

| "Design, Manufacture, Supply, Installation, Testing and Commissioning of two numbers each of Electric Bogie Tractors, Electric Shunter and Battery Powered Shunting Locomotive for Surat Metro Rail Project" as Lot I and Lot II" |                  |                    |             |                          |                      |  |  | GMRC's Response/<br>Clarifications<br>Set-1, dated 04-03-2022  |
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| TENDER NOTIFICATION No: GMRC/DCD&BD/MP-L3/2022 dated 28/01/2022   |                  |                    |             |                          |                      |  |  |  |
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| 1   | 1                | NIT                | 3 of<br>16  | Key<br>Details           | Key Details          | Tender Guarantee<br>INR 7,12,000(Indian Rupees Seven lakh<br>Twelve Thousand<br>only) for Lot-I<br>INR 7,69,000(Indian Rupees Seven lakh<br>Sixty Nine<br>Thousand only) for Lot-II<br>INR 14,81,000(Indian Rupees Fourteen<br>lakh Eighty One<br>Thousand only) for Lot-I and Lot-II  | In previous tenders of GMRC, the<br>tenderer has to submit Bid Guarantee<br>Declaration instead of Bid Guarantee<br>during bid submission.<br><br>Hence, we request you to please provide<br>the relaxation to submit the Bid<br>Guarantee Declaration for this tender as<br>well.   | Tender condition<br>prevails.  |
| 2   | 1                | NIT                | 9 of<br>16  | 1.5.4<br>Experie<br>nce: | 1.5.4 (c)            | In case of JV/Consortium, the Lead<br>Member must meet the eligibility<br>criteria as mentioned in Sub-Clause 1.5.4<br>(a) and 1.5.4(b) above. However, if the<br>product is being manufactured in India<br>under a license from a foreign<br>manufacturer who holds the intellectual<br>property rights and where there is a<br>technology collaboration agreement /<br>transfer of technology agreement for<br>indigenous manufacture of a product<br>developed abroad with a clear phasing<br>of increase in local content, the Indian<br>partner may use the credentials of<br>foreign manufacturer for the criteria | Whether a manufacturer, manufacturing<br>in India under a license from a foreign<br>manufacturer who holds the intellectual<br>property rights and having a valid<br>technology collaboration agreement /<br>transfer of technology agreement for<br>indigenous manufacture of a product<br>developed abroad with a clear phasing of<br>increase in local content, can participate<br>as a Sole Bidder in this tender? | Manufacturer,<br>manufacturing in India<br>under a license from a<br>foreign manufacturer<br>who holds the<br>intellectual property<br>rights and having a valid<br>technology collaboration<br>agreement / transfer of<br>technology agreement<br>for indigenous<br>manufacture of a<br>product can participate<br>as a sole bidder as per<br>NIT 1.5.4 |

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|   |                  |                    |             |         |                      | Sub-Clause 1.5.4 (a) and 1.5.4(b) as above. The relevant documents for compliance of above referred technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with a clear phasing of increase in local content shall also be submitted by the bidder.  |  |                                    |
| 3   | 1                | NIT                | 10 of<br>16 | Note    | 1                    | The Tenderer shall submit details of works executed by them in the prescribed Proforma available at Annexure-2 of Appendix FT-3 of Volume -1, ECcQR or Annexure attached for the works to be considered for qualification of work experience criteria. Documentary proof such as completion certificates from client indicating the nature/scope of work, actual completion cost and actual date of completion of such work shall be submitted. The offers submitted without this documentary proof shall not be evaluated. In case the work is executed for private client (That is a non-Government entity, which may be Private Limited or Public Limited | Due to non-disclosure agreement signed with private customers we cannot provide the documents asked as per the clause.<br><br>However we will provide unpriced work order copies and performance certificates.<br><br>Kindly allow the same. | Tender condition prevails.         |

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|   |                  |                    |             |  |                                     | Companies, Joint Venture/Consortium of reputable members/partners or any statutorily established Special Purpose Vehicle (SPV) or any foreign Incorporated Company), copy of work order, bill of quantities, bill wise details of payment received certified by C.A. (Chartered Accountant/Auditors), T.D.S. (Tax Deducted at Source along with TAN No. of Deduct or/Client) certificate for all payments received and copy of final/last bill paid by client shall be submitted |  |                                    |
| 4   | 1                | FOT                | 10 of 40    | Attach<br>ment to<br>Append<br>ix FT - 1 | Attachment<br>to Appendix<br>FT - 1 | Schedule of Key Dates<br>KD – 1 - Obtain Engineer's approval on design, drawing and electrical supply details.– 12 Weeks<br>KD-2 – Submission of detailed design and drawings– 20 weeks<br>KD – 3 – Despatch of the Electric Bogie Tractors, electric shunter and BPEL to Dream City and Bhesan Depots at Surat along with O&M manuals set.. – 32 weeks<br>KD – 4 – Transportation, testing, commissioning, including integrated testing in Depots at Surat.– 48 Weeks           | Considering the quantity of shunters mentioned in the tender, 32 weeks for KD - 3 is very short duration for delivery of shunters at GMRC depots, considering the lead time for procurement of raw material for manufacturing, manufacturing of shunters, Blasting & Painting of shunters, FAT at manufacturers premise. Hence, we request you to kindly consider the KD – 3 as 32 weeks from KD-2 and not from date of issue of LOA and KD 4 & 5 from KD-3. | Tender condition prevails.         |

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|   |           |             |          |                    |                   | KD – 5 – Training of O&M personnel in the Depot at Surat, supply of O&M manuals and spare parts catalogue– 52 Weeks  |   |  |
| 5   | 2         | GCC         | 25 of 42 | 25. PAYMENT TERMS: | 25                | <b>PAYMENT TERMS:</b><br>The Standard payment terms subject to recoveries, if any, by way of Liquidated Damages shall be as mentioned in Clause 1 of Special Conditions of Contracts.  | We request you for payment as per below partial payment.<br><br>1. 35% advance against BG.<br>2. 65% against supply through LC at site.<br>3. 10% balance after commissioning and handing over.   | Tender condition prevails.                                 |
| 6   | 2         | SCC         | 17 of 20 | 25.5 Payment:      | 25.5.3            | All payments to the Contractor for Rupee portion will be made by cheque and/or "Electronic Fund Transfer" as desired by the Purchaser. In every payment to the Contractor, sums of less than fifty paisa shall be omitted and sums of fifty paisa and more up to one rupee shall be reckoned as one Rupee. No payment will be made for due amount of less than INR 1,000/- (Indian rupees one thousand only) but shall be included in subsequent claim. This shall not apply to the final payment. | We request you kindly consider LC Payment mode also as an alternate option. All other Metros and Indian Railways are also providing an option of LC payment mode, even for INR Payments.<br><br>As a MSME Company, this will help us in seeking Project Funding through Banks for such high value projects. | Please refer Sr. No.2 of Addendum No. 1, dated 04-03-2022. |

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| 7   | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.1<br>OPERAT<br>ING<br>CAPABI<br>LITIES: | <b>3.1.1</b>                     | The Electric Bogie Tractor shall be designed to start and haul a 6 cars rake on tracks with a maximum track gradient of 0.1 (one tenth) percent, turnouts and crossings. The Electric Bogie Tractor shall be capable of generating a continuous draw bar pull of 35 kN while pulling the railcars at straight level track.  | Please clearly state the max. shunting capacity needed in ton. Kindly let us know the weight of each car so that we know total weight. Also let us know if we have to consider wet condition of the track during shunting. In addition, what is the radius of curvature of the track. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13. Electric Bogie Tractor may be design according to TS 1.1.1 Climatic Conditions and Operating Environment.  |
| 8   | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.1<br>OPERAT<br>ING<br>CAPABI<br>LITIES: | <b>3.1.1<br/>&amp;<br/>3.1.2</b> | 3.1.1<br>The Electric Bogie Tractor shall be designed to start and haul a 6 cars rake on tracks with a maximum track gradient of 0.1 (one tenth) percent, turnouts and crossings. The Electric Bogie Tractor shall be capable of generating a continuous draw bar pull of 35 kN while pulling the railcars at straight level track.<br>3.1.2<br>The Electric Bogie Tractor travelling under unloaded condition on the ground shall be capable of climbing 10% gradient over a length up to 20 metres. | In both the clauses the gradient mentioned is different. Clause 3.1.1 says 0.1 percent while clause 3.1.2 says 10%. Please clarify which one we should consider.  | Electric Bogie Tractor shall be designed to start and haul a 6 cars rake on tracks with a maximum <b>track gradient</b> of 0.1 (one tenth) percent, turnouts and crossings.<br><br>The Electric Bogie Tractor travelling under unloaded condition <b>on the ground</b> shall be capable of climbing 10% gradient over a length up to 20 metres. |

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| 9   | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.1<br>OPERAT<br>ING<br>CAPABI<br>LITIES: | <b>3.1.3</b>         | Height of the Electric Bogie Tractor above top of rail shall not exceed 1400 (one thousand four hundred) mm.  | Without driver cabin height of 1400mm can be complied.<br>But in case cabin has to be installed then 1400mm height cannot be complied. We need a minimum height of at least 2900mm.<br>Please confirm.              | Driver cabin is not required. Height of the Electric Bogie Tractor above top of rail shall not exceed 1400. |
| 10  | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.1<br>OPERAT<br>ING<br>CAPABI<br>LITIES: | <b>3.1.3</b>         | Height of the Electric Bogie Tractor above top of rail shall not exceed 1400 (one thousand four hundred) mm.  | Kindly clarify detachable/fixed cabin is required or not.   | Driver cabin is not required. Height of the Electric Bogie Tractor above top of rail shall not exceed 1400. |
| 11  | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.2<br>OPERAT<br>ING<br>PARAM<br>ETERS:   | <b>3.2.2</b>         | The travel speed shall be continuously variable from 0 to 3 km per hour running on maximum of gradient of 0.1(one tenth) percent while towing a 6 (six) car rake. | Please clearly the max. shunting capacity needed in MT. Kindly let us know the weight of each car so that we know total weight. Also let us know if we have to consider wet condition of the track during shunting. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13.1.    |
| 12  | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.2<br>OPERAT<br>ING<br>PARAM<br>ETERS:   | <b>3.2.4</b>         | Braking shall be hydraulically actuated and controlled by a foot pedal or Electrical Braking System.  | In our shunter, there will be electrical braking system and same will be controlled by a foot pedal.  | Tender condition prevails. Electrical Braking System is acceptable as per this clause.                      |
| 13  | 3                | ER-TS              | 13 of<br>27 | 3.2<br>OPERAT                             | <b>3.2.5</b>         | Braking distances shall not exceed 4 (four) meters at 5 (Five) km per hour. It  | Please clearly state the max. shunting capacity needed in MT. Kindly let us know  | Details will be provided during detailed design   |

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|   |                  | LOT-I              |             | ING<br>PARAM<br>ETERS:                      |                      | shall not exceed 2 (two) meters under six coupled railcars towing at 3 (three) km per hour.  | the weight of each car so that we know total weight. Also let us know if we have to consider wet condition of the track during shunting.   | stage. It is part of interface as per ER-TS clause 13.1. Electric Bogie Tractor may be design according to TS 1.1.1 Climatic Conditions and Operating Environment. |
| 1<br>4  | 3                | ER-TS<br>LOT-I     | 13 of<br>27 | 3.3<br>COUPLI<br>NG<br>ARRAN<br>GEMEN<br>T: | <b>3.3.1</b>         | A semi-automatic coupler without electric head shall be provided at one end of the tractor for coupling with the automatic coupler (with electric head) of the railcars. The coupler shall automatically make mechanical coupling and shall be capable of gathering, engaging and coupling railcars on all track conditions detailed in Clause 2.19 of Technical/Particular Specification. The Electric Bogie Tractor Contractor shall interface with Rolling Stock Contractor to get details of couplers in terms of Clause 13.1 of Technical/Particular Specifications. A suitable adopter to match all types of couplers, viz. automatic, semi-permanent and manual, shall be | Please note that, the coupler adaptor is provided as per the Rolling Stock coupler. There is no Universal coupler adaptor available in the market, which can match all types of coupler. The type of coupler adaptor which Shunter manufacture has to provide can be finalized during detail design review stage. Hence we request you to kindly modify this clause. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13.1  |

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|   |           |                |             |                                  |                   | provided at other end of Electric Bogie Tractor for coupling all types of railcars.   |   |  |
| 15  | 3         | ER-TS<br>LOT-I | 13 of<br>27 | 3.3<br>COUPLING<br>ARRANGEMENT:  | <b>3.3.3</b>      | Coupler height shall be adjustable by hydraulic mechanism from driver desk and, after the tractor has stopped, it shall be possible to position the coupler head at the same height as that of car. | We have electrical height adjustable coupling device. Which can be controlled from driver's desk. Kindly include this system.   | Please refer Sr. No.3 of Addendum No. 1, dated 04-03-2022.   |
| 16  | 3         | ER-TS<br>LOT-I | 14 of<br>27 | 3.3<br>COUPLING<br>ARRANGEMENT:  | <b>3.3.4</b>      | The end of the coupling bar shall have the provision to clamp the side members of the bogies.   | Please provide the drawing of the side members of the bogie to design the coupling system.  | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13.1. |
| 17  | 3         | ER-TS<br>LOT-I | 14 of<br>27 | 3.4<br>CONSTRUCTION<br>FEATURES: | <b>3.4.5</b>      | Towing hitches shall be provided at the rear of the tractors for pulling bogie and trailers.  | Details to be provided by GMRC.   | Details to be finalized during detailed design stage.  |
| 18  | 3         | ER-TS<br>LOT-I | 14 of<br>27 | 3.4<br>CONSTRUCTION<br>FEATURES: | <b>3.4.8</b>      | Horn sound 0 to 80 dB (adjustable type) (measured at 1 m) shall be provided one for each direction of movement.   | Please note that, horns with fixed dB are the standard horns, which are available in the market.<br>Also, one horn is enough to serve the purpose irrespective of direction of travel | Please refer Sr. No.4 of Addendum No. 1, dated 04-03-2022.   |



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|   |                  |                    |             |   |                      |  | of shunter. Hence, we request you to kindly modify the clause.  |   |
| 19  | 3                | ER-TS<br>LOT-I     | 15 of<br>27 | 3.4<br>CONST<br>RUCTIO<br>N<br>FEATUR<br>ES:          | <b>3.4.13</b>        | The proposed wheels life of the Tractor shall not be less than 20 (twenty) years.  | Kindly specify the life mentioned is for metal wheels or rubber wheels.   | The Steel Rail wheel life of the Tractor shall not be less than 20 (twenty) years   |
| 20  | 3                | ER-TS<br>LOT-I     | 15 of<br>27 | 3.6<br>BATTER<br>Y AND<br>BATTER<br>Y<br>CHARG<br>ER: | <b>3.6.1</b>         | An on-board charging station for battery recharging shall be provided on the tractor. Charger shall be compatible with the input supply voltage 360 to 440V, TPN, 47.5 to 51.5 Hz. The contractor shall provide two cables of adequate size in 50 m length along with plug/adapters at both end for connections to a power supply isolator provided by designated depot contractor. Recharging period of a fully discharged battery shall be less than 10 hours. | Please note the cable which is used for Battery Charger of Shunter are special types of cable with bigger diameter. Laying of such cables on 50-meter length is not recommended because of the weight and the cable is clustered easily, which can result in crakes on the cable on longer run. One cable of 10m length is suitable enough to charge the shunter effectively. | Tender condition prevails.  |
| 21  | 3                | ER-TS<br>LOT-I     | 16 of<br>27 | 4.<br>SPECIFI<br>C<br>REQUIR<br>EMENT<br>S OF         | <b>4.1</b>           | Operating Requirements:<br>The Electric Shunter shall be rail cum road type and shall be remote controlled as well as an on board control panel designed to haul 6-car train on tracks with a maximum track gradient of 0.1 %,   | Please clearly state the max. shunting capacity needed in MT. Kindly let us know the weight of each car so that we know total weight. Also let us know if we have to consider wet condition of the track during shunting.   | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13.1. Electric Shunter shall be design |

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|   |           |             |          | ELECTRIC SHUNTER:                      |                   | <p>turnouts and crossings. Shunter should be capable of generating a continuous draw bar pull of 35 kN while pulling cars at straight and level track in wet condition.</p> <p>The Electric Shunter shall be driven by electric motors and powered by batteries.</p> <p>The Electric Shunter shall be of rail type with metal wheels for running on tracks. The Electric Shunter shall have a battery capacity for 10 km travelling under unloaded condition or 4 km travelling under loaded condition.</p> |  | according to TS 1.1.1 Climatic Conditions and Operating Environment. |
| 22  | 3         | ER-TS LOT-I | 16 of 27 | 4. SPECIFICATIONS OF ELECTRIC SHUNTER: | <b>4.3</b>        | <p><b>Electric Shunter Travelling:</b></p> <p>The travel speed shall be infinitely variable from 0 to 5 km/hr running on tracks under unloaded conditions.</p> <p>The travel speed shall be infinitely variable from 0 to 3 km/hr running on tracks towing 6-car train.</p> <p>Braking shall be hydraulically actuated and controlled by a foot pedal or a button on the remote control box.</p>  | <p>In our design, we have Electrical Braking system, which provides more accurate and efficient braking to the shunter.</p> <p>Hydraulic braking is not possible to incorporate in compact shunters. Hence, we request you to kindly permit both options, Hydraulic as well as Electrical braking.</p> <p>Shunters with such design have already been supplied to other Metro organisations in India and working satisfactorily.</p> | Please refer Sr. No.5 of Addendum No. 1, dated 04-03-2022.           |

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|   |                  |                    |             |  |                      | Braking distances shall not exceed 4 metres under six coupled railcars towing.<br>Positioning accuracy for under floor wheel lathe operation shall be within $\pm 25$ mm.  |   |  |
| 2<br>3  | 3                | ER-TS<br>LOT-I     | 17 of<br>27 | 4.<br>SPECIFI<br>C<br>REQUIR<br>EMENT<br>S OF<br>ELECTRI<br>C<br>SHUNT<br>ER | <b>4.4</b>           | Coupling:<br>The details of coupling shall be obtained from Rolling Stock Manufacturer which is under procurement; a manual coupler adapter to match both the couplers shall be fitted at the both end of the shunter for coupling the railcars. The coupler adapter shall be designed for pulling, pushing and braking loads. Coupler height shall be adjustable from the control panel and, after the shunter has stopped, shall make it possible to position the coupler head at the height of that of car coupler. | There are many types of couplers being used by different metros manufacturers. The cost of coupler adaptor is different with respect to type and design of rolling stock coupler. Since we need to calculate the cost of coupler adaptor, please specify the type of couplers installed in the rolling stock.<br>Without getting this information, it will be very difficult for the bidder to quote for this tender. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 13.1. |
| 2<br>4  | 3                | ER-TS<br>LOT-I     | 17 of<br>27 | 4.<br>SPECIFI<br>C<br>REQUIR<br>EMENT<br>S OF                                | <b>4.5</b>           | Shunter Construction:<br>The shunter shall be designed as compact as possible, especially in length. The rail wheel size shall be such that operation of shunter under all conditions shall not result in any rail   | Please clarify whether the shunter will be used for movement of detached Bogies on Under Floor Lifting System. And the Shunter has to be offered with or without cabin.   | The Electric Shunter shall be designed to for shunting and positioning 6-car train on the under floor    |

| "Design, Manufacture, Supply, Installation, Testing and Commissioning of two numbers each of Electric Bogie Tractors, Electric Shunter and Battery Powered Shunting Locomotive for Surat Metro Rail Project" as Lot I and Lot II" |                  |                    |             |                              |                      |  |                  | GMRC's Response/<br>Clarifications  |
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|   |                  |                    |             | ELECTRI<br>C<br>SHUNT<br>ER: |                      | <p>damage, corrugation, plastic deformation or any such effect. Driver seats shall be provided on the shunter for full operation with maximum visibility. The driver seat shall be cushioned, height adjustable and backrest angle adjustable. The driver's desk design shall be such as to facilitate easy access from both sides of the shunter.</p> <p>The control shall be ergonomically designed and allow operation of the shunter in both direction of travel with equal efficiency. Suitable Headlights shall be provided in both directions. It shall be possible to switch "ON" either for the directions of travelling or both. Work lights shall be provided for illuminating the coupling area. Parking brakes shall be provided.</p> <p>Special attention shall be drawn to the following points for the design and manufacture of the shunter:</p> <ul style="list-style-type: none"> <li>- operating safety,</li> <li>- general ruggedness,</li> </ul> |                  | <p>wheel lathe track at the Depot.</p> <p>Driver cabin is not required.</p> |

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|   |           |                |             |  |                   | - accessibility to control and traction devices,<br>- hooking points for lifting of shunter with E.O.T. crane,   |   |  |
| 25  | 3         | ER-TS<br>LOT-I | 17 of<br>27 | 4.<br>SPECIFIC<br>REQUIREMENTS<br>OF<br>ELECTRIC<br>SHUNTER: | <b>4.7</b>        | Battery and Battery Charger:<br>A fixed charging station within the shed for under floor wheel lathe shall be provided for recharging battery of the shunter. An on-board charger will be installed on the shunter to charge the batteries using the power supply available. Charger shall be compatible with the input supply voltage 360 to 440, TPN, 47.5 to 51.5 Hz. The shunter supplier shall provide necessary cabling and connections to a power supply isolator provided by designated Contractor in the depot. Recharging period of a fully discharged battery shall be less than 10 hours.<br>The battery used on the Electric Shunter shall be suitable for the application and shall require least maintenance. It shall be suitably fixed in the body of the shunter to facilitate the maintenance with ease. If distilled water topping up of | We understood that the fixed charging station within the shed and on-board charger on the shunter both at the same time are not feasible.<br>Generally, all the shunters come with on board charger facility for the charging of batteries which is a better option since it gives accessibility of charging the shunter anywhere inside the depot. | Please refer Sr. No.6 of Addendum No. 1, dated 04-03-2022. |

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|   |                  |                    |             |  |                      | cells is required, a centralised topping up system shall be provided for ease. Type, capacity and other details of battery & charger specification shall be advised in the bid.  |  |  |
| 2<br>6  | 3                | ER-TS<br>LOT-I     | 20 of<br>27 | 7.4 AT<br>SITE:                        | <b>7.4.4</b>         | Integration tests shall be carried out for the coupling with different types of couplers of Metro Cars with the Electric Bogie Tractor and Electric Shunter in order to verify the satisfactory operation of the equipment and final prove out test certificate shall be issued after reviewing the performance for a period of 2 (two) months from the date of commissioning of the same. | Noted. However, the warranty period will be considered from the date of commissioning. In case provide out is confirmed after two months.  | Tender condition prevails. The warranty period will be considered as per GCC 41.3, 41.10 and Schedule 3. |
| 2<br>7  | 3                | ER-TS<br>LOT-I     | 20 of<br>27 | 8.<br>PROTEC<br>TION<br>AND<br>SAFETY: | <b>8.2</b>           | PERSONNEL SAFETY:<br>In relate to operator's protection, the equipment shall protect the operator for electric shock and any other similar risk. Protection against faulty sequence of operation.<br>Horn at both end for safety of person in the vicinity of equipment.<br>Headlight at both end for operational safety at night.   | Please note that, horns with fixed dB are the standard horns, which are available in the market.<br>Also, one horn is enough to serve the purpose irrespective of direction of travel of shunter. Hence, we request you to kindly modify the clause. | Tender condition prevails.   |

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| 28  | 3         | ER-TS<br>LOT-I  | 21 of<br>27 | 9.<br>TRAINING:                         | 9.2               | The Contractor shall provide a training of total 40 trainee man-days to the Purchasers staff on operation & maintenance aspects of machine at Purchasers nominated depot.  | From this clause we understood that in case 10 trainees will take training then we have to consider 4 days in total for training and vice versa.<br>Please confirm.  | Yes. For 10 trainees 4 days of total training is required. Total 40 trainee man-days to be completed.   |
| 29  | 3         | ER-TS<br>LOT-I  | 21 of<br>27 | 9.<br>TRAINING:                         | 9.3.2             | The maintenance and overhauling training shall cover:<br><ul style="list-style-type: none"> <li>• Maintenance training for day-to-day maintenance, servicing of Electric Bogie Tractor and Electric Shunter including major overhaul.</li> <li>• The training shall essentially include extensive training on maintenance and troubleshooting of all subsystems of Electric Bogie Tractor and Electric Shunter.</li> </ul> | Training for major overhauling in practical can be imparted at OEM manufacturing plant at the time of production of the shunter. However, theoretical training for overhauling can be imparted at site.  | Tender condition prevails.  |
| 30  | 3         | ER-TS<br>LOT-II | 5 of<br>26  | 1.2<br>GENERAL DESCRIPTION OF SUPPLIES: | 1.2.3             | Although one each of Battery Powered Shunting Locomotive will be stationed at Dream City depot and Bhesan depot respectively, either of the Battery Powered Shunting Locomotive can be utilized for rescue and maintenance related activities on any corridor and accordingly will be tested for its capacity on any one or both corridors.  | The Battery Operated Shunter is used for Within the Depot Premises only and not on Main Line, mainly because of the constraints of the rubber tyres which can foul / damage the way side components installed on main line. Such type of shunters are already supplied by us at DMRC Mukundpur & Kalindi Kunj Depot. & JMRC Depot. This type of shunter does not | Electric Bogie Tractor and Electric Shunter (Lot I) will be used within the depot premises only. Battery Powered Shunting Locomotive will be used on main line. |

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|   |                  |                    |             |   |                      |   | use for train rescue purpose. Hence, we request you to kindly modify the clause.   |   |
| 3<br>1  | 3                | ER-TS<br>LOT-II    | 6 of<br>26  | 1.3<br>DETAIL<br>ED<br>SCOPE<br>OF<br>SUPPLIE<br>S: | 1.3.1 (b)            | Design, Manufacture, Supply, Installation, Testing and Commissioning including Integrated Testing and Commissioning of on -board battery charger of suitable capacity. On -board battery charger should have a provision of quick charging, in case such a need arises at any way side station. On -board battery charger should be suitable to work on power supply from on -board Diesel Generating set by providing necessary filters. | This type shunter does not require Diesel Generating Set as the shunter is travel within depot premises and can charged at particular charging station in depot. Such type of shunters are already supplied by us at DMRC Mukundpur & Kalindi Kunj Depot. & JMRC Depot. Hence, we request you to kindly modify the clause. | Electric Bogie Tractor and Electric Shunter (Lot I) will be used within the depot premises only. Battery Powered Shunting Locomotive will be used on main line. |
| 3<br>2  |                  | ER-TS<br>LOT-II    | 6 of<br>26  | 1.3<br>DETAIL<br>ED<br>SCOPE<br>OF<br>SUPPLIE<br>S: | 1.3.1 (h)            | License applications for registration with local statutory authorities is not required in case of Battery Powered Shunting Locomotive. However, documents required for CMRS/any other certification to operate it on main line shall be submitted.  | This type of shunter is operated within depot premises only and not on main line. Therefore, the License License applications for registration with local statutory authorities and CMRS certification are not required. Hence, we request you to kindly delete the clause.  | Electric Bogie Tractor and Electric Shunter (Lot I) will be used within the depot premises only. Battery Powered Shunting Locomotive will be used on main line. |
| 3<br>3  | 3                | ER-TS<br>LOT-II    | 14 of<br>26 | 3.4<br>OPERAT<br>ING                                | 3.4.1                | The Battery Powered Shunting Locomotive shall be designed to start and haul 6 cars train  | Please clarify is it rail type with metal wheels for running on tracks or rail cum road type.  | It should be Rail Cum Road Type. Maximum length of the slopes for point a,b,c will be   |



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|   |                  |                    |             | REQUIR<br>EMENT                         |                      | (Consisting of 4 (four) DMCs and 2 (two) TCs) on tracks at following critical locations:<br><br>(a) Maximum track gradient of 4 percent<br>(b) Maximum track gradient of 3.6 percent and 190 m radius of curvature<br>(c) Maximum track gradient of 3.44 percent and 140 m radius of curvature.<br><br>(These values are indicative only and actual data shall be collected from Civil/Planning and design team of GMRC during detailed design stage) | What is the maximum length of the slopes for point a, b, c.   | provided during detailed design stage.  |
| 3<br>4  | 3                | ER-TS<br>LOT-II    | 14 of<br>26 | 3.4<br>OPERAT<br>ING<br>REQUIR<br>EMENT | 3.4.1                | The Battery Powered Shunting Locomotive shall be designed to start and haul 6 cars train<br><br>(Consisting of 4 (four) DMCs and 2 (two) TCs) on tracks at following critical locations:<br><br>(d) Maximum track gradient of 4 percent   | This shunter is used for Within the Depot Premises only and not on Main Line, mainly because of the constraints of the rubber tyres which can foul / damage the way side components installed on main line. Normally the max. track gradient in any depot ranges between 0 to 1% only. The RRM 10000 shunter is capable of hauling 320T load (8 Car | Electric Bogie Tractor and Electric Shunter (Lot I) will be used within the depot premises only. Battery Powered Shunting Locomotive will be used on main line.<br><br>Tender condition prevails. |

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|   |                  |                    |             |   |                      | (e) Maximum track gradient of 3.6 percent and 190 m radius of curvature<br>(f) Maximum track gradient of 3.44 percent and 140 m radius of curvature.<br><br>(These values are indicative only and actual data shall be collected from Civil/Planning and design team of GMRC during detailed design stage)  | - 40T load each car) on 2% gradient, with draw bar pull of 100KN.<br>Hence, we request you to kindly modify the clause.  |   |
| 3<br>5  | 3                | ER-TS<br>LOT-II    | 14 of<br>26 | 3.4<br>OPERAT<br>ING<br>REQUIR<br>EMENT | 3.4.1                | The Battery Powered Shunting Locomotive shall be designed to start and haul 6 cars train<br><br>(Consisting of 4 (four) DMCs and 2 (two) TCs) on tracks at following critical locations:<br><br>(a) Maximum track gradient of 4 percent<br>(b) Maximum track gradient of 3.6 percent and 190 m radius of curvature<br>(c) Maximum track gradient of 3.44 percent and 140 m radius of curvature. | The Battery Powered Shunting Locomotive shall be designed to start and haul 6 cars train.<br>What is the required speed under loaded condition and unloaded condition? | Bidder has to design Battery Powered Shunting Locomotive to meet the requirement as per Technical Specification clause No3.5.<br><br>Speed under loaded and unloaded condition can be design accordingly. |

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|   |                  |                    |             |   |                      | (These values are indicative only and actual data shall be collected from Civil/Planning and design team of GMRC during detailed design stage)   |   |   |
| 3<br>6  | 3                | ER-TS<br>LOT-II    | 14 of<br>26 | 3.4<br>OPERAT<br>ING<br>REQUIR<br>EMENT | 3.4.1                | <p>The Battery Powered Shunting Locomotive shall be designed to start and haul 6 cars train</p> <p>(Consisting of 4 (four) DMCs and 2 (two) TCs) on tracks at following critical locations:</p> <p>(a) Maximum track gradient of 4 percent</p> <p>(b) Maximum track gradient of 3.6 percent and 190 m radius of curvature</p> <p>(c) Maximum track gradient of 3.44 percent and 140 m radius of curvature.</p> <p>(These values are indicative only and actual data shall be collected from Civil/Planning and design team of GMRC during detailed design stage)</p> | Please confirm the curve / gradient and gradient within the curve. The maximum and minimum should be specified. We would request you to kindly send us the drawing of the track conditions. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 12.4 |
| 3<br>7  | 3                | ER-TS<br>LOT-II    | 14 of<br>26 | 3.4<br>OPERAT<br>ING                    | 3.4.4                | The Battery Powered Shunting Locomotive shall be designed to suite GMRC Schedule of Dimension and shall  | Please provide KE drawings.   | Details will be provided during detailed design stage. It is part of                                    |

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|   |                  |                    |             | REQUIR<br>EMENT                             |                      | not infringe Kinematic Envelope (KE) attached with this specification as Annexure-1/TS. The Contractor before commencing detailed design shall confirm if there is any change in Kinematic Envelope (KE) of train. The Contractor shall interface with Rolling Stock Contractor to get further details in terms of Clause 12 of this specification. |  | interface as per ER-TS clause 12.1.  |
| 3<br>8  | 3                | ER-TS<br>LOT-II    | 15 of<br>26 | 3.6<br>COUPLI<br>NG<br>ARRAN<br>GEMEN<br>T: | 3.6.1                | Rolling Stock cars are provided with automatic coupler. A suitable adaptor to match all types of couplers shall be provided along with the Battery Powered Shunting Locomotives for coupling all types of rail cars   | Details of coupling system to be provided in advance along with drawings (in pdf & dwg format) for coupler head.   | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 12.1. |
| 3<br>9  | 3                | ER-TS<br>LOT-II    | 15 of<br>26 | 3.6<br>COUPLI<br>NG<br>ARRAN<br>GEMEN<br>T: | 3.6.1                | Rolling Stock cars are provided with automatic coupler. A suitable adaptor to match all types of couplers shall be provided along with the Battery Powered Shunting Locomotives for coupling all types of rail cars   | Please note that, the coupler adaptor is provided as per the Rolling Stock Coupler. There is no Universal coupler adaptor available in the market, which can match all types of coupler. The type of coupler adaptor which Shunter manufacture has to provide can be finalized during detail design review stage. Hence, we request you to kindly modify the clause. | Details will be provided during detailed design stage. It is part of interface as per ER-TS clause 12.1. |

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| 40  | 3         | ER-TS<br>LOT-II | 15 of<br>26 | 3.7<br>OTHER<br>REQUIREMENTS: | 3.7.1             | The on-board battery charger, storage batteries, on-board Diesel Generating set and ventilation arrangement, if any, shall be provided at suitable location on the Battery Powered Shunting Locomotive. | We understand this can be possible only with a hybrid system. Please confirm if providing diesel generator is mandatory? For commercial evaluation purpose, the requirement of hybrid system (Battery driven + Diesel genset charging) should be a mandatory condition for all bidders. This is required in view of that the running cost of battery-operated shunter vs hybrid system will be different. Hence, commercial evaluation of both the system cannot be done. Hence, we are requesting GMRC to amend the clause for getting commercially. | Provision of diesel generator is mandatory. As per TS 1.2.1 Lot II diesel generating set of suitable capacity to meet emergency requirement, in case battery get drained on the way. |
| 41  | 3         | ER-TS<br>LOT-II | 15 of<br>26 | 3.7<br>OTHER<br>REQUIREMENTS: | 3.7.8             | Horn sound 0 -80 dB (adjustable type) shall be provided one for each direction movement.  | The horn with fixed dB are the standard horn which are available in the market. Hence, we request you to kindly modify the clause.  | Please refer Sr. No.7 of Addendum No. 1, dated 04-03-2022.   |
| 42  | 3         | ER-TS<br>LOT-II | 15 of<br>26 | 3.7<br>OTHER<br>REQUIREMENTS: | 3.7.12            | The proposed wheel life shall not be less than 3000 working hours.  | Kindly specify the life mentioned is for metal wheels or rubber wheels.   | For both type of wheels, wheel life shall not be less than 3000 working hours.   |

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| 43  | 3         | ER-TS<br>LOT-II | 16 of<br>26 | 3.7<br>OTHER<br>REQUIREMENTS:   | 3.7.15            | Speedometer shall be indicating cum recording type and it should be possible to download data on current, voltage, travel speed, distance, time, etc. from speedometer using USB or RS232 port. | The Speed is only shown in digital display (speedometer incl.). Downloading arrangement can be done by user. We need to take clarity from Zagro regarding downloading of data  | Tender condition prevails.  |
| 44  | 3         | ER-TS<br>LOT-II | 16 of<br>26 | 3.7<br>OTHER<br>REQUIREMENTS:   | 3.7.15            | Speedometer shall be indicating cum recording type and it should be possible to download data on current, voltage, travel speed, distance, time, etc. from speedometer using USB or RS232 port. | The Standard Digital Speedometer are available in market. Also, In shunter, download data on current, voltage, travel speed, distance, time, etc. from speedometer using USB or RS232 port is not applicable. Hence, we request you to kindly delete the clause.               | Tender condition prevails.  |
| 45  | 3         | ER-TS<br>LOT-II | 16 of<br>26 | 3.8<br>CONTROL<br>REQUIREMENT:  | 3.8.2             | Battery powered Shunting Loco to tow and position the railcars inside the depot and also on main line, stations and siding.   | The Battery Operated shunter is used for Within the Depot Premises only and not on Main Line, mainly because of the constraints of the rubber tyres which can foul / damage the way side components installed on main line. Hence, we request you to kindly modify the clause. | Electric Bogie Tractor and Electric Shunter (Lot I) will be used within the depot premises only. Battery Powered Shunting Locomotive will be used on main line. |
| 46  | 3         | ER-TS<br>LOT-II | 16 of<br>26 | 3.10<br>BRAKING<br>ARRANGEMENT: | 3.10.1            | Compressor: A compressor to connect to the train air brake system shall be provided on Locomotive. The compressor will top up the train air circuit to release the brakes. An air plug          | Please clarify whether a wagon braking system is required with a MR & BP connection or just MR connection.   | Braking design shall be finalized during detailed design stage.   |

| "Design, Manufacture, Supply, Installation, Testing and Commissioning of two numbers each of Electric Bogie Tractors, Electric Shunter and Battery Powered Shunting Locomotive for Surat Metro Rail Project" as Lot I and Lot II" |           |                 |             |                                    |                   |   |   | GMRC's Response/<br>Clarifications<br>Set-1, dated 04-03-2022  |
|---|-----------|-----------------|-------------|------------------------------------|-------------------|---|---|--|
| TENDER NOTIFICATION No: GMRC/DCD&BD/MP-L3/2022 dated 28/01/2022   |           |                 |             |                                    |                   |   |   |  |
| Sr. No.   | Volume No | Volume Name     | Page No.    | Section                            | Clause / Para No. | Tender Condition  | Tenderer's Query  | GMRC's Response/ Clarification   |
|   |           |                 |             | GEMENT:                            |                   | is to be made available for making use of portable compressed air   |   |  |
| 47  | 3         | ER-TS<br>LOT-II | 16 of<br>26 | 3.10<br>BRAKING<br>ARRANGEMENT:    | 3.10.2            | Electric Brake System: The Battery Powered Shunting Locomotive shall be equipped with an electrical device that will supply a 24 V power supply for releasing the electrical braking system of train. The electrical plug for connecting on the train shall also be supplied. | Kindly clarify if this clause refers to wagon brake system. If this is wagon brake system we would like to know what kind of brake system you rolling stock would use? Does your rolling stock brake system uses BP and MR line both or only MR line and 110 V DC connection for controlling of brakes. | This clause refers to Battery powered Shunting locomotive. Braking design shall be finalized during detailed design stage. |
| 48  | 3         | ER-TS<br>LOT-II | 19 of<br>26 | 7.<br>PROTECTION<br>AND<br>SAFETY: | 7.1.2 (b)         | Fail -safe hydraulic brakes.  | In our design, we have Electrical Braking System, which provides more accurate and efficient braking to the shunter and has not negative effect on braking performance.   | Tender condition prevails.   |