



## BRAITHWAITE & CO LIMITED

(A Government of India Undertaking under Ministry of Railway)  
HEAD OFF. & REGD. OFF. : 5, HIDE ROAD, KOLKATA – 700043,  
TEL (033) 2439-7415/4114/6613/7413, FAX : 91 (033)2439-5607 / 2439-7632  
E MAIL: purchase@braithwaiteindia.com, Website: [www.braithwaiteindia.com](http://www.braithwaiteindia.com),  
CIN: U74210WB1976GOI030798

TENDER ENQUIRY NO: BCL/PUR/FOUNDRY/6000/AW/18

DATED: 05.06.2018

**Sealed tenders are invited in Two Bid System for Engagement of Contractor for Operation of Foundry Activities including Maintenance of Arc Furnace and other Plant & Machineries in Foundry Shop along with supply of components / consumables/foundry inputs with option of supply of MS scraps for manufacturing of 6000 sets Bogies at BCL's Angus Works as per tender conditions.**

1. Tender condition and issue of tender documents: Interested parties can get the tender documents from the office of GM (Co-ordination ), Purchase Department, Braithwaite & Co. Ltd.,5,Hide Road, Kolkata-700043 on all working days on payment of 1,000/- (Rupees One Thousand Only) by Bank Draft / Pay Order in favour of "Braithwaite & Co. Ltd." payable at Kolkata towards cost of tender document.
2. **Closing of Tender Box : 14.30 hrs on 25.06.2018**
3. **Opening of Part-I Bid of the tender : 15.00 hrs on 25.06.2018**

The offer should comprise of parts as under –

Part-I : Techno-commercial Bid & EMD

Part-II : Price Bid

Both Part-I & Part-II shall be inserted separately in two (2) envelopes, sealed and super scribed with Tender No. and Part No. These two bids shall be put in a 3rd Envelope, sealed and super scribed with Tender No. and Due Date.

Sealed Tender, addressed to GM (Co-ordination), Braithwaite & Co. Ltd., 5, Hide Road, Kolkata – 700 043 to be dropped in person / by post in the specific **Tender Box No.1** but must reach by 14.30 hrs on **25.06.2018 (due date)**. No offer shall be accepted after closing of the Tender Box in whatsoever mode of receipt. Tendered to ensure timely delivery of the tender in the specific box.

The Techno-commercial Bid shall be opened on **25.06.2018 at 15.00 hrs**. Tenderers may depute their authorized representative during opening of the tender. The price bid shall be opened for techno-commercially acceptable bidders for which opening date and time will be intimated in due course.

Tender documents can also be downloaded from our website [www.braithwaiteindia.com](http://www.braithwaiteindia.com). Bidders quoting against documents downloaded from website should submit a DD / Pay Order of ` 1,000/- along with Techno-commercial Bid towards cost of tender documents failing which their offer will not be considered.

The cost of tender document may be waived on request of the tenderer who is a SSI unit registered with NSIC for tendered items, MSME units and RDSO approved vendors. **In case of MSME vendors, they should submit the UAM number. In absence of the same, the vendor shall not be considered as MSE vendor.**

An unconditional acceptance of terms & conditions tender documents stipulated in Part-I of this tender is to be given along with the offer. Moreover, any addition / alteration will not be accepted afterwards after submission of offer.

**For Braithwaite & Co. Ltd.**

**10 QUALIFYING CRITERIA:****11 Financial Eligibility:**

The bidder should have average annual turnover of **Rs. 8.463 Cr** during last 3 (three) years ending on 31.03.17 and should have earned net profit in any of the last three years. The bidder should also have positive net worth as on 31.03.2017.

For the above purpose, bidders should enclose copy of Audited / CA Certified Balance Sheets and Profit & Loss Accounts for the last 3 (three) years ending on 31.03.2017 along with Techno-commercial Bid.

**12 Technical Eligibility:**

1.2.1 Experience of having successfully executed/executing similar works (defined below) during last seven years ending **31.05.2018** fulfilling any of the following criteria:

Three similar executed works each costing not less than **11.28 Cr**. OR executed three similar works involving not less than **1292 MT** against each such job.

OR

Two similar executed works each costing not less than **14.10 Cr**. OR executed two similar works involving not less than **1615 MT** against each such job.

OR

One similar executed work costing not less than **Rs. 22.56 Cr**. OR executed one similar work involving not less than **2584 MT** against such job.

**OR Total 3000 sets of CASNUB Bogies over a period of 3 years.**

The term "similar works" means manufacture/supply of steel cast items to renowned companies, MNCs, PSUs.

The bidder should have Class-A foundry of their own and should have the capacity to produce steel castings not less than 2000 MT per year. Also, they should have experience in manufacturing of Bogies & Couplers in recent times.

Bidder shall enclose documentary evidences along with techno-commercial bid regarding the above, e.g. copies of Purchase Orders / ICs / Bills / Performance Certificates etc. in support of fulfilling above technical eligibility criteria. In case of running orders, the value / quantity completed up to **31.05.2018** shall be considered.

1.2.2 Bidder should have registration with PF, ESI, GST authority. Copies of the same are to be submitted along with Techno-commercial Bid.

**A. DESCRIPTION AND QTY OF WORK:**

Description of work	Quantity
Operation of Foundry Activities including Maintenance of Arc Furnace and other Plant & Machineries in Foundry Shop along with supply of components / consumables / materials/foundry inputs with option of supply MS scraps for manufacturing of Bogies for Indian Railway BG wagons.	6000 Nos.
<b>Note: The Bogies shall be BMBS / HS / NLB type or any other type as may be required.</b>	

## **B. SCOPE OF WORK**

The scope of work in brief for casting, assembly & maintenance would be as follows:

1. Sand Preparation (Mould & Core)
2. Mould and Core making and Setting
3. Checking of Mould Box & Core Box along with Pattern and maintenance of records.
4. Steel Melting & Pouring with Arc Furnace Operation, maintenance and pit side activities.
5. De-clamping of Mould Boxes and knocking for taking out castings along with reclamation of Burnt Sand.
6. Gas Cutting of Runner, Riser and Bumping of castings & Heat Treatment
7. Shot-blasting, Fettling & Gauging
8. Offering the finish castings to RDSO for inspection and related activities for heat clearing.
9. Assembly and offering to RDSO for DM
10. Cutting & Shifting of MS Scrap, rejected casting, foundry return from different parts to scrap yard.
11. Shop floor cleaning and shifting of castings from Foundry to different sections in the Works with the help of Forklift and Hydra.
12. Testing of Foundry inputs along with sand testing & Spectro analysis and maintenance of records.
13. Removal of unusable Black sand, Slag debris and burnt bricks from different plants of Foundry Shop to Angus Golf Ground with the help of JCB & Dumper (JCB & Dumper to be provided by the party).
14. Housekeeping of Foundry, Heat Treatment area, Bogie Assembly area including cleaning of drainage system, pathways etc. on regular basis. Garbage, packing materials, empty bags etc. for different materials are to be removed as soon as these are piled up.
15. Day to day Maintenance of Sand Conveying System and other Plant & Machineries in Foundry Shop. The detailed scope of work along with terms & conditions for maintenance of foundry Plants & Machineries is given at Annexure 'A' enclosed with this tender document.
16. Servicing/Calibration of all equipments/instruments as required by RDSO.
17. Contractor's scope shall also include procurement, supply, assembly / fitment of various DM & Non-DM components, consumables including paints, gases etc. for Bogies. Casting / procurement of CP Tops including machining and hardening of the same for Bogies will be in the scope of contractor. Procurement & supply of different foundry input materials shall be in the scope of contractor. **As regards MS Scraps ( Heavy Melting – 80:20), BCL will make endeavour for supply of the same to the contractor for execution of the job. In case BCL is not in a position to supply the MS Scraps ( Heavy Melting – 80:20), the contractor shall be required to procure and supply the MS Scraps for execution of the job. The supplied MS Scraps shall be of required specification and quality. Test certificates for the MS Scraps shall have to be submitted along with the delivery challans. The tentative quantity for procurement of MS scraps by the contractor shall be approximately 7200 MT.**

Certain critical input like Sand, Bentonite, Resin, Catalyst & Ferro Alloys shall be of good quality conforming to RDSO norms.

Procurement & supply of all DM items shall be made from RDSO approved sources maintaining RDSO's Part-I & Part-II norms.

During execution of job, if any components / items / consumables get damaged / consumed more than actual requirement, that quantity should be replenished by the contractor.

After casting / assembly of the respective items, the same to be offered to our Inspection Department as well as RDSO for getting DM. There shall also be stage inspection by BCL / RDSO including checking of patterns, moulds etc. Traceability of materials, wherever required, has to be thoroughly maintained at contractor's cost and arrangement.

It is to be clearly understood that the contractor will have the responsibility for execution of the tendered job meeting all requirements of specification, drawing, WPS, QAP, Inspection norms etc.

Details scope of work and responsibilities of the contractor in respect of various activities related to foundry activities other than maintenance are given below

### **Phase – A ( Sand Preparation for Mould Boxes and handling) :**

1. Unloading of Sand from Wagon / Lorry in Sand Yard / suitable place and transportation of Sand from Sand Yard / Bin to Sand Preparation area.

2. Necessary sand Preparation for Mould & Core as per norms.
3. Sand testing before use of sand mix for making moulds
4. Operation of Sand Mixture Machine.
5. day to day cleaning of surrounding area.

**Phase – B (Mould & Core Making & Setting) :**

1. Mould & Core making, Gauging, Painting, Drying, Cleaning and necessary Shifting of Mould Box to required places as per program given by our Foundry Department, for operation / utilization of liquid metal.
2. Core setting, Box closing & clamping.
3. Necessary allied jobs for making the mould ready for pouring liquid metal.
4. Repairing & rectification of Mould Boxes.
5. Maintaining records / check-list for the activities performed.

**Phase – C ( Checking of Mould Box & Core Box along with Pattern ):**

Regular and periodic checking of Pattern, mould & core boxes as per RDSO norms and maintaining necessary records with rectification, if required.

**Phase – D (Operation of 5 MT Electric Arc Furnace along with allied activities):**

1. Preparation of pouring ladle after cleaning/heating/lining etc.
2. Charging/de-charging of furnace.
3. Incoming raw materials to be stored properly.
4. Preparation of Molten metal as per RDSO specification of casting of Bogie. Charge-mix to be maintained as per Foundry norms and to be prepared in advance.
5. 5 Nos. of bath sample or more and one final sample to be taken per heat for testing.
6. Pouring of liquid metal to ladle (preheated).
7. Measurement of liquid metal temperature before sampling, before tapping and before pouring to the mould.
8. Discharging of excess liquid metal under the pit.
9. Sample collection and necessary physical & chemical testing in the Laboratory and maintenance of records.

**Phase – E ( Maintenance of 5 MT Electric Arc Furnace ):**

1. Day to day checking of electrical equipment, cooling system, hydraulic system, penal box etc. before starting of Furnace.
2. Preventive maintenance of V.C.B in every week.
3. Bus Bar & Water Cooled Cable to be cleaned weekly.
4. Plan and actual records of preventive maintenance to be submitted in month end.

**Phase – F ( De-clamping of Mould Boxes & Box knocking and casting de-coring ):**

1. Box knocking and casting de-coring.
2. Shifting of Mould Boxes from Foundry area to shakeout machine/any suitable area for knocking to separate casting and sand.
3. Transferring of sand to Hoppers by manually/mechanically.
4. Shifting of Mould Boxes from moulding area by proper stacking.
5. All moulding machining pit, platform, pathway & trolley line are to be kept clean.
6. Shake-out machine pit, Sand Mixture Machine Pit, Elevator Pit and Sand Dryer Pit are to be kept clean in regular basis.

**Phase- G (Gas Cutting of Runner, Riser and Bumping of casting):**

1. Oxy Cutting and breaking of runner & riser.
2. Bumping or pre-shot blasting.
3. Heat treatment of casting in 20 T & 5 T Annealing Furnace and recording in log book with T.T Graph and Serial No. of the casting. To get the desired physical and mechanical properties the heat treatment cycle to be run perfectly. Any rejection by RDSO during the entire operation of bogies manufacturing will be on contractor's account.
4. Complete finishing after shot blasting by the technicians as per directive/norms and maintaining necessary records.
5. Loading, unloading, shifting of casting to/from shot blasting machine to fettling shop.

6. Machining of castings and necessary drilling job wherever required are to be done.
7. Maintaining FIFO System for the material and castings both as introduced by RDSO.

**Phase – H (Fettling & Gauging):**

1. Complete finishing of shot blasting/without shot blasted castings for welding (Repairing wherever necessary).
2. Grinding, Chipping & Gauging of each casting.
3. Finishing of casting strictly as per RDSO norms and the finished castings are to be duly certified by the inspecting authority duly heat passed in respect of physical and chemical properties by RDSO Inspector.
4. Dispatching of finished casting from Foundry to Assembly Shop with the help of Forklift and Hydra.

**Phase-I (Offering the finish castings to RDSO for inspection and related activities for heat clearing):**

Castings to be offered to RDSO Inspector for heat clearing and their directives to be followed.

**Phase – J (Assembly of Bogie):**

1. After assembly of Bogie to be offered to RDSO Inspector for final inspection for DM.
2. Completion of jobs as per direction of RDSO inspector raised during inspection.
3. Despatch – Loading of finished Bogie on Trailer / Truck for transportation.

**Phase- K (Scrap preparation & supply):**

1. Cutting and shifting of M.S. Scrap, rejected casting, foundry returns from different parts of works to scrap yard.
2. Arrange the charge in advance in the charging bucket.

**Phase – L ( Shop floor cleaning)**

Day to day Shop floor cleaning in different sections of Foundry and unusable Black Sand, slag debris, burnt bricks to be collected from different parts of the foundry and to be removed from Foundry Shop to Golf Ground with the help of JCB & Dumper (JCB & Dumper will be provided by the party). Cleaning & maintenance of Drainage system, pathway and removing garbages, empty bags etc.

**Phase – M ( Testing of foundry input materials along with spectro analysis of Molten metal)**

- 1) Testing of input materials to be recorded
- 2) Testing of day to day sand preparation to be recorded
- 3) Spectro analysis of Molten metal to be recorded
- 4) Test piece preparation ( physical properties) for passing RDSO inspection
- 5) Contractor will take all necessary activities for clearing RDSO inspection.

**Phase – N Heat Treatment (Normalizing from outside of BCL, if necessary)**

After attaining temp  $920^{\circ}\text{C}$  the casting will be soaked for 4 hours at temp  $920^{\circ}\text{C} (\pm) 10^{\circ}$  then material will be cooled in air. For C.P Top & Bottom Tempering cycle Heating the castings at a rate not exceeding 100 deg.c per hour. Soaking of the castings at 450 deg.c +/-10 deg.c for 3 hours followed by air cooling. For CP Top, induction hardening to be done to achieve the required hardness i.e 300 BHN.

One set Bogie for Heat Treatment = 1 no Bolster & 2 nos Side Frame.

**Phase –O : Servicing and calibration of equipments/instruments ( As per QMS 9:2015 ) wherever required**

**Physical Testing Laboratory**

- # Universal Testing Machine, Make Avery, England, Capacity – 500 KN, Type-7110CCJ
- # Vickers cum Brinell Hardness Tester, Make – WPM,GDR,Model-HPO250
- # Rockwell cum Brinell Hardness Tester, Make –FIE,SCALE, B&C, Model-RAB250
- # Impact Testing Machine, Make-FIE, Energy SCALE: 0-300J, Model – IT30

**Sand Testing Laboratory**

- # Universal Sand Testing Equipment – Every year – 1 no.

- # Sand Permeability Testing Equipment – Every year – 1 no.
- # ASTM Sand Sieve Shaker – Every year-1 no.
- # Shatter Index Tester – Every year – 1no.
- # Mould Hardness Tester – Every year – 1no.
- # Scratch Hardness Tester – Every year – 1no.
- # Sand Flowability Tester – Every year – 1no.
- # Shatter mouldability/compactibility Tester – Every year – 1no.
- # Rapid moisture Tester – Every year – 1no.
- # Chemical weighing balance & weighing box – Every year – 1no.
- # Digital temperature controller of muffle furnace – Every year – 1no.
- # Methylene blue test equipment for clay – Every year – 1no.
- # Sand Muller – Every year – 1no.
- # Sand Rammer –Every year – 1no.

**Measuring Instruments/devices**

- # Pressure Gauge ( 0-630 kg/cm<sup>2</sup>) for load testing equipment – Every year – 1 no.
- # Pressure Gauge ( 0-700 kg/cm<sup>2</sup>) for Proof load testing equipment – Every year – 1 no.
- # Dial indicator ( 0-10 mm) for Proof load testing – Every year – 1 no.
- # Vernier Caliper ( 0-300 mm) – Every year – 1 no.
- # D-Meter ( 15-200 mm) – Every year – 1 no.
- # Digital distance gauge – Every year – 1 no.
- # Steel tape ( 0-3000 mm)- Every year – 1 no.
- # Steel tape ( 0-5000 mm)- Every year – 1 no.
- # Steel tape ( 0-15000 mm)- Every year – 1 no.
- # Steel scale ( 0-300 mm)- Every year – 1 no.
- # Gauge for Bogies – Every year - 2 sets
- # Gauge for Pattern , Mould & Core – Every year ( 1 set each)

**Equipments/Devices**

- # Heat treatment furnace ( Capacity 20T & 5T) – Every year – 1 no. each
- # Heat Treatment Burner, Temperature Recorder & Graph, Thermocouples, Oil Pressure Gauge, Air pressure gauge, Flue Gas analysis – Every year – 2 nos.
- # Immersion Pyrometer in every three months – 1 no.
- # Optical Pyrometer – Every year – 1 no.
- # Weighing Balance 10 T & 1 T – Every year – 1 no. each.

**(C) CONTRACTOR'S RESPONSIBILITIES SHALL ALSO INCLUDE THE FOLLOWINGS:**

- 1) Deployment of required numbers of all types of man power (High Skilled, Skilled, Unskilled, Crane Driver, Gas cutter, Welder, Melter, Furnace Operators, Fitter, Lab Technicians, Supervisor, Engineers etc.) per shift for each unit of preparation as A.B. C for successful execution of the jobs including all type of materials handling for achieving targeted monthly scheduled and for maintaining high quality standard as per requirement of BCL / RDSO. Technically competent & experienced supervisors to be deputed at each stage particularly in Moulding Heat Treatment, Fetting & Gauging and Maintenance job in all shifts
- 2) The contractor shall deploy qualified and experienced technical personnel as per requirement of RDSO's specifications & stipulations.  
  
Besides, the contractor shall also deploy 1 no computer operator-cum-typist for various purposes of typing, data entry, communication etc related with the job.
- 3) The contractor shall be responsible for maintaining and preparing documents related to IRs for DM component and DMs for Bogie.
- 4) Supervisors, Engineers etc should be competent enough to run the Foundry shall have to be deployed.
- 5) All the Plants & Machineries are to be manned, maintained in three shift basis for optimum utilization of the infrastructural facilities.
- 6) To ensure optimum utilization of furnace in each shift.

- 7) To ensure production of good quality mould / casting. In case of defects in mould / castings attributable to the contractor, actions as per rejection & penalty clause specified in the tender shall be applicable.
- 8) To arrange inspection in all stages as required by BCL / RDSO it will be contractor's responsibility to contact BCL Officials to arrange timely inspection to ensure timely delivery as per delivery schedule.
- 9) To maintain the records / Log Books and relevant documents for inspection & ISO requirements.
- 10) All Space, Rooms, Plant & Machineries to be kept clean.
- 11) The contractor shall provide Safety items like Gloves, Shoes-overall, Shovel, Hammer, Helmet all tools & tackles (Shovels, Pneumatic Grinding & Chipping Machine, Welding Cables, Air Hosepipe) as per statutory requirement.
- 12) To ensure production of casting to the extent of 70-75% of Liquid Metal.
- 13) To take proper safety precautions / measures which are necessary for such kind of job for your employees / workers and arrange & provide for all the necessary safety appliances ( Hand Gloves, Protector & Heat Gear etc) and equipments wherever and whenever necessary for such kind of job to your employees / workers to ensure proper protection of your employees at the working site /company's premises and conform to the Rules and Regulations of the Company as well as statutory requirements.
- 14) Contractor shall be held responsible for any accident occurred due to negligence on its part and shall be liable to pay compensation as per provision of law in the event of injury / death of its employees.
- 15) Contractor shall have to pay to their employee's wages in time (i.e. within 10<sup>th</sup> of each month). Payment of wages shall be as per provision of Minimum Wages Act. Timely payment of wages to contractor's employees shall not be linked with the receipt of contractual payments from BCL by the contractor.
- 16) Contractor shall be responsible for payment and compliances in respect of PF, ESI,GST, Bonus and other statutory compliances.
- 17) **Spares:** Supply of spares for maintenance of foundry Plants & Machineries shall be in the scope of contractor which shall be supplied " as and when " required basis. List of spares is enclosed as Annexure ' B ' with this tender documents. **The indicated list of spares in Annexure 'B' contain low, Medium & high value items. The list is indicative and not exhaustive. Items and quantity may vary during actual execution. The procedure for procurement and release of payment by BCL shall be as follows :**
  - a) **For low value items :** For items having individual price upto Rs.5000/- shall be procured by contractor based on Joint inspection before duly certified by In-charge Maint(AW) or his authorized representative and Contractor's representative prior to such procurement. The bidders is not required to quote item wise rates in the tender for these low value items. The maximum amount of payment to be released by BCL on account of low value spares shall not exceed Rs.70,000/- ( all inclusive) per month. The payment shall be released in the following manner.
    - i) **Bills( duly certified by Maint(AW) or his authorized representative) to be submitted with supporting documents like Joint Inspection note, , supplier's invoices & Challans in originals. Challans to be endorsed by BCL's security department.**
    - b) **Medium & High value items :** These items are required only in case of urgency. The items are included in the scope of contractor but prior checking of BCL stock is required before going ahead for purchase. For procurement of any of these items under this category, Joint inspection to be done duly certified by In-charge Maint(AW) or his authorized representative and Contractor's representative prior to such procurement. Contractor shall submit relevant documents to the operating authority of BCL for further decision and conveying consent/denial to contractor for going ahead for procurement. In case it is decided to procure by the contractor, the payment shall be released in the following manner.

**i) Bills( duly certified by Maint(AW) or his authorized representative) to be submitted with supporting documents like Joint Inspection note, copy of BCL's consent letter, supplier's invoices & Challans in originals. Challans to be endorsed by BCL's security department. Damaged materials shall be returned to BCL-stores.**

- 18) Contractor shall have to be careful in proper and optimum utilization of all materials supplied by BCL free of cost and also to ensure that there will be no deterioration / damage, pilferage or misuse. Reconciliation of all materials to be supplied by BCL as well as to be supplied by contractor shall be made on monthly basis.
- 19) Contractor must have to possess the license under the contract labour laws / Regulation Act 1970 an amendment thereof. The contractor should obtain necessary labour license from concerned authority immediately after receipt of order for working in BCL – Angus Works.
- 20) Contractor shall be responsible for ensuring smooth operation of Arc Furnace and other Plants & Equipments in foundry as specified in the tender. Accordingly, the contractor should deploy required manpower of proper trade and skill including licensed electricians wherever necessary.
- 21) Contractor has to insure that there is no stoppage of production due to non-availability of materials/scrap. contractor shall also insure preventive maintenance of plants & equipment for which maintenance is included in their scope. They shall insure minimum down time in case of any break-down.

**(D) SPECIAL TERMS & CONDITIONS:**

- 1) **Idle hour** : In the event of held up in continuity of supply of power, MS scraps for unavoidable circumstances, no claim for idle hour will be entertained.
- 2) **Rejection and penalty thereof** : Maximum rejection tolerance will be accepted up to 8% under normal operating condition. In case of rejection more than 8%, the tonnage of rejected castings shall be calculated considering 1.56 MT per Bogie. The quantity of rejected casting which are above 8% allowable limit shall be converted into equivalent Bogie as per norms of above weight. BCL shall disallow payment from certified bills against equivalent Bogie and the deduction from payment shall be to the extent of costs to be incurred by BCL for the rejected castings.
- 3) **Removal of unusable black sand and slag debris** : Contractor has to arrange removal of unusable black sand and furnace slag coke from foundry to Golf Ground (Angus Compound) with the help of JCB & Dumper as per requirement of foundry from time to time. Contractor shall provide JCB & Dumper. BCL shall have no liability in this regard.
- 4) **Wastage / slags / un-useable materials etc.**: All wastage / slags / un-useable materials, sands / rejected castings etc. shall be the property of BCL. Contractor shall not be entitled to claim anything on this account against this tender.
- 5) **Material Reconciliation** : Contractor has to submit Material Reconciliation Statement for only DM & Non-DM items required in finished Bogie to be supplied by contractor **but not for foundry inputs as its uses are variable in nature. In respect of consumption norms of Foundry inputs, BCL reserves the right to ask the successful bidder to submit such norms per Bogie basis before finalization of order and the same, if found OK, shall be implemented in the order.** Besides, the contractor shall also submit reconciliation statement for the materials to be supplied by BCL. The statement to be submitted and duly certified by BCL's representative (Production In-charge) at the time of submission of bill after completion of each quarter. The same is to be attached with the bill for release of payment. BCL shall issue dummy order for issue of M.R.R for different components, materials & consumables which are in contractor's scope against details to be submitted by contractor.
- 6) **Sub-contracting** : The contractor shall not sub-contract or assign this work or any part thereof without the permission of BCL. In the event of the vendor sub-contracting or assigning this work or part thereof without such permission, BCL shall be entitled to cancel the order and execute the same elsewhere at the risk and cost of the contractor and the contractor shall be liable for any loss or damage which BCL may sustain in consequence of or arising out of such supplies elsewhere and also cancellation of registration or temporary suspension.
- 7) **BCL's Responsibility**: BCL will provide Plant & Machineries, Arc Furnace (5T Capacity), Heat Treatment Furnaces (20 T & 5 T capacity), Cranes (without operator & slinger), Shot Blasting Machine, Machining facilities, Mould & Core Boxes and Pattern, Forklift & Hydra (without operator), Electricity, Compressed air, Plants & Machineries for necessary machining and drilling job for bolster castings.



**Note:** Apart from this, if any other responsibility arises which is not mentioned in BCL's responsibility will be treated as contractor's responsibility

**(E) GENERAL TERMS & CONDITIONS:**

1. **Earnest Money Deposit (E.M.D): Rs. 2, 00,000/-** (Rupees Two lakhs only)  
E.M.D. is required to be deposited in the form of Demand Draft / Pay Order in favour of "Braithwaite & Co. Ltd.," payable at Kolkata or bidder may deposit EMD in the form of Bank Guarantee which will be valid for 6 months from the date of opening of the tender. However, the units registered with GeM, SSI Units registered with NSIC/MSME for the tendered item and PSU units / RDSO approved vendors may be exempted from submission of EMD. Copy of the valid Registration Certificate should be furnished. **In case of MSME vendors, they should submit the UAM number. In absence of the same, the vendor shall not be considered as MSE vendor.**  
  
EMD will be forfeited or revoked if the tender is withdrawn and/or if the price is escalated later within the validity of the tender. EMD without any interest shall be returned to unsuccessful bidder after finalization of contract.  
  
**NOTE: EMD SHOULD BE SUBMITTED ALONGWITH THE TECHNO-COMMERCIAL BID OTHERWISE, OFFER WILL NOT BE CONSIDERED.**
2. **Security Deposit:**
  - (a) For due fulfilment of the contractual obligations, the successful bidder shall furnish Security Deposit in the form of Bank Guarantee / Demand Draft / Pay Order for a sum equal to 5% of the contract value within 15 days from the date of issue of the Purchase Order. In case of submission of Bank Guarantee, the same shall be verified by BCL from the concerned issuing bank. The Security Deposit shall remain valid till Warranty / Guarantee period. In case security deposit is not submitted within 15 days from the date of issue of P.O, the release of security deposit will be after taking into account of the corresponding period of delay in submission of the same even though the warranty / guarantee period expires.
  - (b) Security Deposit may also be built up by deducting the amount proportionately from each bill of the contractor on their request. However, 50% of the total amount of the Security Deposit is to be deposited by the successful bidder on receipt of Purchase Order. Balance 50% may be recovered from running bill. This option of security deposit submission if availed, there shall be no change after words.
  - (c) Security Deposit may be waived for SSI, NSIC, MSME units, RDSO and GeM registered bidders and PSUs. In case of MSME vendors, they should submit the UAM number. In absence of the same, the vendor shall not be considered as MSE vendor
  - (d) Security Deposit will be returned only on completion of contractor's obligations under the contract including any warranty obligation or specified in the contract.
3. **Performance Guarantee:** 5% of the order value in the form of Bank Guarantee to be submitted before receipt of first payment. PBG shall be released after completion of warranty period. However, SD (if submitted) may be converted to Performance Bank Guarantee.
4. **Site Visit:** Bidder should visit the site at Angus Works before submission of offer for any query. Any Claim afterwards shall not be entertained.
5. **Prices:** Prices are to be quoted as per Price Bid Format. Payment will be made on the basis of finished product basis as per item description given in the Price Bid Format.
6. **RATE:**
  - ◆ Rate to be quoted considering Scope of work and terms & conditions of the tender as per Price Bid format
  - ◆ **.Quoted rate shall be subject to Price Variation as per formula enclosed in Annexure 'C'. The base date for the purpose of Price variation shall be the tender opening month of this tender. Accordingly bidder's quoted rates shall be considered as basic rate for the purpose of Price Variation calculation.**

- ◆ Bidder should quote their most competitive rate
- ◆ If any materials which are in the scope of contractor but provided by BCL, depending on availability, for avoiding delay and for meeting delivery targets, the cost of such materials shall be as determined by BCL including financing cost and overhead of 20% of the cost of such materials. The cost of such materials will be recovered from the bills of the contractor.
- ◆ In case any materials which are in the scope of contractor but provided by BCL on "Loan basis" for urgency of execution and delayed procurement by contractor, BCL reserves the right to recover an amount of 2% per month or part thereof of the cost of such materials for the period till the loaned goods are returned by the contractor. Such recovery shall be made from the bills of the contractor.
- ◆ **The bidder to submit the break-up of price i.e. cost of the major Bogie components (DM) & Foundry Input Materials in the scope of bidder as per following format and submit the same along with Price bid. In case this is not submitted, the price bid will be liable for rejection (as given in declaration in page No. 17).**

◆ **Group-A**

Sl.No.	Major Bogie Components for Bogie Assembly	Quantity per Bogie	Rate (landed cost) per pc	Total (Rs.)
1	Springs for HS Bogie			
2	Spring Plank			
3	Elastomeric Rubber Pad			
4	Constant contact side Bearer Assly (PU)			
5	Wedge			
6	C.P.Top			
	Other items			

◆ **Group-B**

Sl.No.	Major Foundry Input Materials	Quantity per Bogie	Rate (landed cost) per pc	Total (Rs.)
1	Graphite Electrode			
2	H.C Ferro Manganese			
3	Ferro Silicon			
4	Lime Stone			
5	Iron Ore			
6	Magnesium Ramming Mass			
7	Roof Set			
8	Magnesium Carbon Bricks			
i)	K1			
ii)	K3			
iii)	STD			
9	Resin			
10	Catalyst			
11	Bentonite Powder			
12	Dextrine Powder			
13	AG Grinding Wheel – 16"			
14	Furnace Oil			
15	Silica Sand			
16	Other items			

7. **Taxes & Duties:**

Payment of GST on finished Bogies shall not be applicable to contractor since the job will be done in the Workshop of BCL. Such liability of GST on finished Bogies will be on the part of BCL. Contractor will not be entitled to claim any amount whatsoever in these regard.

**The quoted rate shall be as per PRICE BID FORMAT** for components, materials & consumables & labour for casting & assembly work which are in the scope of the contractor. Payment of such statutory levies shall be in the scope of contractor. BCL shall not entertain any request for price increase due to increase in GST rates of the components, materials & consumables including casting & assembly job which are in the scope of contractor. However, in case of decrease in such rates of taxes during execution period of the contract, BCL reserves the right to ask for reduction in ordered rates / deduction from bills of the tendered item.

Arrangement & providing Way Bills / Road permits for the materials to be supplied by the contractor shall also be in the scope of contractor.

The contractor should have GST Registration with concerned authorities, copy of GST registration shall have to be submitted to BCL. The bidder shall indicate GST registration number in all Invoices, BCL's GST Registration number shall have to be indicated in contractor's invoice.

**For the components, materials & consumables which are in the scope of contractor, the consignee shall be Braithwaite & Co. Ltd., Angus Works, P.O: Angus, Dist: Hooghly, W.B.**

The contractor shall submit relevant copy of Tax invoices & delivery challans for different materials, components & consumables along with their bill as well as to Stores Deptt.-AW along with a statement showing item description, quantity, GST amount of the respective items. However, the contractor shall avail input credit on different materials, components & consumables required for Bogies. Contractor's bill to BCL shall indicate the GST amount applicable for composite works contract which should be in GST compliant invoice, so as to enable BCL to claim input credit against contractor's invoice from concerned authorities. Failure to submit the same and non-compliance of required formalities will attract deduction of corresponding amount from the bill of contractor.

8. **Payment:** 100% Payments shall be made within 30 days from DM. The Contractor shall submit bill duly certified by DGM(Foundry), I/c maintenance, & I/C-QC of BCL-AW against DM. However, contractor has to submit all the supporting documents before submission of the next bill or otherwise payment for next bill will be kept on hold. However, in respect of PF & ESI, the relevant documents are to be submitted within 10<sup>th</sup> of the subsequent month. For payment of Bogies against Non-Railway Order where RDSO's inspection is not involved, BCL's inspection certificate to be enclosed. GST compliant invoice is to be submitted with necessary particulars to enable BCL avail input credit for the GST amount.

The bills to be submitted shall enclose break-up of amount item wise for components, materials & consumables and labour charges. The bills after each quarter shall also enclose material reconciliation statements, duly certified by BCL's representative (Production In-charge) failing which no further payment will be made.

In respect of payment towards spares for maintenance, 100% payment shall be made as per para no (C) -17

Statutory deductions like Income Tax etc. will be made at source from the payments to be released to the contractor as applicable.

The existing procedure in BCL permits payments through RTGS mode. For this purpose, a Mandate Form is enclosed with the tender and the bidders shall submit the Mandate Form, dully filled in, along with the Part-I offer (i.e. Techno-commercial Bid).

**Common Note for Payment**

- i) All Challans, Invoices shall be in the form as specified by GST authority.
- ii) Party shall mention the HSN code/SAC code for the ordered item(s)/Jobs in their invoice alongwith GST rates.
- iii) BCL reserves the right to keep the payment of GST amount on hold till receipt of ITC by BCL is ensured. In case of non-compliance, regarding documentation/monthly return to ensure availing Input Tax Credit (ITC) by BCL. BCL also reserves the right to deduct the resultant amount.

9. **Validity:** Offer should remain valid for 90 days from the date of opening of the bid.

10. **Inspection:** By RDSO (Details mentioned in the scope of work). However, for Bogies of Non- Railway Order, inspection shall be done by BCL or as specified by BCL's customer. BCL's Quality Control Deptt. will also carry out stage inspections for each of the items.

11. **Delivery / Execution Period:** The order will be placed for a period of 2 years. However, on satisfactory performance of contractor, it may be extended for one year. Job shall be started immediately. Monthly delivery should not be less than 130 nos. Bogies. However, BCL reserves the right to fix higher delivery targets from time to time, The total quantity to be executed is given below :

Sl.No.	Quantity to be executed	Period
1	1800 sets of Bogies	1 <sup>st</sup> year of operation
2	2000 sets of Bogies	2 <sup>nd</sup> year of operation
3	2200 sets of Bogies	3 <sup>rd</sup> year of operation

12. **Execution Place:** BCL-Angus Works., Bhadreswar, Distt: Hooghly, WB.
13. **Operating Authority:** Unit In-charge –Angus Works (BCL).
14. **Liquidated Damages:** In the event of failure to execute the job within the stipulated execution period, BCL reserves the right to recover a sum of 0.5% for every week or part thereof by way of Liquidated Damages, subject to a maximum of 10% of the contract value.
15. **Risk Purchase:** In the event of failure to execution the job, BCL reserves the right to execute the items mentioned in our purchase order from alternative sources on Risk Purchase basis and recover the extra cost thereof, if incurred, from contractor.
16. **Guarantee / Warranty:** 30 months from the date of delivery or 24 months from the date of commissioning, whichever is earlier. During warranty period the contractor shall replace defective items free of cost in BCL – AW or at BCL's customer's premises, if necessary.
17. **Arbitration:** All questions, disputes or difference whatsoever shall arise between the purchaser and the contractor upon or in relation to or in connection with the contract either may forthwith give to the notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of sole Arbitrator. MD-BCL / CMD-BCL shall have the right and authority to appoint any Officer of the Company as Arbitrator not below the rank of a General Manager who is not directly connected with the Purchase Order.  
Such a reference submitted to the Arbitrator shall be deemed to be the submission to the Arbitrator within the meaning of the Arbitration and Conciliation Act, 1996 statutory modification thereof. The proceedings of the Arbitration shall be held in Kolkata.
18. **Jurisdiction:** Any legal dispute that may arise will be settled within the jurisdiction of Court of Kolkata.
19. Alteration/inclusion/deviation will not be allowed once the bid is submitted.
20. Order quantity may vary (+/-) 30% as per discretion of BCL at the same rate & terms. BCL also reserve the right to place repeat order for maximum 75% of quantity at the same rate & terms.
21. BCL reserve the right to terminate the order by giving 30 (thirty) days notice at any point of time in case of non-performance/non-compliance of delivery schedule/poor quality of materials.
22. **STATUTORY OBLIGATIONS:**

**(i) The Contractor will fulfill all statutory obligations as under:**

- (a) Contract Labour (Regulation & Abolition) Act, 1970
- (b) Contract Labour (Regulation & Abolition) Act, 1970
- (c) ESI Act Scheme
- (d) Payment under Bonus Act
- (e) Minimum Wages Act & Rules as fixed by Govt. of West Bengal from time to time.
- (f) PF Act, 1972, Pension Act and allied scheme
- (g) To contribute as per Provident Fund Act, 1952, ESI Scheme Act and Scheme and Minimum wage Act & Rules as fixed by Govt. from time to time.
- (h) Duty & tax related matters.

The contractor shall also obtain necessary Labour License from concerned authority for working in BCL-Angus Works failing which BCL reserves the right to take necessary penal actions as deemed fit.

(ii) Canteen facilities will not be provided by BCL. Arrangement of meals and tiffin, if any, for Contractor's employees will have to be made by the Contractor from outside at his cost.

(iii) The employees of the Contractor should follow all the instruction given to their authorized representative while doing the job at the Works of BCL.

(iv) The Contractor's workmen should be covered by proper insurance against any injury/accident and / or death. BCL will not be responsible on this account under any circumstances. In case of coverage by ESI or Group Insurance, documentary evidence must be produced before taking up the work. The Contractor shall observe all safety rules and regulations as per requirement of the particular nature of work.

(v) In case of any damage done to materials of BCL by the Contractor's people during execution of work. It will be a binding to the Contractor to compensate BCL for the damage done and amount of compensation will be decided by BCL.

(vi) All safety precautions relating to this job are to be arranged by the Contractor. BCL will not be responsible for any accident. The Contractor shall keep the coverage for all the labours (engaged for this job) against any accident.

23. **Handing Over / Taking Over:** The number of castings as available in AW during start of the job will be handed over to the Contractor at different stages. Bidder shall ensure handing over of equal quantity of castings at different stages duly manufactured. A declaration in this regard should be submitted along with the final bill duly certified by DGM (Fdy).
24. **Methodology of execution & responsibility of person:** As per scope of work, separate register will be maintained in Melting, Moulding, Fetting and Assembly area. Since the payment will be made on per unit basis depending on the number of DM of the respective tendered items on that particular month, according to the same, the bill will be certified by DGM (Fdy).
25. **Operation Plan:** The successful bidder shall discuss and submit the Operation Plan as per the requirement of Operating Authority.
26. The successful bidder shall submit in writing with due authorization the details and description of the persons who shall discharge various roles and also mention one name who is totally responsible for the whole operation at BCL and alternative name should also be indicated and submitted to the Operating Authority before commencement of operation.
27. The contractor should comply with all Statutory Rules & Regulations, procedures as applicable for execution of the job and BCL shall have no liability in this regard.
28. **Specification, Drawings, Technical details etc.:** The specification, drawings, bill of materials & other technical information can be seen by the bidders from BCL's Angus Works before quoting. The bidders shall read and understand the technical documents before quoting. A declaration in the techno-commercial bid shall have to be submitted by the bidder that the design, specification, drawings & other technical information have been fully read and understood and accordingly prices have been quoted in price bid.
- Queries, if any, may be clarified from our Angus Works authority.
29. **Indemnity:** The contractor shall indemnify BCL against all claims arising out of the obligations which are under the scope of contractor. BCL shall in no way be responsible and be party in respect of any breach and / or non-fulfillment of obligations by the contractor in respect of sourcing / procurement of various materials / components etc. as well as regarding compliance of various statutory obligations for execution of the awarded job against this tender. The bidder shall give a declaration to this effect along with their Techno-commercial Bid.
30. **Price variation clause :** PVC will be applicable in line with Railway contract for manufacturing of bogies & couplers.

**(E) ADDITIONAL TERMS & CONDITIONS:**

- (i) There shall be no splitting of the tendered quantity and entire quantity shall be awarded to one contractor only.
- (ii) Bidders shall note that in case of any discrepancies / forged documents submitted by the bidders in support of meeting qualifying criteria of the tender, it shall be the sole responsibility of them for any adverse consequences at later stage and BCL shall have no liability in this regard.
- (iii) Joint venture / Consortium Bid will not be considered.**
- (iv) It is intended that bidders shall quote for the full tender quantity. In case full tender quantities are not quoted, the offers will be rejected.
- (v) Mode of ordering : BCL reserves the right to place two separate orders against this tender i.e one order for Material Part and the other for labour part including labour charges for maintenance. These two orders shall be placed on the successful bidder.**

**(F) INSTRUCTION TO BIDDERS**

Bidders meeting qualifying criteria of the tender should quote against this tender. Intending Bidders should also submit in the following documents:

Covering letter for submission of offer.

Complete set of tender documents including corrigendum, if any, duly signed on each page, as your acceptance of the tender condition & Tender Notice in Toto.

Documentary evidence related to credentials for the bidder to establish that he fulfils the qualifying Criteria. Besides, the bidders shall also submit copy of Trade License, PAN, IT Return for last 3 years, Labour License and list of jobs executed / under execution.

**(G) BRAITHWAITE & CO LIMITED RESERVES THE RIGHT TO:**

Postpone the above-mentioned due date. Cancel the tender at any stage due to unforeseen reasons.

May ask for further clarification during techno-commercial scrutiny of bids received.

BCL shall not be responsible for any delay, loss, damage for bids sent by post.

BCL shall not be liable for any expenses incurred by bidder in preparation of bid irrespective of whether it is accepted or not. Canvassing i.e. soliciting favour, seeking advantage etc. in any form is strictly prohibited and any bidder found to have engaged in canvassing shall be liable to have his bid rejected summarily.

If the bidder deliberately gives any wrong information in his tender to create a circumstance for the acceptance to his bid, Braithwaite reserves the right to reject such application.

**(H) Evaluation of lowest Bid**

**Lowest Bid will be evaluated on the basis of the sum of "Lowest TOTAL BID VALUE (Rs.)" received from a qualified bidder.**

**For Braithwaite & Co. Ltd.**

**PART-II: PRICE BID**

**Price Bid Part shall be opened only if Part-I are qualified.**

- 1) The rate to be quoted both in figures and words. In case of difference, rates quoted in words shall be considered.
- 2) The quoted rate should consider scope of work, contractor's responsibilities and all terms & conditions of the tender.
- 3) Overwriting in price figure of the quotation will be rejected.
- 4) The bidder shall submit rate in the following format.
- 5) Successful bidder shall submit break-up of quoted rates.
- 6) **The bidders shall submit their Price Bid as per format given below. Separate Order shall be placed for 'Materials ' and for 'Labour Charges'.**

**Price Bid Format :****1) Part (A) - Price Bid Format for "MATERIAL PART"**

	Description	Qty	Basic Rate per Bogie excluding GST(Rs.)	GST per bogie (Rs.)	Total rate per Bogie ( all inclusive)-Rs.	Total amount for 6000 Nos. of Bogies- all inclusive ( Rs.)
1	Procurement & supply of all components, consumables , input materials & others except MS Scraps for manufacturing of Bogies as per tender condition	6000 Nos. of CASNUB Bogies				

**Part-B : Procurement & Supply of MS Scrap**

Description	Quantity (MT)	Rate per MT - Rs.	GST per MT (Rs.)	Total rate per MT (all inclusive)-Rs.	Total amount for 7200 MT - all inclusive (Rs.)
Supply of M.S scraps ( Heavy Melting type – 80:20)					

**GRAND TOTAL for 1 (PART-A + PART-B) – Rs. \_\_\_\_\_**

**2) LABOUR CHARGES**

Description of job	Basic Rate per Bogie excluding GST(Rs.)	GST per bogie(Rs.)	Total rate per Bogie (all inclusive)-Rs.	Total amount for 6000 Nos. of Bogies- all inclusive (Rs.)
Labour charges for manufacturing of Bogies including Maintenance charges for Plants & Machineries in Foundry as per scope of work for maintenance indicated in tender				
<b>GRAND TOTAL for 2 (Rs.)</b>				

**TOTAL BID VALUE (Rs.) = GRAND TOTAL for 1+ GRAND TOTAL for 2 = Rs. \_\_\_\_\_**

**NOTE : The quoted rate shall be considered as Basic rate for the purpose of PRICE VARIATION.**

**For Braithwaite & Co. Ltd.**



**Format for declaration**

To,  
GM (Co-ordination)  
Braithwaite & Co. Ltd.  
5, Hide Road,  
Kolkata – 700 043

Dear Sir,

Sub: Declaration

Ref: TENDER ENQUIRY NO. **BCL /PUR/FOUNDRY/6000/AW/18 dt. 05.06.2018**

We hereby submit the following declaration as per requirement of the tender:

“We (i.e. the bidder) have fully read and understood Design, Specification, Drawings & other Technical Details and accordingly, prices have been quoted in Price Bid.

We shall indemnify BCL against all claims arising out of the obligations which are under our scope. BCL shall in no way be responsible and be party in respect of any breach and / or non-fulfilment of obligations by us in respect of sourcing / procurement of various materials / components etc. as well as regarding compliance of various statutory obligations for execution of the awarded job against this tender.

We submit our unconditional acceptance of all terms & conditions of the tender.

We submit the break-up of price i.e. cost of the major components to be supplied by us as per format given in **page no 10** and submit the same along with Price bid. We understand that in case this is not submitted, the price bid will be liable for rejection.

Thanking you,

Yours faithfully,

For \_\_\_\_\_

Signature of the Bidder with seal

**Format for submission of Undertaking in respect of Way Bills / Road Permits**

To,  
GM (Co-ordination)  
Braithwaite & Co.Ltd.  
5, Hide Road,  
Kolkata - 700043

Dear Sir,

**Sub: Undertaking in respect of Way Bills / Road Permits**

**Ref: TENDER ENQUIRY NO: BCL /PUR/FOUNDRY/6000/AW/18 dt.05.06.2018**

We hereby submit the following undertaking as per requirement of the tender:

“We (i.e. the bidder) shall be in position to arrange and provide Way Bills / Road Permits to the respective suppliers of different items / components and to make payment of GST for the different items / components to be supplied by us (i.e. the bidder) if the order against this tender is placed on us.”

Thanking you,

Yours faithfully,

For \_\_\_\_\_

Signature of the Bidder with seal

### Scope of Work for maintenance of Foundry Plants & Machineries at Angus Works

Contractor has to carry out preventive maintenance, routine maintenance and break down maintenance of following plants & machineries.

#### A. Belt conveyors / controllers

1. 650 mm wide sand dryer incoming conveyor belt (near hopper)
2. 600 mm wide sand drier to old underground conveyor belt
3. 210 mm wide old bucket elevator
4. 650 mm wide shake out to new bucket elevator underground conveyor belt
5. 1000 mm wide endless conveyor belt for magnetic separator
6. 450 mm wide new bucket elevator
7. 650 mm feeder belt below polygon screen
8. 650 mm wide belt conveyor carrying sand to the 50 T sand bunker.
9. 900 mm feeder belt conveyor below 50 T sand bunker (north)
10. 900 mm feeder belt conveyor below 50 T sand bunker (south)
11. 500 mm wide conveyor belt from sand bunker to sand mixture machine
12. 650 mm wide belt feeder below sand mixture machine feeding prepared sand.
13. 650 mm wide 1<sup>st</sup> prepared sand belt conveyor
14. 650 mm wide 2<sup>nd</sup> prepared sand belt conveyor
15. 650 mm wide 3<sup>rd</sup> prepared sand belt conveyor
16. 500 mm wide linkman supplied prepared sand belt conveyor below sand Mixture M/c.
17. 500 mm wide feeder belts over machines – 03 nos.

#### B. Other Plants & Machineries

1. Sand Mixture Machines – 02 nos. (Model P-500) and its accessories
2. Shake out machine 10 T capacity – 01 no.
3. Transfer Trolley- 02 nos.
4. Core sand Mixture machine – 02 nos.
5. Sand dryer machine – 01 no. (bricks lining, fabricated job, burner servicing & repairing and maintenance of related pipe line)
6. Bottom Pouring ladle-05 nos.
7. AVS-5 moulding machine 0 02 nos.
8. Ladle Pre-heater – 02 nos. (roof lining, burner block, fabricated roof, burner, flexible hose, ladle pump, gate valve, blower etc)
9. Swing Grinding machine – 03 nos.
10. Pneumatic rammer – 04 nos.
11. VCBs and VCB Trolleys as available for Arc Furnace.
12. Relays, Batteries and changers as available for Arc Furnace.
13. 5 T heat treatment furnace- 01 no.(blower, oil pump, trolley & burners, heater, pipeline etc)
14. 20 T heat treatment furnace- 01 no.(blower, oil pump, trolley & burners, heater, pipeline etc)
15. Shot blasting machine-02 nos. ( 01 no near fabrication & 1 no. near fettling zone)
16. Sample out off machine, polishing machine, muffle furnace ( in laboratory, spectro room)
17. Source pump, intake pump (near underground storage tank) overhead pump for furnace oil delivery.
18. All Laboratory equipment including Spectrometer.
- 19. Fork-lift – 2 nos & Hydra – 1 No.**
- 20. Air conditioning Machines – 3 nos. ( Spectro Room- 2 nos. & RDSO office- 1 no.)**
- 21. Mancoolers – 14 nos. ( Foundry hop – 8 nos. Bogie shop – 5 nos. & Heat Treatment shop – 1 no.)**
- 22. Transfer Trolley – 2 nos.**
- 23. Dehydration of transformer Oil for ARC Furnace Transformer.**
- 24. Illumination at foundry, Heat Treatment shop, shot blasting & Bogie shop including Fettling & Gauging shop.**
- 25. Maintenance of cranes:**
  - a) Crane Nos. 1,3,4 (Old & New), 5 ( Old & New),6,7,9(Old & New),25,28 & 29.
  - b) Jib Crane/Hoist Block near Shot Blasting Machine, Moulding Machine, Bentonite section etc.

Details of job to be carried out by the contractor & terms & conditions for maintenance of Foundry Plants & Equipments

1. Maintenance and cleaning of the conveyor belts, head pulleys, tail pulleys and flat idlers guide rollers, bearings, pillow Blocks, wipers V plough and surroundings.
2. Regular & periodical adjustment of the belt conveyors, cleaning of pulleys, rollers, idlers and surroundings with a target to minimize the same slippage, repairing/replacement of rubber strips as and when required.
3. Maintenance of the driving unit consisting of the electric motor (including dismantling & refitting job), couplings, worm reducer and its control system etc. (repairing and refitting job) repairing and lubricating of the worm reducer replacement of coupling/coupling bolt as and when required/suggested by Maint.-in-charge. Damaged cable if found is to be replaced by the contractor for which materials will be given by BCL at free at cost.
4. Maintenance of bottom discharge arrangement chute and related structure of the conveyor belt.
5. Repairing of the conveyor belt by cold/hot vulcanizing method as and when required and certified by Maintenance In-charge / DGM (Foundry).
6. Periodical checking and repairing as required for 1 no 50 Ton Sand bunkers and 1 no 70 Ton Sand bunker.
7. Bucket elevator (02 nos.) checking adjustments, replacements of fastening bolt, repairing, lubrication of gear boxes and replacement of couplings are required maintenance and checking of the electrical motor/brakes etc. and preparation old bucket and fitting and repairing of the damaged structure.
8. Adjustment of 1000 mm endless belt for magnetic separator, repairing / lubricating the related gear box, replacement of V Belt and other belts are to be adjusted as and when required and lubrication, hydraulic oil filling of its related gear box and driving unit.
9. Contractor has to provide shift wise log book with description of availability and non-availability of machines.
10. For sand mixture machine (02 nos.) P-500 & its accessories. The replaceable scrapers and mixing blades (03 nos.) are to be prepared by contractor. The inserts are to be arranged by the contractor as spares if not available with BCL. The brazing work will be in contractor's jurisdiction. The machine's MS plate will however, be made in 2 month in average. One set of the bottom scrapper (comprising 03 pieces) will however be required in every six month in average.
11. For core sand mixture- 02 nos, Replaceable scrapers are to be arranged by contractor where materials will be supplied by BCL.
12. Damage structure of all equipment is to be repaired by the contractor where material will be supplied by BCL.
13. Contractor may have to work in 'C' shift (10.00 p.m to 6.00 a.m) as per requirement of BCL.
14. The damages structure and inner outer lining of sand dryer machines and its related hopper to be repaired by party where materials will be supplied by us.
15. Any other work assigned by the concerned person related to above work but not covered by the scope of work has to be attended by the contractor.
16. Maintenance of heat treatment furnace (20 T & 5 T) trolley has to be done by contractor. The alignment of wheels, replacement of wheel bearing, Plummer blocks, wire rope. Rope drum, proper trolley alignment is to be maintained by the contractor. Flexible hoses, burners, oil flow lines, oil pump are to be maintained by the contractor as and when required including gas cutting and welding job.
17. Oil pumps, burners, blower (fan, motor, pulley, love joy couplings, rubber gasket) to be checked and repaired for maintenance job of ladle pre-heater, 20 T heat adjustment furnace, 5 T furnace and its storage tanks.
18. Sand mixture tank, floating valve to be maintained and adjusted by contractor. Cleaning of underground exhaust duct and fixing of suitable cover for easy movement of operator.
19. Repairing of conveyor belt.
20. The contractor has to arrange and supply the mechanical & electrical spares required for maintenance of foundry Plants & Machineries in as and when required basis. Contractor shall procure all spares based on joint inspections report, duly signed by contractor & In-charge Maintenance – AW and obtaining prior written permission from AW authority. Payment of spares shall be made as per conditions stipulated in the tender.

21. The following equipments shall be handed over by BCL after repair and in running condition:
- Hydra - 1No.
  - Forklift – 2 Nos.
  - Heat Treatment Furnace – 5T (1No.) & 20T (1No.)
  - Weigh Balance – 10T (1No.) & 1T (1No.)
  - Shot Blasting Machine ( Location – Foundry shop) – 1 No.
  - Shake out Machine – 1No.

**ANNEXURE 'B'****LIST OF SPARES FOR MAINTENANCE OF FOUNDRY PLANT & MACHINERIES****Spares required for Maintenance of Foundry Plant & Machineries (Low Value items)**

Sl. No	Description of items	Tentative quantity
1	Resilient Disc 14.5 Greaves make	1 No.
2	Multi – Disc for above Greaves make	4 Nos.
3	Resilient Disc 12.75 Greaves make	4 Nos.
4	Multi – Disc set for above Greaves make	3 Nos.
5	Carbon inserts	1 set (100 Nos)
6	Brazing Rod	As required
7	Oil seal as per following	
a)	337 X 225 X 50	10 Nos
b)	325 x 400 x 50	10 Nos
c)	175 x 250 x 37	4 Nos
d)	140 x 170 x 12	10 Nos.
e)	240 x 270 x 15	10 nos
f)	115 x 140 x 13	4 Nos.
g)	250 x 325 x 37	4 Nos.
h)	35 x 54 x 10	4 Nos.
i)	42 x 65 x 10	4 Nos
j)	42 x 55 x 6	
k)	105 x 130 x 12	4 Nos.
l)	70 x 100 x 10	4 Nos.
8	Pump with 1 HP 1 ph motor	1 No.
9	Rotating water joint with junction	1 no.
10	Bearing SKF/FAG make (all bearing will be steel cage casing)	
11	30310	4 nos.
12	30212	10 nos.
13	30315	4 nos.
14	31309	6 nos.
15	30220	6 nos.
16	30221	4 nos.
17	30315A	4 nos.
18	30309	4 nos.
19	31308A	4 nos.
20	32312	4 nos.
21	31308	2 nos.
22	22310CJ	6 nos
23	RMS 15	2 nos
24	6312 ZZ C3	4 nos.
25	6309 -2ZR	4 nos.
26	6308 – Z	8 nos
27	6306 – 2Z	12 nos.
28	6305 -2Z	12 nos

29	6304-2Z	12 nos.
30	6212-2Z	4 nos.
31	6210 2Z	4 nos.
32	6208 Z	6 nos.
33	6206 -2Z	6 nos.
34	1211K	6 nos
35	1209	4 nos
36	6228	4 nos
37	6305ZZ	6 nos
38	6307	6 nos
39	21310	4 nos
40	365V3	2 nos
41	N313	4 nos
42	6204	4 nos
43	22212	4 nos
44	22211	4 nos
45	6209	8 nos
46	Pillow Block Bearing UCP 205J	10 nos
47	Pillow Block Bearing UCP 210J	2 nos
48	N 209	4 nos
49	Plummer Block H-511	4 nos
50	Plummer Block H 215	4 nos
51	32212	12 nos
52	SN 516	8 nos
53	SN 611	6 nos
54	51113	6 nos
55	51205	2 nos
56	6316C3	2 nos
57	7315B	10 nos
58	7218	10 nos
59	30311	4 nos
60	52032	2 nos

61	32213	2 nos
62	Pillow Block unit UCPX13J	4 nos.
63	UCX13J suitable for PX13J	4 nos.
64	Pillow Block Unit UCPX10J	4 nos.
65	UCX10J suitable for PX10J	4 nos.
66	Pillow Block Unit UCT210D1	4 nos.
67	Ball Valve 1" , ¾", ½" size	6 nos each
68	Gate Valve 1" , 2" , 2½", 4" size	4 nos each
69	UC210 suitable for UCT210D1	6 nos.
70	Plummer Block SN-509	8 nos.
71	Plummer Block SN-511	6 nos.
72	Plummer Block SN-513	8 nos.
73	Plummer Block SN-520	6 nos.
74	Plummer Block SN-522	4 nos.
75	Plummer Block SN-611	6 nos.
76	Plummer Block SN-613	6 nos.
77	Bearing 1209K TV C3	6 nos.
78	Bearing 1211K TV C3	12 nos.
79	Bearing 1215K TV C3	10 nos.
80	Bearing 1213K	6 nos.
81	Bearing 1311K	8 nos.
82	Bearing 1317K	2 nos.
83	Adopter sleeve with lock nut	4 nos. each

	H 209,211,213,215,216,316,317,320	
84	Synthetic Rubber Based Adhesive Fevicol SR CBR7	20 kg
85	Cross linking agent Fevicol SR CBA7	2 kg
86	Polyester Cord V Belt,Poly F-Plus	
a)	A-42	12 Nos.
b)	A-43	6 Nos.
c)	A-44	6 Nos.
d)	A-46	6 Nos.
e)	A-30	6 Nos.
f)	A-48	12 Nos.
g)	B-51	12 Nos.
h)	B-60	18 Nos.
i)	B-63	15 Nos.
j)	B-67	15 Nos.
k)	B-72	12 Nos.
l)	B-75	12 Nos.
m)	B-88	18 Nos
n)	B-146	15 Nos
o)	B-80	20 Nos
p)	B-59	6 Nos
q)	C-126	20 Nos
87	Bearing 32214	4 Nos
88	Bearing 31312	4 Nos
89	High Tensile Bolt 16 mm x 50 mm	30 Nos
90	Allen Socket head Bolt 12 mm x 40 mm	48 Nos
91	Allen Socket head Bolt Taper sink 8 mm x 25 mm with spring washer & Nut	24 Nos
92	Spare for Sample Cut off Machine	1-Set
93	Spare for Universal Testing machine	1-Set
94	Asbestos coated rubber hose pipe with end fittings 1" dia x 1 mtr long	20 nos.
95	SS wire net 1 mtr wide x 10 mtr long 10 SWG, ¾" mesh	4 nos.
96	Belt fastners (size- 3/8")	24 dozens
97	V Pulley 4", 6", 8" & 10" size	4 nos each.
98	SS Stud AISI 310- 7" long	500 nos.
99	Cuplock Sillinite - 2½" long	500 nos
100	Burner Block	24 nos
101	Mastic	20 kg
102	S S Electrode	400 nos
103	C I Electrode	200 nos
104	Spares for Transmission of Godrej make Fork Lift Car as per following:	
105	P S Oil Distributor Part No MH 02011035	6 nos
106	Oil Dist Sleeve (02009829) Part no MH 02049539	6 nos
107	Intermediate Shaft Part no MH 02020480	6 nos
108	Rubberized Bush (size- 75 x 65 x 38 )for 10T Shake out machine	6 nos

Sl. No.	Description of items	Tentative quantity
109	Asbestos coated rubber hose pipe with end fittings(both side) as per following:	
a)	¾" dia x 2 ft long	6 nos
b)	¾" dia x 5 mtr long	6 nos
c)	1" dia x 5 mtr long	6 nos
d)	½" dia x 5 mtr long	6 nos
e)	2" dia x 2 mtr long	6 nos
f)	2" dia x 12 ft long	6 nos
110	Spares for Crane Maintenance Job	
i)	Heavy duty Copper graded Carbon Brush Sk-74B	200 nos
ii)	Brass Current Collector Holder	100 nos
iii)	Current Collector Wheel Sk- 5/71	50 nos
iv)	Current Collector Wheel Sk – 4/82	50 nos
v)	Current Collector Wheel Sk- 32/70	50 nos
vi)	Moulded Bakelite Bush Sk – 80/2125/00	100 nos
vii)	Moulded Bakelite Bush Sk- 80/5850/00	100 nos
viii)	D Contact & Ring Contact for Drum Controller – Set wise	24 sets
ix)	Rubberising of Coupling Bolt – Sk 41C(STD)	200 nos
x)	Rubberising of Coupling Bolt – Sk 43A(STD)	200 nos
xi)	Solenoid Coil – 33 lbs – 1 <sup>st</sup> Stage	24 nos
xii)	Solenoid Coil – 33 lbs – 2 <sup>nd</sup> Stage	12 nos
xiii)	Solenoid Coil – 66 lbs – 1 <sup>st</sup> Stage	24 nos
xiv)	Solenoid Coil – 66 lbs – 2 <sup>nd</sup> Stage	12 nos
xv)	63A rated Porcelain Top & Base	24 sets
xvi)	63A rated Moving Contact Assembly.	24 sets
xvii)	100A rated Porcelain Top & Base	10 sets
xviii)	100A rated Moving Contact Assembly.	10 sets
xix)	Bakelite Fuse Base & Top 32A rated SM 32	48 sets
xx)	Bakelite Fuse Base & Top 63A rated SM 63	24 sets
xxi)	Bakelite Fuse Base & Top 125A rated SM 125	12 sets
xxii)	Air Break Contactor 9A rated BCH/Siemens/L & T/ABB/Schneider	24 sets
xxiii)	Air Break Contactor 16A rated BCH/Siemens/L & T/ABB/Schneider	24 sets
xxiv)	Air Break Contactor 32A rated BCH/Siemens/L & T/ABB/Schneider	10 sets
xxv)	Air Break Contactor 40A rated BCH/Siemens/L & T/ABB/Schneider	10 sets
xxvi)	660V / 1100V grade PVC Copper Cable 1C x 1.5 Sq mm (1 coil=100mtr)	5 coils
xxvii)	660V / 1100V grade PVC Copper Cable 1C x 2.5 Sq mm (1 Coil=100mtr)	5 coils
xxviii)	660V / 1100V grade PVC Copper Cable 3C x 2.5 Sq mm	200 mtrs
xxix)	660V / 1100V grade PVC Copper Cable 4C x 2.5 Sq mm	100 mtrs
xxx)	660V / 1100V grade PVC Copper Cable 1C x 4 Sq mm	100 mtrs
xxxi)	660V / 1100V grade PVC Copper Cable 1C x 6 Sq mm	200 mtrs
xxxii)	1100V grade PVC Copper Cable 3C x 6 Sq mm	200 mtrs
xxxiii)	1100V grade PVC Copper HR Flexible Cable 3C x 25 Sq mm	100 mtrs
	Asbestos brake lining as per following	
xxxiv)	6 mm thick	10 mtr
xxxv)	8 mm thick	6 mtr
xxxvi)	10 mm thick	6 mtr
xxxvii)	Copper Rivet ¼" dia x 1.5" long	2 kg
xxxviii)	Copper Rivet 5 mm dia x 40 mm long	2 kg
xxxvix)	Copper Rivet 6 mm dia x 40 mm long	2 kg



Sl. No.	Description of items	Tentative quantity
111	Fixed & Moving Contact tips for AB contactor as per following:	
a)	70 Amp	6 sets
b)	38/40 Amp	9 sets
c)	32 Amp	9 sets
d)	22/25 Amp	9 sets
e)	16 Amp	6 sets
112	HRC Fuse as per following	
i)	315Amp, TSK-315 /eqv	24 nos.
ii)	200 Amp, TF-200/eqv	24 nos
iii)	100 Amp TCP- 100/ eqv	24 nos
iv)	63 Amp TIA 63	24 nos
v)	32 Amp	24 nos
vi)	25Amp	24 nos
vii)	16Amp NS-16	50 nos
viii)	10Amp NS-10	40 nos.
ix)	6 Amp NS-6	50 nos.
x)	4 Amp NS-4	50 nos
xi)	2 Amp NS-2	50 nos
113	Bi-metal Overload Relay L & T/BCH/SIEMENS make	
a)	45 Amp – 75 Amp	6 nos.
b)	30 Amp - 50 Amp	6 nos
c)	20 Amp- 33 Amp	9 nos
d)	13.2 Amp – 20 Amp	20 nos
e)	8.9 Amp – 13.5 Amp	9 nos
f)	6 Amp – 9.3 Amp	12 nos
g)	3.8 Amp – 6 Amp	20 nos
114	Electronic Timers 240V rated type-ET-100 (3 -10 sec)	4 nos.
115	Push Button set with 1NO + 1NC contact	24 sets
116	Bakelite Fuse Base & Top GE Make as per following	
a)	125Amp	48 nos
b)	63 Amp	60 nos
c)	32Amp	24 nos
117	D.O.L Starter , 5 HP Rated	9 nos
118	Heavy Duty Encapsulated Coil as per following:	
a)	Coil voltage 415V suitable for 70A, 63A,40A,32A,16A, 9A rated AB Contactor	4 nos each
b)	Coil voltage 220V suitable for 70A, 63A,40A,32A,16A, 9A rated AB Contactor	12 nos
c)	Coil voltage 110V suitable for 70A, 63A,40A,32A,16A, 9A rated AB Contactor	12 nos
d)	Drive insulator assembly with M10 Nyloc Nut & special washer as per Schneider's part no-SPR27SASS0006FN	6 nos
119	Blower for 1.5T Window type Air-conditioning machine of Spectrometer/RDSO Room	3 nos
120	Starting & Running Capacitor for 1.5T Window type Air-conditioning machine of Spectrometer/RDSO Room	12 nos

## Spares required for Maintenance of Foundry Plant &amp; Machineries (Medium Value items)

Sl. No	Description of items	Tentative quantity
1	30318	4 nos.
2	2308	8 nos.
3	32222	2 nos
4	22318 CJ	10 nos
5	22316	4 nos
6	6316 ZC3	2 nos
7	NU 316 ECP/C3	2 nos
8	2311C3	2 nos
9	182928 INA	8 nos
10	32218	4 nos
11	22220	4 nos
12	N316	2 nos
13	22220	2 nos.
14	22315	4 nos.
15	Job Holder for Spectro sample	1 Set
16	Rubber molding pin for Knock out machine	6 Nos
17	Roto Seal Coupling –ASRS-model, for water line size ¾ inch	4 Nos.
18	Gland cooler for model-8, 5T, GA Danieli make ARC Furnace	3 nos.
19	Fault Annunciation Panel for Arc Furnace	1 no
20	Rubberised oscillating pin	16 nos.
21	Coupling for 4", 6" , 8" & 10" size	4 nos each.
22	Spares for Transmission of Godrej make Fork Lift Car as per following:	
23	Oil Dist Input Shaft (02009816) Part no MH 02049542	6 nos
24	Input Shaft Part no MH 02049555	6 nos
25	Trans repair Kit Major Part no MH 02089942	6 sets
26	Drive Hub Electric GX Part no 02001232	4 nos
27	Pinion Shaft for Axle Part no MH 02000165	2 nos
28	Int Ring Gear for Axle (C 03814430) Part no MH 02044336	8 nos
29	Mixing Blade support for P-500 Sand Mixer Machine	3 nos
30	Scraper Shaft Support Arm for P-500 Sand Mixer Machine	3 sets (1 Set = 3nos)
31	TP moving Contact Assembly – 100A rated CH1003(U)	12 sets
32	TP Shrouded Base Assembly – 100A rated CH 1003(U)	12 sets
33	TP moving Contact Assembly – 200A rated CH2003(U)	10 sets
34	TP Shrouded Base Assembly – 200A rated CH 2003(U)	10 sets
35	TP moving Contact Assembly – 315A rated CH3153N(U)	8 sets
36	TP Shrouded Base Assembly – 315A rated CH 3153N(U)	8 sets
37	FP moving Contact Assembly – 315A rated CH3154P	6 sets
38	Air Break Contactor 63A rated BCH/Siemens/L & T/ABB/Schneider	8 sets
39	Air Break Contactor 70A rated BCH/Siemens/L & T/ABB/Schneider	8 sets
40	Air Break Contactor 125A rated BCH/Siemens/L & T/ABB/Schneider	6 sets
41	Air Break Contactor 170A rated BCH/Siemens/L & T/ABB/Schneider	6 sets
42	Gear Oil- Servo 220	200 ltrs
43	Gear Oil- Servo 460	200 ltrs
44	Grease – Servo grease WB	200 kg

Sl.No	Description of items	Tentative quantity
45	Tungsten electrode for OE Spectrometer,ARL Make, Type 2460-472	3 nos
46	Glass Cup for OE Spectrometer,ARL Make, Type 2460-472	2 nos
47	High Voltage Power Supply unit for OE Spectrometer,ARL Make, Type 2460-472	1 no
48	Petry Table(Standard) for OE Spectrometer,ARL Make, Type 2460-472	1 no
49	Auxiliary Spark Cap for OE Spectrometer,ARL Make, Type 2460-472	1 no
50	Pump over hilling kit 2005 for OE Spectrometer,ARL Make, Type 2460-472	1 no
51	Pump oil (Elite) – 1 ltr bottle for OE Spectrometer, ARL Make, Type 2460-472	3 ltrs
52	Compressor for 1.5T Window type Air-conditioning machine of Spectrometer/RDSO Room	3 nos
53	High Bay LED/ Energy Efficient Lighting fittings for Foundry, Bogie Shop, Heat Treatment & Shot Blasting Area	50 sets
54	W/A Blade (Part no 444903) for 98" dia Shot Blasting machine	24 sets
55	Impeller (Part no 414370) for 98" dia Shot Blasting machine	12 Nos
56	Control Cage (Part no 414371) for 98" dia Shot Blasting machine	12 Nos

### **Spares required for Maintenance of Foundry Plant & Machinerics (High Value items)**

Sl. No	Description of items	Tentative quantity
1	Fluid coupling 14.5 Greaves make	1 No.
2	Fluid Coupling 12.75 Greaves make	4 Nos.
3	Copper insert 8" dia suitable for model-8, 5T, GA Danieli make ARC Furnace	3 nos.
4	Roof ring suitable for model-8, 5T, GA Danieli make ARC Furnace	1 no.
5	Water Cooled Cable	6 nos
6	PCB for Thyristor Regulator Panel for model-8, 5T, GA Danieli make ARC Furnace	1 set
7	Power supply unit for Thy Regulator Panel model-8, 5T, GA Danieli make ARC Furnace	1 set
8	Ceramic Fibre Blanket 1260°C rated as per following:	
a)	Size: 7600 x 610 x 25 - 128 Kg/m <sup>2</sup>	30 rolls
b)	Size 7600 X 610 X 25 – 96 Kg/m <sup>2</sup>	30 rolls
c)	Size 7600 X 610 X 25 – 64 Kg/m <sup>2</sup>	30 rolls
9		
a)	Sel Pack Phos B Disc Part No MH 02395366	8 sets
b)	Torque Converter(S4) Part no MH 02010687	2 nos
c)	Ring Gear & Pinion for Transmission Part no MH 02020547, 02013563, 02057958	2 sets
10	HR Nylon fabric N66 Grade open ended in one length , breaking strength of fabric as per IS 1891(1984) Grade M 24, 8 mm thick, 315/3 ply, 3 mm top & 1.5 mm bottom open ended width as per following	
a)	560 mm	2 x 60 mtrs
b)	650 mm	2 x 55 mtrs
c)	900 mm	2 x 30 mtrs
d)	1100 mm	30 mtrs
11	FP Shrouded Base Assembly – 315A rated CH 3154P	6 sets
12.	Ungalvanised Wire Rope as per following:	
i)	6 mm dia	100 mtrs
ii)	8 mm dia	100 mtrs
iii)	12 mm dia	200 mtrs
iv)	16 mm dia	250 mtrs
v)	20 mm dia	200 mtrs
vi)	25 mm dia	150 mtrs
13	Sq Cage Induction Motor, 3 Ph, 415V±10%, 50 Hz as per following	
i)	3HP , 4Pole, 100L	2 nos
ii)	5HP , 4Pole, 112M	2 nos
iii)	2HP , 4Pole, 90L	2 nos
iv)	7.5HP , 4Pole, 132S	2 nos
v)	5HP , 2Pole, Class –F Blower motor	2 nos
14	Resin Cast L T Bush (Size- 150 x 352 ) , Material- Electrolytic Copper suitable for 2.5 MVA , 11KV rated	6 nos

	Furnace Transformer	
15	Supply of spares for VMX Type 6.6KV/11KV , 630A rated VCB (SI No- 430195628/1 & 304700741/1) , Insulation level-12KV/28KV/75KVP as per following:	
a)	Vacuum Interrupter Assembly with flex connection as Schneider Electric's part no- MMU27SVG2RGORSA	2 sets (1 set = 6 nos)
c)	Spring mechanism with charging motor - 1 ph, 50Hz, Type- SPM X 500 FORM.AM with coils etc.	1 set
16.	Refurbished Alcatel Vacuum Rotary pump 2005 for OE Spectrometer,ARL Make, Type 2460-472	1 no

Sl.No	Description of items	Tentative quantity
17	Spares for Engine repairing job for Fork Lift / Hydra	
a)	Piston with pin & lock Escort/Mahel/IPL	3 sets
b)	CR bush STD Mahel/Anand/ Kirloskar	3 sets
c)	Piston Ring-G Mahel/Goetz/IPL	3 sets
e)	Cylinder liner- G PC	3 sets
f)	Main Bearing STD Kirloskar	3 sets
g)	Big end bearing STD Kirloskar	3 sets
h)	Thrust washer Anand/eqv	3 sets
i)	Valve with guide Kirloskar	3 sets
j)	Valve key washer Kirloskar	3 nos
k)	Mobile/fuel pump assembly Simpson	3 nos
l)	Mobile/fuel pump assembly Simpson	3 nos
m)	Water pump assembly Simpson	3 nos
n)	Rocker shaft bush Simpson	3 sets
o)	Timing chain Simpson	3 nos
p)	Air filter assly Simpson	3 sets
q)	Universal joint Simpson	3 sets
r)	Engine mounting pad Reputed	3 sets
s)	Gasket unit Reputed	3 sets
t)	Timing oil seal suta Simpson	3 nos
u)	Main oil seal suta Simpson	3 nos
x)	Hydraulic filter Servo	3 sets
y)	Oil & Ampere meter Yenkey	3 sets
z)	Water temperature meter Yenkey	3 nos
aa)	Starting switch Yenkey	3 nos
bb)	Brake pipe(steel) Reputed	3 nos
cc)	Fly-wheel with pinion Reputed	3 sets
dd)	'L' Type Rubber Hose Pipe 1½" dia x 18" long	3 nos
ee)	'L' Type Rubber Hose Pipe 2" dia x 18" long	3 nos
ff)	'L' Type Rubber Hose Pipe 3" dia x 18" long	3 nos
gg)	Fuel Pipe(Steel) For S-4 Engine	3 nos
hh)	Fuel Pipe(Steel) For P-4 Engine	3 nos
ii)	R2 Hydraulic Rubber Hose Pipe with end fittings (BSW)(one side- straight & other side- 'L' Type) ½" dia x 5' long.	3 nos
jj)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) (Both side 'L' type) 20mm dia x 6' long.	6 nos
kk)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW)(Both side- 'L' Type 20mm dia x 3' long.	6 nos
ll)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) (Both side- 'L' Type 20mm dia x 1½ ' long.	6 nos
mm)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) ½ " dia x 15" long.	3 nos
nn)	R2 Hydraulic Rubber Hose Pipe with end fittings (BSW) (one side- straight & other side- 'L' Type) 20mm dia x 18" long.	6 nos
oo)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) 20mm dia x 3 ' long.	3 nos
pp)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) (Both side- 'L' Type)	6 nos

	20mm dia x 3' long.	
qq)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) ½ " dia x 2' long.	3 nos

Sl.No	Description of items	Tentative quantity
rr)	'1' Type wire braided rubber hose pipe with end fittings ½" dia x 5' long	6 nos
ss)	'1' Type wire braided rubber hose pipe with end fittings ½" dia x 4' long	3 nos
tt)	'1' Type wire braided rubber hose pipe with end fittings ½" dia x 3' long	6 nos
uu)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW)(Both side 'L' type) 30mm dia x 6' long.	3 nos
vv)	R2 Hydraulic Rubber Hose Pipe with end fittings(BSW) ½ " dia x 40" long.	6 nos
ww)	Fan Belt A 442	6 nos
xx)	Fan Belt A 446	6 nos
yy)	Fuel Hand Pump	2 nos
zz)	Fuel Feed Pump	2 nos
aaa)	Air Filter Net Dry Type	6 nos
bbb)	Cross Bearing – Type-Ambassador/Mahindra	6 nos
ccc)	Cross Holder -do-	6 nos
ddd)	Transmission Filter – 1 ltr capacity	6 nos
eee)	Mobile Filter- 1 ltr capacity P-4 Engine( Simpson)	6 nos
fff)	Mobile Filter- 1 ltr capacity S-4 Engine( Simpson)	6 nos
ggg)	Diesel Filter- 1 ltr Capacity Servo/ Lucas/Mico	6 nos
hhh)	Brake Fluid Dot 3	12 ltr
iii)	Anabond Red =25 gm	2 tube
jjj)	Dowty Converter Transmission pump	2 nos
kkk)	150AH, 12 Volt Lead Acid Battery	3 nos
lll)	Misc items – hardware, packing etc	1 lot

**MANDATE FORM FOR ELECTRONIC PAYMENT THROUGH RTGS MODE**

To,  
Braithwaite & Co. Ltd.  
5, Hide Road,  
Kolkata – 700 043

Dear Sir,

Sub: **Authorization for release of payment due from BCL through RBI – RTGS**

Ref: Order Number \_\_\_\_\_ dated \_\_\_\_\_ and / or Tender /  
enquiry/Letter Number \_\_\_\_\_ dated \_\_\_\_\_

(Please fill in the information in CAPITAL LETTERS. Please TICK wherever it is applicable)

1. Name of the Party \_\_\_\_\_
2. Address of the party \_\_\_\_\_  
City: \_\_\_\_\_ PINCODE: \_\_\_\_\_  
E-mail ID \_\_\_\_\_ Permanent Account Number: \_\_\_\_\_
3. Particulars of Bank:

Bank name		Branch name	
Branch Place		Branch City	
Pin Code		Branch Code	
MICR No.			
( 9 Digit Code number appearing on the MICR Band of the Cheque supplied by the BANK. Please attach Xerox copy of a Cheque of your bank for ensuring accuracy of the bank name and code number)			
Account type	Savings <input type="checkbox"/>	Current <input type="checkbox"/>	Cash Credit <input type="checkbox"/>
Account Number (as appearing in the Cheque Book)			
RTGS / IFSC Code			

4. Date from which the mandate should be effective:

I hereby declare that particulars given above are correct and complete. If any transaction is delayed or not effect for reasons of incomplete or incorrect information, I shall not hold Braithwaite & Co. Ltd., responsible. I also undertake to advise any change in the particulars of any account to facilitate updating of records for purpose of credit of amount through RBI – RTGS.

Place: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of the Party / Authorized Signatory with seal:

Certified that the above particulars are found correct and matching with our records in respect of the above Beneficiary.

Bank's Stamp:

Date:

(Signature of the Authorized Official from the bank)

Bank Seal:

**PRICE VARIATION**

The increase /decrease in the price quoted would be governed by the following formula.

$$P_1 = \frac{P_0 \times (20 + 18 \times C_1 / C_0 + 17 \times MS_1 / MS_0 + 45 \times L_1 / L_0)}{100}$$

Where, P<sub>1</sub> = Escalated/de-escalated price

P<sub>0</sub> = Base price i.e quoted price

**C<sub>1</sub>** = The index number of whole sale prices in respect of item " MS Castings" base 2011-2012 compiled by Economic Adviser to the Govt. of India for the calendar month for call of inspection of Bogies. For instance, bogies for inspection in July,2018, the index for the index number for the month of July,2018 will be applicable.

**C<sub>0</sub>** = WPI for " Castings" applicable for month of submission of tender ( JUNE,2018).

**MS<sub>1</sub>** = The index number of whole sale prices in respect of item " Mild Steel Flat Products" base 2011-2012 compiled by Economic Adviser to the Govt. of India for the calendar month for call of inspection of Bogies. For instance, bogies for inspection in July,2018, the index for the index number for the month of July,2018 will be applicable.

**MS<sub>0</sub>** = WPI for " Mild Steel Flat" applicable for month of submission of tender ( JUNE,2018)

**L<sub>1</sub>** = All india Consumer price index for industrial worker compiled by Labour Bureau, Ministry of Labour for the calendar month for call of inspection of Bogies. For instance, bogies for inspection in July,2018, the index for the index number for the month of July,2018 will be applicable.

**L<sub>0</sub>** = WPI for " Industrial Worker" applicable for month of submission of tender ( JUNE,2018).

In case P<sub>1</sub> is greater than P<sub>0</sub>, the difference P<sub>1</sub> minus P<sub>0</sub> shall constitute the amount due to the contractor towards escalation on cost of wages and materials. Otherwise, the difference P<sub>0</sub> minus P<sub>1</sub> shall constitute the amount to be recovered from the contractor as de-escalation.

The decision of the President of India in regard to wage and material escalation under the clause shall be final and not subject to legal dispute or arbitration.