

National Transportation Planning and Research Centre (NATPAC)
Sasthra Bhavan, Pattom Palace Post, Thiruvananthapuram 695 004

On behalf of

Kerala State Science, Technology and Environment (KSCSTE)
Sasthra Bhavan, Pattom Palace Post, Thiruvananthapuram 695 004

Invites Bids from eligible contractors for

**Fabrication, Installation and Maintenance of sign boards at Karamana River Area
in Thiruvananthapuram district**

June 2016

**NATIONAL TRANSPORTATION PLANNING AND RESEARCH CENTRE
Sasthra Bhavan
Thiruvananthapuram**

GENERAL CONDITIONS OF CONTRACT

Work	:	Manufacturing, installing and maintaining of retro-reflective sign boards made at various locations in Thiruvananthapuram district.
Probable amount of contract	:	Rs 4,05,148
Last date and time for submission of tender	:	<u>27.06.2016</u> 3.00 PM
Date and time of opening Technical Bid	:	<u>27.06.2016</u> 3.30 PM
Cost of Tender document	:	<u>Rs 810+4% VAT</u>

SPECIAL INSTRUCTIONS TO TENDERERS

READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY REGARDING MODE OF SUBMISSION OF TENDERS

Procedure for submission and opening of tenders

- I Tenders should be submitted in sealed cover 1 and sealed cover 2 separately for each package as detailed below:

Cover 1 (Superscribed as “Technical Bid”)

- a) Tender document duly completed and filled
- b) Copy of Certificate of Registration as A class contractor
- c) Valid income tax clearance certificate
- d) Demand Draft towards EMD of Rs 50,000
- e) Documents and certificates as per Clause 8.2
- f) Proof of past experience of road signage
- g) Any additional information to be furnished by the Bidder
- h) DD for Rs.842/- in favour of Director, NATPAC payable at Thiruvananthapuram
- i) Sample of Type XI & Type IV micro prismatic grade sheeting in A4 size (in accordance with ASTM D 4956-09)

Cover 2 (Superscribed as “Price Bid”)

- a) General conditions of contract in the book form duly signed in all pages by the tenderer.
- b) Technical specifications of the work in the book form duly signed in all pages by the tenderer.
- c) Priced Tender Schedule duly filled in and signed on all pages by the tenderer.
- d) General drawings of the work issued duly signed by the tenderer on each drawing.
- e) Letter accompanying the tender with any commercial/ technical condition other than those stipulated in the tender and drawings.

- II Sealed cover 1 and cover 2 should then be put together into a third cover and sealed and the name of work, tender number, name and address of tenderer should be superscribed on it and addressed to the Director, NATPAC, Thiruvananthapuram, Kerala State and submitted as prescribed.
- III Technical bids will be opened in the presence of tenderers or their authorized representatives who are present at **3.30 PM on 27.06.2016**. After evaluation of the technical bid, the owners (NATPAC) shall intimate those contractors who have been qualified to attend the opening of the Price Bid.
- IV Subject to the owner’s (NATPAC) right to accept any tender, and to reject any or all tenders, the owner will award the contract to the tenderer whose bid has been determined to be substantially responsive to the tender documents provided that the tenderer has the capacity and resources to carry out the contract effectively.

Director
National Transportation Planning and Research Centre (NATPAC)
Sasthra Bhavan
Pattom Palace Post
Thiruvananthapuram.

INDEX

Sl. No.	Title	Page No.
	TECHNICAL BID	1
1.	TENDER NOTICE	2
2.	LETTER INVITING TENDER	3
3.	DETAILS OF PAST EXPERIENCE	4
4.	FORM OF TENDER	6
5.	INSTRUCTIONS TO BIDDERS	7
6.	DESCRIPTION OF WORK	8
7.	DEFINITIONS	9
	PRICE BID	10
8.	GENERAL CONDITIONS	11
9.	TECHNICAL SPECIFICATIONS	13
10.	TENDER SCHEDULE	19
11.	ATTACHMENTS	23

TECHNICAL BID

1. TENDER NOTICE

Sealed unit-rate tenders are invited from experienced contractors for supplying and fixing of boards at various locations in Thiruvananthapuram district as per the Schedule given below:

Name of work	Probable amount of contract (PAC)	Earnest money deposit	Time of completion of work
Manufacturing, installing and maintaining of retro-reflective tourism sign boards at various locations in Thiruvananthapuram district	4,05,178	Rs.50,000/-	45 days

The tenderers must be an A-class contractor registered with any State PWD/ CPWD and must have successfully completed retro-reflective type tourism/ road signage works to the tune of 60% of the Probable Amount of Contract in a single work during the last five years separately for each package.

Interested bidders may download the Tender Document from the Websites www.natpac.kerala.gov.in from **15.06.2016 to 27.06.2016**. They have to submit the completed Tender Document along with a DD of Rs. 842/- towards the cost of tender document. DD should be drawn on any bank in favour of Director, NATPAC payable at Thiruvananthapuram.

Those contractors who have already submitted their bids based on invitation from NATPAC dated 01.06.2016 need not submit new bids again. If they wish, they can submit revised quotation in the Tender schedule provided to them and they do not need to attach any additional documents. Those contractors who have not responded to our earlier invitation can submit their bid in the Tender Document provided to them.

Last date and time for submission of tender : **27.06.2016 3.00 PM**

Date and time of opening of Technical Bid in the presence of attending representatives of Bidders : **27.06.2016 3.30 PM**

:
:
:

Director
National Transportation Planning and Research Centre (NATPAC)
Sasthra Bhavan
Pattom Palace Post
Thiruvananthapuram

2. LETTER INVITING TENDER

No. C00116/TTD/NATPAC/2016

Date **14.06.2016**

To

.....
.....
.....

Sub: Manufacturing, installing and maintaining of retro-reflective type signboards at various locations around Karamana River Area in Thiruvananthapuram District

Dear Sir(s),

Sealed item-rate tenders from experienced contractors are invited on behalf of Kerala State Council for Science, Technology and Environment (KSCSTE) for the work as detailed above on competitive basis. A set of the Tender documents is enclosed for submitting your quotation.

Tender No. : C00116/TTD/NATPAC/2016 dated **14.06.2016**

Estimated cost : Rs 4,05,148

EMD : Rs.50,000/- (Rupees Fifty Thousand only) by way of DD drawn on any Nationalized/Scheduled Bank in India in favor of Director, NATPAC payable at Thiruvananthapuram

Period of work : 45 days from date of receipt of work order

Last date and time for receipt of tender : **27.06.2016 @ 03.00 PM**

Date and time of opening Bid in the presence of attending representatives of Bidders : **27.06.2016 @ 03.30 PM**

Tender to be submitted at the address : Director
National Transportation Planning and Research Centre (NATPAC)
Sasthra Bhavan
Pattom Palace Post
Thiruvananthapuram

Note: For any clarification on the Tender document, the following officers can be contacted

- (i) T Ramakrishnan, Technical Officer - V, Traffic and Transportation Division, NATPAC
Mob: 94 95 30 49 24
- (ii) Salini P N, Scientist - C, Traffic and Transportation Division, NATPAC
Mob: 94 47 31 96 73

3. DETAILS OF PAST EXPERIENCE OF THE BIDDER

3.1 Details of completed projects

Sl. No.	Name and location of project	Owner's complete address including Telephone/ Fax No. with contact person	Value	Duration of contract			No. of boards installed with size of boards
				Commencement	Scheduled completion date	Actual completion date	

Note: Bidder to enclose copies of letter of intent and completion certificate issued by Owner.

3.2 Details of concurrent commitments

Sl. No.	Full postal address of client & name of Officer in charge	Description of the work	Value of contract	Date of commencement of work	Scheduled completion period	% of completion as on date	Expected date of completion	No. of boards to be installed with size of board

4. FORM OF TENDER

Name of work : **Manufacturing, installing and maintaining of retro-reflective type signboards at various locations in Thiruvananthapuram District**

To

Director
National Transportation Planning and Research Centre (NATPAC)
Sasthra Bhavan
Pattom Palace Post
Thiruvananthapuram

Dear Sir,

1. I/We do hereby tender to execute the works enumerated in the Tender schedule accompanying in accordance with the terms and conditions stipulated in your tender notification dated and specifications and conditions of the Tender Document.
2. Copy of the specifications duly signed is also enclosed.
3. I/We further agree to complete the work within 45 days from the date of issue of Work Order.
4. I/We further undertake that on failure, subject to the conditions of the contract relating to extensions of time, I/We pay agreed 'Penalty' for the period during which the work shall remain incomplete.
5. I/We do agree to accept and carry out such portions of the work included in my/our tender as may be allotted to me/us.
6. I/We agree to keep the tender open for acceptance for one year from the due date of submission thereof and not to make any modifications in its terms and conditions, which are not acceptable to the owner.
7. The EMD of Rs..... (Rupees) as Demand Draft No..... dated..... drawn in favor of Director, NATPAC enclosed with this Tender Document, which will not bear any interest. Should I/We fail to execute the contract when called upon to do so, I/We agree that this sum shall be forfeited by me/us to the Owner. If I/We fail to keep the tender open as aforesaid or make any modifications and conditions which are not acceptable to the Owner, or, if after the tender is accepted, I/We agree that the Owner shall without any prejudice to any other right or remedy, be at liberty to forfeit the EMD absolutely and also to recover the entire loss that may be caused to the Owner by re-tender or rearrangement of the work or otherwise under revenue recovery act or otherwise as decided by the Owner.

Yours faithfully,

Bidder

Signature, name and address of witnesses.

1.

2.

5. INSTRUCTIONS TO BIDDERS

- 5.1. EMD of unsuccessful bidders shall be released within 30 days from the placement of order to successful bidder.
- 5.2. The right of acceptance of tender and award of contract even to more than one contractor, if considered necessary, will be with the Owner.
- 5.3. The Bidder should sign all schedules, specifications, drawings, conditions, attachment etc. in token of acceptance thereof.
- 5.4. Owner will not be responsible for any cost or expense incurred by the Bidder in connection with the preparation and delivery of his Tender or for any other expenses incurred in connection with such Tendering.
- 5.5. Bidders are advised to review and acquaint themselves of all site conditions prior to submission of their Tender. Failure to assess the site condition will in no way relieve the successful Bidder, of any of the obligations in performing the work in accordance with this Tender document within the quoted price.
- 5.6. The Bidders may please note that the Owner will not entertain any correspondence or queries on the status of the offers received against this Tender. Bidders are also requested not to depute any of their personnel or agents to visit the Owner's offices for making such enquiries.
- 5.7. Canvassing in any form by the Bidder or by any other agency acting on behalf of the Bidder after submission of the Tender may disqualify the said Bidder. The Owner's decision in this regard shall be final and binding on the Bidder.
- 5.8. Owner will not be liable for any financial obligation in connection with the work until such time the Owner has communicated to the successful Bidder in writing the decision to entrust the work (covered by the Tender document issued).
- 5.9. Telex/telegraphic/electronic offers will not be considered. Bidders should prepare their Tender themselves. Tender submitted by agents will not be accepted.
- 5.10. Tenders received after the due date and time and any change in quotation after the specified date will be rejected. Owner will not be responsible for the loss of the Tender document or for the delay in postal transit.
- 5.11. In case of an unscheduled holiday on the prescribed closing/opening day of the Tender, the next working day will be treated as the scheduled prescribed day of closing/opening of the Tender.
- 5.12. The tenders can only be submitted in the name of the Bidder in whose name the Tender documents were issued by the Owner.
- 5.13. The tender and any annotations or accompanying documentations shall be in English language only and in metric system.
- 5.14. Bidders shall sign their proposal with the exact name of the firm to whom the Tender document has been issued. The Tender shall be duly signed and sealed by an authorized executive officer of the Bidder's organization.
- 5.15. Tender shall be signed by a duly authorized officer and in the case of corporation; the Tender shall be sealed with the corporate seal or otherwise appropriately executed under seal.
- 5.16. Bidders shall clearly indicate their legal constitution and the person signing the tender shall state his capacity and also the source of his ability to bind the Bidder. The power of attorney or authorization or any other document constituting adequate proof of the ability of the signatory to bind the Bidder shall be annexed to the Tender. Performa is given in Attachment9.1.
- 5.17. The Owner may reject outright any Tender unsupported by adequate proof of the signatory's authority.
- 5.18. The tender document shall be completed in all respects and shall be submitted together with requisite information. They shall be complete and free from ambiguity, change or interlineations.
- 5.19. Bidders should indicate at the time of quoting against this Tender their full postal/e-mail address.
- 5.20. Bidder shall set their quotations in firm figures and without qualification. Each figure stated shall also be repeated in words and in the event of a discrepancy between the amounts stated in figures and words, the amount quoted in words shall be deemed to be the correct amount. Tenders containing qualifying expressions such as "Subject to minimum acceptance' etc. is liable to be rejected.
- 5.21. Bidders shall submit along with their offer an EMD in the form of Demand Draft drawn in favor of Director, NATPAC for Rs. 50,000/- (Rupees fifty thousand only) from a Nationalized/ Scheduled Bank payable at Thiruvananthapuram.
- 5.22. At the time of opening of Tender at 3.30PM on **27.06.2016** in the Office of the Director, NATPAC, Thiruvananthapuram, the owner will permit one authorized representative of each Bidder to be present provided such representative presents to the Owner at that time, a letter duly signed by the Bidder authorizing him to be present on behalf of the Bidder.

6 DESCRIPTION OF WORK

6.1 Background

National Transportation Planning and Research Center (NATPAC) on behalf of KSCSTE proposes to install signboards at identified locations in Thiruvananthapuram district. Four types of signboards have been proposed. Detailed designs for these signboards are provided in **Drawings 1 to 4**. The exact locations of the proposed signboards have to be worked out by the tenderer in association with NATPAC. Apart from supply and installation, a maintenance contract for the first five years is also to be executed by the tenderer with NATPAC. The cost of maintenance as described in the following section will have to come in the quoted unit rate itself. This tender is for the manufacturing, installing and maintaining of retro-reflective signboards in Thiruvananthapuram district.

6.2 Major Activities

Major activities associated with this work are summarized below;

- 6.2.1 Preparation of the final list of locations for each type of boards and information to be provided on each board in association with NATPAC.
- 6.2.2 Preparation of sign boards in accordance with the specifications and designs in approved drawings and tender schedule available with NATPAC as per the details finalized as per section 4.2.1.
- 6.2.3 Screen-printing of information on each signboard as per the details finalized as per section 4.2.1. (A Template of each sign board in A4 size paper shall be prepared by the contractor and got approved by NATPAC before screen printing)
- 6.2.4 Transportation and installation of the signboards at appropriate locations in Kerala State.
- 6.2.5 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 six months.
 - ii) Painting of the signs, if necessary, in every two years.
 - iii) Repairing / replacing the sheets / boards damaged in natural causes, free of cost as and when intimated to the Contractor by NATPAC.
 - 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 NATPAC.
 - 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.

6.3 Quantum of work*

The work involves the preparation and installation of signboards in Kerala as given in the following table.

Type of design->	Design 1	Design 2	Design 3	Design 4
No. of boards ->	1	25	20	50

* Subject to change

There may be repeat order for installation of more sign boards during the course of one year and unit rate quoted in this tender shall be applicable for the repeat order also. The repeat works shall be undertaken within 45 days from the date of issue of work order.

7. DEFINITIONS

- 7.1. In this CONTRACT (as hereinafter defined), the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires.
- 7.2. The OWNER shall mean Director, NATPAC and include its successors and assigns
- 7.3. The TENDER shall mean the Tender Document along with supporting documents, submitted by the Bidder for consideration by OWNER.
- 7.4. OFFICER-IN-CHARGE means the person or persons to whom the OWNER may delegate his authority in writing from time to time.
- 7.5. The CONTRACTOR shall mean the person or persons, firm or company or corporation, whose Tender has been accepted by OWNER and includes the CONTRACTOR'S legal representatives, his successors and permitted Assigns.
- 7.6. PAC shall mean Probable Amount of Contracts as per the Contract
- 7.7. The WORK shall mean and include all works to be executed, all items and things to be provided/ done and services and activities to be performed by the CONTRACTOR in accordance with the Contract.
- 7.8. The SUB-CONTRACTOR shall mean any person or firm or Company (other than the Contractor) to whom any part of WORK has been entrusted by the CONTRACTOR, with the written consent of the OWNER and the Legal Representatives, Successors and permitted Assigns of such person, firm or Company.
- 7.9. The CONTRACT shall mean the agreement between OWNER and the CONTRACTOR for the execution of the WORK including therein all documents such as the invitation of Tender, Instructions to Bidders, General Conditions of contract, Special conditions of Contract, Technical specifications, Drawings, Letter of Acceptance of Tender, Agreed Variations to the Tender document issued by the OWNER if any, etc. enclosed in the form of a statement with reference to various clauses of Tender document or otherwise incorporated in the Tender document.
- 7.10. The CONTRACT DOCUMENT shall mean collectively the Tender document, Designs, Specifications, Schedule of Rates/ Prices, letter of Acceptance of Tender, Agreed Variations, if any in the form of a statement or otherwise incorporated as required, out of the Tender submitted by CONTRACTOR and as accepted by OWNER.
- 7.11. SPECIFICATIONS shall mean all directions, various technical specifications, provisions and requirements attached to the Contract, which pertain to the method and manner of performing the work to the quantities and qualities of the work under the CONTRACT for the WORK as may be amplified or modified by OWNER, Drawings for performance of the CONTRACT in order to provide the unforeseen conditions or in the best interest of the WORK.
- 7.12. DRAWINGS shall include maps, plans, sketches and tracings or prints thereof referred to and incorporated into the contract and any modifications of such drawings approved in writing by the OWNER and such other Drawings as may, from time to time, be issued or approved in writing by the OFFICER-IN-CHARGE.
- 7.13. The COMPLETION CERTIFICATE shall mean certificate to be issued by the OWNER when the work has been completed in accordance with CONTRACT DOCUMENT to his satisfaction.
- 7.14. The FINAL CERTIFICATE in relation to the work shall mean the certificate regarding the satisfactory compliance of the various provisions of the Contract by the CONTRACTOR issued by the OFFICER-IN-CHARGE after the Security Period is over.
- 7.15. APPROVED shall mean approved in writing including subsequent written confirmation of previous verbal approvals and "approval" means approved in writing including as aforesaid.
- 7.16. LETTER OF ACCEPTANCE OF TENDER shall mean an intimation by Owner through a letter to successful Bidder that his Tender has been accepted in accordance with the provision contained in the said "Letter of acceptance of Tender" and shall include such an intimation by Telex/ Telegram/Cable or the like means stating the intention of the Owner to award the work to the successful Bidder.

PRICE BID

8. GENERAL CONDITIONS

8.1. Contract agreement, security deposits and payment of bills

- 8.1.1. The successful Bidder shall be required to execute a "Contract Agreement" in accordance with the requirement of the Owner **within 10 days** from the date of issue of the "Letter of acceptance of the Tender" by the Owner, or within such extended time as may be permitted by the Owner in his behalf. This agreement proforma is furnished under Attachment 11.2.
- 8.1.2. The agreement as finally executed will include the owner's Tender Documents and the Bidder's offer as finally accepted by the Owner together with addendum and agreed deviation, if any.
- 8.1.3. Solicitor's fee, if any, to be paid to the law officers for scrutinizing or drawing of Contract agreement will be paid and the same recovered from successful Bidder.
- 8.1.4. The successful Bidder is required to deposit five percentage of the Agreed PAC as security amount subject to a maximum of Rs.1,00,000/- (Rupees one lakh) to ensure proper execution of work before signing the contract agreement. It should be in the form of Demand Draft drawn in favor of Director, NATPAC, Thiruvananthapuram. The security period will be six months from the date of issuing of the Completion Certificate. This will be paid back on production of Final Completion Certificate from Officer-in-charge.
- 8.1.5. The payment will be made on completion of the entire work by the contractor and the bills will be submitted to NATPAC by the contractor. The bills along with Completion Certificate issued by NATPAC after scrutiny with reference to the agreement for the work will be forwarded to KSCSTE who will make the payment.
- 8.1.6. Tax deduction at source will be made from the bill as per Income Tax and other taxes rules of the Central and State Governments in force during that time.
- 8.1.7. Completion Certificate will be issued by the Officer-in-charge of NATPAC after the successful completion of the project by the Contractor and after the reflective sheeting is tested for co-efficient of retro-reflection to meet the stipulated requirements in the technical specification. Final payment will be made on Production of Completion Certificate from Officer-in-charge. Contractor should produce Income Tax, Sales Tax and Clearance Certificate as per Central and State Government rules in force during that time before the final payment.
- 8.1.8. The Tender shall be on item-rates basis. The offer should include all items/ materials, labor tools, fabrication, transportation, fixing, insurance, taxes, duties, permits, overheads, profits etc. necessary for the proper execution of work as described in Tender Document.
- 8.1.9. Any recovery due from the contractor on account of this work will be made by deducting from the bill.
- 8.1.10. 10% of the total contract value inclusive of EMD to be retained for the maintenance of sign boards for next five years. Partial payment subject to a maximum of 20% of the total retained amount will be released by the KSCSTE each year on production of certificate of good maintenance condition issued by NATPAC.

8.2. Documents and certificates

- 8.2.1. Contractor shall obtain from the manufacturer a Ten year (for Type XI) / Seven year (for Type IV) pre Warranty certificate and submit it at the time of submitting the bid.
- 8.2.2. Contractor, at the time of executing the 'Contract Agreement', should also furnish a certificate on non-judicial stamp paper of Rs. 200/- that the signs and the materials supplied would meet the stipulated requirements in technical specification and carry the stipulated warrantee.
- 8.2.3. A certificate of having the sheeting tested for co-efficient of retro-reflection, day/night time color luminous, shrinkage, flexibility, liner removal, adhesion, impact resistance, specular gloss and fungus resistance, three-years outdoor weathering and its having passed these tests shall be obtained from a reputed Laboratory, by the manufacturer of the sheeting and submitted at the time of executing the 'Contract Agreement'.

8.3. Other conditions

- 8.3.1. The Owner may reject, accept or prefer any tender without assigning any reason whatsoever. The Owner also reserves the right to accept any tender in part or parts only with such conditions as the Owner may prescribe.
- 8.3.2. The work should be completed within 45 days from the date of issue of Work Order.
- 8.3.3. The Owner shall, at any time, be entitled to detain or terminate the contract for any cause whatsoever.
- 8.3.4. Except for the final certificate, no other certificate or payment against a certificate or general accounts shall be taken to be as admission by Owner of the due performance of contract.
- 8.3.5. To take care of any delay from the Owner or delay occurring due to unexpected technical problems faced during the execution of work, a grace period of 20% of original time of completion will be

allowed. The grace period will not be allowed if the extension is necessitated due to the default on the part of the contractor. For any delay by the Contractor, he shall pay damages at a rate of 0.5% of the total contract value per week of delay up to maximum of six weeks after which the Contract stands cancelled.

- 8.3.6. Any material brought to the site of work by the contractor, but rejected by the Officer-in-charge as being not up to the specifications, should be dismantled or broken up and rectified at the expense of contractor as may be instructed by the officer in charge.
- 8.3.7. Several documents forming the contract are to be taken as mutually explanatory. Should there be any discrepancy, inconsistency, error or omission in various sections of the Contract or any of them, the matter may be referred to Officer-in-Charge who shall give his decisions and issue to the Contractor instructions directing in what manner the work is to be carried out. The contractor shall carry out work in accordance with his decision.
- 8.3.8. Any dispute or difference that may arise between the Officer-in-Charge and Contractor on account of contract, should at the instance of either party be referred to the Director, NATPAC. Her decision given in writing shall be final, conclusive and binding.
- 8.3.9. All headings to the articles of those General Conditions of Contract or to the specifications or to any other part of Tender Document are solely for the purpose of giving concise indication and not a summary of the contents thereof, and they shall never be deemed to be part thereof or be used in the interpretation or construction thereof of the Contract.
- 8.3.10. In Contract document unless otherwise stated specifically the singular shall include the plural and vice versa wherever the context so requires. Words imparting person shall include incorporated Companies/ Registered Associations/ Body of Individuals/ Firm of Partnership as applicable in context therewith.
- 8.3.11. Wherever it is mentioned in the Specifications that the Contractor shall perform certain work or provide certain facilities, it is understood that the contractor shall do so at his own cost and Contract Price shall be deemed to have included cost of such performance and provisions so mentioned.
- 8.3.12. The work to be done is described in the Tender Document (and in particular in the Technical Specifications, Schedule and Drawings). Quantities, drawings and specifications given in the Tender Documents are for the sole purpose of indicating to Bidders, the order of magnitude of work and are not in any way guaranteed to remain unchanged.
- 8.3.13. No part of the contract be sublet without permission of the Owner.
- 8.3.14. 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 the Owner for the works done under contract.
- 8.3.15. If the contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the contractor is a partnership concern and one of the partners dies then unless the Owner 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 to carry out the contract as to its uncompleted part, without the Owner 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 the Owner 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 Owner 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.
- 8.3.16. 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.
- 8.3.17. The courts at Thiruvananthapuram alone shall have jurisdiction in respect of any matter arising out or in connection with this contract.

9. TECHNICAL SPECIFICATIONS

9.1. 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).

9.2. Specification of materials for Signs

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

Concrete: Concrete shall be of M25 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 Composite Material (ACM) conforming to following sub-sections:

- Aluminium Composite Materials (ACM): ACM sheets used for sign boards is a sandwiched construction with a thermoplastic core of 'Low Density Polyethylene' (LDPE) between two thick skins/sheets of aluminium with overall thickness of 4mm, and aluminium skin thickness of 0.5mm and 0.3mm respectively on both sides. The retro reflecting sheeting must be applied on the top surface with aluminium surface with recommended surface preparation from sheeting manufacturer. A fluorocarbon coating may be applied over the exposed surface of the Aluminium to ensure corrosion resistant and weather proof and thus conform to relevant ASTM. The mechanical properties of 4mm ACM and that of Aluminium skin shall conform to the requirement given in **Table 7.1**, when tested in accordance with the test methods mentioned against each of them.

Table 7.1: Specifications for Aluminium Composite Material (ACM)

Sl No	Description	Specifications for 4mm	
		Standard Test	Acceptable Value
A	Mechanical properties of ACM		
1	Peel off strength with retro reflective sheeting. (Drum Peel Test)	ASTM D903	Min. 4 N/mm
2	Tensile strength	ASTM E638	Min. 40 N/mm ²
3	0.2% Proof Stress	ASTM E638	Min. 34 N/mm ²
4	Elongation	ASTM E638	Min. 6%
5	Flexural Strength	ASTM C393	Min. 130 N/mm ²
6	Shear strength with punch shear test	ASTM D732	Min. 18 N/mm ²
B	Properties of Aluminium Skin		
1	Tensile strength (Rm)	ASTM E8	Min. 150 N/mm ²
2	Modulus of Elasticity	ASTM E8	Min. 70,000 N/mm ²
3	Elongation	ASTM E8	A ₅₀ Min. 2%
4	0.2% Proof Stress	ASTM E8	Min. 110 N/mm ²

Plate thickness: Shoulder mounted ground signs shall be at least 4mm thick with aluminium composite material. The thickness of the sheet shall be related to the size of the sign and its support and shall be such that it does not bend or deform under prevailing wind and other loads. All overhead signs made with aluminium composite material shall be minimum 4 mm thick to withstand wind and other loads without deformation.

Retro reflective sheeting: The retro reflective sheeting used on the signs shall consist of the white or 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 color luminous, shrinkage, flexibility, liner removal, adhesion, impact resistance, specular gloss and fungus resistance, 3 years outdoor weathering and its having passed these tests shall be obtained from an International/ Government 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 retro-reflection 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 Sheeting (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.lx⁻¹.m²).

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 retro-reflective sheeting. The aluminium sheeting shall be de-greased 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 informative 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 color of sheeting normally used, as given in **Table 7.2**. 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 retro-reflective sheeting, a 10 year (for Type XI) and seven years (for Type IV) 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 (M25) 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.

For overhead signs, the support system should be properly designed based on sound engineering principles, to safely sustain the dead load, live load and wind load on the completed sign system. For this purpose, the overhead signs shall be designed to withstand a wind loading of 150 kg/m² normal to the face of the sign and 30 kg/m² transverse to the face of the sign. In addition to the dead load of the structure, walkway loading of 250 kg concentrated live load shall also be considered for the design of the overhead sign structure.

9.4. Specification for color for signs

Signs shall be provided with retro-reflective sheeting and/or overlay film as shown on the detailed drawings. The reverse side of all signs shall be painted grey.

The sign posts shall be painted in 250 mm wide bands, alternately black and white. The lowest band next to the ground shall be in black.

The color of the material shall be located within the area defined by the chromaticity coordinates in **Table 9.3** and comply with luminance factor given in **Table 9.4** when measured as per ASTM D:4956-09. Chromaticity is the objective specification of the quality of a color regardless of its luminance, that is, determined by its hue and colorfulness (or saturation/chroma, or intensity)

Table 9.3: Chromaticity Coordinates (Daytime)**

Colour	1		2		3		4	
	x	y	x	Y	x	Y	x	Y
White	0.303	0.300	0.368	0.366	0.340	0.393	0.274	0.329
Yellow	0.498	0.412	0.557	0.442	0.479	0.520	0.438	0.472
Green*	0.026	0.399	0.166	0.364	0.286	0.446	0.207	0.771
Red	0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346
Blue *	0.140	0.035	0.244	0.210	0.190	0.255	0.065	0.216
Orange	0.558	0.352	0.636	0.364	0.570	0.429	0.506	0.404
Brown	0.430	0.340	0.610	0.390	0.550	0.450	0.430	0.390
Fluorescent Yellow -Green	0.387	0.610	0.369	0.546	0.428	0.496	0.460	0.540
Fluorescent Yellow	0.479	0.520	0.446	0.483	0.512	0.421	0.557	0.442
Fluorescent Orange	0.583	0.416	0.535	0.400	0.595	0.351	0.645	0.355

** The four pairs of chromaticity coordinates determine the acceptable color in terms of the CIE 1931 Standard Colorimetric System measured with CIE Standard illuminate D65.

* The saturation limit of green and blue may extend to the border of the CIE chromaticity locus for spectral colors.

Table 9.4: Daytime Luminance Factor (Y%)

Colour	Non-Metallic Portion		Metallic Portion	
	Min	Max	Min	Max
White	27	-	15	-
Yellow	15	45	12	30
Green	3.0	12	2.5	11
Red	2.5	15	2.5	11
Blue	1.0	10	1.0	10
Orange	10	30	7.0	25
Brown	1.0	9.0	1.0	9.0
Fluorescent Yellow -Green	60	-	-	-
Fluorescent Yellow	40	-	-	-
Fluorescent Orange	20	-	-	-

The color 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 9.5**.

Table 9.5: Letter Size and Sitting of Information Signs (Shoulder & Gantry Mounted)

1	Advance Direction Signs(Shoulder Mounted)					Flag Type Direction Signs, Reassurance Signs, Place Identification Signs			Gantry Mounted Signs		
	2	3	4	5	6	7	8	9	10	11	12
Design Speed	“x” height (mm) Lower case	“X” height (mm) Upper case	Minimum clear visibility to the sign (m)	ONE sign: distance from junction (m)	TWO signs: distance between 1 st & 2 nd sign (m)	“x” height (mm) Lower case	“X” height (mm) Upper case	Minimum clear visibility to the sign (m)	“x” height (mm) Lower case	“X” height (mm) Upper case	Minimum clear visibility to the sign (m)
51 - 65 km/h	125 (100)	175 (140)	100 (60)	90	50	100 (75)	140 (105)	60 (45)	200 (175)	280 (245)	150

***Note: The values in brackets are the minimum values to be adopted when there are sites/space constraints.**

Notes:

- 1) For grade separated junction two or three advance direction signs are provided. These are located at the start of diverging lane, 250 m to 75 m from the junction and additionally 750 m to 1500 m from the junction.
- 2) The “X” height is the height of a lower case English “Transport medium” font and upper case shall be 1.4 times of lower case height.
- 3) In columns 2, 3, 7, 8, 10 and 11 of Table 9.5, the font heights shown are normal size to be used for respective approach speeds and in brackets are the absolute minimum sizes to be used where site/space is limited. The font size can be increased by another 50mm from the normal font size for those direction boards requiring special emphasis/attention.
- 4) In columns 4 and 9 of Table 9.5, the clear visibility distances indicated are minimum values. Greater distances should be provided wherever possible.
- 5) In columns 5 and 6 of Table 9.5, the distances shown are for guidance only and are not to be taken precise.
- 6) Reassurance signs are normally placed about 100-150 m after the junction. Place Identification Signs are normally placed about 90 m to 150 m in advance of the start of the built-up area and flag type direction signs are generally installed at the nose of diverging lanes.
- 7) Columns 10, 11 and 12 of Table 9.5 shall be taken for design of gantry mounted signs.

9.6. Specification of work

- 9.6.1. The boards should be erected at various locations in Thiruvananthapuram district as finalized in Section 4.2.1.
- 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 color 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) may be 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.

10. TENDER SCHEDULE

Sl. No.	Item	Quantity of boards (in Nos.)	Unit rate (in Rs.) per board	Total amount (in Rs)
1	<p>Design 1 : Information board of size 1.540x1.540 m Manufacturing, installing and maintaining of retro-reflective type information sign boards with information of project details and pictures with 10 years warranty, of size <u>1.540x1.540 m</u> as per IRC:67:2012, with information on one side using Type XI ASTM D 4956-15 micro prismatic grade with electro cut film overlay sheeting fixed over hard and corrosion resistant aluminium sheeting, 2 mm thick, conforming to ASTM (ASTM D903, ASTM E638, ASTM C393, ASTM D732, ASTM E8)with size 1.540x1.540 m riveted using aluminium rivets of diameter 5mm, supported by frames made of mild steel angle section of size 35x35x4 mm fixed on a mild steel angle iron post 75 mm x 75 mm x 6 mm, 2.85 metres long, 2 nos firmly fixed using welds, nuts & bolts, erected vertically by embedding the base in concrete that is fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level including the cost of labor for taking pit in all classes of soil, concreting, fixing the posts with base plates welded at bottom for anchorages and painting all exposed non reflective faces, support structure and connections with epoxy paint two coat over epoxy primer, including all conveyance of material to the site etc complete as per the approved detailed design drawing (Design-1) as directed by the officer-in-charge. Destination names, arrows, numerals, symbols, pictures, logos etc of specified shape and size as mentioned in drawings should be with Type XI micro prismatic grade retro-reflective sheeting materials. The information picture and logos in the signboard should be printed on and covered with overlay film. The cost is also to cover free maintenance of the boards for five years including cleaning the reflective surface of the sign using mild soap & water once in every six months to remove all dirt and vehicle exhaust deposit, wiping out dry including removing any rust and re-painting the exposed faces of sign with a single coat of enamel paint in every two years for a period of five and, attending to all works on damages of the board in natural cause on call.</p>	1		

<p>2 Design 2 : Information board of size 1.220x0.810 m</p> <p>Manufacturing, installing and maintaining of retro-reflective type information sign boards with information of project details and pictures with seven years warranty, of size 1.220x0.810 m as per IRC:67:2012, with information on one side using Type IV ASTM D 4956-15 micro prismatic grade with electro cut film overlay sheeting fixed over hard and corrosion resistant aluminium sheeting, 2 mm thick, conforming to ASTM (ASTM D903, ASTM E638, ASTM C393, ASTM D732, ASTM E8)with size 1.220x0.810 m riveted using aluminium rivets of diameter 5mm,, supported by frames made of mild steel angle section of size 35x35x4 mm fixed on a mild steel angle iron post 75 mm x 75 mm x 6 mm, 2.85 metres long, 2 Nos firmly fixed using welds, nuts & bolts, erected vertically by embedding the base in concrete that is fixed to the ground by means of properly designed foundation with M 15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level including the cost of labor for taking pit in all classes of soil, concreting, fixing the posts with base plates welded at bottom for anchorages and painting all exposed non reflective faces, support structure and connections with epoxy paint two coat over epoxy primer, including all conveyance of material to the site etc complete as per the approved detailed design drawing (Design-2) as directed by the officer-in-charge. Destination names, arrows, numerals, symbols, pictures, logos etc of specified shape and size as mentioned in drawings should be with Type IV prismatic grade retro-reflective sheeting materials. The information picture and logos in the signboard should be vinyl printed covered with overlay film. The cost is also to cover free maintenance of the boards for five years including cleaning the reflective surface of the sign using mild soap & water once in every six months to remove all dirt and vehicle exhaust deposit, wiping out dry for a period of five years and, attending to all works on damages of the board in natural cause on call.</p>	<p>25</p>		
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3	<p>Design 3 : Information board of size 0.60x0.40 m</p> <p>Manufacturing, installing and maintaining of retro-reflective type information sign boards with information of project details and pictures with seven years warranty, of size 0.60x0.40 m as per IRC:67:2012, with information on one side using Type IV ASTM D 4956-15 prismatic grade with electro cut film overlay sheeting fixed over hard and corrosion resistant aluminium composite sheeting, 3 mm thick, conforming to ASTM (ASTM D903, ASTM E638, ASTM C393, ASTM D732, ASTM E8)with size 0.60x0.40 m fixed on wall / hanging by steel wires or other means, and painting all exposed non reflective faces, with epoxy paint two coat over epoxy primer, including all conveyance of material to the site etc complete as per the approved detailed design drawing (Design-3) as directed by the officer-in-charge. Destination names, arrows, numerals, symbols, pictures, logos etc of specified shape and size as mentioned in drawings should be with Type IV prismatic grade retro-reflective sheeting materials. The information picture and logos in the signboard should be vinyl printed covered with overlay film. The cost is also to cover free maintenance of the boards for five years including cleaning the reflective surface of the sign using mild soap & water once in every six months to remove all dirt and vehicle exhaust deposit, wiping out for a period of five years and, attending to all works on damages of the board in natural cause on call.</p>	20		
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<p>4 Design 4 : Information board of size 0.60x0.30 m</p> <p>Manufacturing, installing and maintaining of retro-reflective type information sign boards with information of project details and pictures with seven years warranty, of size 0.60x0.30 m as per IRC:67:2012, with information on one side using Type IV ASTM D 4956-15 prismatic grade with electro cut film overlay sheeting fixed over hard and corrosion resistant aluminium composite sheeting, 3mm thick, conforming to ASTM (ASTM D903, ASTM E638, ASTM C393, ASTM D732, ASTM E8)with size 0.60x0.30 m fixed on wall / hanging by steel wires or other means, and painting all exposed non reflective faces, with epoxy paint two coat over epoxy primer, including all conveyance of material to the site etc complete as per the approved detailed design drawing (Design-4) as directed by the officer-in-charge. Destination names, arrows, numerals, symbols, pictures, logos etc of specified shape and size as mentioned in drawings should be with Type IV micro prismatic grade retro-reflective sheeting materials. The information picture and logos in the signboard should be vinyl printed covered with overlay film. The cost is also to cover free maintenance of the boards for five years including cleaning the reflective surface of the sign using mild soap & water once in every six months to remove all dirt and vehicle exhaust deposit, wiping out dry for a period of five and, attending to all works on damages of the board in natural cause on call.</p>	50		
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11. ATTACHMENTS

11.1. Proforma for Letter of Authority

To

The Director
NATPAC
Sasthra Bhavan
Pattom Palace Post
Thiruvananthapuram

Dear Sir / Madam,

We do hereby confirm that M/s
.....
(Name and address) is / are authorized to represent us to Tender, negotiate and conclude the agreement on
our behalf with you against Tender No

We confirm that we shall be bound by all and whatsoever our said agents shall commit.

Yours faithfully,

Signature :
Date :
Name and Designation :
For and on behalf of :

11.2. Proforma of Form of Agreement

(To be submitted on Rs.100/- non-judicial stamp paper)

CONTRACT AGREEMENT FOR THE WORK OF
..... made of day of Two
thousand and between Messers

Hereinafter called the CONTRACTOR (which term shall unless excluded by or repugnant to the context include its successors and permitted assigns) of the one part and Director, NATPAC, Thiruvananthapuram, hereinafter called the OWNER (which term shall unless excluded by or repugnant to the context include its successors and permitted assigns) of the other part.

WHEREAS

- a) OWNER being desirous of getting executed the WORK mentioned enumerated or referred to in the Tender Document including Notice inviting Tender, Instructions to Bidders, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, Plans, Time Schedule, Letter of Acceptance of Tender and other documents, has invited Tenders.
- b) CONTRACTOR has inspected site and surroundings of WORK specified in the Tender documents and satisfied himself by careful examination before submitting his Tender as to the nature of the quantities, nature and magnitude of WORK, availability of equipments, material etc. necessary for the execution of WORK and he has made local and independent enquiries and obtained complete information as to the matters and things referred to, or implied in the tender Document or having any connection therewith, and he considered the nature and extent of all probable and possible situations, delays, hindrances or interferences to or with the execution and completion of WORK, to be carried out under CONTRACT, and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and ancillary thereof effecting the execution and completion of WORK and which might have influenced him in making his Tender.
- c) The Invitation to Tender, Instruction to Bidders, General Conditions of Contract, Description of Works and Specifications, Plans, Time Schedule, Letter of Acceptance of Tender and any other documents and enclosures, copies of which are hereto annexed are included in the expression CONTRACT wherever herein used.

AND WHEREAS

OWNER accepted the Tender of CONTRACTOR for the provision and execution of WORK at the CONTRACT PRICE as indicated in CONTRACT upon the terms and subject to the conditions of CONTRACT.

Now this CONTRACT AGREEMENT witnessed and it is hereby agreed and declared as follows:

- 1. In consideration of the payment to be made to CONTRACTOR for WORK to be executed by him, CONTRACTOR hereby covenants with OWNER that CONTRACTOR shall and will duly provide, execute and complete WORK and things in CONTRACT, mentioned or described or which are to be implied there from or may be reasonably necessary for completion of WORK and at the times and in the manner and subject to the terms and conditions or stipulations mentioned in CONTRACT.
- 2. In consideration of the due provision, execution and completion of WORK by the CONTRACTOR in accordance with the terms of the CONTRACT, the Owner does hereby agree with CONTRACTOR, that KSCSTE will pay to Contractor the respective amounts for the work actually done by him and approved by Owner as per Payment Terms accepted in CONTRACT and payable to CONTRACTOR under provision of Contract, such payment to be made at such time and such manner as provided for in the CONTRACT.

IN WITNESS WHEREOF THE Parties executed these presents on the day and the year first above written.

Signed and Delivered for and behalf of
OWNER

Signed and Delivered for and on behalf of
CONTRACTOR

.....
.....
.....

.....
.....
.....

Date

Date

Place

Place

In presence of two witnesses

1.
.....
.....
.....

1.
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2.
.....
.....
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2.
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NOTICE

In case of removal or relocation of this board necessitated for road improvement or any other work, information regarding the same may be provided to the Contractor or the undersigned either through phone or in writing quoting the board number.

Board No. :
Date of installation :
Address of contractor :

Sd/
Director
NATPAC, Sasthra Bhavan
Pattom, Thiruvananthapuram
Phone 0471-2548209

കേരള സർക്കാർ

കരമന നദീശാസ്ത്രീയ പരിപാലന (മാതൃക) പദ്ധതി
(KRSM (Pilot) Project)

തിരുവല്ലം തോട് മലിനീകരണ നിവാരണ പദ്ധതി

1. തോടിന്റെ ആദ്യവും, അവസാനവും ഷട്ടറോടുകൂടിയ ചീപ്പ്
2. തോടിന്റെ തുടക്കത്തിൽ പമ്പ് ഹൗസും 20 HP പമ്പുസെറ്റും
3. തോടിന്റെ അടിത്തട്ട് ലവലിംഗും ക്ളിനിംഗും
4. പുതിയ ഒരു ബലിക്കടവ് നിർമ്മാണം
5. പഴയ ബലിക്കടവുകളുടെ പുനരുദ്ധാരണം
6. ബലിക്കടവുകളിൽ കുളിമുറികൾ
7. ബയോഗ്യാസ് പ്ലാന്റും, ഗ്യാസ് ഉപയോഗിക്കാൻ സംവിധാനവും
8. ഇൻസിനറേറ്റർ

സംയോജനം - കേരള ശാസ്ത്ര സാങ്കേതിക പരിസ്ഥിതി കൗൺസിൽ

നടത്തിപ്പ് - ട്രിഡ

നിർവഹണം - ഇറിഗേഷൻ വകുപ്പ്

ബഡ്ജറ്റ് - 50 ലക്ഷം

Design 1 (1540x1540 mm)

കേരള സർക്കാർ

കെ.എസ്.സി.എസ്.റ്റി. ഇ.

ട്രിഡ

കരമന - കിളളി നദീ ശാസ്ത്രീയ പരിപാലനം

തോടിന്റെ രണ്ട് അഗ്രത്തും ഷട്ടറോടുകൂടിയ ചീപ്പ്
തോടിന്റെ തുടക്കത്തിൽ പമ്പ് ഹൗസും 20 HP പമ്പുസെറ്റും
നടപ്പാക്കുന്നത് - ഇറിഗേഷൻ വകുപ്പ്

നദികൾ പൈതൃക സ്വത്താണ്. അവയെ കാത്തു സൂക്ഷിക്കുക.

Design 2 (1220x810 mm)

താങ്കൾ നിരീക്ഷണ

വലയത്തിലാണ്.

നദി മലിനമാക്കാതിരിക്കുക.



കേരള ശാസ്ത്ര സാങ്കേതിക പരിസ്ഥിതി കൗൺസിൽ

Design 3 (600x400 mm)