inst. Qty of gear box	:	1 (one) no.
Speed ratio	:	1460/63.47 = 23:1
Hold back unit	:	Fitted at intermediate shaft.Oil grade : Servo mesh – SP220

4. Gear coupling: : GC-10
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	270 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24

Duty	:	Heavy, Nylon-Nylon
Carcass thickness	:	6.0 mm
Troughing angle	:	30^{O}
Speed	:	2.75 m/sec

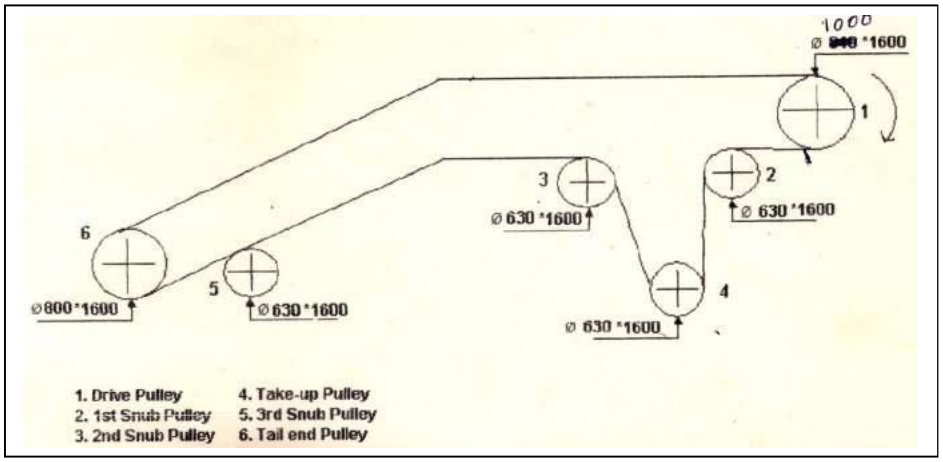
7. Idler:-

No. of troughing idlers (TR-1)	:	399 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
Bearing no	:	BBIB 420206
No of return rollers (BR-1)	:	44 nos.
Size of the rollers	:	Ø152.4 mm x 1600 mm
Bearing no	:	BBIB 420206

8.Idler's frame s:-

No of troughing idler frames (BKT-1)	:	133
No of return roller holding bracket	:	88
No of return self alignment frames	:	4

4.1.12 H-208 CONVEYOR:



1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ø Squirrel Cage induction motor
Power	:	150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Fluidomat Model : T12/08
Type	:	Constant Fill Traction
Installed qty	:	1 (one) no.
Oil Qty	:	15 Ltr.
Oil Grade	:	SS 32
Safety devices	:	FUSIBLE TRIP $145^{0} \pm 5^{0}$ FUSIBLE PLUG $165^{0} \pm$

5^0

3. Gear box:-

Make	:	New Allen Berry Works
Type	:	Helical
Rating	:	150 kW
Inst. Qty of gear box	:	1 (one) no.
Speed ratio	:	1460/63.47 = 23:1
Hold back unit	:	Fitted at intermediate shaft.Oil
grade	:	Servo mesh – SP220

4. Gear coupling: : GC-10
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	216 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Carcass thickness	:	6.0 mm
Troughing angle	:	30^O
Speed	:	2.75 m/sec

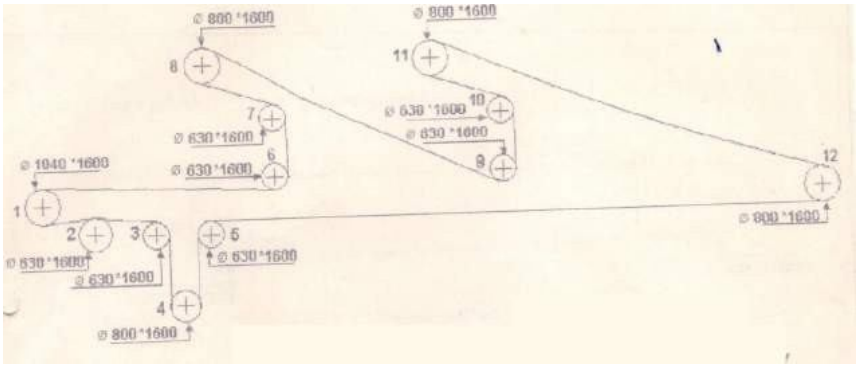
7. Idler:-

No. of troughing idlers (TR-1)	:	264 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
Bearing no	:	BBIB
420206No of return rollers (BR-1)	:	33 nos.
Size of the rollers	:	Ø152.4 mm x 1600 mm
Bearing no	:	BBIB 420206

8.Idler's frame s:-

No of troughing idler frames (BKT-1)	:	88
No of return roller holding bracket	:	66
No of return self alignment frames	:	3

4.1.13 H-209 CONVEYOR:



1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ǿ Squirrel Cage induction motor
Power	:	150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	Fluidomat
Model	:	**T12/08**
Type	:	Constant Fill Traction
Installed qty	:	1 (one) no.
Oil Qty	:	**15 Ltr.**
Safety devices	:	FUSIBLE TRIP $145^0 \pm 5^0$ FUSIBLE PLUG $165^0 \pm 5^0$

3. Gear box:-

Make	:	New Allen Berry Works
Type	:	Helical
Rating	:	150 kW
Inst. Qty of gear box	:	1 (one) no.
Speed ratio	:	1460/52.1 = 28:1
Oil grade	:	Servo mesh – SP220

4. Gear coupling: : GC-10
(Fitted between Motor & Gear Box input)

6. Belts:-

Length	:	446 m
Width	:	1400 mm
Strength	:	800/4 ply, 5 mm top, 3 mm bottom
Grade	:	M-24
Duty	:	Heavy, Nylon-Nylon
Carcass thickness	:	6.0 mm
Troughing angle	:	30^O
Speed	:	2.75 m/sec

7. Idler:-

No. of Troughing Idlers (TR-1)	:	561 nos.
Size of the idlers	:	Ø152.4 mm x 490 mm
Bearing no	:	BBIB 420206
No. of Return Rollers (BR-1)	:	72 nos.
Size of the rollers	:	Ø152.4 mm x 1600 mm
Bearing no	:	BBIB 420206

8.Idler's frame s:-

No of troughing idler frames (BKT-1)	:	187
No of return roller holding bracket	:	144
No of return self alignment frames	:	4

4.1.14 H-210 CONVEYOR:

1. Motor:-

Make	:	Marathon Motors
Type	:	3 Ó Squirrel Cage inductions motor
Power	:	150 kW
RPM	:	1480 rpm
Volt	:	3.3 kV

2. Fluid coupling:-

Make	:	M/s PEMBRIL Model
:	FCU -20	
Type	:	constant fill.
Installed qty	:	01 no.
Oil Grade	:	SERVO PRIME 46
Safety devices	:	FUSIBLE TRIP $145^0 \pm 5^0$C FUSIBLE PLUG $165^0 \pm 5^0$C

3. Gear box:-

Make	:	New Allen Berry Works, Kolkata
Type	:	Helical
Inst. Qty of gear box	:	1 No.
Speed ratio	:	28:1
Oil	:	Servo Mesh SP220

4. Idler/Roller & Frame:-

No. of Troughing Idler	:	558
No. of Troughing Idler Frame (BKT1)	:	186
Size of Idler	:	Ø152.4 mm x 490 mm
Bearing	:	BBIB 420206
No. of Return Roller	:	73
No. of Return Roller Holding Bracket	:	146
Size of Return Roller	:	Ø152.4 mm x 1600 mm
No. of Self-aligning Bracket	:	3

5. Lagging:-

- 10 mm Thickness with diamond groove lagging for Drive pulley
- 10 mm Thickness with plain lagging for Non Drive pulley

6. Belt :-

Length	:	458 m
Width	:	1400mm
Strength	:	800/4, Grade M-24, Nylon-Nylon 5 mm Top Rubber / 3 mm Bottom Rubber
Carcass Thickness	:	6.0 mm
Duty	:	Heavy
Speed	:	2.75 m/sec

9	8	7	5	4	2	1	SL	
Long travel limit switches	Chute jamming preventor	Fluid thermal limit	Under Speed	HOOTER	BSS	PCS	ITEMS/ LOCATION	
2			2	1	4	4	SR-1	CONVEYORS MACHINES
2	1	2	2	1	6	6	SR-2	
2			2	1	4	4	SL-1	
2			2	1	4	4	SL-2	
	1		1	1		8	H-202	
	1		1	1		8	H-203	
	1		1	1		4	H-204	
	1		1	1		25	H-205	
	1		1	1		25	H-206	
	1		1	1		5	H-207	
	1		1	1		5	H-208	
	1		1	1		9	H-209	
	1		1	1		9	H-210	
8	10	2	17	13	18	116	TOTAL	

4.1.16 TECHNICAL DETAILS OF PLC SYSTEM:

a) Automation drive details (VVVF):

Sl No.	DRIVE TYPE / DETAILS	LOCATION	OEM	RATING	INSTALLED YEAR	INSTALLED QTY.
1	CMIR 616 G5	SL-1	L&T Ltd./ Yaskawa	90 KW	2000	2
2	CMIR 616 G5	SL-1	L&T Ltd./ Yaskawa	300 KW	2000	1
3	CMIR-F7-A 4110	SL-2	L&T Ltd./ Yaskawa	110 KW	2008	2
4	CMIR-F7-A 4300	SL-2	L&T Ltd./ Yaskawa	300 KW	2008	1
5	Axpert-VT240S-30KW	SR-1	Ametch Electronic Pvt. Ltd.	30 KW	2015	1
6	ACS 800	SR-2	ABB Ltd.	110 KW	2016	1
7	CMIR-F7-A 4045	Wagon Tippler Vibro Feeder	Yaskawa	45 KW		2
8	Axpert Easy Series -110 KW	Wagon Tippler Apron Conv.	Ametch Electronic Pvt. Ltd.	110 KW	2014	1

b) Automation PLC details (Comprising of 3 Nos. PLC nesinglerk):

Sl. No	PLC TYPE / NO.	INSTALLED LOCATION	OEM	INSTALLED YEAR	TOTAL I/O
1	Modsoft / CPU 11302	SL-1	L&T Lts. / Schneider	2000	22
2	Unity Pro /	SL-2	Schneider	2008	23
3	CPU PM 583	SR-2	ABB Ltd.	2016	18

4.2 AIR CONDITIONING:

1. **Stacker-cum-reclaimer No. 2**:

   Installed quantity : **4 (four) nos.** [**3 (three)** in **E-house** and **1 (one)** in **Operator Cabin**]Make : **Voltas** [**Split type**]

   Ton : **1.5**

2. **Master Control Tower**:

   Installed quantity : **2 (single) nos.**

   Make : **Carrier** [**Split type**]

   Ton : **2**

4.3 ILLUMINATION:

Description of Light	Trans. Tower 8 nos.	Conv. 13 nos.	High Mast Tower 9 nos.	Lattice type Lighting Tower 21 nos.	M/c (SR/SL) 4 nos.	Wagon Tippler House 1 no.	Office, Restroom, Canteen & Store	Total installed quantity
1 x 20 W Tube	-	-	-	-	-	-	30	30
1 x 40 W Tube	-	-	-	-	-	-	50	50
2 x 40 W Tube	-	-	-	-	-	-	400	400
1 x 70 W HPSV	-	-	-	-	30	-	-	120
1 x 125 W HPMV	-	-	-	-	-	200	-	200
1 x 250 W HPSV	-	6	-	-	-	-	-	78
1 x 400 W HPSV	4	-	-	-	-	42	-	74
2 x 400 W HPSV	-	-	32	10	6	-	-	522

4.4 EOT CRANE WITH HOOK BLOCK:

Location	Make	Capacity	Span length	Quantity
Wagon Tippler House	Burn Standard	25 Ton	18 m	1 (one) no.

Drives : Long Travel / Main Hoist / Cross Travel
Long Travel Wheel fitted with Bearings : 4 (four) nos. [Bearing – 22226E]
Line Shaft Plummer Block with Bearings : 10 (ten) nos.
Cast Iron Rope Pulley fitted with Bush Bearing:
10 3/16" OD x 2" Bore x 10 ¼" PCD x 2" Pin Dia. – 1 (one) no.
18 1/4" OD x 2 3/4" Bore x 17" PCD x 2 3/4" Pin Dia. – 2 (single) nos.18
1/4" OD x 4 1/4" Bore x 17" PCD x 4 1/4" Pin Dia. – 4 (four) nos.Main Hoist
Brake Unit:
Size : Ø400 mm x 140 mm Width
Type : Electro Hydraulic Thruster (34 kg)
Coupling:
Main Hoist : Pin Bush type
Cross Travel : Pin Bush type
Main Hoist Winch Drum : 1 (one) no. [fitted with Plummer Blockand Bearing at both ends]

Main Hoist Wire Rope:
20 mm Dia. / 6 x 36 Construction / FMC / 1,770 N/mm² / 250 meter Length / RHO / Both End Free /Galvanized

4.5 COMMUNICATION FACILITY, VHF COMMUNICATION,

INTERCOM, ETC.:VHF COMMUNICATION:

Basically, the VHF systems are used for communication purpose, at different locations of the plant, forsmooth operation and maintenance of the plant.

The following 2 (single) types of VHF Set are presently in use:

i) Fixed Station (Base Station) [Make: Simoco] - 4 (four) nos.

ii) Hand Set (RL328 Series) [Make: Rexon] - 24 (twenty-four) nos.

4.6 CLEANLINESS / HOUSEKEEPING:

4.6.1 GRASS AND BUSH CUTTING DETAILS:

1) Feeder lines, drainage system (including surrounding area of Coal Wagon Tipplers).
2) Rear side of Track Lines of H-205 & H-206 Yard Conveyors.
3) Tippler side of Plot Nos. 1 & 4.
4) Empty lines of Coal Wagon Tipplers.
5) All Transfer Tower surrounding areas.
6) Back-up areas of Berth No. 4, which are not included above.

SECTION-XIII

INDICATIVE MAINTENANCE SCHEDULE

13.1 Electrical Maintenance Plan/ Schedule

Sl. No.	Maintenance Point/Equipment	Frequency
	MAINTENANCE PLAN OF ELECTRICAL INSTALLATION OF CONVEYOR DRIVE, M/CONTROL TOWER DESK AND ELECTRONIC EQUIPMENTS	
1	OCB of MEI Panels at M/C/S/S & T/S/S	Yearly
2	Vacuum Contactor of MEI Panels at M/C/S/S & T/S/S	Half-Yearly
3	Auxiliary Contactor of MEI Panels at M/C/S/S & T/S/S	Half-Yearly
4	Power & Control Jn. & Power Contactors at M/C/S/S & T/S/S	Monthly
5	Bus- Bar of MEI Panels at M/C/S/S & T/S/S	Yearly
6	Bus- Bar & Contactor of MCC- 2	Half-Yearly
7	Belt Slip Relay Panels.	Monthly
8	CJP Panels & Sensors.	Monthly
9	C.T & Outgoing Cable connections, Panel Wiring, Relays, Ammeters, etc. of MEI Panels at M/C/S/S & T/S/S	Half-Yearly
10	M/C Tower Desk, Power & Control Jn. Switches, Ammeters etc. & Control Transformers.	Half-Yearly
11	Apron Feeder Panel (VVVF Control) at W/T(C)	Monthly
12	Vibro Feeder Panel (VVVF Control) at W/T Coal	Monthly
13	CSR- 1 Slew Drive Panel (VVVF Control)	Monthly
14	CSR- 2 Long Drive Panel (VVVF Control)	Monthly
15	Belt Weigher bridge (04 nos.)	Monthly
16	Belt Weigher Panels of Jetty Office (02 nos.), Belt Weigher Panels of Master Control Office (02 nos.)	Monthly
17	Speako Desk at M/C Tower	Quarterly
18	Speako Amplifiers (02 nos.)	Monthly
19	Local Announcement system at W/T.	Monthly
20	Stacking I/L and Loading I/L relay unit of S/R & S/L	Monthly
21	Photo Switch units at W/T (Coal)	Monthly
22	Fixed Station transceivers (04 nos.)	Monthly
23	OLTC Remote Control Panel at M/C/S/S	Quarterly
24	OLTC Mechanism at Transformers (3 nos.)	Half-Yearly
25	Power Factor Controller Panel	Monthly
26	Tippling Counters at Master Control Office & Tippler Office	Monthly
27	Intercom System between Tippler Opt. Cabin to C/ Beetle Cabin	Monthly
28	Central Announcement system (07 nos.)	Monthly
29	Maintenance of Rectifier Panels.	Monthly

Sl. No.	Maintenance done at	Frequency
	MAINTENANCE PLAN OF WAGON TIPPLER ZONE LIGHTING	
1	M.D.B. – (OCT)	Yearly
2	Tippler Sub Station Lighting	Monthly
3	Tippler Offices Lighting (Shift & G/ Shift)	Monthly
4	Tippler House High Bay Fittings.	Monthly
5	Winch House Lighting	Monthly
6	M.C.C Room Lighting including Lighting Panels	Monthly
7	Marshall Stop Indication Light	Monthly
8	C/B Pick up Zone Lights (West)	Monthly
9	C/B Pick up Zone Lights (East)	Monthly
10	V/F Floor, Mobile Floor Light (East)	Monthly
11	V/F Floor, Mobile Floor Light (West)	Monthly
12	Apron Floor Light	Monthly
13	Crusher Floor Light	Monthly
14	Tunnel 202 Side Light	Monthly
15	Tunnel 203 Side Light	Monthly
16	Tunnel Middle Row Light	Monthly
17	A.C Tower Light (Ground Floor)	Monthly
18	A.C Tower Light (1st Floor)	Monthly
19	B.C Tower Light (Ground Floor)	Monthly
20	B.C Tower Light (1st Floor)	Monthly
21	C.C Tower Light (Ground Floor)	Monthly
22	C.C Tower Light (1st Floor)	Monthly
23	M.D.B. – 1	Yearly

Sl. No.	Description	Frequency
	MAINTENANCE PLAN OTHER THAN WAGON TIPPLER ZONE POWER DISTRIBUTION SYSTEM (LIGHTING)	
1	M.C.S.S Lighting, 33KV Room, Battery Room	Monthly
2	M.C Store	do
3	M.C Office	do
4	Equipment Operators' Rest Room	do
5	Conveyor Maintenance Office	do
6	Staff Rest Room - 1	do
7	Staff Rest Room - 2	do
8	Latrine	do
9	Garrage / Driver Rest Room	do
10	Fire Rest Room & Bath Room	do
11	Canteen	do

12	C/SR Mechanical Workshop	do
13	C/SL Mechanical Workshop	do
14	M.C Machine Shop	do
15	M.C Electrical Workshop	do
16	M.C Tower	do
17	D.C Tower, 206 walkway, 207 walkway	Monthly
18	E.C Tower, 205 walkway, 208 walkway	do
19	F.C. Tower	do
20	G.C. Tower	do
21	H.C Tower	do
22	D.C Tower	Monthly
23	E.C Tower	do
24	F.C. Tower	do
25	G.C. Tower	do
26	H.C Tower	do

MAINTENANCE PLAN OF CONVEYOR DRIVE (H.T / L.T)

	Installations	Frequency	Remarks
Conveyor Drive No.	Motor , Isolator	Monthly	
	Capacitor (where installed)	Do	
	Emergency Switches, Pull Cord Switches, Remote Push & Hooter.	Do	

N.B:

Conveyor Belt Drive Nos.

H-201 (E+W)
H – 202
H – 203
H – 204
H – 205
H – 206
H – 207
H – 208
H – 209
H – 210
Boom conveyor (SR1 & SR2)
Boom conveyor of (SL1 & SL2)

		Frequency
MAINTENANCE PLAN OF STACKER – CUM – RECLAIMER (COAL) – 1 & 2		
Motors & Thruster (Electrical)	Boom Conveyor	Monthly
	Bucket Wheel	Do
	Boom Hoist SR1 & SR2	Do
	Lubrication (SR2)	Do
	Boom Slew – SR1 & SR2	Do
	Long Travel – 1 to 6 (for SR – 1)	Do
	Long Travel – 1 to 16 (for SR – 2)	Do
	Gate change – 1 & 2 (for SR – 1 & SR 2)	Do
	Self alignment (for SR 2)	Do
	Fire fighting Pump (for SR 2)	Do
	P.C.R.D. (For SR1 & SR2)	Do
	C.C.R.D. (For SR1 & SR2)	Do
	Hydraulic Pump (For SR1 & SR2)	Do
	Hydraulic Cooling (For SR2)	Do
	Cabin Adjustment (For SR2)	Do
	Siren (For SR1 & SR2)	Do
Resistance Bank	Long Travel (For SR1)	Monthly
	P.C.R.D. (For SR1 & SR2)	Do
	C.C.R.D. (For SR1 & SR2)	Do
H.T. Equipments	Transformer	Yearly
	Ring Main Isolator	Monthly
	Isolator	Do
	Slip Rings	Do
	Link Box	Do
	VCB (For SR2)	Do
	Load Break Switch (For SR2)	Do
Main Incoming Panel	A.C.B.- 1 & A.C.B.- 2 (For SR1 & SR2)	Yearly
	LT Bus Bar	Monthly

	Drives	**Frequency**
MAINTENANCE PLAN OF STACKER – CUM – RECLAIMER (COAL) – 1 & 2		
Power Contractors, MCCB, MPCB, Power Junction	Boom Hoist (for SR1 & SR2)	Monthly
	Boom Conveyor (for SR1 & SR2)	Do
	Bucket Wheel (for SR1 & SR2)	Do
	Boom Slew – (for SR1 & SR2)	Do
	Long Travel – 1 to 6 (For S/R – 1)	Do
	Long Travel – 1 to 16 (For S/R – 2)	Do
	C.C.R.D. (For SR1 & SR2)	Do
	P.C.R.D. (For SR1 & SR2)	Do
	Lubrication (For SR2)	Do
	Power factor improvement (For SR2)	Do
	Fire Fighting (For SR2)	Do
	Cabin Adjustment (For SR2)	Do

	Boom hoist Lubrication (For SR2)	Do
	Rail Clamp 1 & 2 (For SR2)	Do
	Self alignment (For SR2)	Do
Auxiliary Contractors, Timers, Bimetals, Elmex Terminals, Control Junction Indication Lamps, Etc.	Boom Conveyor (For SR1 & SR2)	Monthly
	Bucket Wheel (For SR1 & SR2)	Do
	Boom Hoist (For SR1 & SR2)	Do
	Boom Slew – (For SR1 & SR2)	Do
	Long Travel – 1 to 6 (For SR1)	Do
	Long Travel – 1 to 16 (For SR2)	Do
	P.C.R.D. (For SR1 & SR2)	Do
	C.C.R.D. (For SR1 & SR2)	Do
	Lubrication (For SR2)	Do
	Power factor improvement (For SR2)	Do
	Fire Fighting (For SR2)	Do
	Cabin Adjustment (For SR2)	Do
	Rail Clamp 1 & 2 (For SR2)	Do

	Drives	**Frequency**
MAINTENANCE PLAN OF STACKER – CUM – RECLAIMER (COAL) – 1 & 2		
Interlock Checking	Stacking (For SR1 & SR2)	Monthly
	Reclaiming (For SR1 & SR2)	Do
L.S, Cam. L.S., Other L.S., Pull Chord Switch and Emergency Switch	Boom Hoist / Lower	Monthly
	Boom Slew	Do
	Bucket Wheel	Do
	P.C.R.D.	Do
	Boom Conveyor	Do
	Long Travel	Do
	Chute Gate L.S. (SR1 & SR2)	Do
	C.C.R.D.	Do
Lighting and Control Transformer	Lighting Transformer (For SR2)	Monthly
	Control Transformer (For SR1 & SR2)	Do
L I G H T I N G	Lower M.C.C. Room	Monthly
	Upper M.C.C. Room	Do
	L.T. Motor Area	Do
	Belt Conveyor Chute Area	Do
	Bucket Wheel Area	Do
	Cabin & W / Ways	Do
	All Industrial Plug.	Do
	All Lighting Switches	Do
Slew Race	Cleaning	Daily
Control & Hydraulic Accessories	Key actuated switch	Monthly
	Selector Switches	Do
	Push Buttons	Do
	Indication Lamp & Holders	Do

	Control Junction	Do
	Ammeters	Do
	Solenoid Valves	Do

	Drives	Frequency
MAINTENANCE PLAN OF STACKER – CUM – RECLAIMER (COAL) – 1 & 2		
Power & Control Junction Boxes (J.B.) (For SR1 & SR2)	Power J.B. No. 1 (For SR1 & SR2)	Monthly
	Power J.B. No. 2 (For SR1 & SR2)	Do
	Power J.B. No. 4 (For SR1)	Do
	Control J.B. No. 1 (For SR1 & SR2)	Do
	Control J.B. No. 2 (For SR1 & SR2)	Do
Electronics	VVVF Drive (For SR1 & SR2)	Monthly
	Speed Monitor (Belt Slip – SR2)	Do
	PLC (For SR2)	Do
	Intercom system (For SR2)	Do
	Belt Weigher Machine (For SR2)	Do
	SCADA (For SR2)	Do
	UPS & Battery Back Up (For SR2)	Do
	Stack Pile Sensor (For SR2)	Do
	Long Travel Sensor (For SR2)	Do
	RIO (For SR2)	Do
Control Desks	Operating Desk S/R – 1	Monthly
	Operating Desk S/R – 2	Do

	Drives	Frequency
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
Motors and Thruster	Charger Beetle – 1	Monthly
	Charger Beetle – 2	Do
	Marshall Beetle (Forward) – 1	Do
	Marshall Beetle (Forward) – 2	Do
	Marshall Beetle (Reverse) – 1	Do
	Marshall Beetle (Reverse) – 2	Do
	Marshall Beetle Actuator – 1	Do
	Marshall Beetle Actuator – 2	Do

	Mobile Conveyor – H201(E)	Do
	Mobile Conveyor – H201(W)	Do
	Vibro Feeder – 1	Do
	Vibro Feeder – 2	Do
	Vibro Feeder – 3	Do
	Vibro Feeder – 4	Do
	Cradle Hoist – 1	Do
	Cradle Hoist – 2	Do
	MMD Sizer (Coal)	Do
	Apron Conveyor (Coal)	Do
	Scraper Conveyor (Coal)	Do
	EOT Crane Long Travel	Twice / Monthly
	EOT Crane Hoist / Lower	Do
	EOT Crane Cross Travel	Do
	Spray Pump Motor – 1	Monthly
	Spray Pump Motor – 2	Do
	Tunnel Sump Pump – 1	Do
	Tunnel Sump Pump – 2	Do
	Take up Pump – 202	Do
	Take up Pump – 203	Do
	Pulley Pit Pump – 1	Do
	Pulley Pit Pump – 2	Do

	Drives	**Frequency**
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
Power Contactors, Power Junctions (Bus Bar) Isolators	Charger Beetle – 1	Monthly
	Charger Beetle – 2	Do
	Marshall Beetle (Forward) – 1	Do
	Marshall Beetle (Forward) – 2	Do
	Marshall Beetle (Reverse) – 1	Do
	Marshall Beetle (Reverse) – 2	Do
	Marshall Beetle Actuator – 1	Do
	Marshall Beetle Actuator – 2	Do
	Mobile Conveyor – H201(E)	Do
	Mobile Conveyor – H201(W)	Do
	Vibro Feeder – 1	Do
	Vibro Feeder – 2	Do
	Vibro Feeder – 3	Do
	Vibro Feeder – 4	Do
	Cradle Hoist – 1	Do
	Cradle Hoist – 2	Do
	MMD Sizer	Do
	Apron Conveyor (Coal)	Do
	Scraper Conveyor (Coal)	Do

	EOT Long Travel	Twice / Monthly
	EOT Hoist / Lower	Do
	EOT Cross Travel	Do
	Spray Pump – 1	Monthly
	Spray Pump – 2	Do
	Tunnel Sump Pump – 1	Do
	Tunnel Sump Pump – 2	Do
	Take up Pump – 202	Do
	Take up Pump – 203	Do
	Pulley Pit Pump – 1	Do
	Pulley Pit Pump – 2	Do

		Frequency
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
Auxiliary Contractors, Timmers, Bi- metal O/L Control Junctions, Indication Lamps	Charger Beetle – 1	Monthly
	Charger Beetle – 2	Do
	Marshall Beetle (Forward) – 1	Do
	Marshall Beetle (Forward) – 2	Do
	Marshall Beetle (Reverse) – 1	Do
	Marshall Beetle (Reverse) – 2	Do
	Marshall Actuator – 1	Do
	Marshall Actuator – 2	Do
	Mobile Conveyor – H201(E)	Do
	Mobile Conveyor – H201(W)	Do
	Vibro Feeder – 1	Do
	Vibro Feeder – 2	Do
	Vibro Feeder – 3	Do
	Vibro Feeder – 4	Do
	Cradle Hoist – 1	Do
	Cradle Hoist – 2	Do
	MMD Sizer	Do
	Apron Conveyor (Coal)	Do
	Scraper Conveyor (Coal)	Do
	EOT Crane Long Travel	Twice /Monthly
	EOT Crane Hoist / Lower	Do
	EOT Crane Cross Travel	Do
	Spray Pump – 1	Monthly
	Spray Pump – 2	Do
	Tunnel Sump Pump – 1	Do
	Tunnel Sump Pump – 2	Do
	Take Up. Pump – 202	Do
	Take Up. Pump – 203	Do
	Pulley Pit Pump – 1	Do
	Pulley Pit Pump – 2	Do

		Frequency
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
Main Operating Control Desk & Charger Beetle Control Desk	Selector Switch	Monthly
	Push Button Switch	Do
	Indication Lamps & Lamp Holder	Do
	Control Junctions	Do
	EOT (Coal) Control Desk	Do
Screw Limit, Over Travel Limit, Emergency Stop Switch & other L.S.	Cradle Hoist – 1	Monthly
	Cradle Hoist – 2	Do
	Charger Beetle – 1	Do
	Charger Beetle – 2	Do
	Marshall Beetle (Forward) – 1	Do
	Marshall Beetle (Forward) – 2	Do
	Marshall Beetle (Reverse) – 1	Do
	Marshall Beetle (Reverse) – 2	Do
	Marshall Beetle Actuator – 1	Do
	Marshall Beetle Actuator – 2	Do
	Mobile Conveyor – H201(E)	Do
	Mobile Conveyor – H201(W)	Do
	Vibro Feeder – 1	Do
	Vibro Feeder – 2	Do
	Vibro Feeder – 3	Do
	Vibro Feeder – 4	Do
	MMD Sizer	Do
	Apron Conveyor (Coal)	Do
	Scraper Conveyor (Coal)	
	EOT Crane All Drivers	Do
Photo Switches	Cradle Hoist – 1	Daily
	Cradle Hoist – 2	Do
Resistance Banks	Charger Beetle – 1	Monthly
	Charger Beetle – 2	Do
	EOT Long Travel	Twice / Monthly
	EOT Hoist / Lower	Do
	EOT Cross Travel	Do

		Frequency
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
GREASING	Charger Beetle Motor – 1	Yearly
	Charger Beetle Motor – 2	Do
	Marshall Beetle Motor (Forward) – 1	Do
	Marshall Beetle Motor (Forward) – 2	Do
	Vibro Feeder Motor – 1	Do
	Vibro Feeder Motor – 2	Do
	Vibro Feeder Motor – 3	Do
	Vibro Feeder Motor – 4	Do
	Cradle Hoist Motor – 1	Do
	Cradle Hoist Motor – 2	Do
	MMD Sizer Motor	Do
	Apron Conveyor Motor	Do
	Scraper Conveyor	Do
	EOT Long Travel Motor	Do
	EOT Long Travel Hoist	Do
	EOT Long Travel Cross Travel	Do
	Spray Pump Motor – 1	Do
	Spray Pump Motor – 2	Do
	Tunnel Sump Pump – 1	Do
	Tunnel Sump Pump – 2	Do
	Take Up. Pump Motor- 1	Do
	Take Up. Pump Motor- 2	Do
	Pulley Pit Pump Motor- 1	Do
	Pulley Pit Pump Motor- 2	Do
HOOTERS	Mobile Conveyor – 1	Monthly
	Mobile Conveyor – 2	Do
	Wagon Tippler (East& West)	Do
	Wagon Tippler East Empty Line	Do
	Wagon Tippler West Empty Line	Do
A.C.B. & MCCB	MCCB – (East)	Yearly
	ACB – (West)	Do
	MCCB – (H204)	Do

	Drives	**Frequency**
MAINTENANCE PLAN OF WAGON TIPPLER (COAL)		
LIG	High Bay Fitting Wagon Tippler House	Monthly
	MCC Room & Winch Room Lighting	Do
	Charger Pick- up Zone (East & West)	Do

H T I N G	Mobile & Vibro Feeder Floor (East & West)	Do
	Apron & Crusher Floor	Do
	Tunnel (H202 & H203)	Do
	Transfer Towers AC, BC &CC	Do
	Tippler Sub – Station	Do
	Tippler Office (G/Shift & Shift)	Do
	Tippler Rest Rooms	Do
Electronic Equipment	VVVF Drive for Vibro Feeder- 1,2,3&4 VVVF Drive for Apron & Scraper Conveyor	Monthly Do

	Installation	**Frequency**
MAINTENANCE PLAN OF SHIPLOADERS (ELECTRICAL) – 1 & 2 (COAL)		
MOTORS	1. Boom Latch Hook	Monthly
	2. Boom Luff	Do
	3. Boom Conveyor	Do
	4. L.T. Drive – 1 to 16 (for each Loader)	Do
	5. Boom Shuttle	Do
	6. Power Cable Reeling Drum (PCRD)	Do
	7. Control Cable Reeling Drum (CCRD)	Do
	8. Jetty Pump	Do
BRAKE MOTORS	1. Boom Luff	Monthly
	2. Boom Shuttle	Do
	3. Long Travel Drive – 1 to 16 (for each Loader)	Do
RESISTANCES /DBR UNIT / REACTOR	1. Boom Luff	Monthly
	2. Boom Shuttle	Do
	3. Power Cable Reeling Drum (PCRD)	Do
	4. Control Cable Reeling Drum (CCRD)	Do
INCOMING ISOLATORS	1. Air Circuit Breaker (ACB)	Yearly
	1. Isolator for SL- 2	Monthly
	2. Boom Luff	Do
	3. Boom Conveyor	Do
	4. Boom Shuttle	Do
	5. Long Travel	Do
	6. Power Cable Reeling Drum (PCRD)	Do
	7. Control Cable Reeling Drum (CCRD)	Do

	Installation	Frequency
MAINTENANCE PLAN OF SHIPLOADERS (ELECTRICAL) – 1 & 2 (COAL)		
POWER CONTACTORS MCCB, MPCB	1. Boom Luff	Monthly
	2. Boom Conveyor	Do
	3. Boom Shuttle	Do
	4. Long Travel	Do
	5. Power Cable Reeling Drum (PCRD)	Do
	6. Control Cable Reeling Drum (CCRD)	Do
	7. Hooter	Do
LIMIT SWITCHES , PULL – CHORD SW, PROXIMITY SW & ZSS	1. Boom Luff	Monthly
	2. Boom Shuttle	Do
	3. Long Travel	Do
	4. Power Cable Reeling Drum (PCRD)	Do
	5. Control Cable Reeling Drum (CCRD)	Do
	6. Anti-collision Limit	Do
	7. Pull Chord Switches (B/ Conveyor).	Do
	8. Emergency Switches.	Do
CONTROL J.B.S. CONTROL DESK	1. Control Desk (Opt. Cabin)	Monthly
	2. Control Desk (M.C.C. Room)	Do
	3. Control J.B. – 1	Monthly
	4. Control J.B. – 2	Do
POWE R J.B.S.	1. Power J.B. – 1	Monthly
	2. Power J.B. – 2	Do
DRIVE PANEL	1. Control Transformers.	Monthly
	2. Switch Fuse Units.	Do
	3. Power Contactors , MCCB & MPCB	Do
	4. Push Button Switch & Selector Switch.	Do
	5. Auxiliary Contactors.	Do

	Installation	Frequency
MAINTENANCE PLAN OF SHIPLOADERS (ELECTRICAL) – 1 & 2 (COAL)		
LIGHTING	1. Lighting (for SL-1 & SL-2) 2. Lighting for GC, FC & HC Tower 3. Lighting for H-209 & H-210 Walk - Way. 4. Lighting for MCC Room & Operator Cabin 5. Lighting for Jetty Office & Pump Operator Rest Room.	Monthly
H.T EQUIPMENT	1. H.T Link Box	Quarterly
	2. H.T. Isolator	Do
	3. H.T Transformer	Half Yearly
	4. H.T Slip ring	Quarterly
	5. H.T. D.B. at F.C.Tower	Do
	6. H.T. VCB	Do
SIREN AVIATION LIGHT	Siren	Monthly
	Aviation & Flash Light	Do
ELECTRONIC	1. SCADA 2. Computer & CPU 3. UPS. 4. Encoder. 5. PLC 6. VVVF Drives.	Monthly
BATTERY BANK	Battery Back Up for UPS.	Monthly

13.2 Mechanical Maintenance Plan/Schedule:

Sl. No.	Parts to be checked	Type of maintenance	Frequency of maintenance
1.	**WAGON TIPPLER HOIST MACHINERY**: Drive unit base frame – all bolts.	Checking	Fortnightly
2.	Motor – Base bolts (Test hand feelings) Jack bolts (Test hand feelings) Vibration (Test hand feelings)	Checking	Fortnightly
3.	**Fluid couplings**: ☞ Motor driving boss and resilient driving plate fixingBolts ☞ Casing fixing bolts. ☞ Gland assembly bolts. ☞ Multidisc semi flexible coupling Fixing bush & bolts. ☞ Oil level/temp/quantity/leakage from any source. ☞ Filling plug & fusible plug.	Checking Checking	Fortnightly Weekly
4.	**Gear Box**: ☞ Cleaning including breather servicing ☞ Base bolts. ☞ Top cover fixing bolts. ☞ Bearing end cover fixing bolts. ☞ Oil level/temperature/quality/Leakage from any source. ☞ Drain plug. ☞ Oil level gauge glass.	Checking Checking	Fortnightly Weekly
5.	**Brake unit**: ☞ Fixing brake bolts. ☞ Brake shoe fixing hinge pin. ☞ Brake shoe Liner condition. ☞ Drum/spring condition. ☞ Brake adjustment.	Checking	Fortnightly
6.	Cardan shaft/ Gear type coupling : □ Gear Teeth □ Flange bolts ☞ cardan shaft cover.	Checking	Half-yearly Monthly Monthly
7.	**Counter Shaft:** Plummer Block Base Bolts. Plummer Block Top Cover Bolts.Plummer Block Fixing Dowel. Point Stopper. Plummer Block Bush.Pinion.	Checking	Monthly
8.	**Winch Drum & Frame:** Gear Teeth. Bull Gear Holding Dowel Pin & Bolts. Winch Drum Fixing Locking Bolts.Rope Fixing Bull Dog Grip. Winch Structure Holding Bolts.Pin (tilting)	Checking	Monthly

9.	**Counter Weight Rope Sheaves:** Pin fixing Locking Bolts.Pin / Bush. Pin Fixing Bracket.	Checking	Monthly
10	**Balance Weight:** Latching Bracket Welding Joint.Latching Device Fixing Pin. Latching Plate.	Checking	Monthly
11.	**Trunnion Shaft:** Plummer Block Base Bolts. Plummer Block Top Cover Bolts.Shaft Bush. Locking Ring.	Checking	Monthly
12.	**Side supporting Girder / Side Bolster:** Holding Pin.Buffer. Spillage protection arrangement.	Checking	Monthly
13.	Top bolster longitudinal beam: Fixing pin/bracket	Checking	Monthly
13. a)	**Wagon Tippler Transverse beam**: ☞ Fixing pin, bracket & rubber pad.	Checking	Monthly
13. b)	**Wagon Tippler Cradle**: ☞ BG & Mini rail condition and fixing clamps. ☞ Pivoted bearing fixing pin & base bolts. ☞ Both side walk way & frame condition. ☞ Cradle roller fixing arrangement.	Checking	Monthly
13. c)	**Wagon Tippler Cradle arms**: ☞ Fixing pin & lock bolt. ☞ Hoist rope equalizer servicing. ☞ Hoist rope fixing arrangement. ☞ Eye bolt & nut condition. ☞ Arm adjustment. ☞ Side bracket condition for supporting arms on foundation.	Checking	Monthly
13. d)	**Wagon Tippler Landing beam:** ☞ Condition of frame & fixing bolts. ☞ Chromex pad and stopper.	Checking	Monthly
13. e)	**Wagon Tippler End frame**: ☞ Pin fixing bracket & locking arrangement.	Checking	Monthly
14.	Wire ropes:	Checking	Bi-Weekly

	a) Wagon Tippler Counter weight and cradle hoist wire rope including socket neck area and socket neck zone lubrication (by oil) b) Charger beetle & Marshall beetle forward and reverse rope. c) EOT (C) main hoist wire ropes. d) H-202/203 take up trolley wire ropes.	Checking Checking Checking	Fortnightly Monthly Monthly
15.	EOT (C): L.T. drive, C.T drive and main hoist drives.	Checking	Monthly
16.	WT spray pump 1 & 2	Checking	Monthly
17.	H-202/203/204 drive unit. a) Drive unit. b) Scraper. c) Rollers & scrapers. d) Gearbox oil level. e) Hole back oil level. f) Fluid coupling oil level.	 Checking Checking Checking Checking Checking Checking	 Fortnightly Fortnightly Fortnightly Weekly Weekly weekly
18.	Vibro feeders 1, 2, 3 & 4 a) Drive units. b) Tray guard and wing guard fixing arrangement. c) Tray liner plates. d) Back plate holding arrangement & liner condition.	 Checking Checking Checking Checking	 Fortnightly Fortnightly Fortnightly Fortnightly
19.	H-201 (E+W): a) Drive unit. b) Flexible resilient coupling fixing bolts & spring condition. c) Roller & scrappers.	 Checking Checking Checking	 Fortnightly Fortnightly Fortnightly
20.	MMD Sizer: a) Gear box fixing bolts. b) Tooth cap fixing bolts and position. c) Deflecting beam fixing arrangements. d) Fluid coupling.	 Checking Checking Checking Checking	 Fortnightly Fortnightly Fortnightly Weekly
21.	CB-1, 2, & MB-1, 2 forward and reverse drive. a) Gear box. b) Brake unit. c) Flexible resilient coupling.	 Checking Checking Checking	 Fortnightly Fortnightly Fortnightly
22.	Apron feeder & scraper conveyor drive unit.	Checking	Fortnightly
23.	**H-201 (E+W), MMD Sizer:** 'Y' chute, liner plate & flap gate, defalcator plate (if any)condition.	Checking	Monthly
24.	**H-202, H-203, H-204:** Discharge chute/liner plate, defalcator plate (if any) condition.	Checking	Monthly

25.	**Marshall + Charger beetle – 1+2:**		
	Body and all accessories.	Checking	Fortnightly
26.	Tunnel pit pumps & all trolley pumps.	Checking	Fortnightly

Sl. No.	Lubrication points	Lubrication	Frequency
1.	**MMD Sizer:** a) Four Main Breaker Shaft Bearings. b) MMD Sizer	Bharat Lanthem-EP-2Checking	Alternateday do
2.	**H-201 (East):** a) Drive Pulley Bearings. b) BIBBY Resilient Coupling Spring. c) Flap Gate Holding Shaft Bush. d) Tail End Pulley Bearing. e) Gear Coupling.	Multi purpose Grease-2 -do- -do- -do- -do-	Monthly -do- -do- -do- Half-yearly
3.	**H-201 (West):** a) Drive Pulley Bearings. b) BIBBY Resilient Coupling Spring. c) Flap Gate Holding Shaft Bush. d) Tail End Pulley Bearing. e) Gear Coupling.	Multi purpose Grease-2 -do- -do- -do- -do-	Monthly -do- -do- -do- Half-yearly
4.	**H-203:** a) Drive Pulley Bearings. b) 1st Snub Pulley Bearings. c) 2nd Snub Pulley Bearings. d) 3rd Snub Pulley Bearings. e) Take-up Trolley Pulley Bearings. f) Gear Coupling. g) Trolley Wheel Bearings (Take-up). h) Tail-end Pulley Bearings. i) Tail-end Sub-Pulley Bearings.	Multi purpose Grease-2 -do- -do- -do- -do- -do- -do- -do- -do-	Monthly -do- -do- -do- -do- Half-yearlyMonthly Fortnightly -do-
5.	**H-202:** a) Drive Pulley Bearings. b) 1st Snub Pulley Bearings. c) 2nd Snub Pulley Bearings. d) 3rd Snub Pulley Bearings. e) Take-up Trolley Pulley Bearings. f) Gear Coupling. g) Trolley Wheel Bearings (Take-up). h) Tail-end Pulley Bearings. i) Tail-end Sub-Pulley Bearings.	Multi purpose Grease-2 -do- -do- -do- -do- -do- -do- -do- -do-	Monthly -do- -do- -do- -do- Half-yearlyMonthly Fortnightly -do-
6.	**H-204:** a) Drive Pulley Bearings. b) 1st Snub Pulley Bearings.	Multi purpose Grease-2 -do-	Monthly -do-

	c) 2nd Snub Pulley Bearings. d) Counter weight holding pulley bearings. e) Tail-end Pulley Bearings. f) Gear coupling.	-do- -do- -do- -do-	-do- -do- -do- Half-yearly
7.	**Tunnel PIT Pumps:** a) H-202 PIT Pumps Bearings. b) H-203 PIT Pumps Bearings.	Multi purpose Grease-2 -do-	Fortnightly -do-
8.	**H-205 :** a) Tail End Pulley Bearings. b) Tail End Snub Pulley Bearings.	Multi purpose Grease-2 -do-	Monthly -do-
9.	**H-206 :** a) Tail End Pulley Bearings. b) Tail End Snub Pulley Bearings.	Multi purpose Grease-2 -do-	Monthly -do-
10.	WT Spray Pump No. 1 (Bearings & Stuffing Box)	Multi purpose Grease-2	Fortnightly
11.	**<u>Wagon Tippler</u>:** **a) On Winches:** i) Rope Drum Bush Bearings. ii) Counter Shaft Plummer Block Bush Bearings. iii) Sheave / Rope Pulley Bearings. iv) Open Gear Teeth. v) Limit Switch Coupling. **b) On Balance Weight:** i) Sheave / Rope Pulley Bearings. ii) Guide Channels. **c) On Tippler Structure (Cradle):** i) Cradle Pivot Pin Bush Bearings. ii) Cradle Roller Bush Bearings. iii) Trunion Bearings. iv) Hoist Rope Anchorages. **d) On Top Bolster Structure:** i) End Frame Hinge Bearings. ii) Transverse Beam Hinge Bearings. iii) Counter Weight Rope Anchorage.	Multi purpose Grease-2 -do- -do- -do- -do- -do- -do- -do- -do- -do- -do- -do- -do- -do- -do-	Weekly -do- -do- -do- -do- -do- Weekly Monthly Fortnightly -do- Weekly Fortnightly Fortnightly -do- -do-
	e) Hoist Devices: i) Gear type coupling ii) Limit switch holding Plummer block bearings. iii) Spur gear of limit switch bearings. iv) Electro magnetic brake hinge pin.	Multi purpose Grease-2 -do- -do- -do-	Quarterly Weekly Weekly Fortnightly

12.	H-201 (E+W): Take up screw unit checking/servicing.	-do-	Fortnightly
13.	(i) Apron Conveyor: a) Drive end bearings. b) Counter shaft bearings. c) Tail shaft bearings. d) Open gear & pinion. e) Flight link (by oil flushing) (ii) Scraper Conveyor: a) Drive Shaft bearings. b) Tail shaft bearings. c) Chain & sprocket (by oil flushing)		Monthly -do- -do- -do- Fortnightly Monthly -do- Fortnightly
14	**Vibro Feeder (1+2+3+4):** Motor suspension bar holding bushes / oil seal.		Weekly
15.	**Crusher Y-Chute:** Flap Gate Holding Bush.		Monthly
16.	**MB (1+2):** Forward / Reverse winch drum inside bush bearings.	Multi purpose Grease-2	Weekly
16.A	**MB (1+2):** a) Forward winch drum Plummer block bush bearings. b) Drive pinion holding Plummer block bearings. c) Clutch unit bush bearings. d) Open gear pairs. e) Actuator Spring. f) Bibby resilient coupling spring. **Reverse Unit:** Reverse drum P/Block bearings.	Multi purpose Grease-2 -do- -do- -do- -do- -do- -do-	Monthly -do- -do- -do- -do- -do- -do-
16.B	**MB (1+2):** a) 1st diversion pulley bearings. b) 2nd & 3rd diversion forward & reverse rope pulley bearings. c) Reverse rope pulley bearings at docking zone.	Multi purpose Grease-2 -do- -do-	Monthly -do- -do-
16.C	**MB (1, 2):** a) Pivot Pin. b) Wheel Bearings. c) Skid Block pin. d) Sector gear teeth. e) Draw bar link bushes. f) Shell bearings.	Multi purpose Grease-2 -do- -do- -do- -do- -do-	Fortnightly -do- -do- -do- -do- -do-

17.	**CB (1+2):** 3rd & 4th diversion rope pulley bearings. a) All rope pulley bearings (inside WT House) b) Winch drum Plummer block bush bearings. c) Guide roller P/Block bearings. d) Open Gears. e) Bibby resilient coupling spring. f) Body grease points: Pivot Pin. ii) Wheel Bearings. iii) Skid block pin. iv) Sector gear. v) Shell bearings. vi) Draw-bar link pin bush.	Multi purpose Grease-2 -do- -do- -do- -do- -do- -do-	Monthly -do- -do- -do- -do- -do- Fortnightly -do- -do- -do- -do- -do-
18.	**E.O.T. Crane:** a) Line shaft Plummer block bearings. b) Hook & Rope pulley bearings. c) Long travel wheel bearings. d) Hoist winch Plummer block bearings. e) Trolley wheel bearings.	Multi purpose Grease-2 -do- -do- -do- -do-	Monthly -do- -do- -do- -do-
19.	**Trolley pumps 'A' type:** a) 202/203/Take up area pumps. b) CB-1& 2 take up area pit pumps. c) MB (Coal) winch pit pumps.	Multi purpose Grease-2 -do- -do-	Monthly -do- -do-

SL. No.	Job description	Frequency
	Preventive maintenance plan of Coal Stacker cum-Recleimer No. 1	
1.	**Long Travel:**	
	a) Checking of Motor & gearbox bolt tightness.	Quarterly
	b) Checking of Brake shoe liner (wear) condition.	Fortnightly
	c) Checking of Thruster oil level and function.	Fortnightly
	d) Checking of Brake unit function & adjustment.	Fortnightly
	e) Checking of Gear Box oil level.	Fortnightly
	f) Checking of Track wheel rotation and condition.	Monthly
	g) Checking of Physical condition & cleaning of the unit.	Weekly
	h) Checking of Condition of resilient coupling spring.	Quarterly
	i) Flexible resilient coupling lubrication.	Quarterly
	j) Drive wheel bearing lubrication.	Quarterly
	k) N/Drive wheel bearing lubrication.	Quarterly
	l) Bogie hinge pins lubrication.	Quarterly
	m) Drive pinion bearing lubrication.	Quarterly
	n) T/Car & MCC Room wheel bearing lubrication.	Quarterly

2.	**Power & Control cable driving unit:**	
	a) Checking of Drive gear box function.	Monthly
	b) Checking of Sprocket and chain condition & lubrication.	Fortnightly
	c) Checking of coupling bolts.	Fortnightly
	d) Checking of Jockey unit condition and function.	Fortnightly
	e) Checking of Plummer block condition and bolts tightness.	Quarterly
	f) Checking of Bevel gearbox oil level.	Weekly
3.	**Boom conveyor driving unit:**	
	a) Checking of Behaviour of belts (belt sway).	Weekly
	b) Checking of Condition of skirt guard and rubber liner.	Weekly
	c) Checking of Driving pulley condition & Plummer block bolt tightness.	Quarterly
	d) Checking of Non-driving pulley condition & tightness of bolt.	Quarterly
	e) Checking of Gear box oil level and leakage of oil if any.	Weekly
	f) Checking of Roller condition & bracket.	Weekly
	g) Checking of Motor, gear box base bolt tightness.	Quarterly
	h) Checking of Belt scraper (condition of rubber liner). If required, to be adjusted.	Weekly
	i) Checking of Condition of chutes.	Weekly
	j) Checking of Condition of resilient coupling spring.	Quarterly
	k) Lubrication of B/Conveyor belt pulley bearings.	Monthly
	l) Lubrication of Resilient coupling.	Monthly
4.	**Bucket wheel:**	
	a) Checking of Gear Box oil level and leakage of oil.	Weekly
	b) Checking of Condition of slop chute.	Weekly
	c) Checking of Condition of Rim and bucket (wear and tear) including holdingattachment.	Weekly
	d) Checking of Motor and gear box bolts condition & tightness.	Quarterly
	e) Checking of Plummer block bearing condition.	Quarterly
	f) Checking of Fluid coupling oil level & condition.	Weekly
	g) Lubrication of B/wheel P/Block bearing	Monthly
5.	**Boom hoist unit:**	
	a) Checking of Motor & pump foundation bolt tightness.	Quarterly
	b) Inspection of hydraulic installation components (oil leakage, breakage of parts).	Fortnightly
	c) Checking of Oil level of the storage tank & oil leakage.	Weekly
	d) Hydraulic filter element inspection.	Quarterly
	e) Hydraulic filter element replacement.	Half-yearly

	f) Checking of Condition of hose and pipeline.	Monthly
	g) Checking of maximum setting of pressure and function.	Monthly
6.	**Slew drive unit:**	
	a) Checking of Brake shoe liner condition.	Fortnightly
	b) Checking of Brake unit function and adjustment.	Fortnightly
	c) Checking of Oil level of gearbox.	Fortnightly
	d) Checking of Condition of coupling.	Fortnightly
	e) Checking of Condition of thrusters & oil level.	Fortnightly
	f) Lubrication of Slew Bearing.	Quarterly
	g) Lubrication of Slew drive shaft Bearing.	Quarterly
	h) Lubrication of Slew bull gear.	Quarterly
7.	**Tipper Car:**	
	a) Checking of Condition of chute.	Weekly
	b) Checking of Condition of scraper.	Weekly
	c) Checking of Condition of rollers & brackets.	Weekly
	d) Checking of All belt pulley condition & Plummer block bolt tightness.	Quarterly
	e) Lubrication of T/Car pulley bearing.	Monthly
8.	**Impact Table:**	
	a) Checking of Condition of rollers & brackets.	Weekly
	b) Checking of Condition of skirt guard rubber liner.	Weekly
SL. No.	**Job description**	**Frequency**
	<u>Preventive maintenance plan of Coal Stacker cum-Recleimer No. 2</u>	
1.	**Long Travel:**	
	a) Checking of Geared Motor bolt tightness.	Quarterly
	b) Checking of Electro magnetic Brake condition.	Fortnightly
	c) Checking of Gear Box oil level.	Fortnightly
	d) Checking of Track wheel rotation and condition.	Monthly
	e) Checking of Physical condition & cleaning of the unit.	Weekly
	f) Drive wheel bearing lubrication.	Quarterly
	g) N/Drive wheel bearing lubrication.	Quarterly
	h) Bogie hinge pins lubrication.	Quarterly
	i) Drive pinion bearing lubrication.	Quarterly
	j) T/Car & MCC Room wheel bearing lubrication.	Quarterly
2.	**Power & Control cable driving unit:**	
	a) Checking of Drive gear box function.	Monthly
	b) Checking of Sprocket and chain condition & lubrication.	Fortnightly
	c) Checking of coupling bolts.	Fortnightly
	d) Checking of Jockey unit condition and function.	Fortnightly
	e) Checking of Plummer block condition and bolts tightness.	Quarterly
	f) Checking of Bevel gearbox oil level.	Weekly
3.	**Boom conveyor driving unit:**	

	a) Checking of Behaviour of belts (belt sway).	Weekly
	b) Checking of Condition of skirt guard and rubber liner.	Weekly
	c) Checking of Driving pulley condition & Plummer block bolt tightness.	Quarterly
	d) Checking of Non-driving pulley condition & tightness of bolt.	Quarterly
	e) Checking of Gear box oil level and leakage of oil if any.	Weekly
	f) Checking of Roller condition & bracket.	Weekly
	g) Checking of Motor, gear box base bolt tightness.	Quarterly
	h) Checking of Belt scraper (condition of rubber liner). If required, to be adjusted.	Weekly
	i) Checking of Condition of chutes. condition of linear plates and its bolts	Weekly
	j) Checking of Condition of Fluid coupling oil level & condition	Quarterly
	k) Lubrication of B/Conveyor belt pulley bearings.	Monthly
4.	**Bucket wheel:**	
	a) Checking of Oil level of the storage tank & oil leakage.	Weekly
	b) Checking of Condition of slop chute.	Weekly
	c) Checking of Condition of Rim and bucket (wear and tear) including holdingattachment & baffle plate.	Weekly
	d) Checking of Motor & pump foundation bolt tightness	Quarterly
	e) Hydraulic filter element inspection.	Quarterly
	f) Checking of Condition of hose and pipeline..	Monthly
	g) Checking of maximum setting of pressure and function.	Monthly
9.	**Boom hoist unit:**	
	a) Checking of Motor & pump foundation bolt tightness.	Quarterly
	b) Inspection of hydraulic installation components (oil leakage, breakage of parts).	Fortnightly
	c) Checking of Oil level of the storage tank & oil leakage.	Weekly
	d) Hydraulic filter element inspection.	Quarterly
	e) Hydraulic filter element replacement.	Half-yearly
	f) Checking of Condition of hose and pipeline.	Monthly
	g) Checking of maximum setting of pressure and function.	Monthly
10.	**Slew drive unit:**	
	c) Inspection of hydraulic installation components (oil leakage, breakage of parts).	Fortnightly
	d) Checking of Condition of hose and pipeline.	Fortnightly
	e)	Fortnightly
	f) Hydraulic filter element inspection..	Quarterly
	g) Lubrication of Slew drive shaft Bearing.	Monthly
	h) Checking of Motor & pump foundation bolt tightness	Quarterly
11.	**Tipper Car:**	
	a) Checking of Condition of chute.	Weekly
	b) Checking of Condition of scraper.	Weekly
	c) Checking of Condition of rollers & brackets.	Weekly
	d) Checking of All belt pulley condition & plummer block bolt tightness.	Quarterly

	e) Lubrication of T/Car pulley bearing.	Monthly
12.	**Impact Table:**	
	a) Checking of Condition of rollers & brackets.	Weekly
	b) Checking of Condition of skirt guard rubber liner.	Weekly
13.	Fire Fighting Pump	
	a) Checking of Motor base bolt tightness	Monthly
	b) Checking of water tank condition and its water level	Weekly
	c) Checking of gate valves and pipelines	Monthly
	d) Checking of condition of flexible hose	Monthly
SL. No.	**Job description**	**Frequency**
	H-205, H-206 Conveyor Drives and Tail End of Conveyor Nos. H-207 & H-208	
5.	**H – 205 Drive:**	
	a) Checking of G/Box oil level & leakage if any	Weekly
	b) Checking of F/Coupling oil level & leakage if any	Weekly
	c) Checking of F/Coupling condition	Weekly
	d) Checking of G/Coupling condition	Weekly
	e) Checking of Scraper Condition	Weekly
	f) Checking of Chute condition	Weekly
	g) Lubrication of drive end pulley bearing	Monthly
	h) Lubrication of G/Coupling	Quarterly
	i) Lubrication of Take-Up rope & pulley	Monthly
	j) Lubrication of Take-up trolley wheel	Monthly
	k) Checking of all belt pulley condition and P/Block bolt tightness	Quarterly
6.	**H – 206 Drive:**	
	a) Checking of G/Box oil level & leakage if any	Weekly
	b) Checking of F/Coupling oil level & leakage if any	Weekly
	c) Checking of F/Coupling condition	Weekly
	d) Checking of G/Coupling condition	Weekly
	e) Checking of Scraper Condition	Weekly
	f) Checking of Chute condition	Weekly
	g) Lubrication of drive end pulley bearing	Monthly
	h) Lubrication of G/coupling	Quarterly
	i) Lubrication of Take-up rope & pulley	Monthly
	j) Lubrication of Take-up trolley wheel	Monthly
	k) Checking of all belt pulley P/Block bolt tightness	Quarterly
7.	**H-207 Tail End :**	
	a) Checking of Skt. guard liner condition	Weekly
	b) Checking of condition of tail end pulley	Weekly
	c) Checking of Tail end scraper condition	Weekly
	d) Checking of condition of rollers & brackets	Weekly
	e) Lubrication of H-207 Tail end pulley bearing	Monthly

	f) Checking of tail end pulley P/Block bolt tightness	Quarterly
8.	**H-208 Tail End :**	
	a) Checking of Skt. guard liner condition	Weekly
	b) Checking of condition of tail end pulley	Weekly
	c) Checking of Tail end scraper condition	Weekly
	d) Checking of condition of rollers & brackets	Weekly
	e) Lubrication of H-208 Tail end pulley bearing	Monthly
	f) Checking of tail end pulley condition and P/Block bolt tightness	Quarterly
Sl. No.	**Parts to be checked**	**Frequency**
	PREVENTIVE MAINTENANCE PLAN OF COAL SHIP LOADER NO. 1 & 2	
1.	**Long Travel Drive:** a) Tightness of coupling bolts. b) Gear box oil level (as marked on dipstick) & leakage of oil. c) Truck wheel rotation & condition. d) Tipper car non-driving wheel condition. e) Condition of driving wheel & pinion.	 Monthly Fortnightly Fortnightly Monthly Monthly
2.	**PCRD Cable Driving Unit:** a) Gearbox oil level & function. b) Jockey unit condition & function. c) Sprocket 7 chain condition. d) Tightness of motor & gearbox function.	 Monthly Monthly Monthly Quarterly
3.	**Boom Conveyor:** a) Behaviour of belt (Belt sway). b) Roller condition. c) Gar box oil level and leakage of oil. d) Fluid coupling oil level. e) Sprocket and chain condition. f) Driving and non-driving pulley bearing. g) Base bolts of motor and gear box (tightness). h) Receiving chute condition. i) Coupling bolts tightness. j) Skirt guard liner condition.	 Weekly Fortnightly Fortnightly Weekly Monthly Monthly Quarterly Weekly Fortnightly Fortnightly
4.	**Boom Shuttle:** a) Coupling bolts & bush (Tightness of bolts condition of bolts and bush). b) Break liner (liner wear) c) Thruster oil level and function. d) Brake adjusting unit function. e) Gear box oil level & leakage of oil. f) Gear coupling bolts tightness. g) Plummer block bearing and bush condition. h) Pinion and hook roller condition. i) Base bolt of motor and gear box tightness.	 Monthly Monthly Fortnightly Monthly Fortnightly Monthly Quarterly Monthly Quarterly

5.	**Boom Hoist:** a) Coupling bolts & bush (tightness, condition of bolt & bush). b) Brake liner (liner wear). c) Thruster (oil & function). d) Brake adjusting unit function. e) Gear box oil level and leakage of oil. f) Wire rope (condition, diameter, wear & tear). g) Base bolts of motor & gear box (tightness).	 Monthly Monthly Fortnightly Monthly Fortnightly Monthly Quarterly
6.	**Structural checking by cleaning spillage:** a) Boom conveyor scraper. b) H-207, H-208, H-209, H-210 scraper.	 Fortnightly Fortnightly
7.	**Drive unit checking:** a) H-207, H-208, H-209, H-210.	 Weekly
Sl. No.	**Lubrication points**	**Frequency**
	LUBRICATION OF COAL SHIP LOADER NO. 1 & 2	
1.	**Boom Conveyor:** a) Drive drum Plummer block bearing. b) Discharge drum Plummer block bearing. c) Shuttle Tail end drums Plummer bearing. d) Diversion pulley Plummer blocks bearing. e) Gear box oil replacement. f) Fluid coupling oil replacement. g) Counter weight pulley bearing.	 Monthly Monthly Monthly Monthly Yearly Yearly Monthly
2.	**Boom Shuttle:** a) Pinion shaft Plummer block bearings. b) Shuttle wheels. c) Rack & pinion teeth lubrication. d) Gear box oil replacement. e) Rope pulley/sheave bearing.	 Quarterly Quarterly Fortnightl 5 years Monthly
3.	**Boom Hoist:** a) Gear box oil replacement. b) Wire rope dressing & lubrication. c) Winch drum Plummer block bearing lubrication. d) Boom hinge pins. e) Rope pulley/sheave bearing.	 2 years Half-yearly Monthly Monthly Monthly
4.	**Long Travel:** a) Gear box oil replacement. b) Driving bogie gear teeth lubrication. c) Wheel bearing lubrication. d) Tripper car top & bottom diversion drum plummer bearing lubrication. e) Tripper car discharge drum bearing. f) Tripper car self-aligning bracket pivot pin lubrication.	 5 years Monthly Monthly Monthly Monthly Monthly

	g) Tripper car wheel bearing. h) Dumper adjusting screw lubrication.	Monthly Monthly
5.	**Take-up:** a) Pulley bearing.	 Monthly
Sl. No.	**Job description**	**Frequency**
	WAGON TIPPLER ZONE	
1.	Checking/repair/maintenance of all scrapers and SKB boards (including liners) of all conveyors of Wagon Tippler Zone.	Fortnightly
2.	Checking/repair/maintenance of all Take-up units of H-202, H-203, H-204, Conveyors.	Monthly
3.	Checking of driving pulleys and non-driving pulleys of H-201(E+W), H-202,H-203, H-204, and Tail end non-driving pulleys of H-205, H-206 conveyors. Pulley fixing Plummer block cleaning & all bolts.Condition of shell/hub joint of drum. Axial play of drum (during running) if any.	Monthly
4.	Checking and cleaning of conveyors flights, conveyor Tail wheel assembly, conveyor return rollers, conveyor deck rollers and chain links of apron feeder.	Monthly
Sl. No.	**Job description**	**Frequency**
	MASTER CONTROL ZONE	
1.	All fluid couplings of the driving units of H-205, H-206, conveyors – checking/repair/maintenance are carried out.	Weekly
2.	Checking/repair/maintenance of the conveyor belt scrapers, skirt guard and liners of tail end conveyor nos. H-207, H-208, and drive end of scraper of H-205, H-206.	Monthly
3.	Checking/repair/maintenance of the following pulleys including Plummer block: a) H-205 driving end all pulley. b) H-206 driving end all pulley. c) H-207 tail end pulley. d) H-208 tail end pulley. e) CSR-1 & CSR-2. f) Tipper car discharge & diversion pulley. g)	Quarterly
4.	Checking/repair/maintenance of Take-up Trolley units of H-205 & H-206.	Monthly
5.	Checking/repair/maintenance of all the rope pulleys and wire ropes of Trolley Take-up units of conveyor nos. H-205 & H206.	Half yearly

Sl. No.	Job description	Frequency
	SHIPLOADER ZONE	
1.	Checking / Repair / Maintenance of all non-driving pulleys of 207, 208, 209 & 210.	Monthly
2.	Checking / Repair / Maintenance of all Driving units of H207, H209 & H210conveyors.	Monthly

Replacement of Wire Rope

	ID. No. of Wire Rope	Average Life & Frequency of Renewal of Wire Rope
1.	Wagon Tippler Cradle hoist	12 months
2.	Wagon Tippler counter weight	4 to 6 months
3.	Charger Beetle Forward	12 months
4	Charger Beetle Reverse	12 months
5	Marshall Beetle Forward	12 months
6	Marshall Beetle Reverse	12 months
7	Coal Ship Loader No.-1&2	36 month

Annexure-3

Schematic Diagram of CHP

Abbreviation: -
WT-1 -- Wagon Tippler No. 1
WT-2 -- Wagon Tippler No. 2
AC -- Ac Tower / Drive House
BC -- Bc Tower / Drive House
CC -- Cc Tower / Drive House
CSR-1 -- Coal Stacker-cum-Reclaimer No. 1
CSR-2 -- Coal Stacker-cum-Reclaimer No. 2
EC -- Ec Tower / Drive House
DC -- Dc Tower / Drive House
KC -- Kc Tower / Drive House
GC -- Gc Tower / Drive House
FC -- Fc Tower / Drive House
HC -- Hc Tower / Drive House
CSL-1 -- Coal Ship Loader No. 1
CSL-2 -- Coal Ship Loader No. 2

Conveyor Belt Status

Route	Qty.	Belt type
H-201 East	42 m	B
H-201 West	42 m	B
H-202	219 m	A
H-203	241 m	A
H-204	132 m	A
H-205	1256 m	B
H-206	1275 m	B
H-207	270 m	A
H-208	216 m	A
H-209	446 m	A
H-210	458 m	A
H-212	185 m	800 mm width
Total	**4621.5 m**	**≅ 5000 m**
A = 1400 mm x 800/4 Ply x 5 mm/3 mm, GR-M24 NN		
B = 1400 mm x 1000/5 Ply x 8 mm/4 mm, GR-M24 NN		

Total stacking area = 45000 SQM (Approx)