



KOCHI METRO RAIL LIMITED

Name of Work:

Manufacturing, installing and maintaining of retro-reflective sign boards made out of Type XI micro prismatic grade sheeting (in accordance with ASTM D 4956-09) at various roads leading to Kochi Metro Corridor in Ernakulam City

TENDER DOCUMENTS

*KMRL Ltd., 8th Floor, Revenue Tower, Kochi – 682011
(Tel.: 0484-2380980, Fax : 0484-2380686)
Web Site: www.kochimetro.org*

**DETAILED BIDDING DOCUMENT
(ITEM RATE CONTRACT)**

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No: KMRL/PRJ/446/2013-14

Date: 10.03.2014

NOTICE INVITING TENDER (NIT)

1.0 GENERAL

1. Kochii Metro Rail Ltd (KMRL), Invites Open tenders for the following work from financially sound and well experienced Registered Contractors of Kerala State Public Works Department(Class B and above) / Central Public Works Department / Railways, who have successfully completed at least one single work costing more than 80% (eighty percentage) of the estimated cost of work during the last three years. Tender documents and tender schedule may be downloaded free of cost from the KMRL Website www.kochimetro.org

2. Key details:

Name of Work	Manufacturing, installing and maintaining of retro-reflective sign boards made out of Type XI micro prismatic grade sheeting (in accordance with ASTM D 4956-09) at various roads leading to Kochi Metro Corridor in Ernakulam City
Approximate Cost of Work	Rs. 92.00 LAKHS
Tender processing Fee	Rs.5000/- (Rupees Five Thousand) (Demand Draft in favour of "Kochi Metro Rail Ltd") payable at Kochi, Kerala.
Tender Security Amount/EMD	Rs.2,00,000.00
Completion period of the Work	Four Months
Last Date of Pre Bid queries	19.03.2014 (up to 11:00 hrs)
Pre-bid Meeting	20.03.2014 at 11:00 Hrs. at office of the Managing Director, KMRL Ltd., 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686)

Date of issuing addendum(if any)	21.03.2014
Date & Time of Submission of Tender	08.04.2014 (up to 15:00 hrs) at the registered corporate office of the Managing Director, KMRL Ltd., 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686)
Date & Time of opening of Technical opening	08.04.2014 _at 15:05 hrs
Date & Time of opening of Financial opening	Will be intimated later

3.Bids / tender documents are to be submitted by post/courier/ by hand only . Technical bid and Financial bid shall be submitted in their separately designated covers.

4.Tender processing fee of Rs .5000/- shall be remitted in the form of Demand Draft in favour of Kochi Metro Rail Limited, payable at Kochi.

5.Bidders are requested to submit the copies of the following with the technical bid

- (i) Registration Certificate of the firm attested by a Gazetted Officer of the rank not less than Executive Engineer.
- (ii) Experience Certificate and other documents prescribed in bidding document attested by a Gazetted Officer of the rank not less than Executive Engineer.
- (iii) Demand Draft towards bid processing fee.
- (iv) EMD in form of DD / EMD exemption certificate if any.

6.A pre bid meeting will be held in the office of KMRL, Kochi – 11, on the prescribed date and time to clarify the issues and to answer questions on any matter that may be raised at that stage

7.Minutes of the pre-bid meeting, corrigendum / addendum, which form part of the tender document, shall be published in the company website only and bidders are advised to check the website regularly for the updates related to the tender before submitting the offer.

8.KMRL reserves the right to modify / cancel the bid without assigning any reasons.

9.If the document submission date, happens to be a holiday, or not working, due to any valid reason, the tender opening process / submission of document, will be done on the next working day, the same time and place.

10. Further details, if require, can be had from Mr. S Chandrabau, General Manager (Civil 1), Kochi Metro Rail Ltd during working hours.

TECHNICAL BID (PART I)

SECTION 1- INSTRUCTIONS TO BIDDERS

A: GENERAL

1. Scope of Bid:

1.1 KMRL invites bid for : **Manufacturing, installing and maintaining of retro-reflective sign boards made out of Type XI micro prismatic grade sheeting (in accordance with ASTM D 4956-09) at various roads leading to Kochi Metro Corridor in Ernakulam City** hereinafter referred to as “the Works” as defined in these bidding documents.

1.2. Background

KMRL is proposes to install Way finding, Cautionary/Mandatory signboards covering all major roads in Ernakulam City in order to divert/regularize the traffic with respect to the Kochi Metro rail work. Different types of Sign boards has been proposed in order to achieve the objective. Tentative location details are also attached with the tender document(**See Section VI Item 4**) The details including the exact locations of the proposed signboards have to be worked out by the tenderer in association with KMRL.

Apart from supply and installation, a maintenance contract for the first five years is also to be executed by the tenderer with KMRL. The cost of maintenance as described in the following section will have to come in the quoted rate itself. This tender is for the manufacturing, installing and maintaining of retro-reflective Traffic signboards in Ernakulam City.

1.3 Major Activities

Major activities associated with this work are summarized below.

1.3.1 Preparation of the final list of locations for each type of boards, information on name of Destinations, distance, arrows, symbols to be provided on each board in association with KMRL.

1.3.2 Preparation of retro-reflective sign boards in accordance with the specifications and designs in approved drawings and tender schedule available with KMRL as per the details finalized as per Section VI

1.3.3. Screen-printing of information on each signboard as per the details finalized as per Section VI

1.3.4. Transportation and installation of the signboards at appropriate locations in Ernakulam City.

1.3.5. Maintenance of the boards for the ***first five years*** from the date of installation. The following items of works are included in the maintenance.

i) Water washing and cleaning the board, if necessary by light detergent, in every one year.

ii) Painting of the signs, if necessary, in every two years.

iii) Repairing / replacing the sheets / boards damaged in natural causes, free of cost.

iv) If the damage is of serious nature and not caused naturally, the actual cost of replacement (should not be more than the item price as per the present tender) can be claimed with the support of photo identification and Certificate from the Engineer in charge

v) Even though it is the responsibility of the tenderer to see that all the boards are in perfect condition, a local contact number is to be provided for informing the noticed damages in case of emergency.

2.0 Time of Completion

2.1 The successful bidder will be expected to complete the Works within **four** months from the start date noted in the conditions of contract.

2.2 Throughout these bidding documents, the terms 'bid' and 'tender' and their derivatives (bidder/tenderer, bid / tender bidding / tendering etc) are synonymous and 'day' means calendar day.

3.0 Eligible Bidders:

3.1 This Invitation for Bids is open to all bidders who meet the qualification criteria as mentioned in Clause 4 of Instruction To Bidders.

3.2 Bids from joint ventures are not acceptable.

4.0 QUALIFICATION CRITERIA

4. Qualification of Bidder:


4.1 To qualify for the award of Contract.

4.1.1 Each bidder shall be a registered contractor A or B Class or equivalent of the PWD of Kerala State/ CPWD/Railway/NHAI.



4.1.2 Each bidder in its name should have in the ***last three financial years.***
(2012-13, 2011-12, 2010-11)

- (i) Achieved a minimum annual financial turnover of 300 lakhs and an average turnover of 400 lakhs. **(A self certified statement showing year wise turnover supported by audited financial statements should be provided).**
- (ii) The prospective applicant should be in the Civil Engineering business for a minimum period of 3 years and should have satisfactorily completed in the last 3 years (2012-13, 2011-12, 2010-11) at least one similar works using retro-reflective road signage works using Type XI standards of ASTM D 4956 – 09 & as per IRC 67-2012 specifications to Govt. agency to the tune of at least 80% (at current prices by using an enhancement factor: @ 10% p.a) of the value of the proposed work or should be satisfactorily executing currently at least one work of similar nature and magnitude of the proposed work and completed billing of at least 90% of the value of the work as a prime contractor or as a nominated sub-contractor (here the sub contract involved execution of all main items).**(Copies of the work orders or certificates duly attested by Gazetted office not below the rank of Executive Engineer)**
- (iii) Should not have failed in the last three (3) years to perform on any contract or been expelled from or abandoned any PWD, Government of Kerala work, any other State Government, Central Government or have any of their works rescinded for any reason. **(A declaration to this effect shall be furnished).**
- (iv) The bidders participating in the bidding will be required to deposit, at the time of bidding, a bid security/EMD. On final selection, the selected bidder will be required to furnish performance security as per Clause:29
- (v) For any clarification, please contact Mr. S Chandrababu, GM (CIVIL 1) of KMRL, 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686
- (vi) KMRL reserves the right to reject any or all proposals received.

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- 4.2** All bidders shall include the following information and documents with their bids
- (a) Copies of original documents defining the constitution or legal status, place of registration and principal place of business. **(Valid CAG empanelment certificate in the name of the bidding firm shall be provided)**
 - (b) Experience (minimum three numbers) in signage works of a similar nature of value not less than 50% of the estimated value of this work for the last three years. **(Copies of the work orders or certificates duly attested by Gazetted office not below the rank of Executive Engineer)**
- 4.3** Even though the bidders meet the above qualifying criteria they are subject to be disqualified if they have;
- (a) Made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements and/or
 - (b) Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc. and/or
- 5.0 One bid per Bidder**
- 5.1 There is no provision for correction of bids once submitted. However multiple bids can be submitted by the bidder, in case of corrections, till the last date and time of bid submission and the most recent/latest bid submitted before the stipulated date & time of bid submission shall only be considered for further processing.
- 6.0 Cost of Bidding**
- 6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid and the Employer will in no case be responsible and liable for those costs.
- 7.0 Site Visit**
- 7.1 The Bidder, at the Bidder's own responsibility and risk is encouraged to visit to examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for execution of the Works. The costs of visiting the Site shall be borne by the bidder.

B - BIDDING DOCUMENTS

8.0 Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 10 of this section:

PART I- TECHNICAL BID

Section I	Instruction to Bidders
	A-GENERAL
	B-BIDDING DOCUMENTS
	C-PREPARATION OF BIDS
	D-SUBMISSION OF BIDS
	E-BID OPENING AND EVALUATION
	F-AWARD OF CONTRACT
Section II	Qualification Information
Section III	Conditions of Contract
	A-GENERAL CONDITIONS OF CONTRACT
	B-SPECIAL CONDITIONS OF CONTRACT
	C-CONTRACT DATA
Section IV	Technical Specifications
Section V	Forms and Annexures
Section VI	Drawings.

PART II - FINANCIAL BID

A-FORM OF BID
B- BILL OF QUANTITIES

8.2 Documents can be downloaded from the KMRL website by the bidder. Documents to be furnished by the bidder in compliance to section(s) will be prepared by him and furnished in two parts TECHNICAL BID AND FINANCIAL BID (refer clause 12)

8.3.1 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, technical specifications, bill of quantities, form, Annexes and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 25 hereof, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9. Clarification of Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify in writing/e-mail to Mr. S Chandrababu, GM (Civil 1) of KMRL, 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686) or chandrababu@kochimetromail.com or can attend the pre bid meeting at the office mentioned on the date and time as specified in the Invitation for Bid and subsequent corrigendum published. The minutes of the pre bid meeting that include all clarifications regarding the work will be published in the company web site.

10. Amendment of Bidding Documents

- 10.1 Before the deadline for submission of bids the Employer may modify the bidding documents by issuing addenda/corrigendum in the KMRL website indicated in IFB.
- 10.2 Any addendum/corrigendum thus issued/indicated in the Invitation For Bid and published in the website shall be part of the bidding document.
- 10.3 The Employer may, at his discretion, extend if necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

C- PREPARATION OF BIDS

11 Language of the Bid


11.1 All documents relating to the bid shall be in English language.

12. Documents Comprising the Bid

12.1 The bid to be submitted by the bidder shall be in two separate parts.
Tenders should be submitted in sealed cover 1 and sealed cover 2 separately as detailed below:

Cover 1 (Superscripted as “Technical Bid”)

- i. Copy of Certificate of Registration as A or B class contractor
- ii. Tender processing fee as DD as specified in Instruction to Bidders
- iii. Bid security in the form specified in Section V- .Annexure 3

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- iv. Qualification information and supporting documents as specified in Section II
 - v. Certificates, undertakings, affidavits as specified in Section II. (Ref: Forms – in Section V)
 - vi. Any other information pursuant to Clause 4 of these instructions.
 - vii. Undertaking that the bid shall remain valid for the period specified in Clause 15.1 in format as in Section V -Annexure 2
 - viii. Tender document duly completed and filled and signed in all pages.
 - ix. Proof of past experience of road signage
 - x. Sample of Type XI micro prismatic grade sheeting in A4 size (in accordance with ASTM D 4956-09)
 - xi. Documents as per special conditions of contract-Certificate from the Manufacturer.

Cover 2 (Superscripted as “Price Bid”)

- (i) Form of Bid
- (ii) Priced Bill of Quantities for items

12.2 Sealed cover 1 and cover 2 should then be put together into a third cover and sealed and the name of work, name and address of tenderer should be superscripted on it and addressed to the General Manager(Civil I), KMRL, 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686)Kochi, Kerala State and submitted as prescribed.

12.3 The documents, which are not submitted with the bid, will not be deemed to be part of the bid.

13.0 Bid Prices

13.1 The contract shall be for the whole works as described in Sub-Clause 1.1 based on the priced Bill of Quantities submitted by the Bidder.

13.2 All duties, taxes and other levies payable by the contractor under the contract or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder.

13.3 The rates and prices quoted by the bidder **shall be fixed** for the duration of the Contract and shall **not be subject to adjustment** on any account.

14.0 Currencies of Bid and Payment

14.1 The Unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupee.

15. Bid Validity

- 15.1 Bid shall remain valid for a period **not less than 90 days** after the deadline date for bid submission specified in Clause 20. A bid, which is valid for a shorter period shall be rejected by the Employer, as non-responsive as in clause 25.
- 15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidder's responses shall be made in writing by email. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will be required to extend the validity of his bid security for the period of the extension and to be in compliance with Clause 16 in all respects.
- 15.3 In the event that the Employer requests and the Bidder agrees to an extension of the validity period, the contract price, if the Bidder is selected for award shall be the bid price.

16. Bid Security/Earnest Money Deposit

- 16.1 The Bidder shall furnish, as part of his Bid, a Bid security/Earnest Money Deposit for the amount as shown in the table of Invitation For Bid (IFB) for this work. This bid security should be **drawn in favour of KMRL payable at Kochi** and should be in the form specified in, NIT, DD/Bank Guarantee from Nationalized/Schedule banks shall also be accepted.
- 16.2 Bank guarantee if issued as surety for the bid should be valid for 45 days beyond the validity of the bid.
- 16.3 Any bid which is not accompanied by an acceptable Bid Security/EMD and not secured as indicated in Sub-Clauses 16.1 above shall be rejected by the Employer as non-responsive.
- 16.4 The Bid Security of non-qualified /rejected bidders will be returned after the technical evaluation and the Bid Security of the unsuccessful qualified bidders after the execution of the agreement or after 30 days of the end of the bid validity period specified, whichever is earlier..
- 16.5 The Bid Security may be forfeited.
- (a) If the Bidder withdraws the Bid after opening during the period of Bid validity.
 - (b) If the Bidder does not accept the correction of the Bid price, pursuant to Clause 24; or
 - (c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - (i) Sign the Agreement; or
 - (ii) Furnish the required Performance Security.



17. Formats and Signing of Bid

17.1 The Bidder shall prepare the documents comprising the bid as described in Clause 12 of these *Instruction to Bidders* as “Technical Bid” and “Financial Bid” in separate parts.

17.2 All the bidding documents should be signed by a person or persons duly authorized to sign on behalf of the Bidder.

17.3 The bid shall contain no alterations or additions, except those which comply with instructions issued by the Employer on the uploaded documents (or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid). If it is found that any correction/alteration is made by the bidder the bids shall be summarily rejected and such bidder shall be blacklisted as per the departmental rules in force.

D. SUBMISSION OF BIDS

18.0. Sealing and Marking of Bids

18.1 All bid/tender documents are to be submitted offline only.

18.2 Technical bid and Financial bid shall be submitted in their respective covers.

18.3 Late tenders will not be accepted.

19.0 Deadline for Submission of the Bids

19.1 Complete Bids (including Technical and Financial) must be submitted before the last date and time as specified in ITB.

19.2 However the Employer may extend the deadline for submission of bids for any unavoidable technical reasons by issuing an amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will be subject to the new deadline.

E. BID OPENING AND EVALUATION

20.0 Bid opening

20.1 The Employer will open all the Bids received in the presence of the Bidders or their representatives who wish to attend the opening. In the event of the specified date of bid opening being declared a holiday for the Employer, the bids will be opened at the appointed time and location on the next working day.

20.2 The “**Technical Bid**” shall be opened first and the bidders who do not confirm to the qualification criteria prescribed in the bidding document shall be disqualified. The financial bid of the technically qualified bidders alone will be opened on a date, which shall be intimated later.

21. Process to be Confidential

21.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer’s processing of Bids or award decisions may result in the rejection of his Bid.

22. Clarification of Financial Bids

22.1 To assist in the examination, evaluation and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rate. The request for clarification and the response shall be in writing, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 25

22.2 Subject to clause 21, no Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time of contract is awarded.

22.3 Any effort by the Bidder to influence the Employer’s bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder’s bid.

23.0 Examination of Bids and Determination of Responsiveness

23.1 During the detailed evaluation of “Technical Bids”, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding Documents. During the detailed evaluation of the “Financial Bid”, the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawings.

23.2 A substantially responsive “Financial Bid” is one which conforms to all the terms, conditions and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents,

- the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.
- 23.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

24. Correction of Errors

- 24.1 "Financial Bids" determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
 - (b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.
- 24.2 The amount stated in the "Financial Bid" will be corrected by the Employer in accordance with the above procedure and the bid amount adjusted with the concurrence of the Bidder in the following manner.
- (a) If the Bid price increases as a result of these corrections, the amount as stated in the bid will be the 'bid price' and the increase will be treated as rebate;
 - (b) If the bid price decreases as a result of the corrections, the decreased amount will be treated as the 'bid price'.
- 24.3 Such adjusted bid price shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected and the Bid security may be forfeited in accordance with Sub-Clause 16.5 (b).

25.0 Evaluations and Comparison of Financial Bids.

- 25.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with clause 23
- 25.2 In evaluating the Bids; the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid Price as follows:
- (a) making any correction for errors pursuant to Clause 24; or
 - (b) making an appropriate adjustments for any other acceptable variations, deviations.
- 25.3 The Employer reserves the right to accept or reject any variation or deviation. Variations and deviations and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Bid evaluation.

- 25.4 If the Bid of the successful Bidder is seriously unbalanced in relation to the Employer's estimate of the cost of work to be performed under the contract, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of prices analyses, the Employer may require that the amount of the performance security set forth in Clause 29 be increased at the expense of the successful Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

F. AWARD OF CONTRACT

26. Award Criteria

- 26.1 Subject to Clause 25, the Employer will award the Contract to the Bidder whose Bid has been determined.
- (i) to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price;

27. Employer's Right to Accept or Reject any or all Bids

- 27.1 Notwithstanding clause 28, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for the Employer's action.

28. Notification of Award and Signing of Agreement.

- 28.1 The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by registered letter .This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").
- 28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause 29.
- 28.3 In the Letter of Acceptance, the successful bidder will be notified to execute an agreement within a maximum period of 14 days from the date of receipt of the

same. Fine at the rate of 1% of contract PAC subjected to a minimum amount of Rs.1000.00 and maximum amount of Rs.25,000.00 shall be levied if agreement is not executed within 10 days after the notified period of 14 days .

28.4 Agreement will be signed by the Employer and the successful bidder and incorporate all correspondence between them.

28.5 Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

29.0. Performance Security.

29.1 Within **14 days** of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in the form given in Section V, Annexure 5 for an amount equivalent to **20% of the Contract price**.

29.2 Failure of the successful Bidder to comply with the requirements of Sub-Clause 29.1 shall constitute sufficient ground for cancellation of the award and forfeiture of the Bid Security. After cancelling, steps will be initiated to award the work to next lowest bidder.

30.0. Dispute Resolution.

30.1 All disputes shall be settled in a court of law having jurisdiction at Kochi.

31.0. Corrupt or Fraudulent Practices.

31.1 The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question and will declare the firms ineligible, either indefinitely or for a stated period of time beside forfeiting the bid security.

TECHNICAL BID (PART I)

SECTION II-QUALIFICATION INFORMATION

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instruction to Bidders. This information will not be incorporated in the Contract.

1.0. STRUCTURE AND ORGANISATION

1. Name of Contractor
 - Head Office/ Regional Office/ Local Office Address
 - Contact Person
 - Email ID
 - Telephone No.
 - Fax No.
3. Place and year of incorporation (**attach copy of certificate of incorporation**)
4. Power of Attorney of signatory of bid (Attach)

Note

- (1) Contractor may be a proprietary firm, partnership, limited company or corporation.

2.0 FINANCIAL CAPABILITY

2.1 Each bidder in its name should have in the **last three** financial years.

- (i) Achieved a minimum annual financial turnover of 300 lakhs and an average turnover of 400 lakhs.
- (ii) Latest income tax clearance certificate from concerned department.
- (iii)** Name, address, telephone, telex numbers of Bidders bankers who may provide references if contacted by KMRL.



3.0 WORK EXPERIENCE

I. Work performed as prime contractor, work performed in the past as a nominated sub-contractor will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided further that all other qualification criteria are satisfied (in the same name) on works of a similar nature over the last three year**

Name of Employer	Project Name and Location*	Description of work	Total Project Cost at award	Value of Contract executed by the applicant	Role(Whether single as associate or as subcontracting agency)	Current value of Col.(5) (after applying an enhancement factor of 10% per annum)	Date of Contract	Stipulated Date of Completion	Actual Completion Date	Remarks Present Progress if work not completed. Reasons for delay and work completed
1	2	3	4	5	6	7	8	9	10	11

*Attach certificate(s) from the Engineer(s)-in-Charge. **immediately preceding the financial year in which bids are received.

TECHNICAL BID (PART I)

SECTION III- CONDITIONS OF CONTRACT

A. GENERAL CONDITIONS OF CONTRACT

1. Definitions.

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meaning. Capital initials are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.

The Completion Date is the date of completion of the works as certified by the Engineer in accordance with Clause 2 in Instruction to Bidder.

The Contract is the contract between the Employer and the Contractor to execute, complete and maintain the Works till the completion of the defect liability period.

The Contractor is a person or corporate body who's Bid to carryout the Works has been accepted by the Employer.

The Contractor's Bid is the completed Bidding document submitted by the Contractor to the Employer and includes Technical and Financial bids.

The Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; Months are calendar months.

A Defect is any part of the Works not completed in accordance with the Contract.

The Defects Liability period is the period named in the Contract Data and calculated from the completion date.

The **Employer** is *KMRL* who will employ the contractor to carry out the works

Equipments are the Contractor's machinery and vehicles brought temporarily to the site to construct the works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.



The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works.

The work must be completed in all respects within the time of completion with the following rate of progress

1/3 rd time of completion	25%
2/3 rd time of completion	70%
At the time of completion	100%

The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The Site is the area defined as such in NIT

Specification means the specification of the Works included in the Contract and any modification or addition made or approved by KMRL.

The Start Date shall be the *date of issue of notice to proceed with the Letter of Acceptance issued by KMRL*. It is the date when the Contractor should commence execution of the works.

A Subcontractor is a person or corporate body who has a Contract with the Contractors to carry out a part of the work in the Contract, which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor, which are needed for construction or installation of the Works.

A Variation is an instruction given by KMRL, which varies the Works;

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about the Conditions of Contract.

2.3 The documents forming the Contract shall be interpreted in the following order of priority

- 1) Agreement
- 2) Letter of Acceptance
- 3) Contractor's Bid (Technical and Financial Bid)
- 4) Conditions of Contract ,
- 5) Specifications
- 6) Drawings
- 7) Bill of quantities
- 8) Programme for execution and
- 9) Any other document forming part of the Contract.

3.0 Languages and Law

3.1 The language of the Contract shall be English and the law governing the Contract shall be the laws of India.

4.0 Communications

4.1 Communications between parties which are referred to in the conditions are effectively only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act)

5.0 Sub-Contracting

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6.0 Contractor to Construct the Works.

15.1 The Contractor shall construct and install the Works in accordance with the Specification and Drawings.

7.0. The Works to be Completed by the Intended Completion Date

16.1 The Contractor may commence execution of the Works on the Start Date and shall carryout the Works in accordance with the programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

8.0. Programme

8.1 Within a period of 14 days from the issue of Letter of Acceptance the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast.

8.2 An update of the programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

8.3 The Contractor shall submit to the Engineer, for approval, an updated Programme at within thirty .days of the last programme. If the Contractor does not submit an

updated programme within this period, the Engineer may withhold the amount of Rs(2% of contract price from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

8.4 The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer again at any time. A revised programme is to show the effect of Variations.

9.0.Extension of the Intended Completion Date.

The contractor is bound to complete the work within the stipulated period as per the agreement.

The extension of time of completion that can be granted at a time shall not exceed 25% of the original time or 6 months whichever is less. The maximum extension that can be granted for a work shall be limited to half the original time of completion

The contractor shall not execute any work as per the agreement after the expiry of the time of completion unless the agreement authority duly sanctions extensions of time. If any work is carried out by the contractor in contravention to this, the same shall be treated as unauthorized and no payment will be made for such work. The department will also have the right to claims from the contractor, cost of dismantling and removing such unauthorized work

For extension of time fine will be imposed at the following rates.

Period	Rate of fine
First Extension	1% of the Contract Amount subject to a minimum of Rs.1000/- and the maximum of Rs.50,000/-.
Beyond First Extension	2% of Contract Amount subject to a minimum of Rs.2000/- and maximum of Rs.1,00,000/-.

9.1 The Engineer shall extend the Intended completion Date if a variation is issued which makes it impossible to active the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the contractor to incur additional cost.

9.2 The Engineer shall decide whether and by how much to extend the Intended Completion Date after the Contractor asking the Engineer for a decision upon the effect of a variation and submitting full supporting information. If the contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

10. Delays ordered by the Engineer.

10.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

11.0 Identifying Defects.

11.1 The Engineer shall check the Contractor's work and notify the Contractor of any defects that are found. Such checking shall not release the Contractor of his responsibilities.

12.0. Correction of Defects

12.1 The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability period. The Defects Liability period shall be extended for as long as defects remain to be corrected.

13.0. Uncorrected Defects

13.1 If the Contractor has not corrected a Defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the defect corrected and the contractor will pay this amount or such amount deducted from the payment due to the contractor.

14.0. Bill of Quantities

14.1 Contractor shall take measurements of works done and prepare bill for the work as stipulated in the relevant portions of Revised Kerala PWD Manual.

14.2 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

14.3 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

15.0. Changes in the Quantities

15.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 per cent provided the change exceeds 1% of initial Contract Price, KMRL shall adjust the rate to allow for the change, duly considering.

- (a) justification for rate adjustment as furnished by the contractor,
- (b) economies resulting from increase in quantities by way of reduced plant equipment, and overhead costs.

15.2 If requested by KMRL, the Contractor shall provide KMRL with a detailed cost breakdown of any rate in the Bill of Quantities.

15.3. Additional security on increased scope of work needs to be submitted by the contractor at the time of execution of supplementary agreement with the competent authority

16. Variations

16.1 All Variation shall be included in updated programmes produced by the Contractor

17. Payments for Variations

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18. Payment Certificates and Payment

The payment for the work on production of the bill in duplicate on the quoted rate as approved by KMRL will be made within 21 days of submission of bills and duly certified by the competent authority of KMRL; all payments will be made to the designated bank account of the contractor through electronic mode.

19. Tax

19.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales, service and all other taxes that the Contractor will have to pay for the performance of this contract. KMRL will perform such duties in regard to the deduction of such taxes at source as per applicable law.

19.2 The contractor shall be responsible for the payment of all taxes and other duties as per the rules in force from time to time and KMRL will not entertain any claim on account of enhancement of tax and rates”.

20. Currencies

20.1 All payments shall be made in Indian rupees only.

21. Retention

21.1 10% of the value of bill will be deducted from the bill as security deposit and the amount so deducted will be released on satisfactory completion of works .

22. Securities

22.1 The performance Security shall be provided to KMRL no later than the date specified in the Letter of Acceptance and shall be issued and denominated in Indian Rupees. The performance Security shall be valid until a date 28 days from the date of expiry of Defects Liability Period .

23.0. Cost of Repairs


23.1 Loss or damage to the Works or materials to be incorporated in the Works between the Start Date and the end of the Defects correction Periods shall be remedied by the Contractor at the Contractor’s cost if the loss or damage arises from the Contractor’s acts or omissions or negligence.

24.0. Completion

24.1 The Contractor shall request the Engineer to issue a Certificate of Completion of the Works and the Engineer will do so upon deciding that the work is completed. .Final bill will be paid only after completion is certified by the competent authority . The date of completion of a work is the date of last measurements taken by the concerned Engineer/ Contractor on completion of work.

25. Final Account

25.1. The Contractor shall supply to the Engineer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of



the Defects Liability Period. The KMRL Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to Contractor and issue a payment certificate, within 56 days of receiving the contractor's revised account.

26.0. Termination

26.1 Default by Contractor

As per general conditions of contract, the competent authority has the power to cancel the contract and arrange the work otherwise in the event of default by the contractor. The competent authority in exercising the power vested with him shall follow the procedure outlined in the general conditions of the contract. The damages and penalties provided there in and applicable to the particular contract shall also be realized in accordance with the general conditions of contract.

26.2 If the contractor fails to maintain the required progress as per conditions of contract or to complete the work and clear the site on or before the contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the employer on account of such breach, pay to the employer as liquidated damages an amount calculated @ 0.1% (Zero point one percent) of the contract price of the work for every week of delay subject to a maximum of 10% of the contract price.

26.3 The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the government. In case, the contractor does not achieve a particular milestone mentioned in the conditions of contract or the re-scheduled milestone(s), the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time.

26.4 With holding of this amount on failure to achieve the completion of work or of milestones shall be automatic without any notice to the contractor.

27.0 Termination of Contract

27.1 KMRL can terminate the contract and rearrange the work at the risk and cost of contractor in the following cases.

- a) If the contractor does not turn up for starting the work within the specified period to take charge of the site after executing the agreement.
- b) If the contractor does not show the proportionate progress during the original/extended period of time of completion.

- c) The Engineer issues notice to the contractor against the delay in progress of the works and if the works do not show sufficient progress even after 28 days from issuing of notice.
- d) If the contractor abandons the work after executing a portion without genuine reason and does not resume or complete it even after specific direction from the KMRL
- e) The Contractor stops work for 28 days when no stoppage of work is shown on the current programme and the stoppage has not been authorized by the Engineer.
- f) The Employer or contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
- g) Fails to make application for extension of time of completion in time
- h) If the contractor in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this paragraph: “corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. “Fraudulent practice” means a mis-representation of facts in order to influence a procurement process or the execution of a contract to the detriment of KMRL and includes, collusive practice amount Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the KMRL of the benefits of free and open competition.”

27.2 When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 27.1 above the Engineer shall decide whether the breach is fundamental or not.

27.3 Notwithstanding the above, the Employer may terminate the Contract for convenience.

27.4 If the Contract is terminated the Contractor shall stop work immediately, make the site safe and secure and leave the site as soon as reasonably possible.

28.0. Termination of Contract in Case of Death, Insanity or Insolvency

If the contractor is an individual or a proprietary concern and the individual or a proprietary concern and the individual or the proprietor dies, becomes insane or insolvent, the competent authority has to satisfy himself whether the legal heirs or legal representatives of the contractor are capable of carrying out and continuing the work, and if they are willing, he may entrust the balance portion of the work to such legal heir or representative on a fresh agreement on the same terms and conditions as in the original agreement. In other cases the competent authority shall cancel the contract in respect of the incomplete portion of the work and rearrange the work otherwise without any penalty or damage to either party on account of such cancellation and rearrangement. All liabilities due to government arising under

the contract up to the date of death of contractor shall be realized from the estate of the contractor.

29.0 Realisation of loss on account of termination

29.1 An amount equal to 30% of the cost of the remaining works at agreed rates of the terminated contract shall be recovered from the defaulted contractor towards the risk and cost. The contractor shall be directed to remit the risk and cost amount within three months. The total loss sustainable due to the original contractor is assessed after completion of the work. If the defaulted contractor fails to remit the amount within this periods the realisation of loss by the defaulted contractor can be realised from the following.

1. EMD / Security
2. Bill amount / retention if any due to the contract.
3. Any dues from KMRL to the contractor.
4. Bank Guarantee / Performance Guarantee or By filling civil suit against the contractor.

30.0 Revoking of termination

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31.0 Property

31.1. All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of contractor's default

32.0. Releases from Performance

32.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works duly carried out before receiving it and for any work carried out afterwards to which commitment was made.

B.SPECIAL CONDITIONS OF CONTRACT

Warranty and Durability Certificate - Informatory/Cautionary/Mandatory boards

1. The contractor shall obtain from the sheeting manufacturer of Retro Reflective Sheeting a **Pre-Qualification Warranty Certificate in original for seven years satisfactory filed performance** including stipulated retro reflectance of the retro reflective sheeting to be used and submit the same. This includes for satisfactory infield performance of the finished sign inclusive of the screen printed or cut out letters/legends, transparent films and their bonding to the retro reflective sheeting and

shall be jointly signed by the sheeting manufacturer and the contractor and submit the same at the time of tender submission. Agents/ authorized representatives, companies representing principals by way of power of attorney etc shall not qualify to the status of that of the manufacturer and is not acceptable.


2. The Pre-Qualification warranty shall also cover the replacement obligation by the sheeting manufacturer as well as contractor for replacement/repairing/restoration of the retro reflective efficiency and shall be jointly signed by the Sheeting Manufacturer and the Contractor.
3. Product Conformance Certificate in original from the manufacturer of retro reflective sheeting stating that the material offered for this tender, conforms to the standards/specifications of retro reflective sheeting as given in this tender and is part of the original warranty shall be submitted
4. A Certificate having tested the sheeting for these properties in an unprotected outdoor exposure facing the sun for three years and its having passed these tests shall be obtained from a reputed test laboratory by the manufacturer of the sheeting. The certificate should be accompanied with a copy of test results for every lot of supply of sheeting conforming the specification requirement.
 - (i) Coefficient of Retro Reflection
 - (ii) Day time colour & luminous
 - (iii) Accelerated out door weathering requirement and colour fastness
 - (iv) Shrinkage
 - (v) Flexibility
 - (vi) Resolvability of liner
 - (vii) Adhesion
 - (viii) Impact resistance
 - (ix) Specular gloss
5. The sheeting manufacturer shall also provide test data showing that has met the requirements for 36 months of accelerated outdoor weathering. The test data shall be gathered in accordance with ASTM D 4956-09 and by an independent agency. The data submitted shall cover both the retro reflective sheeting and process inks and/or overlay films manufactured by the sheeting manufacturer in standard traffic colours.
6. Indian Custom Duties, if any, levied upon the work, equipments etc. are to be borne by the Bidders and this will not be separately paid for. The Contractor shall bear all taxes, both corporate and personnel, including but not limited to taxes on income levied on the contractor or on their affiliated companies on account of payments received by them from KMRL for the works done under contract.

7. If the contractor is an individual or a proprietary concern and the individual or the proprietor dies or if the contractor is a partnership concern and one of the partners dies then unless the KMRL is satisfied that the legal representatives of the individual contractor or of the proprietor of the proprietary concern and in the case of partnership, the surviving partner(s) are capable of executing the contract as to its uncompleted part, without KMRL in any way liable to pay any compensation to the estate of the deceased contractor and/ or to the surviving partner(s) of the contractor's firm on account of the cancellation of the contract. The decision of KMRL that the legal representative of the deceased contractor or surviving partners of the contractor's firm cannot carry out and complete the contract, shall be final and binding on the parties. In the event of such cancellation, the KMRL shall not hold the estate of the deceased contractor and / or to partners of the contractor's firm liable in damage for not completing the contract.
8. It shall also be responsibility of the contractor to observe provisions of any other law (like the ESI Act, EPF Act, Payment Wages Act, Contract Labor Abolition and Regulation Act etc) to the extent they are applicable to him in respect of workmen engaged or employed by him in or for the execution of the work as per this contract.
9. The courts at Ernakulam alone shall have jurisdiction in respect of any matter arising out or in connection with this contract

C. CONTRACT DATA

1. The **Employer** is
 Name: **KOCHI METRO RAIL LIMITED**
 Address: KMRL Ltd., 8th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686)
2. The **Engineer** is – **Authorized Engineer of KMRL**
3. The Defects Liability Period is: **5 years** from the date of completion
4. The Start Date shall be the date of issue of the Notice to proceed with the work.
5. The Intended Completion Date for the whole of the Work (Manufacture, Supply and Erection at site) is **4 months** after start of work with the following milestones:
6.

<u>Physical works to be completed</u>	<u>Period from the start date</u>
Milestone 1- 25%	1 (One) months.
Milestone 2 - 70%	3 (Three) months.
Milestone 3 - 100%	4 (Four) months.

- 
7. The site is located **within Kochi Corporation limits in the State of Kerala**
 8. The works consist of **:Supplying and Installation of reflective signage boards as per requirement of KMRL at specified location.**
 9. The law which applies to the Contract is the law of **Union of India**
 10. The language of the contract documents is **English.**

 11. The site Possession Dates shall be the **date of issue Letter of Acceptance.**
 12. The period for submission of the programme for approval of Engineer shall be **15** days from the issue of Letter of Acceptance.
 13. The period between programme updates shall be **30** days.
 14. The amount to be withheld for late submission of an updated programme shall be **2% of Contract Price** .
 15. The currency of the Contract is **Indian Rupees.**
 17. The Securities shall be for the following minimum amounts equivalent as a percentage of the Contract Price:
Performance Security for **20 per cent of contract price** . Validity of PBG will be up to the expiry of Defect Liability Period.

TECHNICAL BID (PART I)

SECTION IV- TECHNICAL SPECIFICATIONS

1.The Technical Specifications contained herein shall be read in conjunction with the other tender documents .

1.1 General Specifications

The colour, configuration, size and location of all traffic signs for highways and for other roads (other than Expressways) shall be in accordance with the Code of Practice for Road Signs, IRC: 67:2012 or as shown on the drawings. In the absence of any details or for any missing details, the signs shall be provided in accordance with international standards and/or as directed by the Owner.

The work, in general, shall be executed conforming to IRC 67:2012, as per the description of the item and as per MoRTH's specifications for Roads & Bridges, 2001 (Fourth Revision).

1.2. Specification of materials for Signs

Detailed specification is attached. Materials and fabrication of road signs shall conform to the following requirements:

Concrete: Concrete shall be of M20 grade.

Reinforcing steel: Reinforcing steel shall conform to the requirements of IS 1786 unless otherwise specified in contract drawings.

Bolts, nuts and washers: High strength bolts shall conform to IS 1367 whereas precision bolts, nuts etc, shall conform to IS 1364.

Plates and supports: Plates and support sections for the signposts shall conform to IS 226

and IS 2062 or any other stated IS specification.

Substrate: Substrate shall be Aluminium conforming to following sub-sections: Aluminium sheets used for sign boards shall be of smooth, hard and corrosion resistant aluminium alloy conforming to IS 736- Material designation 24345 or 1900. Thickness of aluminium shall be 2mm.

Retro reflective sheeting: The retro reflective sheeting used on the signs shall consist of the **white or blue** colored sheeting having a smooth outer surface, which has the property of retro reflection over its entire surface. It shall be weather-resistant and show color fastness. It shall be new and unused and shall show no evidence of cracking, scaling, pitting, blistering, edge lifting or curling and shall have negligible shrinkage or expansion. A certificate of having the sheeting tested for co-efficient of retro-reflection, day/night time colour luminous, shrinkage, flexibility, liner removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering (as per table 14 of ASTM D 4956-09) and its having passed these tests shall be

obtained from an International/ Laboratory, by the manufacturer of the sheeting.

Retro-reflective sheeting is typically manufactured as a cube corner. The reflective sheeting shall be Class C retro-reflective sheeting made of Grade XI micro prismatic retro-reflective material. The retro-reflective surface, after cleaning with soap and water and in dry condition

shall have the minimum co-efficient of retro-reflection (determined in accordance with ASTM D 4956-09) as indicated in the **Table 9.2**. When totally wet, the sheeting shall show not less than 90 per cent of the values, of retroreflection indicated in the Table 9.2. At the end of 10 years, the sheeting shall retain at least 80 per cent of its original retro-reflectance.

Table 9.2: Acceptable Minimum Coefficient of Retro-reflection for Type XI Prismatic Grade Sheetin (Candelas per Lux per Square Metre)**

Observation Angle	Entrance Angle	White	Yellow	Orange	Green	Red	Blue	Brown	Florescent Yellow-Green	Florescent Yellow	Florescent Orange
0.1°B	-4°	830	620	290	83	125	37	25	660	500	250
0.1°B	+30°	325	245	115	33	50	15	10	260	200	100
0.2°	-4°	580	435	200	58	87	26	17	460	350	175
0.2°	+30°	220	165	77	22	33	10	7	180	130	66
0.5°	-4°	420	315	150	42	63	19	13	340	250	125
0.5°	+30°	150	110	53	15	23	7	5	120	90	45
1.0°	-4°	120	90	42	12	18	5	4	96	72	36
1.0°	+30°	45	34	16	5	7	2	1	36	27	14

** Minimum Co-efficient of Retro-reflection (RA) (cd.Ix-1.m-2).

Adhesives: The sheeting shall have a pressure-sensitive adhesive of the aggressive-tack type requiring no heat, solvent or other preparation for adhesion to a smooth clean surface, in a manner recommended by the sheeting manufacturer. The adhesive shall be protected by an easily removable liner (removable by peeling without soaking in water or other solvent) and shall be suitable for the type of material of the base plate used for the sign. The adhesive shall form a durable bond to smooth, corrosion and weather resistant surface of the base plate such that it shall not be possible to remove the sheeting from the sign base in one piece by use of sharp instrument. The sheeting shall be applied in accordance with the manufacturer's specifications.

Fabrication: Surface to be reflectorised shall be effectively prepared to receive the retroreflective sheeting. The aluminium sheeting shall be degreased either by acid or hot alkaline etching and all scale/dust removed to obtain a smooth plain surface before the application of retro-reflective

sheeting. If the surface is rough, approved surface primer may be used. After cleaning, metal shall not be handled, except by suitable device or clean canvas gloves, between all cleaning and preparation operation and application of reflective sheeting/primer. There shall be no opportunity for metal to come in contact with grease, oil or other contaminants prior to the application or retro-reflective sheeting. Complete sheets of the material shall be used on the signs except where it is unavoidable. At splices, sheeting with pressure-sensitive adhesives shall be overlapped no less than 5mm. Where screen printing with transparent colored is proposed, only butt joint shall be used. The material shall cover the sign surface evenly and shall be free from twists, cracks and folds. Cut-outs to produce legends and borders shall be bonded with the sheeting in the manner specified by the manufacturer.

Messages/ borders: The messages (legends, letters, numerals, etc.) and borders shall either be screen-printed or of cut out from durable transparent overlay or cut-out from the same type of reflective sheeting for the cautionary and mandatory sign boards. Screen printing shall be processed and finished with materials and in a manner specified by the sheeting manufacturer. For the informatory and other sign boards, the messages (legends, letters, numerals etc.) and borders shall be cut-out from durable transparent overlay film or cut-out from the same reflective sheeting only. Cut-outs shall be from durable transparent overlay materials as specified by the sheeting manufacturer and shall be bonded with the sheeting in the manner specified by the manufacturer. Whenever transparent overlay film is used for making any type of sign, the colored portion of sign shall have coefficient of reflectivity not less than the reflectivity of type and colour of sheeting normally used, as given in **Table 9.2**. Cut-out messages and borders, wherever used, shall be either made out of retro-reflective sheeting or made out of durable transparent overlay except those in black which shall be of non-reflective sheeting or opaque in case of durable transparent overlay. Creating colored areas by means of screen-printing with ink shall not be permitted.

Warranty and durability: The Contractor shall obtain from the manufacturer of retroreflective sheeting, a 7 year warranty certificate in original for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and submit the same to the Owner. The contract shall indicate the minimum retro-reflectivity of the signs at the end of the warranty period.

9.3. Specifications for posts and mountings for Signs

The traffic signs shall be mounted on support posts, which may be of GI pipes conforming to IS 1239, Rectangular Hollow Section conforming to IS 4923 or Square Hollow Section conforming to IS 3589. In case of signs supported on two or more posts, if necessary, bracing may also be provided. Sign posts, their foundations and sign mountings shall be so constructed as to hold these in a proper and permanent position against the normal storm wind loads or displacement by vandalism. Normally, signs with an area up to 0.9 square meter shall be mounted on a single post, and for greater area, two or more

supports shall be provided. Sign supports may be of mild steel, reinforced concrete (M20) or galvanized iron (GI Post) sections. End(s) shall be firmly fixed to the ground by means of properly designed foundation. The work of foundation shall conform to relevant specifications as specified.

All components of signs and supports, other than the reflective portion of GI posts shall be thoroughly descaled, cleaned, primed and painted with two coats of epoxy paint. Any part of Mild Steel (MS) post below ground shall be painted with three coats of red lead paint.

The signs shall be fixed to the posts by welding in the case of steel posts and by bolts and washers of suitable size in the case of reinforced concrete or GI posts. After the nuts have been tightened, the tails of the bolts shall be furred over with a hammer to prevent removal.

9.4. Specification for colour for signs

Signs shall be provided with retro-reflective sheeting and/or overlay film as shown on the detailed drawings.

The colour of the material shall be located within the area defined by the chromaticity coordinates in **Table 8.1 of IRC 67/2012** and comply with luminance factor given in **Table 8.2 of IRC 67/2012** when measured as per ASTM D:4956-09. Chromaticity is the objective specification of the quality of a colour regardless of its luminance, that is, determined by its hue and colorfulness (or saturation/chroma, or intensity)

The colour shall be durable and uniform in acceptable hue viewed in day light or under normal headlights at night.

9.5. Specification of size of letters

Letter size should be chosen with due regard to the speed, classification and location of the road, so that the sign is of adequate size of legibility but without being too large or obtrusive.

Size of letters shall conform to the requirements of IRC 67:2012 unless otherwise specified in contract drawings. The size of the letter, in terms of x-height, to be chosen as per the design speed is given in **Table 11.1 of IRC 67/2012**.

9.6. Specification of work

9.6.1. The boards should be erected at various road in Ernakulam City

9.6.2. The minimum distance from the kerb of the road to nearest edge should be 60 cm.

9.6.3. All structural steel work should be painted with one coat of epoxy primer except surfaces, which will be in contact with concrete. All rust scales, dirt, supplier's delivery marks, oil, greases etc. should be removed. Special care should be taken for cleaning corners. Two coat of epoxy paint should be applied at right angles to each other. Each coat shall be allowed to dry up perfectly before the succeeding coat is laid over it.

9.6.4. The concrete for foundation shall be laid gently (not thrown) in a layer not exceeding 15 cm and compacted by pinning with rods and tamping with wooden tampers until a dense concrete is obtained. Unless otherwise stated, quality of materials and specifications for the work shall conform to the latest ISI specification and codes of practice.

9.7. Maintenance of Signs

9.7.1. Excessively discolored or faded signs (e.g. white backgrounds which have become grey or brown, or red borders faded to pink) and signs, where the legend or graphic is peeling off cannot be fully effective and need to be replaced. The signs along with the posts shall be maintained in proper position, and kept clean and legible at all times. Signs should be cleaned at intervals appropriate to the site conditions. Signs at locations where they are subject to heavy soiling from passing traffic, or algae growth (a common problem with signs beneath tree canopies) will need more frequent cleaning.

9.7.2. A reference number along with the month and year of installation should be placed on the back of a sign in a contrasting colour or by stamping in characters not exceeding 50 mm in height. It is distracting and unsightly to place reference numbers on the sign face or on the front of a backing board.

9.7.3. All signs shall be inspected at least twice a year both in day and night times and at least once a year in the rain. All signs should be replaced at the end of the warranty period provided for the retro-reflective sheeting used on the sign. Damaged signs shall be replaced immediately.

9.7.4. The authorities responsible for road signs should maintain a schedule of painting of the posts and signs periodically. It is recommended that painting of the signs (where applicable) maybe undertaken after every two years. In case of overhead signs, adequate provision is to be made to have access to the signs for the purpose of maintenance activities. This must be ensured at the time of installation. Special care shall be taken to see that weeds, shrubbery, mud, etc. are not allowed to obscure any sign.

TECHNICAL BID (PART I)

SECTION V- FORMS AND ANNEXURES

ANNEXURES	NAME OF THE FORM/ANNEXURE
1	AFFIDAVIT
2	UNDERTAKING FOR FIRM PERIOD
3	FORMAT FOR BID SECURITY (BANK GUARANTEE)
4	LETTER OF ACCEPTANCE
5	BANK GUARANTEES FOR PERFORMANCE SECURITY
6	TENDER AND BIDDERS CERTIFICATE
7	E PAYMENT FORM



**ANNEXURE 1 :
AFFIDAVIT**

1. I the undersigned, do hereby certify that all the statement made in the required attachments are true and correct.

2. The undersigned also hereby certifies that our firm M/s.....
.....has not abandoned any work
in Kerala or, any other State
Government, Central Government nor any contract awarded to us for
such works have been rescinded, during last three years prior to the
date of this bid.

3. The undersigned hereby authorise(s) and request(s) any bank, person,
firm or corporation to furnish pertinent information deemed necessary
and requested by the Department to verify this statement or regarding
my (our) competence and general reputation.

4. The undersigned understands and agrees that further qualifying
information may be requested, and agrees to furnish any such
information at the request of the Company/Department/Project implementing
agency.

5. The undersigned also hereby authorises KMRL and
their authorised representative to conduct any inquiries or investigation
to verify the statements, documents and information submitted in
connection with this application, and to seek clarification from our bankers
and clients regarding any financial and technical capability.

.....
(Signed by an Authorised Officer of the Firm)

.....
Title of Officer

.....
Name of Firm

.....
DATE



ANNEXURE 2

UNDERTAKING FOR FIRM PERIOD

I, the undersigned do hereby undertake that our firm M/s.....
Agree to abide by this bid for a perioddays for the date
fixed for receiving the same and it shall be binding on us and may be accepted at any
time before the expiration of that period.

.....
(Signed by an Authorised Officer of the firm)

.....
(Title of Officer)

.....
(Name of Firm)

.....
(Date)

ANNEXURE 3 : FORMAT FOR BID SECURITY (BANK GUARANTEE)

WHEREAS,(name of Bidder) hereinafter called ‘the Bidder’) has submitted his Bid dated(date) for the construction of(name of Contract hereinafter called “the Bid”).

KNOW ALL PEOPLE by the presents that We(name of Bank) of(name of Country) having our registered office at(hereinafter called “the Bank”) are bound unto.....(name of Employer) (hereinafter called “the Employer”) in the sum of for which payment well and truly to be made to the said Employer the Bank itself, this successors and assigns by these presents.

SEALED with the Common Seal of the said Bank thisday of20.....

THE CONDITIONS of this obligation are :

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

OR

(2) If the Bidder having been notified to the acceptance of his bid by the Employer during the period of Bid validity:

- (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
- (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders; or
- (c) does not accept the correction of the Bid Price pursuant to Clause 26.

We understand to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force upto an including the date.....days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE.....	SIGNATURE.....
WITNESS.....	SEAL.....

(Signature, name and address)



* The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same in Clause 16.1 of the Instructions to Bidders.

** 45 days after the end of the validity period of the Bid. Date should be inserted by the Employer before the Bidding documents are issued.

ANNEXURE 4 : LETTER OF ACCEPTANCE

To

------(Name and address of the Contractor)

Dear Sirs,

This is to notify you that your Bid dated.....for execution of the (name of the contract and identification number, as given in the Instructions to Bidders) for the Contract Price of Rupees..... .(.....)(amount in words and figures), as corrected and modified in accordance with the Instructions to Bidders* is hereby accepted by our agency.

You are hereby requested to furnish Performance Security for an amount equivalent to Rs.....within 14 days of the receipt of this letter of acceptance valid upto 28 days from the date of expiry of defects Liability Period i.e. uptoand sign the contract.

Yours faithfully,

Authorized Signature

Name and title of Signatory

Name of Agency

- Delete 'Corrected and' or 'and modified' if only one of these action applies. Delete as corrected and modified in accordance with the Instructions to Bidders, if corrections or modifications have not been affected.

(Seal)

ANNEXURE 5 – Bank Guarantees for performance Security

**FORM OF PERFORMANCE SECURITY
BANK GUARANTEE BOND
(ON NON-JUDICIAL PAPER OF APPROPRIATE VALUE)**

To,
Kochi Metro Rail Limited
8th Floor, Revenue Tower,
Park Avenue, Cochin 11

Dear Sir,

1. In consideration of the Kochi Metro rail Limited (hereinafter called “KMRL”) having agreed under the terms and conditions of agreement NO..... dated.....made between and (herein after called “thesaid contractor(s)”) for the work (herein after called “the said agreement”) for compliance of his obligation in accordance with the terms and conditions in the said agreement.

We (indicate the name of the Bank) (herein after referred to as “as Bank) hereby undertake to pay to the KMRL and amount not exceeding Rs..... (Rupees only) on demand by the KMRL.

2. We (Indicate the name of the Bank) do hereby undertake to pay the amount due and payable under this Guarantee without any demure, merely on a demand from the KMRL stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs..... (Rupees..... only).

3. We undertake to pay to the KMRL any money so demanded notwithstanding any dispute or disputes raised by the contractor (s) in any suit or proceeding pending before any court or Tribunal relating therto our liability under this present being absolute and unequivocal. The payment made by us under this bond shall be valid discharge of our liability for payment to there-under and the contractor(s) shall have no claim against us making such payment.

4. We (Indicate the name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the KMRL under or by virtue of the said agreement have been fully paid and it is claims satisfied or discharged or till Engineer-in-charge on behalf of the KMRL. Certified that he terms and conditions of the said Agreement have been fully and properly carried out by the said contractor(s) accordingly discharges this guarantee.

5. We..... (Indicate the name of Bank) further agree with the KMRL that he KMRL shall have the fullest liberty without our consent and without affecting any manner our obligations hereunder to vary any of the terms and conditions of the said agreement or to



extend time of performance by the said contractor(s) from time to time or to postpone for any of the powers exercisable by the KMRL against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement we shall not be relieved from our liability by reasons of any such variation or extension being granted to the said contractor(s) or for any forbearance act of omission on that part of the KMRL or any indulgence by KMRL to the said contract(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effected or so relieving us.

6. The guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).

7. We..... (indicate the name of Bank) lastly undertake not to revoke this guarantee except with the previous consent of the KMRL in writing.

8. This guarantee shall be valid upto unless extended on demand by KMRL.

Notwithstanding any thing mentioned above our liability against this Guarantee is restricted to RS..... (Rupees.....only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee, all our liabilities under the Guarantee shall stand discharged.

Dated the day of 20....

For
(Indicate the name of Bank)



ANNEXURE 6 - TENDER AND BIDDERS CERTIFICATE

I hereby declare that I have perused in detail and examined closely all clauses in the MoRTH Specifications before I submit the tender/ bid and I agree to be bound by and comply with all such specifications. I have understood the relevant provisions of the IRC code and agree to adhere to the same. I understand that clause relating to arbitration is not included as a part of the contract and rates agreed to will not be enhanced. I also understand that the defects liability period for the work is 5 years

Name Of Bidder :

Address :

Place:

Date:

ANNEXURE 7 – E PAYMENT FORM

Requisition for e-Payment

Certified that I am having a Savings / Current Account in

Name of Bank

Name of Branch

IFSC Code

Account Number

I wish to receive all payments in this account through NEFT and RTGS systems, as the case may be, for all payments relating to this work.

Name of Bidder

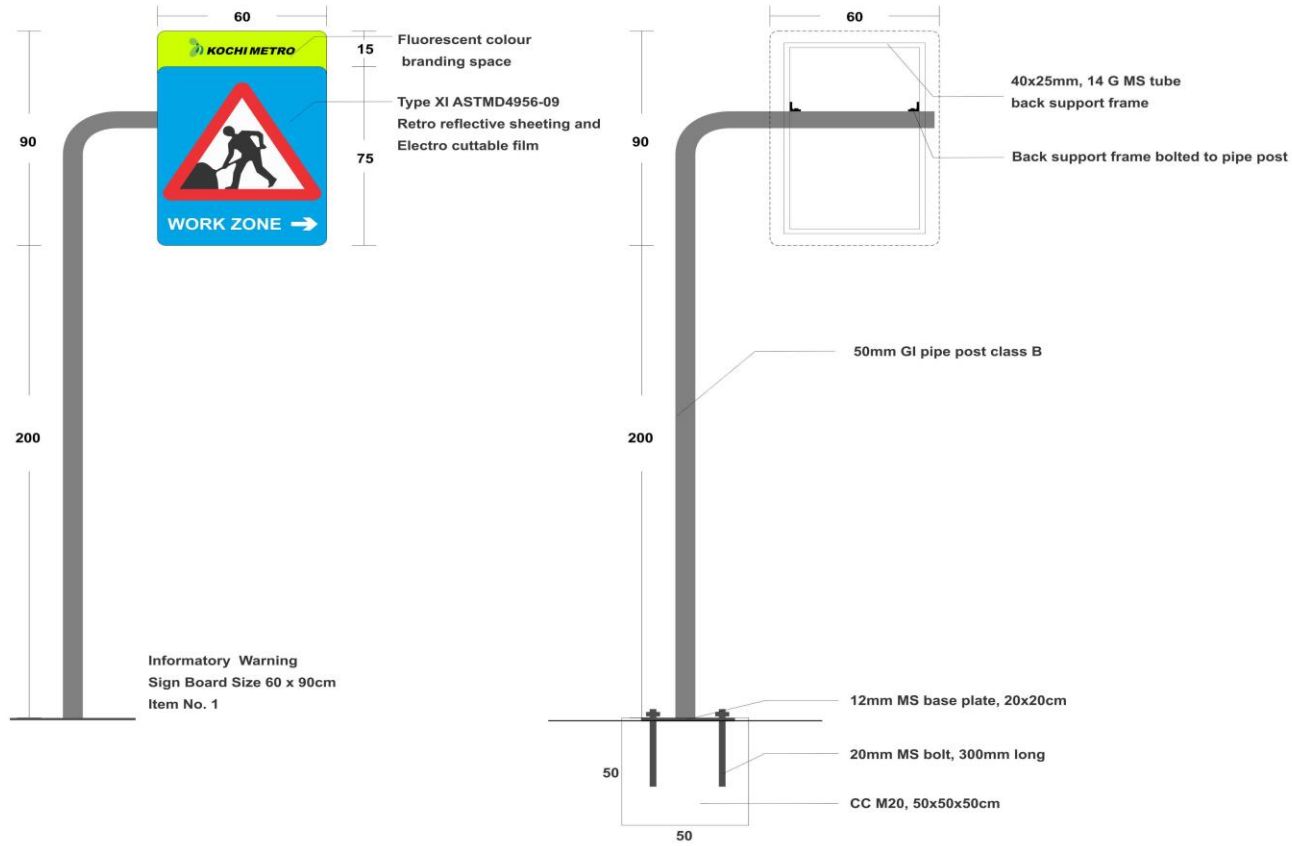
Place:

Date:

TECHNICAL BID (PART I)

SECTION VI- DRAWINGS

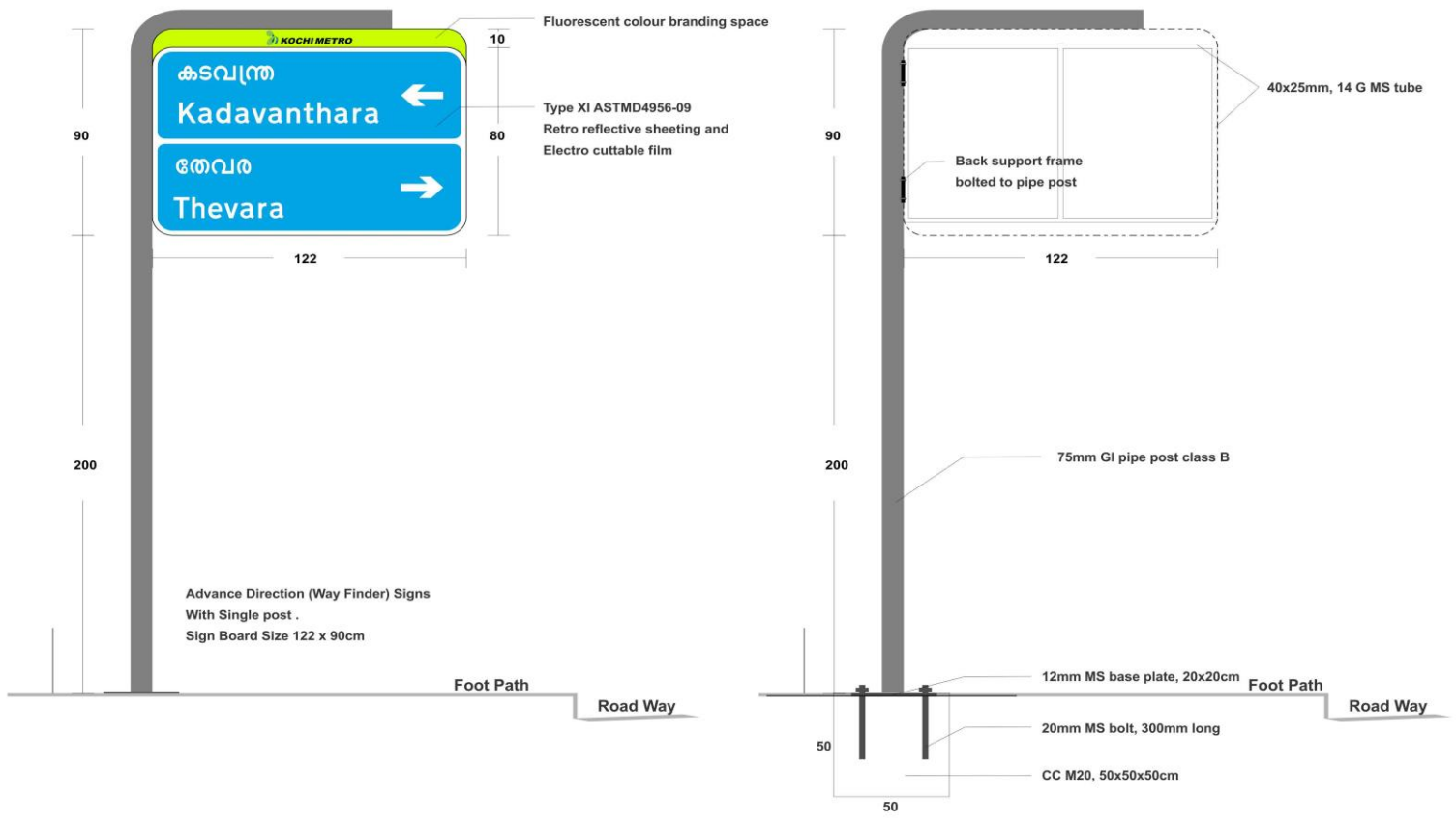
Informatory Warning Sign Board Size 60 x 90cm Item No. 1



Item 1

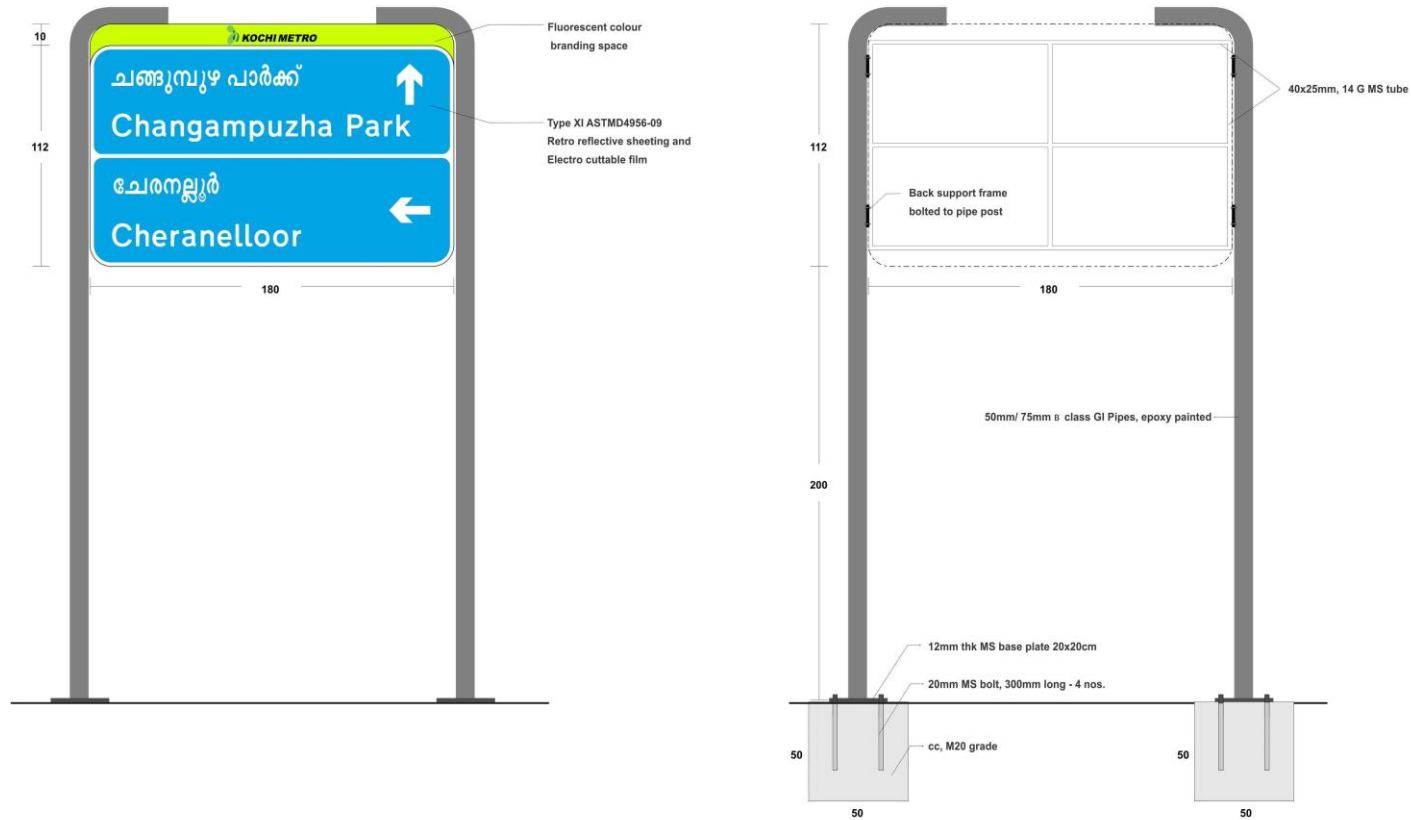


Advance Direction (Way Finder) Signs With Single post .



Item 2a

Advance Direction (Way Finder) Signs with double post.
Item No. 2b

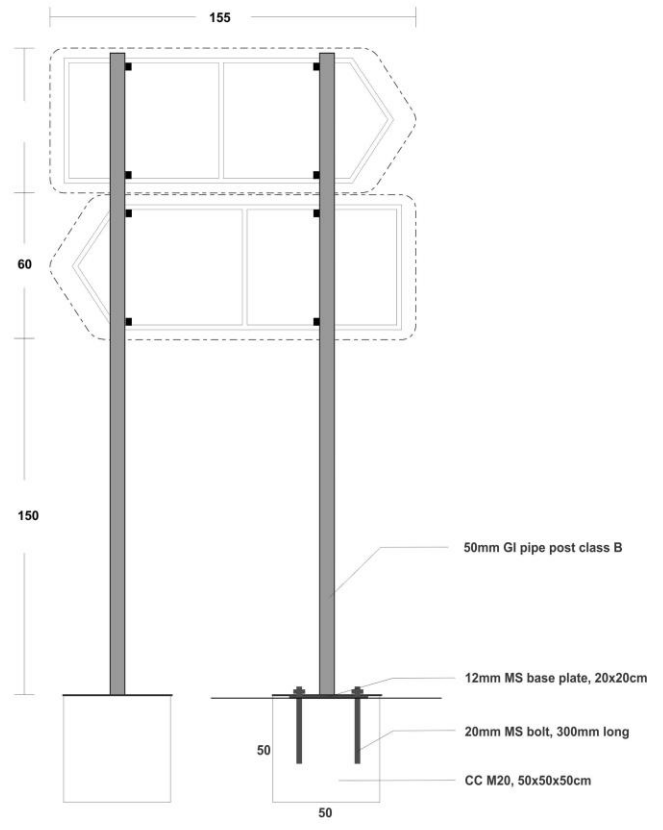


Item 2b



- Fluorescent colour branding space
- Type XI ASTM D4956-09 Retro reflective sheeting and Electro cuttable film

Direction Signs
(Placed at bye road junction)
Sign Board Size 155 x 122cm



Item 3

TENTATIVE POSITION OF SIGNAGE BOARDS Driving Direction - Edappilly to Vytilla -		
Sl no	Direction	Location/ Road name
1	L	Market road
2	R	Manimala Road
3	R	Edappilly Raghavan Pillai Road
4	R	Pottakuzhi Mamangalam Road
5	L	Mamngalam Anchumana Road
6	L	Palarivattom JN
7	L	S Janatha Road
8	R	N Janatha Road
9	L	Stadium Road
10	L	Stadium Link Road
11	R	Deshabhimani Road
12	L	Azad Road
13	R	Asoka road
14	L	Kaloor Kathrikadavu Road
15	L	Judges Avenue Road
16	R	Manapattiparmabil Road
17	R	SRM-Pachalam-Pottakuzhi
18	L	Lissy Hospital
19	L	Town Hall area
20	R	Chittor Road-Pachalam-Kacheripady
21	R	Old Railway Station Road
22	L/R	MG Road all bye roads
23	L	South Railway station area
24	R	Medical Trust Hospital area
25	R	Manorama Jn
26	L	Karshaka Road
27	L	GCDA area
28	L	Kaloor Kathrikadavu Road
29	R	KP Vallon Road
30	R	Cheruparambath Road
31	L	Subash Chandra Bose Road
32	L	Fathima Church Road
33	R	Chilavanoor Road
34	R	Toc H Road
35	L	Ambelipaddam Road
36	L	Paradise Road
37	R	Vytilla Pettah Road Bye roads
38		Other internal roads leading to traffic diverted roads

Item 4

FINANCIAL BID (PART II) –COVER II

- FORM OF BID
- BILL OF QUANTITIES



Schedule 2 – FORM OF BID

Manufacturing, installing and maintaining of retro-reflective sign boards made out of Type XI micro prismatic grade sheeting (in accordance with ASTM D 4956-09) at various roads leading to Kochi Metro Corridor in Ernakulam City

To

General Manager Civil 1
KMRL Ltd., 8th Floor,
Revenue Tower, Kochi – 682011

1. We offer to execute the Works described above and remedy any defects therein in conformity with the conditions of Contract, specification , drawings, Bill of Quantities and Addenda for the sum(s) of
.....
.....
.....
.....
2. We undertake if our Bid is accepted , to commence the Works as soon as is reasonably possible after the receipt of the Engineer’s notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the document.
3. We agree to abide by this Bid for the period of **90** days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
4. Unless and until a formal agreement is prepared and executed this Bid together with your written acceptance thereof, shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.
6. We agree that Arbitration shall not be a means of settlement of any disputes or claims arising out of the contract relating to the work.
- 7.

Dated this.....day of2014.
Signature.....in the capacity ofduly authorized
to sign bids for and on behalf of
(in Block capitals or typed)

Address

.....
.....

Witness

.....
.....

BILL OF QUANTITIES

THE BIDDERS MAY SUBMIT THE BILL OF QUANTITIES SEPERATELY

Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Technical Specification and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of Contract.
3. The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract include all constructional plant, labour, supervision, materials, erection, maintenance, insurance , profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
4. The rates and prices shall be quoted entirely in Indian Currency.
5. A rate or price shall be entered against each item in the Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
6. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities , and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
7. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.
8. The method of measurement of completed work for payment shall be in accordance with the specification for Road and Bridge Works published by the Ministry of Surface Transport (edition) and Revised Kerala PWD manual.
9. Errors will be corrected by the Employer for any arithmetic errors pursuant to Clause 24 of the Instructions to Bidders.

Note:

1. Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the bill of quantities
2. Unit rates and prices shall be quoted by the bidder in Indian Rupees.
3. Where there is a discrepancy between the rate in figures and words, the rates in words will govern
4. Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall prevail.

BILL OF QUANTITY

Tender Inviting Authority : Kochi Metro Rail Limited						
Name of Work : Manufacturing, installing and maintaining of retro-reflective sign boards made out of Type XI micro prismatic grade sheeting (in accordance with ASTM D 4956-09) at various roads leading to Kochi Metro Corridor in Ernakulam City						
Tender Number : No: KMRL/PRJ/446/2013-14 dtd 10.03.2014						
Bidders Name :						
Item No	Description of Work	No/Qty	Unit	Rate to be entered by Bidder		Amount
				In Figures	In Words	
1	Providing and erecting 60 x 90 cm size Information cum warning retro- reflectorised sign with 10 years warranty, manufactured according to IRC :67:2012 using Type XI ASTM D 4956-09 Micro prismatic retro reflective sheeting and Fluorescent sheeting for branding space , the whole sign as per IRC 67:2012 specification & multi-colour using weather resistant latex printing suitably laminated or processed with Electro cut filims /screen printing confirming to clause 6.8 of IRC 67:2012 , on 2 mm thick aluminium substrate vide clause 801.3, supported on 50 mm GI pipe class B, shaped and with base plate as per approved design, firmly fixed to the MS bolts provided in the foundation blocks of M 20 grade cement concrete 50 cm x 50cm x 50 cm, including painting all non-reflective surfaces with epoxy paint 2 coats over epoxy primer as per drawings. The rate includes maintenance for five years.	130	Nos			

2 (a)	<p>Providing and erecting Advance direction / place identification retro- reflectorised sign with 10 years warranty, manufactured according to IRC :67:2012 using Type XI ASTM D 4956-09 micro prismatic retro reflective sheeting and Fluorescent sheeting with logo printed for branding space with 2 mm thick aluminium substrate vide clause 801.3, supported on Single post of 75mm GI pipe class B , shaped and with base plate as per approved design, firmly fixed to the MS bolts provided in the foundation blocks of M 20 grade cement concrete 50 cm x 50 cm x 50 cm, including painting all non-reflective surfaces with epoxy paint 2 coats over epoxy primer as per the drawings. The rate includes maintenance for five years.</p>	320	sq.m			
2(b)	<p>Providing and erecting Advance direction / place identification retro- reflectorised sign with 10 years warranty, manufactured according to IRC :67:2012 using Type XI ASTM D 4956-09 micro prismatic retro reflective sheeting and Fluorescent sheeting with logo printed for branding space with 2 mm thick aluminium substrate vide clause 801.3, supported on Double post of 75mm GI pipe class B , shaped and with base plate as per approved design, firmly fixed to the MS bolts provided in the foundation blocks of M 20 grade cement concrete 50 cm x 50 cm x 50 cm, including painting all non-reflective surfaces with epoxy paint 2 coats over epoxy primer as per the drawings.The rate includes maintenance for five years.</p>	100	sq.m			
3	<p>Providing and erecting retro- reflectorised direction sign with 10 years warranty, manufactured according to IRC :67:2012 using Type XI ASTM D 4956-09 micro prismatic retro reflective sheeting and Fluorescent sheeting with logo printed for branding space with 2 mm thick aluminium substrate vide clause 801.3, supported on Double post of 50mm GI pipe class B , shaped and with base plate as per approved design, firmly fixed to the MS bolts provided in the foundation blocks of M 20 grade cement concrete 50 cm x 50 cm x 50 cm, including painting all non-reflective surfaces with epoxy paint 2 coats over epoxy primer as per the drawings.The rate includes maintenance for five years.</p>	70	sq.m			

4	Refurbishing the Information warning signs provided as per item no.1 above whenever necessary , to display fresh Information signs showing different inscriptions without changing the existing structure or reflective surface and keeping the original properties same.	30	Nos			
	TOTAL AMOUNT IN FIGURES					
	TOTAL AMOUNT IN WORDS					

SIGNATURE OF BIDDER