



KOCHI METRO RAIL LIMITED

**Bidding Document**

**For**

**CONSTRUCTION OF MODERN AT  
GRADE WALKWAYS AND  
BEAUTIFICATION ON BOTH SIDES  
OF SHIHAB THANGAL ROAD AT  
PANAMPILLY NAGAR AS A PART OF  
KMRL NON-MOTORISED  
TRANSPORT INITIATIVE**

**KOCHI METRO RAIL LIMITED**  
8th Floor, Revenue Tower, Park  
Avenue, Kochi. 682011.  
Kerala, India.

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## **SECTION-1**

## **TENDER NOTIFICATION**

## **KOCHI METRO RAIL LIMITED**

### **NATIONAL COMPETITIVE BIDDING**

No: KMRL/PRJ/PNGR/224/2015/TEN 09

Date: 31/10/2015

Kochi Metro Rail Ltd (KMRL), Invites Open tenders **for the following work from financially sound and well experienced Contractors of Kerala State Public Works Department (Class A) / Central Public Works Department / NHAI / Other Civic Authorities or PSU, who have successfully completed at least one single similar 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](http://www.kochimetro.org)

#### **1. NOTICE INVITING TENDER**

|   |                                 |  |
|---|---------------------------------|--|
| A | NAME OF WORK                    | Construction of modern at grade walkways and beautification on both sides of Shihab Thangal Road at Panampilly Nagar as a part of KMRL Non-Motorised Transport Initiative    |
| B | APPROXIMATE COST OF WORK        | Rs. 2,50,000,00/-  |
| C | TENDER PROCESSING FEE           | Rs. 26,250/-+ 14 % Service tax<br><br>(Demand Draft in favour of "Kochi Metro Rail Ltd") payable at Kochi,Kerala.  |
| D | TENDER SECURITY AMOUNT/EMD      | Rs. 6,20,000/-   |
| E | COMPLETION PERIOD OF THE WORK   | Six months   |
| F | AVAILABILITY OF TENDER DOCUMENT | The Bidder may download the tender document from the web site of Kochi Metro Rail Limited by clicking the link<br><a href="http://www.kochimetro.org">www.kochimetro.org</a> |
| G | LAST DATE OF PRE BID QUERIES    | 10/11/2015(up to 11:00 hrs) to <a href="mailto:chandrababu.s@kmrl.co.in">chandrababu.s@kmrl.co.in</a>  |
| H | PRE-BID MEETING                 | All the tenderer shall be open to have discussion on clarification as required on any terms and conditions of the contract of the Tender document on 11/11/2015 at 11:30     |

|   |                                  |  |
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|   |                                  | <b>Hrs.</b> at office of the KMRL Ltd., 6th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686)  |
| I | DATE OF ISSUING ADDENDUM(IF ANY) | 13/11/2015   |
| J | TENDER FORMS                     | <p>a) No corrections or alterations in the form, nor in the conditions stipulated therein, shall be made.</p> <p>b) All drawings and documents issued along with the tender shall be returned along with the submitted tender, duly signed by the tenderer.</p> <p>c) The tender shall be drawn only on the form furnished with these tender documents and duly signed. Tenders shall be complete in all respects.</p>   |
| K | VALIDITY OF TENDERS              | <p>a) The rates quoted by the contractor should hold good for <b>at least 180 days</b> from the date of submission of tender.</p> <p>b) Tender if accepted should hold good till the completion of the work.</p>   |
| L | TENDER COVER                     | <p>The tenders shall be submitted completed in all respect sealed with cover labeled on top as "<b>TENDER FOR -----</b><br/><b>-----</b> This cover shall contain two separate covers for Technical Bid &amp; Financial Bid with the same written in cover top. This cover shall also include the demand draft towards the Earnest Money Deposit (if Applicable)</p> <p>The tender shall be addressed to: General Manager (Civil),KMRL</p>   |
| M | SUBMISSION OF TENDER             | <p>a) The tenderer must submit sealed tenders, duly signed and completed in all respects, to the office of KMRL Ltd., 6th Floor, Revenue Tower, Kochi – 682011 (Tel.: 0484-2380980, Fax : 0484-2380686) latest by <b>25/11/2015</b> (up to 14:30 hrs)</p> <p>b) In the event of the tender being submitted by a firm, it must be signed separately by authorised partner hereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a Power of Attorney authorizing him to do so, such Power of Attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act.</p> <p>c) Bids / tender documents are to be submitted by India post/speed post/by hand only.</p> |

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|   |                                 | d) Technical bid and financial bid shall be submitted in their separately designated covers properly sealed.  |
| N | CONTENTS OF THE TENDER DOCUMENT | <p>a) The set of tender documents issued for the purpose of tender shall comprise of the Tender Notification, Site Description and Scope of Works, the Conditions of Contract, Special Conditions of the Contract, the General Specifications &amp; Bill of Quantities, and the Drawings.</p> <p>b) The tenderer is expected to peruse all instructions, conditions, forms, terms, design criteria and performance specifications, and drawings in the tender documents. Failure to comply with these requirements of tender submission shall be at the tenderer own risk.</p> <p>c) At any time prior to the last date for submission of tenders, the Employer may, for any reason whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the tender documents by the issuance of an Addendum through publishing in KMRL website <a href="http://www.kochimetro.org">www.kochimetro.org</a></p> <p>d) In order to afford prospective tenderer reasonable time to take the addendum into account for the preparation of their tenders, the Employer may, at his discretion, extend the last date for the submission of tenders.</p> <p>e) The tender prepared by the tenderer, all correspondence and documents relating to the tender exchanged by the tenderer and the Employer, shall be written in the English language only.</p> <p>f) Documents to be furnished at the time of tender submission. The tender to be prepared and submitted by the tenderer to the Employer for consideration shall comprise the following:</p> <ul style="list-style-type: none"> <li>i) A covering letter from the Tenderer detailing the various considerations in his tender.</li> <li>ii) A list of all the documents accompanying the tender.</li> <li>iii) Form of Declaration and Appendix thereto, duly signed along with the complete set of tender documents as in section-2</li> <li>iv) Detailed report on the tenderer's methodology of</li> </ul> |

|   |                                 |   |
|---|---------------------------------|---|
|   |                                 | <p>work, deployment, prioritization with sufficient details to enable its technical acceptability and ensuring completion of work within the stipulated time schedule.</p> <p>v) Information on eligibility and qualifications, together with additional information regarding tenderer's management or financial position, current works in hand etc.</p> <p>vi) Detailed provisional Schedule &amp; Program for completion of various items of work including a network for all preliminary arrangements for mobilization of resources such as Manpower, plant and machinery, and a chart giving forecast for principal quantities of work proposed to be executed monthly. Again, plantation being sensitive to the climatic condition, the work scheduling should be prepared in accordance to the climatic consideration for early completion of the work.</p> <p>vii) Details of establishment and deployment, together with a detailed organization chart, proposed for this project.</p> <p>viii) Latest income tax clearance certificate from the Income Tax department in India.</p> <p>ix) Any other material required to be completed and to be submitted in accordance with the tender documents.</p> <p>x) All documents issued for the purpose of tendering as described shall be deemed and have to be incorporated in the tender for the work.</p> |
| O | BASIC QUALIFICATION REQUIREMENT | <p>The Applicant shall meet the following minimum criteria:</p> <p>a) Average annual turnover (defined as billing for works in progress and completed in all classes of civil engineering &amp; landscaping works only) over the last three years should be <b>40 per cent</b> of the value of contract/contracts applied for.</p> <p>b) Experience in successfully completing at least one contract of similar works of at least <b>80 per cent</b> of the value of proposed contract within the original completion period during the last three years.</p> <p>OR</p> <p>Experience in successfully completing at least two contract of similar works of at least <b>40 per cent</b> of the value of proposed contract within the</p>   |

|   |                         |  |
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|   |                         | original completion period during the last three years.  |
| P | OBLIGATORY REQUIREMENTS | <p>a)All tenderer shall include a statement giving the following particulars:</p> <ul style="list-style-type: none"> <li>i) Major items of Equipments, Tools and machinery proposed for use in carrying out the Contract;</li> <li>ii) The qualifications and experience of key personnel proposed for administration and execution of the Contract, both on and offsite;</li> </ul> <p>b) In addition, the tenderer shall furnish the following information regarding the financial standing of the tenderer:</p> <ul style="list-style-type: none"> <li>i) Level of working capital;</li> <li>ii) Extent of access to bank loans or credit facilities, with ceiling limits, if any, prescribed in this regard and certified by the bankers themselves;</li> <li>c) Details of current work in progress including value, current outstanding payables etc.</li> </ul> <p>d) Shall submit the copy of this document signed on each page along with seal of the organization.</p> |
| Q | OPENING OF TENDERS      | <p>a)The tenders will be opened at office of <b>Kochi Metro Rail Limited ,6<sup>th</sup> Floor ,Revenue Tower ,Cochin 11 on 25/11/2015 at 15.00 hrs</b></p> <p>b) Date and time of opening of financial bid will be intimated later.</p> <p>c) Tenders once opened cannot be withdrawn.</p>  |

## 2.0 INSTRUCTION TO TENDERERS

|    |            |   |
|----|------------|---|
| 1. | SITE VISIT | <p>a) The tenderer shall, prior to submitting his tender for the work, visit and examine the site of works and its surroundings at his own expense, and obtain and ascertain for himself on his own responsibility all information that may be necessary for preparing his tender and entering into a contract, and take the same into account in the quoted contract price for the work.</p> <p>b) The tenderer shall satisfy themselves about the following factors:</p> <ul style="list-style-type: none"> <li>i) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by him in connection with the work including diverting and re-routing of services.</li> <li>ii) Ground conditions including those bearing upon</li> </ul> |
|----|------------|---|

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|----|-----------------------|--|
|    |                       | <p>transportation, disposal, handling and storage of materials required for the work or obtained there-from.</p> <p>iii) Source and extent of availability of suitable materials, including water etc., and labour (skilled and unskilled) required for work, and laws and regulations governing their use and employment.</p> <p>iv) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work.</p> <p>v) The limit and extent of surface and subsurface water to be encountered during the performance of the work, and the requirement of drainage and pumping.</p> <p>vi) The type of equipment and facilities needed, for and in the performance of the work;</p> <p>vii) The extent of lead and lift required for the work in complete form over the entire duration of the contract, and</p> <p>viii) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this contract.</p> <p>c) The tenderer should note that information, if any, in regard to the local conditions, as contained in these tender documents, has been given to tenderer merely for guidance and is not warranted to be complete.</p> <p>d) A tenderer shall be deemed to have full knowledge of the site, whether he inspects it or not, and no extra charges consequent on any misunderstanding or otherwise shall be allowed.</p> |
| 2. | <b>TIME LIMIT</b>     | <p>a) Time is of the essence in this Contract, and the work covered herein is required to be completed in all respects within the time period of 6 months.</p> <p>b) The tender should be based on this time of completion. However, the above-mentioned stress on time-based completion shall not entitle the Successful tenderer to claim price escalation for the portion of work, if any, which remains unexecuted after the stipulated completion period.</p>   |
| 3. | <b>TENDERED RATES</b> | The Contractor must understand clearly that the rates quoted are for complete work and include all cost of   |

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|  | <p>materials (incl all plants and other basic requirements like staking, safety requirement of the planting and other materials, signages (planting nomenclature), costs due to labour, tools &amp; tackles, supervision, services of all types like use of electricity, watering, transport of water for all civil works ,planting materials, works, power royalties etc., including their procurement, transportation, storage and wastage etc., to cover the cost of night working, when and if required.</p> <p>No claim for additional payments beyond the prices or rates quoted will be entertained. The Contractor shall further provide without extra charges all labor and things required by Landscape Architect/Site In-Charge for testing (materials, soil &amp; water on continual basis) and measuring the work and for weighing, measuring, providing or testing the appropriateness of any portion of the work, and shall also at his own cost provide access to every part of the work with safety.</p> <p>a) The contract shall be for the total cost as quoted in the schedule of quantities, attached by the successful tenderer, complying with the terms and conditions of tender document and shall be for the whole work as prescribed in scope of work.</p> <p>b) All duties, taxes, fees and other levies (present and future) payable by the Contractor under the Contract or for any other cause, as on the date thirty days prior to the closing date for submission of tenders, shall be included in the total contract price submitted to the Employer.</p> <p>c) The rates must be inclusive of ESI, PF, LWF or any other statutory compliance as applicable and all taxes inclusive of Entry Tax, SalesTax, Turn over Tax, Works Contract Tax,Service tax wherever applicable. The employer will not reimburse any of the above-mentioned items.</p> <p>d) The rates in the tender should be quoted both in figures and in words; and these are to be written in ink only and are not to be typed; and all corrections should be dated and attested by the Contractor with full signature.</p> |
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|    |   | <p>e) If there is any difference between the rates quoted in words and those in figures, the rates quoted in words shall be taken into consideration</p> <p>f) It should be clearly understood that the quantities shown in the Bill of Quantities are approximate, and the drawings are tentative and liable to modifications or alterations as may be found necessary.</p> <p>g) The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works, and the prices stated in the schedule of quantities and/or the schedule of rates and prices, which rates and prices shall cover all his obligations under the Contract, and all matters and things necessary for the proper completion of the works.</p> |
| 4. | <b>VARIATIONS OR DEVIATIONS IN TENDER DOCUMENTS</b> | <p>a) The tenderer shall submit an offer which complies fully with the basic requirements of the tender documents as indicated in drawings and specifications.</p> <p>b) All tenderer are cautioned that no conditional offer, variations or deviations by the tenderer, with respect to any items proposed by the tenderer (including advance loan for mobilization or time for Completion etc.), shall be entertained or considered.</p> <p>c) Furthermore, any deviation from Contract conditions, particular specification, or other requirements stipulated in these tender documents other than those especially clarified/amended shall be liable to be rejected as non-responsive.</p>   |
| 5. | <b>CORRECTION OF ERRORS</b>                         | <p>a)Tenders determined to be substantially responsive to be checked by the Employer for any arithmetical errors in computation and summation.</p> <p><b>b)</b>Where there is a discrepancy between the unit prices/rates and the total amount derived from the multiplication of the unit price/rate and the quantity, the <b>unit price/rate as quoted will govern</b>.</p>  |
| 6. | <b>DISCREPANCIES IN TENDER DOCUMENTS</b>            | <p>a)In case of any inconsistency between bill of quantities, performance specification and drawings, the following order of preference shall prevail:</p>   |

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|    |                             | <ul style="list-style-type: none"> <li>i) Bill of quantities</li> <li>ii) Drawings</li> <li>iii) Specifications</li> </ul> <p>b) Any discrepancy in the Contract documents should be brought to the notice of KMRL for clarification, before submitting the tender.</p> <p>c) No claim in this regard shall be entertained after the acceptance of the tender.</p>   |
| 7. | <b>UNSUCCESSFUL BIDDERS</b> | <ul style="list-style-type: none"> <li>a) 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.</li> <li>b) The earnest money deposits of the unsuccessful tenderers will be refunded immediately after executing agreement with successful bidder</li> <li>c) EMD of technically disqualified bidders will be disposed of after accepting technically fit bidders</li> </ul>  |
| 8. | <b>SUCCESSFUL TENDERER</b>  | <ul style="list-style-type: none"> <li>a)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 email, telex confirmed by registered letter. This letter called the “Letter of Acceptance”) LOA 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”).</li> <li>b) The successful tenderer shall, within 21 days from the date of issue of the Letter of acceptance of his tender, execute an agreement on a stamped paper of value of Rs.500/- in prescribed form.</li> <li>c) 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 Contract.</li> <li>d)In the LOA, the successful bidders will be notified to execute an agreement within the maximum period of 21 days from the date of receipt of same. Fine @ 10% of contractor PAC subject to a minimum amount of Rs. 1000/- shall be levied if the agreement is not executed within 10 days after the notice period of 14 days.</li> </ul> |

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| <b>9</b>  | <b>PERFORMANCE SECURITY</b> | <p>a) Within 14 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in the forms given in section 6Forms of Tender for an amount equivalent to 10% of the Contract price as bank guarantee;</p> <p>b) If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be from a Nationalized/Scheduled Indian bank.</p> <p>c) Failure of the successful Bidder to comply with the above shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security. After cancelling, steps will be initiated to award the work to next lower bidder in L1 accepted rate.</p> |
| <b>10</b> | <b>RETENTION AMOUNT</b>     | <p>a) A retention amounting to 5 % (Five percent) of the gross amount of each running bill will be deducted at the time of certifying interim payment, for the due execution and completion of the work under Contract. This retention amount is liable to be forfeited, partly or wholly, if the Contractor fails to carry out the work or to keep up the desired rate of progress.</p> <p>b) The retention amount will be released on the successful completion of the work.</p>   |

### **3.0 GENERAL CONDITIONS OF THE CONTRACT**

- a) The Conditions of Contract, as stipulated hereunder, shall bind the Contractor.
- b) The Contractor will have to make his own arrangements for electricity and water.
- c) Work should not be sub-let, without the written consent of the Employer.
- d) The site for the work shall be made available in parts as per site conditions.
- e) All the conditions set-forth in the schedule of the Contract form are binding on the Contractor.
- f) Further particulars in connection with the works can be had from the office of General Manager (Civil), Kochi Metro Rail Limited during office hours.
- g) The competent authority reserves the right to reject any or all tenders without assigning any reasons.
- h) In case of any dispute, the decision of the Director (Projects), KMRL shall be final and binding.

### **SIGNATURES AND SEALS:**

Contractor: M/s. \_\_\_\_\_ Employer: M/s. \_\_\_\_\_

## **SECTION-2**

### **FORMS FOR TENDER DECLARATION**

| <b>ANNEXURES</b> | <b>NAME OF THE FORM/ANNEXURE</b>  |
|------------------|---|
| 1                | AFFIDAVIT   |
| 2                | UNDERTAKING -FIRM PERIOD  |
| 3                | FORMAT-FOR BID SECURITY (BANK GUARANTEE)  |
| 4                | FORMAT – LETTER OF ACCEPTANCE   |
| 5                | FORMAT- BANK GUARANTEES FOR PERFORMANCE SECURITY                                |
| 6                | UNDERTAKING-TENDER AND BIDDERS CERTIFICATE                                      |
| 7                | FORMAT -E PAYMENT FORM  |
| 8                | FORMAT –AGGREEMENT FORM   |
| 9                | SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR<br>AVAILABILITY OF CREDIT FACILITIES |
| 10               | FORMAT- UNDERTAKING   |

**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 authorize(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 period 180 days from 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 these 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 this .....day of .....20.....

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 undertake to pay to the Employer up to the above amount upon receipt of 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.....

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(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 KMRL.

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. upto .....and sign the contract.

Yours faithfully,

Authorized Signature

Name and title of Signatory

KMRL

- 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  
8<sup>th</sup> 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 thereto 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 here-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 the 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 KMRL shall have the fullest liberty without our consent and without affecting in 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 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 or omission on the part of KMRL or any indulgence by KMRL to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effected of so relieving us.

6. The guaranteee will not be discharged due to a 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 KMRL in writing.

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

Notwithstanding anything 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 – 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:

## ANNEXURE 7

### AGREEMENT FORM

#### Agreement

This agreement, made the \_\_\_\_\_ day of \_\_\_\_\_ between  
\_\_\_\_\_ (name and address of Employer) [hereinafter called "the  
Employer] and \_\_\_\_\_  
(Name and address of the contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the Contractor execute  
\_\_\_\_\_ (name  
and identification number of Contract) (hereinafter called "the Works") and the Employer  
has accepted the Bid by the Contractor for the execution and completion of such Works and  
the remedying of any defects therein, at the cost of Rs. \_\_\_\_\_ -

---

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of the defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be read and construed as part of this Agreement viz.
  - i) Letter of Acceptance.
  - ii) Notice to proceed with the works;
  - iii) Contractor's Bid

- iv) Condition of Contract: General and Special.
- v) Contract Data
- vi) Additional Condition.
- vii) Drawings
- viii) Bill of Quantities and
- ix) Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of \_\_\_\_\_  
was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said \_\_\_\_\_  
\_\_\_\_\_

in the presence of :

Binding Signature of Employer \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

## ANNEXURE 8

### SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES

(Clause 4.2 (i) OF ITB)

#### BANK CERTIFICATE

This is to certify that M/s \_\_\_\_\_ is a reputed company with a good financial standing.

If the contract for the work, namely \_\_\_\_\_ is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. \_\_\_\_\_ to meet their working capital requirements for executing the above contract during the contract period.

---

(Signature)

Name of Bank

Senior Bank Manager

Address of the Bank

## **ANNEXURE 9**

### **UNDERTAKING**

I, the undersigned do hereby undertake that our firm M/s \_\_\_\_\_  
\_\_\_\_\_ would invest a minimum cash upto 25% of the value of  
the work during implementation of the Contract.

---

(Signed by an Authorised Officer of the Firm)

---

Title of Officer

---

Name of Firm

---

DATE

## SECTION-3

### PROJECT DESCRIPTION

Panampilly Nagar in Kochi is a busy & residential area just 1km east of M.G road, the epic entre of Ernakulam city. From M.G road, Pallimukku junction, one could go over the south bridge take a deviation to the right to reach Panampilly Nagar. There are many by lanes in the place of which Panampilly Avenue is the main avenue close to the South Overbridge.

This once barren and muddy locality with an area demarcated for cultivation, developed into a colony in the 70's, with LIG (Low income Group) and MIG (Middle Income group ) residential houses coming up. Giri Nagar adjacent to Panampilly Nagar could be termed as the first colony in Kochi. Though GiriNagar mostly remains the same, Panampilly Nagar gradually developed into a prestigious residential colony and is home to many apartment complexes as well.

The place is now gradually turning to be a favoured spot for offices, restaurants and business houses. A number of private companies have set up offices in Panampilly Nagar, mostly in the Main Avenue but they are now slowly expanding to the interior parts as well. The Regional Passport Office and BSNL office is located in Panampilly Nagar.

In the NMT study conducting by UMTC for KMRL, this area have been given importance because of its residential and commercial importance. Thus they proposed connecting this area to Kadavanthra Metro Station through NMT corridor. Though they propose to connect to the station beside the Canal, the Shihab Thangal Road which is the main arterial and wide road in this area will act as a feeder to this corridor. GCDA have given the permission to go ahead this project in Shihab Thangal Road initially and later the NMT corridor will be taken up.

Total length of the Shihab Thangal Road in Panampilly Nagar where this project is initiated is coming around 750m. The road starts from Panampilly Nagar Avenue Road in Manorama Junction side and ends with GCDA new bund Road near KSEB substation in Kasturba Nagar. The road passes through one of the major commercial & residential center in Panampilly Nagar. In between there are major arterial roads, Passport Road and Yuvajanasamajam Road connecting Shihab Thangal Road. There is a narrow bridge in the road at chaniage 400m from Panampilly Nagar Avenue Road and from this chainage Koithara Canal which is a part of Thevara Perandoor Canal runs beside the road till end. The width of the road is varying from 12m to 8m. The road have enough berm on either side for considering this development. GAD for the road and the proposal is attached in Tender Document.

The first part of the road is having an average width of 10 m and is having a berm space of around 6m on its right side. There is no footpath on this area and one drain is being constructed on the right side near to the apartment compound wall. On the right side only major banks, residential apartments & commercial spaces existing and there is only an

average of 3m available in this side. While moving after the narrow bridge the conditions are changing like more berm spaces are available on the left side near canal and right side is having only less berm space.

As per the concept plan and GAD submitted by UMTC and adding on our comments the proposed project is consider to have the following aspects.

The items included are as per standards required for model footpaths:

1. Modern & Model Footpath of average 4m wide
2. Dedicated cycle path
3. Drain work on the spaces where it's not available
4. Utility ducts
5. Street poles & pedestrian lights
6. Green spaces of average 4m wide after the footpath
7. Pedestrian crossings with standards
8. Fencing in canal side with creeper plants
9. Shrubs & Tree planting
10. Bollards
11. Road & Pedestrian Signages
12. Garbage bins

Considering all the above items the BOQ will contain follows

- Civil works
- Landscaping (both hard and soft scaping)..
- Construction of Modern footpath and bicycle path
- Other provisions

## **SECTION-4**

## **CONDITIONS OF CONTRACT**

## ADMINISTRATION

Conditions Hereinbefore Referred to Words imparting the singular number include the plural number and vice-versa

**Terms Used :** In construing these Conditions, the Specification, Bill of Quantities, Tender Notification and Contract Agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise requires.

|           |  |   |
|-----------|--|---|
| <b>1</b>  | “Employer” or “Owner”                  | Shall mean <b>Kochi Metro Rail Limited</b> and shall include legal representative/s, assignee/s .   |
| <b>2</b>  | “Contractor”                           | Shall mean M/s. _____ and shall include his (their) legal representatives' assign/s or successor/s, which individual/firm has undertaken the works by virtue of this Contract.  |
| <b>3</b>  | Site                                   | -Shall mean the site of the Contract works, including any development works, building and erections there on, and any other land (inclusive) as aforesaid, allotted by the Employer for the Contractor's execution of the scope of work.  |
| <b>3a</b> | Engineer in charge                     | A person designated by the Employer   |
| <b>4</b>  | Works” or “Work”                       | Shall mean the works to be executed by virtue of this Contract, whether temporary or permanent, and whether original, altered, substituted or additional.   |
| <b>5</b>  | “This Contract” -                      | Shall mean the Articles of Agreement, the Special Conditions, the Conditions of Contract, the Appendices, the Bill of Quantities, the Specification, and the Drawings attached hereto and duly signed, and the written instructions issued from time to time by the Architect/Site-In-Charge.<br>All these documents taken together shall be deemed to form one Contract and shall be complimentary to one another. |
| <b>6</b>  | Notice in writing” or “Written Notice” | Shall mean a notice in written, typed or printed characters, sent (unless delivered personally or otherwise proved to have been received) by registered post to last known private or business address or registered office of the addressee, and shall be deemed to have been received when in   |

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|    |  | the ordinary course of post it would have been delivered.   |
| 7  | Definition and scope of works  | The expression ‘Work’ or ‘Works’ where used in these conditions shall, unless there be something in the subject or context repugnant to such development ,pedestrision and landscape activities, be construed to mean the work or works contracted to be executed under or in virtue of this Contract, whether temporary or permanent and whether original, altered, substituted or additional.   |
| 8  | Work to be executed in accordance with specifications, drawing, instructions etc., | <p>The Contractor shall execute the whole and every part of the work inthe most sound and substantial and workman-like manner, and in strict accordance with the specifications both as regard to materials and workmanship. The Contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Site-In-Charge or other competent authority and lodged in his office, and to which the Contractor shall be entitled to have access, during office hours, at such office or on the site of the work, for the purpose of inspection.</p> <p>The Contractor shall, if he so requires, be entitled at his own expense to obtain copies of the specifications and of all such designs, drawings and instructions as aforesaid. The Contractor shall also be responsible for the delivery of assigned job to the complete satisfaction of the Site-In-Charge and the execution of the work strictly in accordance with the specifications of the work.</p> |
| 9  | Action where there is no specification   | In the case of any class of work for which there is no such specification mentioned in the Contract, such work shall be carried out in accordance with Landscape Architect’ specifications, and in the event of there being no such specifications, then the work shall be carried out in all respects in accordance with the instructions and requirements of the Site-In-Charge or other competent authority.   |
| 10 | Contractor bound by  | The Contractor shall be bound to carry out the  |

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|            | Site-In-Charge instructions   | <p>work in accordance with any instructions in this connection which may be given to him in writing signed by the Site-In-Charge, his authorized representative or other competent authority.</p> <p>Any instructions given verbally shall be noted in the Instruction Book and got signed by the Landscape Architect/Site-In-Charge, or his authorized representative, and deemed as instructions for the proper execution of the work and, when considered necessary by the Site-In-Charge /Landscape Architect, followed up in writing.</p> <p>The whole of the work must be proceeded with in such sections and atsuch times as directed by the Site-In-Charge /Landscape Architect.</p> |
| <b>11</b>  | Failure by Contractor to comply with Landscape Architect'/Site in Charge s instructions | If the Contractor, after receipt of written notice from the Landscape Architect/Employer requiring compliance, fails to comply with such further drawing and/or Site-In-Charge/Landscape Architect's instructions, the Employer, with the recommendation of the Landscape Architect, may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect thereto, and all costs incurred in connection therewith shall be recoverable from the Contractor by the Employer, on the Certificate of the LandscapeArchitect, as a debt, or may be deducted from any moneys due or to become due to the Contractor.   |
| <b>12a</b> | Alteration in work  | <p>a) The Landscape Architect, in concurrence with the Employer, may from time to time issue further Drawings and/or written instructions, details,directions and explanations, which are hereafter collectively referred to as "instructions" in regard to:</p> <ul style="list-style-type: none"> <li>i) The variation or modification of the design, quality or quantity of works or the addition or omission or substitution of any work.</li> <li>ii) Any discrepancy in the Drawings or between the Schedule of quantities and/or drawings and/or specification.</li> <li>iii) The removal from the site of the materials brought thereon by the Contractor and the</li> </ul>         |

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|            |                     | <p>substitution of the other material thereof.</p> <p>iv) The removal and/or re-execution of any works executed by the Contractor.</p> <p>v) The opening up for inspection of any work covered up.</p> <p>vi) The amending and making good of any work as executed.</p> <p>b)The Contractor shall forthwith comply with and duly execute any work comprised in such Landscape Architect's instructions, directions and explanations, given to the Contractor or his representative upon the works by the Landscape Architect; which shall, if involving a variation, be confirmed in writing by the Contractor within seven days, and if not dissented from in writing within a further seven days by the Landscape Architect, such shall be deemed to be Landscape Architect's instructions within the scope of the Contract.</p> <p>c)If compliance with the Landscape Architect's instruction, as aforesaid, involves work and/or expense and loss beyond that contemplated by the Contract, then, unless the same were issued owing to some breach of this Contract by the Contractor, the Employer shall pay to the Contractor at the Site-In-Charge/Landscape Architect's Certificate the price of the said work (as an extra to be valued as hereinafter provided and/or expense and/or loss).</p> <p>d)Any alterations made to the work made based on technical/aesthetic values as per the instructions of the Site-In-Charge/Landscape Architect shall be considered as part of the work undertaken</p> |
| <b>12b</b> | Alterations in work | a) The Site-In-Charge shall have power to make any alterations in, omissions from, additions to or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work. If, forthat purpose or if   |

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|           |                                     | <p>for any other reason it shall in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any or all of the following:-</p> <ul style="list-style-type: none"> <li>i) Increase or decrease the quantity of any work included in the Contract,</li> <li>ii) Omit or delete any such work,</li> <li>iii) Change the character or quality or kind of any such work,</li> <li>iv) Change the levels, lines, positions and dimensions of any part of the work,</li> <li>v) Execute additional work of any kind necessary for the completion of the works and</li> <li>vi) Change in any specified sequence, methods or timing/priority of landscape of any part of the work.</li> <li>vii) Acceptance or rejection of the material not as per the desired specification of the planting materials.</li> </ul>  |
| <b>13</b> | Orders for variations to be writing | <p>a)No such variations shall be made by the Contractor without an order in writing of the Site-In-Charge. If for any reason the Site-In-Charge shall consider it desirable to give any such order verbally, the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Site-In-Charge, whether before or after the carrying out of the order, shall be deemed to be an order in writing within the meaning of this clause; and if the Contractor shall within seven days confirm the order in writing to the Site-In-Charge and if such confirmation is not contradicted in writing within fourteen days by the Site-In-Charge, it shall be deemed to be an order in writing by the Site-In-Charge.</p> <p>b)Any additional work which the Contractor may be directed to do, in the manner above specified, as part of the work, shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work and at the same rates as are specified in the tender for the main work.</p> |
| <b>14</b> | Variation not to vitiate            | a)No alteration, omission, deletion or variation  |

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|           | Contract   | shall vitiate this Contract, but in case the Landscape Architect/Site in Charge thinks proper at any time during the progress of the works to make any alterations in or additions to or omissions from the works or any alteration in the kind or quality of the materials to be used therein, and shall give notice thereof in writing under his hand to the Contractor, the Contractor shall alter, add to or omit from, as the case may require, in accordance with such notice, but the Contractor shall not do any work extra to or make any deviation from any of the provisions of the Contract, stipulation, specification or Contract drawings, without the previous consent in writing of the Landscape Architect; and the value of such extras, alterations, additions or omissions shall in all cases be determined by the Landscape Architect/Site in Charge   |
| <b>15</b> | Determination of rates for additional, substituted or altered items of work: | <p>a)If the additional, substituted or altered work includes any class of work for which no rate is specified in the Contract, then such work shall be carried out at the rates specified for or derived from similar item of work in the Contract. With regard to the question whether the additional, substituted or altered item/items of work/works is/are similar or not to that/those in the Schedule of Rates, the decision of the Site in Charge shall be final and binding on the Contractor.</p> <p>b)In the absence of similar items in Contract, the Contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Site-In-Charge of the rates at which it is his intention to charge for such class of work, supported by analysis of the rate or rates claimed.</p> <p>c)The rate analysis submitted by the Contractor shall be based on actual prevailing market rates of materials, labor and any other incidental charges, plus 10% (twenty percent) overheads and profits,inclusive of all taxes. There upon the Site-In-Charge shall determine the rates or rates on the basis of observed data, and failing this, on the basis of prevailing market rates.</p> |

|           |                                      |  |
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|           |                                      | d)Under no circumstance shall the Contractor suspend the work on the plea of non-settlement of rates for items falling under this clause. In the event of any dispute regarding the rates for such items the decision of the Site in Charge shall be final.  |
| <b>16</b> | No compensation for deletion of work | <p>a) If at any time after the execution of the Contract documents, the Site-In-Charge or other competent authority shall, for any reason whatsoever, require the whole or any part of the work, as specified in the tender, to be stopped for any period or require the whole or part of the work</p> <ul style="list-style-type: none"> <li>(i)not to be carried out at all or</li> <li>(ii) not to be carried out by the tendered</li> </ul> <p>b) Engineer in charge shall give notice in writing of the fact to the Contractor, who shall there upon suspend or stop the work totally or partially as the case may be. In any such case, the Contractor shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put on account of materials purchased or agreed to be purchased or for unemployment of labor recruited by him. He shall also not have any claim for compensation by reason of any alterations having been made in the original specification, drawings, designs, and instructions which may involve any curtailment of the work as originally contemplated.</p> |
| <b>17</b> | Possession of site for work          | a)Every endeavor shall be made to give clear possession of site in one lot, and if it is not possible to do so, in more than one lot for which delay, if any, no claim shall be entertained from the Contractor, but extension of time of completion, if justified, may be granted, without affecting the contract price.  |

|           |                          |   |
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| <b>18</b> | Defects liability period | <p>a)If the Contractor or his workmen or servants knowingly or unknowingly break, damage, deface, injure or destroy any part of the fixed or part of unfixed development in which they may be working, or any building, road, fence, enclosure or grass land or cultivated ground contiguous to the premises on which the work or any part thereof is being executed, or if any damage shall be done to the work while it is in progress, from any cause whatever, or if any damage of any kind is done to the plant material incorporated in the work, or if any imperfections become apparent in it within <b>six months</b> of the grant of a Certificate of Completion, final or otherwise, by the Site-In-Charge or other competent authority, the Contractor shall make good the same at his own expense, or in default, the Site-In-Charge or other competent authority may cause the same to be made good by other workmen, and deduct the expenses (of which the certificate of the Site-In-Charge or other competent authority shall be final) from any sums that may be due or may thereafter become due to the Contractor, or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.</p> <p>b) The Contractor shall provide maintenance for the work for the above specified period of six months, and shall ensure that all works are maintained in perfect condition.</p> |
| <b>20</b> | Program of work          | <p>a)The Contractor shall submit a revised Schedule &amp; Chart detailing the scheduled program of works and schedule of procurement of materials, as per the time frame specified in this tender, and approved by the Employer/ Landscape Architect/Architect. The said Schedule &amp; Chart shall be submitted subsequent to the acceptance of the tender and within seven days of the final agreement made between the Employer and the Contractor.</p> <p>b)The Schedule &amp; Chart shall be considered part of the final agreement, and shall be binding upon</p>   |

|           |                           |  |
|-----------|---------------------------|--|
|           |                           | <p>the Contractor.</p> <p>c)The Schedule shall be revised and brought up-to-date every month and copies of the same shall be forwarded to the Landscape Architect/Employer. It is the Contractor's responsibility to see that these schedules are adhered to.</p>  |
| <b>21</b> | Review of progress        | The progress of works shall be reviewed periodically by the Employer/Landscape Architect, as per the Schedule & Chart submitted by the Contractor at the time of final agreement and revised.  |
| <b>22</b> | Responsibility for delay  | In case the progress achieved falls short by more than 25 percent of the cumulative program, the reasons for such shortfall shall be examined and a record made thereof apportioning the responsibilities for the delay between the Contractor and the Employer. This record should be signed in full and dated both by the Site-In-Charge and the Contractor  |
| <b>23</b> | Materials and workmanship | <p>a)All materials and workmanship shall, so far as procurable, be of the respective kinds described in the schedule of quantities and/or specification and in accordance with the Landscape Architect/Site-In- Charge instructions.</p> <p>b) All building ,work and planting materials to be used on the work shall comply with the requirements of the specifications in case of not confirming shall be established as the best available in the market by the Landscape Architect/Site-In-Charge on due verification before approving the same.</p> <p>c) The Contractor shall be entirely responsible for the proper and efficient carrying out of the work. The work shall be done in the best and most workmen like manner. The availability of the best available flooring and planting materials shall be inspected by the site-in-charge or his designated staff from the source of procurement before being loaded for transport to the site. The contractor shall be required to make arrangement for the visit</p> |

|           |                                  |  |
|-----------|----------------------------------|--|
|           |                                  | after he has identified the source for approval by Employer/Landscape Architects or his representative on the site   |
| <b>24</b> | Samples of Work                  | a)The Contractor shall at his cost make all arrangements or shall provide for all such facilities as the Site-In-Charger/Landscape Architect may require for execution of the samples to such place or places as may be directed by the Site-In-Charge/Landscape Architect.  |
| <b>25</b> | Drawings                         | The details of the concept drawings are shown on the drawings attached with the tender document. All detailed drawings shall be prepared by the contractor and should get certified from the Employer before execution.  |
| <b>26</b> | Adherence to time schedule       | The whole work, including extra and additional items, is to be completed as per the work schedule and the Contractor will be required, if necessary, to work overtime to fulfill the Site-In-Charge/Landscape Architect's instructions to complete the work. The completion period, as stated in the Contract, shall be strictly adhered to by the Contractor, and shall be reckoned from the date on which the order to commence the work is issued to the Contractor in writing by the Employer. It is the Contractor's responsibility to maintain the rate of progress as stipulated in the periodic Schedule & charts. |
| <b>27</b> | Date commencement and completion | The Contractor shall be allowed admittance to the site on the "Date of Commencement" as per instruction by the site-in-charge, and he shall thereupon and forthwith begin the works and shall regularly proceed with the completion as per the schedule mutually agreed upon between the site-in-charge and the contractor. The Completion date shall be binding on the contractor.  |
| <b>28</b> | Setting out work                 | The Contractor shall set out the works and shall be responsible for the true and perfect setting out of the same and for the correctness of the position, levels, dimensions and alignment of all parts thereof in accordance with the drawing, If at any time any error in this respect shall appear during   |

|           |                         |  |
|-----------|-------------------------|--|
|           |                         | <p>the progress of the works, the Contractor shall, at his own expense, rectify such error as required, to the satisfaction of the Site-In-Charge/Landscape Architect. The Contractor shall have to clear the site as directed before the work is commenced, without any extra cost.</p>   |
| <b>29</b> | Grant extension of time | <p>If the Contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the Site In-Charge before the expiration of the period stipulated in the tender or before the expiration of thirty days from the date on which he was hindered as aforesaid or on which the cause for asking for extension occurred, whichever is earlier; and the Site-In-Charge /competent authority may, if in his opinion there are reasonable grounds for granting an extension, grant such extension as he thinks necessary or proper. The decision of such competent authority in this matter shall be final. The time limit for completion of the work shall be extended commensurate with its increase in cost occasioned by alterations or additions, and the certificate of the Engineer-In-Charge or other competent authority as to such proportion shall be conclusive.</p> <p>If the delay is attributable to reasons beyond the control of the Contractor, requisite extension of time shall be granted by the Engineer-In- Charge in writing after obtaining the approval of his higher authorities wherever necessary.</p> |
| <b>30</b> | Penalty for delay       | <p>When the shortfall in the progress of work is determined to be due to delay on the part of the Contractor, he shall be held to be responsible for the same and shall be liable to pay penalty.</p> <p>In respect of the shortfall in progress, assessed as due to the delay on part of the Contractor the Contractor shall be liable to pay as penalty an amount of Rs.5000/- (Rupees Five Thousand</p>   |

|           |                                 |   |
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|           |                                 | <p>only) per day, up to a maximum amount of 2 % of the contract sum, after which the Employer reserves the right to terminate the Contract.</p> <p>NOTE: If the Site-In-Charge considers it necessary, he shall also be entitled to take action. In the case of any failure by the Contractor to pay such penalty, the Site-In-Charge or other competent authority may rectify or remove, and re-execute the work or remove and replace the materials or articles complained of, as the case may be, at the risk and expense in all respects of the Contractor.</p>   |
| <b>31</b> | Sub Standard work               | If at any time before the security deposit is refunded to the Contractor, it shall appear to the Site-In-Charge or other competent authority, that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality, or that any materials or articles provided by the Contractor for the execution of the work are unsound, or of a quality inferior to that contracted for or are otherwise not in accordance with the Contract, it shall be lawful for the Site-In- Charge or other competent authority to intimate this fact in writing to the Contractor, who shall then be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part as the case may require, or if so required, shall remove the materials or articles at his own charge and cost, within such reasonable time as may be specified in the order. |
| <b>32</b> | Acceptance of sub standard work | Should the Site-In-Charge or other competent authority for any valid reasons consider that any such inferior work or materials as described above is to be accepted or made use of, it shall be within his discretion to accept the same at such reduced rates he may fix thereof. The decision of the Site-In-Charge, regarding the quantum of reduction as well as justification thereof in respect of rates for sub-standard work which may be decided to be accepted, will be final and would not be open to arbitration.   |

|           |                                 |  |
|-----------|---------------------------------|--|
| <b>33</b> | Submission of bills             | All bills shall be prepared in the prescribed printed or typed form in triplicate . The charges to be made in the bills shall always be entered at the rates specified in the tender, in full or in part as the case may be. In the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, the charges in the bills shall be entered at the rates herein provided for such work.  |
| <b>34</b> | Issue of completion certificate | On completion of the work, the Contractor shall report in writing to the Site-In-Charge the completion of such work, and the Site-In-Charge shall issue a certificate of Virtual Completion stating in writing that the work has been so completed. The Defects Liability Period shall commence from the date of such certificate. The works shall not be considered as completed until the Site-In- Charge/Architect has certified in writing that they have been virtually completed   |
|           |                                 | The Contractor shall employ the following technical staff during execution of work: :  |
|           |                                 | <ul style="list-style-type: none"> <li>) B.Tech graduate (7 year experience)</li> <li>) Diploma Engineer (3 year experience)</li> <li>) Engineer/Architect specialized in Landscape (5 Years Experience)</li> </ul>  |
|           |                                 | The technical staff so employed should be available at site, whenever required by Site-In-Charge, to take instructions. If the Contractor fails to employ the technical staff as aforesaid, he shall be liable to pay a sum of Rs.25000/- (Rupees Five Thousand Five Hundred only) for each month of default in the case of Graduate Site- In-Charges and Rs.10000/- (Rupees Three thousand Five Hundred only) for each month of default in case of Diploma Holders. If the Contractor himself possesses the required qualification and is available at the site for receiving instructions from the Site-In-Charge or other competent authority, it will not be necessary for the technical staff to be available at site for receiving instructions. |
| <b>35</b> | Sub contracting                 | The whole of the works included in the Contract shall be executed by the Contractor, and the   |

|           |               |   |
|-----------|---------------|---|
|           |               | <p>Contractor shall not directly or indirectly transfer, assign or sublet the Contract or any part share thereof or interest therein, without the written consent of Landscape Architect/Employer; and no undertaking shall relieve the Contractor from the full and entire responsibility of the Contract or from active supervision of the works during their progress. However, any specific portion of the work which is of a specialized nature, and normally not executable by a general contractor, could be got done by the specialized agencies which are executing such works, after obtaining the specific approval of the Site-In-Charge in writing in each case.</p>   |
| <b>36</b> | Services      | <p>The Contractor shall provide at his own cost all artificial light required for the work and to enable the Contractors and Landscape Contractors to complete the work in specified time. The Contractor shall arrange for alternate power supply by way of diesel generator set to avoid interruption of work during power outages. The Contractor shall execute any temporary plumbing that may be required, and pay all fees and charges. The Contractor shall provide any necessary temporary enclosures, gates, entrances etc., for the protection of the work and materials, and for altering and adopting same as may be required, and remove the same at completion of the works and make good all works disturbed.</p> <p>The Contractor shall display all danger signs, and notices at the site to notify all about the safety aspects.</p> <p>The Contractor shall provide all necessary barricade and lights required to protect the public from accident</p> <p>All the labours shall work with all safety precautions and PPEs</p> |
| <b>37</b> | Miscellaneous | Clearing of debris. All shavings, cuttings and rubbish as it accumulates from time to time during the progress of the work and on completion, are to  |

|  |   |
|--|---|
|  | <p>be cleared and carted away by the Contractor, and all materials condemned by the Site In-Charge/Landscape Architects are to be removed from time to time by the Contractor, without any extra charge.</p> <p><b>Work borrow pits:</b></p> <p>The Contractor shall not be entitled to claim compensation if there is any delay in the execution of the work on account of water standing in burrow pits and compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil water or water standing in burrow pits, and no claim for extra rate in this regard shall be entertained, unless otherwise expressly specified</p> |
|--|---|

## **SECTION-5**

### **SPECIAL CONDITIONS OF CONTRACT**

## **1. GENERAL -TERMS OF REFERENCE**

Preparation of drawings:

- (a) **Preparation of detailed design drawings of public spaces adjoining the roads, identified in the GADs, enclosed.** The designs would include creation of plazas, landscaping, providing street furniture and basic services and utilities. The conceptual design indicated in the GADs shall be considered as the minimum basic requirement. Any further detailing of the design should add value to the design in the GADs. Design drawings is to be prepared by the contractor and approved by KMRL before commencement of works.
- (b) **Preparation of Landscape drawings for the project area including public space adjoining the roads identified in the GADs, enclosed.** The designs would include design of footpaths, paving pattern, type of plantation, type of illumination and lighting scheme. Design drawings is to be prepared by the contractor and approved by KMRL before commencement of works.
- (c) **Preparation of GFC drawings for the above and public utilities as indicated in the GADs or required as per design drawings mentioned above.** The enclosed GADs and typical details include all basic requirements for public utilities. However, any additional details prepared will have to be vetted through the client (KMRL) before commencement of the said work on site.
- (d) **Preparation of Civil Structure drawings.** As indicated in the enclosed GADs and typical sections, along some portions of the project area, boundary walls of the adjoining properties will have to be constructed as per design suggested in the GADs or improvised by the appointed contractor, with prior approval from the client. Any additional civil works required, would have to be brought to the notice of KMRL before commencement of the works. Civil structure drawings for all such works, including boundary walls, foundations, etc. will have to be prepared by the contractor, approved by KMRL and then used for site works.
- (e) **Preparation of Street Lighting/ illumination scheme.** The minimum requirements for street lighting and illumination has been provided in the enclosed GADs. However, the detailed illumination scheme along with electrical layouts will have to be prepared by the contractor, approved by the client and then used for site works.

## **2. TECHNICAL SPECIFICATIONS**

- 5.1 The Technical Specifications in accordance with which the entire work are to be executed
  - a. “The specifications for Road and Bridge works, (latest Revision – Published by Indian Roads Congress, New Delhi 2001 on behalf of the Government of India, Ministry of Road Transport & Highways)”

- b. The various amendments/modifications/additions to “The specifications for Road and Bridge Works, (Fourth Revision), referred to in (a) above.
  - c. All the Landscaping and Tree Planting shall be done as per IRC SP 021
- 5.2 In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest codes and Specifications of IRC and is in that order. Where even these are silent, the construction and completion of the work shall conform to sound engineering practice as approved by the Engineer in charge and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer in charge shall be final and binding on the contractor.
- 5.3 Latest survey techniques such as Satellite survey or total Station survey shall be used for setting out the components of the project.

## **6. Specifications**

### **A. Paver Blocks for Cycle tracks and parking**

Providing and laying 80mm thick grey or colored reflective rubber molded M-35 Paver blocks over a bed of sand (min. 75mm thick). Job includes spreading sand on excavated and compacted sub base / PCC bed, compacting sand by ramming and interlocking them with the use of a suitable plate vibrator, job includes all incidental works like cleaning the site of debris, etc. The paver blocks supplied should adhere to the following requirements:

Material – 80mm thick Rubber Molded Reflective Paver blocks rough finished of M-35 conforming to IS-15658:2006 compressive strength and grade of M-35 meant for light traffic as per Table 1 IS 15658:2006. Manufacturer Sirex or equivalent.

### **Scope of Work:**

Excavation and compaction up to 300mm depth for the whole area of parking / cycle tracks as per drawing in all sorts of soil including removal and stacking / preserving of top 200mm of ‘Top Soil’ as per GRIHA standards for top soil preservation. Other loose soil / debris shall be removed / carted from site of excavation up to 5 km. The scope of work shall include supplying and laying of precast paver blocks, at site. Since the site is a public place, care should be taken to ensure that the routine activities shall not be disturbed. The job of laying may need to be carried out during night also for no extra cost. The work shall be executed to perfect line and level as per instructions of Engineer in charge. Colored concrete paver tiles shall be manufactured and shall adhere to clause 4.4 of IS 15658:2006.

The contractor shall guarantee that all materials and components designed, fabricated and supplied and laid by him shall be free of any type of defects due to faulty material / workmanship / laying / erection for a period of three years from the date of completion of work, which shall be considered defect liability period. Within this defect liability period, the contractor shall render free maintenance failing which the same shall be deducted for the retention cost as per contract. All modes of measurements shall be in Square meters.

## B. Garden / Grass Paver Blocks for Footpath Area

Providing and laying 60mm thick grey or colored reflective rubber molded M-30 Grass Paver blocks of 300 x 300 x 60mm or 600 x 400 x 60mm over a bed of Stabilized soil with mulch as per Landscape architects specifications (min. 50mm thick). Job includes spreading sand on excavated and compacted stabilized soil base over compacted sand / PCC bed as specified by Landscape Architect, compacting sand by ramming and interlocking them with the use of a suitable plate vibrator, job includes all incidental works like cleaning the site of debris, etc. Edge protection of paved area using concrete retaining curbs as per Engineers instructions. The paver blocks supplied should adhere to the following requirements:  
Material – 60mm thick Rubber Molded Reflective Paver blocks rough finished of M-30 conforming to IS-15658:2006 compressive strength and grade of M-30 meant for light traffic as per Table 1 IS 15658:2006. Manufacturer Sirex or equivalent. Size 600 x 400 x 60mm or 300 x 300 x 60mm as selected by Architect / client.

### Scope of Work:

Excavation and compaction up to 300mm depth for the whole area of Footpath in all sorts of soil including removal and stacking / preserving of top 200mm of ‘Top Soil’ as per GRIHA standards for top soil preservation. Other loose soil / debris shall be removed / carted from site of excavation up to 5 km. The scope of work shall include

1. Laying of stabilized soil using conserved top soil mixed with mulch as per specification and compacted using plate compactors to achieve minimum 95 percent Standard Proctor Density per ASTM D 698 for pedestrian areas. Verify subsoils have a permeability between 0.5 and 3.0 inches per hour.
2. Verify that geotextiles, if applicable, have been placed in accordance to specifications and instructions of Engineer / Architect.
3. Install edge restraints per the drawings and manufacturer's recommendations.
4. Supplying and laying of precast Grass paver blocks, at site. Since the site is a public place, care should be taken to ensure that the routine activities shall not be disturbed. The job of laying may need to be carried out during night also for no extra cost. The work shall be executed to perfect line and level as per instructions of Engineer in charge. Colored concrete paver tiles shall be manufactured and shall adhere to clause 4.4 of IS 15658:2006.
5. The contractor shall guarantee that all materials and components designed, fabricated and supplied and laid by him shall be free of any type of defects due to faulty material / workmanship / laying / erection for a period of three years from the date of completion of work, which shall be considered defect liability period. Within this defect liability period, the contractor shall render free maintenance failing which the same shall be deducted for the retention cost as per contract. All modes of measurements shall be in Square meters.

### PLANTING AND LANSCAPING

C. All plant materials shall be healthy, sound, vigorous with good foliage, Plants supplied shall be conforming to the names listed on the plant list. No plant materials will be accepted

if branches are damaged or broken. All material must be protected from the sun and weather until planted.

All plant materials shall be free from plant diseases, insect pests, or their eggs, and shall have healthy well-developed root systems. Plant material shall be well formed and shaped true to type and free from disease, insect and defect such as knots, windburn, sun-cold, injuries, abrasion or disfigurement.

### **Planting of Shrubs,Creepers,Ground Covers**

Plant material shall be well formed and shaped true to type and free from disease, insect and defect such as knots, windburn, sun-cold, injuries, abrasion or disfigurement. All plant materials shall be healthy, sound, vigorous with good foliage, and free from plant diseases, insect pests, or their eggs, and shall have healthy well-developed root systems. Plants supplied shall be conforming to the names listed on the plant list. No plant materials will be accepted if branches are damaged or broken. All material must be protected from the sun and weather until planted.

Preparation of soil for grass, ground cover, edges, shrubs and flower beds: . Then prepare the same soil with 2-3" thick layer of well decomposed, weed free farm yard manure or vermicompost. Treat the soil with chlorophyriphos / Lindane / Neemcake depends upon the infestation of soil borne pests. Treat the soil with proper herbicide to control the weeds only on need basis. Finally level the soil as per the drawing or planting details.

Preparation of pits for shrubs, creepers and hedges : The bed shall be prepared with good earth mixed with 1/3<sup>rd</sup> quantity of decomposed faryard manure along with a sapling of shrubs, ground covers, lilies, suckering plants etc. as per design plant spacing – 30-60 cm. maintaining( application of liquid manures/ growth regulators/ pesticides as per need, weeding regularly so as to keep the plant healthy all the time) it for a period of 12 Months days from the date of virtual completion of development work

Planting shrub/ground cover- Planting of shrub in the bed prepared earlier by filling garden soil and manure (67:33 ratio).Planting the shrub with root ball in the pit (tin grown / poly bag grown) after removing carefully and without disturbing the root. Pressing the soil firmly around the tree / shrub planted. Preparing the bed around the shrub and watering after staking and tying .Maintenance of shrub/ground cover up to 12(Twelve)months by regular watering and attending the inter-cultivation practices such as weeding, racking, watering gap filling ,free of weeds by regular hoeing. etc. The plant should be well maintained, disease free, well trimmed at the time of handing over. In case of death of the plant the contractor need to replace the same with equally well grown healthy plant. Nurture the shrubs/ground cover with organic solid manures and liquid manures, spray bio-insecticides,

parasites, predators to protect the trees from pest and disease. Amend the soil on regular basis with proper soil amendments to keep the pH level between 7 - 7.5.

Planting hedges / edges - Planting of hedge / edge in the ground prepared earlier by filling garden soil and manure .Preparing a pit of require size (for accommodating the root ball of plant) Planting the plants in 2/3 rows (as per instructions) at root ball removed carefully and without disturbing the root ball from poly bag. Pressing the soil firmly around the plant. Preparing the basin for watering. Maintain hedge / edge up to two months by regular watering and attending the inter-cultivation practices such as weeding, raking, gap filling, trimming and pruning etc. The hedge / edge should be well maintained, disease free, well trimmed at the time of handing over. In case of death of the plant the contractor need to replace the same with equally well grown healthy plant.

Planting Ground cover - Planting of ground cover plants in the ground prepared earlier by filling garden soil and manure Preparing a pit of require size in the ground. Planting the ground cover plant root ball at nine inches apart in the pit after removing carefully and without disturbing the root ball. Pressing the soil firmly around the plant Preparing the basin around the plant watering. Maintenance of ground cover up to two month by regular watering and attending the inter-cultivation practices such as weeding, raking, gap filling, trimming and pruning etc. The ground maintained, disease free, well trimmed at the time of handing over. In case of death of the plant the contractor need to replace the same with equally well grown healthy plant.

### **3. MAINTENANCE SCHEDULE**

#### **3.1 GENERAL OBLIGATIONS**

- a. The Contractor shall maintain the works for the maintenance period of six months from the date of completion.
- b. The extend of the landscape to be maintained by the Contractor shall be deemed to cover and include all softscape landscape areas within the overall project boundaries as shown on the drawings including any existing soft landscape not affected by the Sub-Contract works and retained intact or nearly so through the end of the Sub-Contract period as well as all the landscape works covered in the Sub-Contract scope of works. No additional charges will be allowed unless specifically agreed to by the Landscape Architect in writing.
- c. The Contractor's Horticulturist shall inspect the site every day and shall submit report to the Contractor on their actions and closure of the pending works .Also on weekly basis, the Contractor's Horticulturist shall prepare a brief schedule of operations planned for the week with target dates.

- d. The daily report and the weekly schedule shall be running record of proposed operations which would be checked at the maintenance inspections every month. If in the opinion of the Landscape Architect/Site-In-Charge, the maintenance works have not been satisfactorily carried out according to site conditions and the specifications, the payment will be withheld until the works have been satisfactorily carried out besides the penalty as in the penalty clause.
- e. The Contractor shall take all necessary measures to ensure that all pot plants, trees and shrubs and other plants shall thrive and become established within this period. All landscape areas will be inspected and list of remedial works issued after each inspection. All items on the remedial lists are to be carried out by the time of the next inspection.
- f. The Contractor shall keep the landscape areas clean and tidy at all times and dispose of all waste materials arising from the cleaning.
- g. If the Contractors works are found to be unsatisfactory, payment shall be withheld and the maintenance period extended for the period of time that the landscapes maintenance has not been satisfactory. All cost associated with the extension of time shall be borne by the contractor
-

### **3.2 MAINTENANCE OF PLANTED AREAS : TREES, SHRUBS, CLIMBERS, HERBACEOUS PLANTS AND GROUNDCOVERS including Lawn**

- a. The Contractor shall water all trees, palms, shrubs, groundcover, herbaceous plants and other planting areas as often as necessary to keep the ground moist all around and to the full depth of the roots.
  
  - b. All planting beds are to be kept in a weed free condition with a weeding operation as per maintenance schedule or more regularly as required. All weeds, stones and rubbish collected from this operation shall be removed from the site by the Landscape Contractor.
  
  - c. Firming up and adjusting of stakes/ties shall be carried out monthly to ensure that the trees and shrubs are firmly held in ground. If required, guy ropes or tree ties shall be adjusted, tightened or loosened. If tree ties or ropes are rubbing the bark of the trees, the ties are to be taken off and retied. Any damaged branches are to be carefully pruned and the wounds sealed.
  
  - d. All protective fencing is to be maintained and kept in good condition as long as required on site.
  
  - e. All shrubs and groundcovers are to be reviewed monthly and pruned as and when required during the Maintenance Period to promote bushy growth and good flowering characteristics. The shrubs shall be checked and all dead wood, broken, damaged or crossed branches shall be cut back, depending on species.
  
  - f. The Contractor shall on continual basis supervise and attend to fertilizer needs/disease control/termite or fungus control as maintenance operations during the entire period of contract An approved fertilizer/insecticides/pesticides shall be applied to each plant.
  
  - g. The Contractor shall make regular weekly checks to ensure that the plant material is insect and pest and free
-

### **3.3 MAINTENANCE OF LAWN AREAS**

The lawn shall be trimmed and maintained properly without any weeds.

### **3.4 DETAILS OF PERIODIC MAINTENANCE ACTIVITIES**

| Sl.No    | Operation         | Frequency<br>(Times) | Period/Duration after Handing Over         |
|----------|-------------------|----------------------|--|
| <b>1</b> | <b>Irrigation</b> |                      | <b>As per Demand or as specified under</b> |
| (a)      | In Summer         | <b>15</b>            | Month-Every Alternate Day                  |
| (b)      | In rainy Season   | <b>5 to 7</b>        | Monthly or as per climatic condition       |
| ( c )    | In winter         | <b>10</b>            | Monthly                                    |

## 5. PLANTING PRACTICES-APPLICATION

### A. REQUIREMENT OF SOIL PREPARATION, PLANTING AND MAINTENANCE MATERIALS

#### a. Soil Conditioner

Soil Conditioner shall be Peat Moss, organic compost composted rice hulls or other approved fibrous organic matter suitable for mixing with topsoil to make a friable growing medium for plants. It shall be resistant to rapid decay, free from soluble salts (below 900ppm), pH 6-7, free from large lumps or debris.

Coco-Peat will not be accepted.

A sample shall be submitted to and approved by the Landscape Architect prior to installation.

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#### b. Organic Compost

Organic compost shall be an organic vegetable compost produced thorough a horticultural or industrial composting process. Compost is to be clean, decomposed, smell free, and free of any debris, refuse, clay or visible fungus. A sample and test data is to be submitted for approval before use. All compost is to be sterilized before being packed for transport. Any odorous materials delivered to site will be rejected. Any vermin resulting from use of organic compost will have to be controlled by the Landscape Contractor within 12 hours.

#### c. Peat Moss

Peat Moss shall be fibrous fresh water peat from vegetable fibre. Peat will have a pH of 5.8 – 6.5 and shall be free of soluble salts greater than 900 micromos; Peat shall be free of lumps, sticks or stones greater than 5mm.

#### d. Composted Rice Hulls

Rice hulls shall be partially composted and free from live rice or weed seeds. The rice hull compost shall be nitrogen stabilized and free of particles greater than 5mm.

e. **Sand**

Sand shall be clean, coarse, well graded material, free from soluble salts. Particles shall range in size so that 80-100% passes the 1mm sieve and 0-50% passes the 250 micron sieve.

f. **Fertilizers**

Chemical fertilizers shall be approved granular fertilizers. Fertilizer may be single element or compound, normal or slow release compound fertilizers. They shall be stored in waterproof sealed bags under shelter away from water and direct sunlight. Samples shall be submitted to, and approved by the Landscape Architect, before use in the Works.

Organic fertilizers shall be organic products such as organic liquid fertilizer, pellets or granules manufactured primarily from organic materials. These products are to be from accredited sources and technical data indicating sources of origin and manufacturing process must be submitted and approved before use. Animal by-products must be sterilized before being packed for transport and odorous materials used on site will be rejected.

g. **Mulches**

Mulches shall be an approved friable-composted organic material such as Oil Palm husks, organic compost or an approved mix. Coco-peat will not be allowed unless mixed in a proportion of 50-50 with another mulching material free from soluble salts or toxic materials and resistant to rapid decay. Mulches shall have a pH of 5.5 - 7.0. Samples are to be submitted to the Landscape Architect and approved before use.

Mulches are to be applied in a 50mm thick layer over the entire surface of shrub and groundcover areas. Mulching is to be re-applied to expose soil in planting areas every 3 months after initial installation until the end of the maintenance period or until complete surface cover by vegetation is achieved.

Initial mulching is to take place within two days of installation of planting.

**B. STAKING &  
SUPPORTS**

**C. a. General**

- i. Stakes shall always be used when planting instant trees, standards and single stem palms and for tall shrubs as indicated in the drawings.
- ii. Stakes shall be mangrove poles, bamboo or equal and shall be appropriate to the size of the plant to be supported.

b. **Guying**

- i. Guying shall be used for large trees or palms. A minimum of three wire guys are to be used per tree. Each guy wire is to be fastened by a loop around the lowest branches of the tree at the junction with the main trunk or stem. Loops are to have protective rubber or plastic hose to prevent chafing and are to be fastened back to the guy wire by means of U-clamps. Wire shall be 2.5mm PVC coated GI wire, green colour. Palms shall have 5mm x 3mm x 30mm battons fastened about the trunk with GI wire at the height where the guy wires are to be secured. Guy wires will fasten to the battons and not to the main trunk.
- ii. Guy wires are to be fastened at ground level to short stakes firmly driven at an angle into the ground. Stakes shall be 5mm GI coated angle iron or 75mm mangrove. Stakes shall be a minimum length of 600mm and are to be driven deep enough to resist movement. A notch is to be made near the top of each stake for the fastening of the guy wire. Stakes shall be positioned equally around the tree and shall extend at least 300mm beyond the tree pit. Distance away from the tree shall be gauged on site to provide firm and secure guying. Distance of stakes and final positions shall be finalized on site to provide firm and secure guying.
- iii. Each guy wire is to have one turnbuckle located near the fastening to the stake. Guy wires are to be kept properly tension and adjusted to maintain the tree in a vertical position without guy wires being rigid.

c. **Double Staking**

- i. Double staking shall be used for standard trees. Two 50mm x 50mm stakes shall be driven into the ground vertically on either side of and outside the rootball of the tree so as to form a straight line with the stem at the center. Stakes shall be driven in to penetrate the bottom of the tree pit and be deep enough to resist lateral movement when tested. Stakes shall not extend beyond the lowest branch of the tree and if necessary are to be sawn off at the top.
- ii. Fastening or securing of the tree may be carried out by using either :

- a) Cross bar – a wooden cross bar of same section as the stakes is fastened in a horizontal position to the outside of the stakes by nails or tying securely at a level below the lowest branch. The tree is fastened to the cross bar with a single adjustable tie of an approved rubberized or plastic type with a spacer and shall be fastened to prevent any chafing or abrasion of the bark. Nails or fittings are not to be driven into the tree trunk.
  - b) Wire/Hose loops – Two separate wire or rope loops are made about the stem just below the lowest branch with each being fastened back to one of the vertical stakes. Each loop is to have a protective outer covering or sheath of rubber hose to prevent chafing or abrasion of the bark. The wire is to be fastened to the stakes in a manner that allows adjustment of the tension to be made easily. Tension on each wire to be equal to maintain the tree in a vertical position. The wire shall be 2.5mm PVC-coated GI wire, green colour.
- iii. Where directed by the Landscape Architect the tree may be secured with a second set of loops at a lower level.

d. **Single Staking**

Single Staking shall be used for field trees. A single 50mm x 50mm stake is driven vertically into the ground 150mm – 250mm away from the tree. The stake is driven down beyond the base of the tree pit and shall be firm when tested. The top of the stake shall be 100mm below the top of the tree. Ties are to be fastened to avoid rubbing, chafing or abrasion of the bark.

e. **“Dead Man” Guying**

“Dead Man” Guying shall be used where directed by Landscape Architect. This method of supporting trees is for use in areas where other conventional methods of support are not feasible. Prior to backfilling two pairs of preservation treated hardwood planks, minimum 100mm x 50mm, are laid across the top of the rootball at right angles so that the trunk or stem is enclosed in a square. The timber planks should be positioned as far out towards the edge of the rootball as possible but kept approximately 100mm in from the edge. Two pairs of galvanized or stainless steel cables are then led over at right angles to the timber planks and the ends firmly fastened into the ground at the base of the rootball or preferably fastened to a structure nearby. Twin buckles at the mid point of each cable are installed to tighten the cables to a suitable degree. Cables should be tightened only to hold the root-ball firm. Over-tightening may cause the rootball to settle deeper into the ground than desired. Wherever “Dead Man” guying is directed refer to the Sub-Contract drawings for particulars. If Dead Man guying is directed without a drawing the Landscape Contractor is to notify the Landscape Architect.

f. **Climber Wires**

Climber wire for training climbing plants against walls shall be approved lightweight PVC coated wire mesh, fixed at 600mm intervals to GI screw eyes. Maximum mesh coverage shall be 12 Months0mm high x 2400mm wide. The climbing plants shall be trained through the wire mesh with the shoots directed upwards and tied.

**C. WATERING OF ALL PLANTS**

After planting of all plants are to be thoroughly watered using enough water to soak the ground all around the rootball. After the water has percolated away leaving the surface relatively dry the soil is to be lightly cultivated to give an even soil tilth.

**D. MULCHING**

After completion of planting, watering and light cultivation operations, a 50mm deep layer of approved mulch shall be spread over all planting areas except turf and groundcover beds. Mulching is to be done within 2 days of completing planting and watering in. The cost of mulching is cleared to be included in the unit rates for planting.

**E. FERTILIZING**

After planting and before the commencement of maintenance operations all planting areas will be fertilized at three month intervals. Planting beds and pits shall be fertilized with an

approved slow release fertilizer at the rate of :

|                             |   |   |
|-----------------------------|---|---|
| Trees                       | : | 250gm per tree                          |
| Shrubs/Climbers             | : | 50gm per plant or 50gms/m <sup>2</sup>  |
| Groundcover                 | : | 50gm per square meter                   |
| Herbaceous/Rooted<br>shoots | : | spread around the base of the<br>plants |

Turf areas shall receive area 46.0.0 at a rate of 1kg/100m<sup>2</sup>. All fertilized areas are to be watered immediately after fertilizer application

#### **F. DISEASE CONTROL**

The Landscape Contractor shall take all necessary precautions to prevent or eradicate any outbreak of disease or insect attack.

## H. PROTECTION OF PLANTED AREAS

The Contractor shall be responsible for protecting all planted areas. If it is necessary for the Contractor to erect temporary protective fencing, the Contractor shall be responsible for keeping the fencing in position and in good repair until the end of the maintenance period. Fencing proposals shall be submitted to the Landscape Architect for approval.

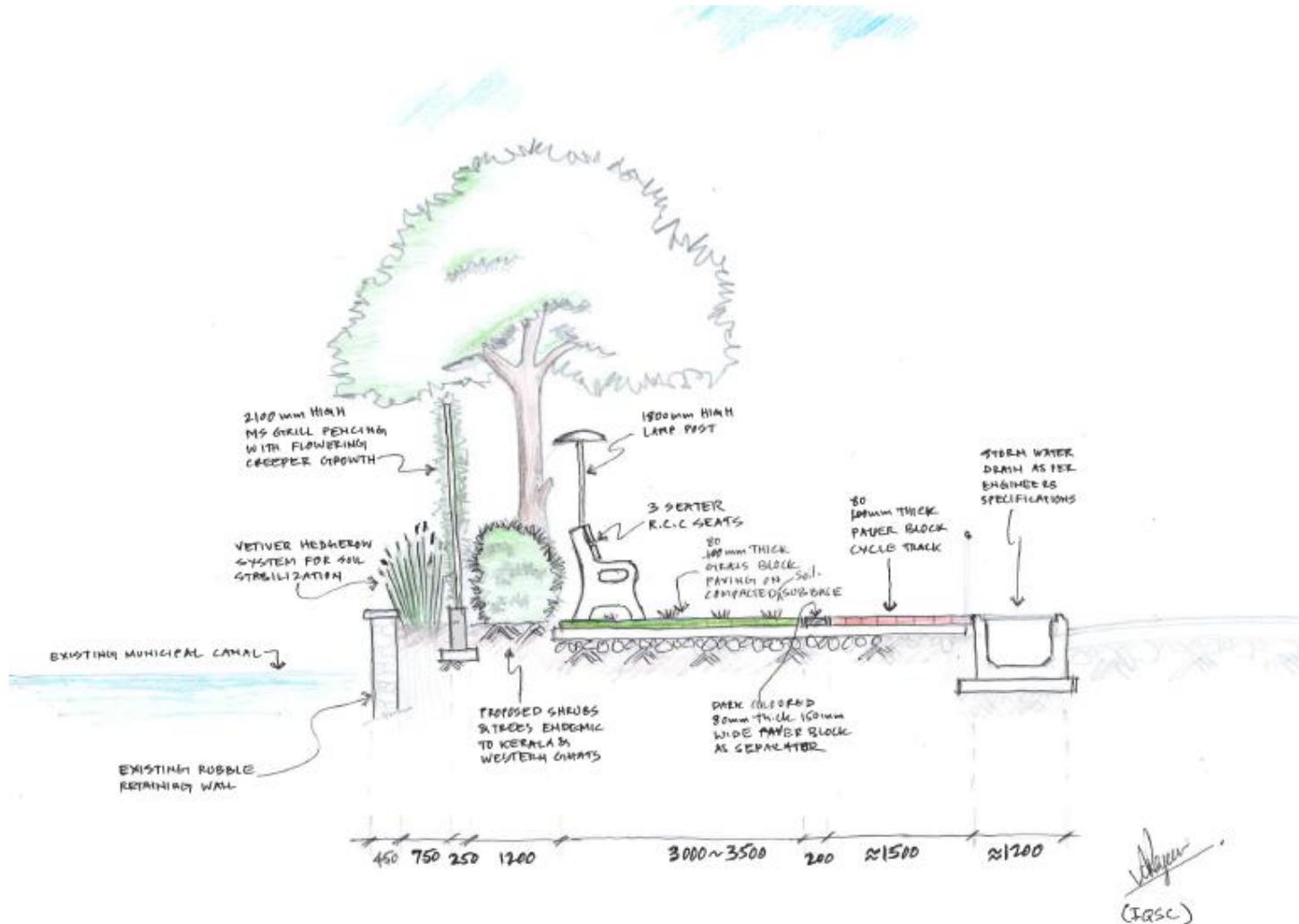
## I. MAINTENANCE PRIOR TO COMPLETION

- i. After planting and prior to the onset of the maintenance period, the Landscape Contractor shall be responsible for carrying out all necessary measures to ensure that the plant material thrives and becomes established and that the landscape areas are kept in a clean and tidy condition.
- ii. The Contractor shall allow for carrying out the following maintenance operations when necessary prior to the onset of the maintenance period, all as specified in section 7 of this specification.
  - Replacement of dead/missing plants
  - Grass cutting
  - Watering
  - Cultivation and loosening of soil
  - Weeding
  - Pruning and clipping
  - Firming up and adjustment stakes and ties
  - Eradication of pest or insect attack
  - Top drawing and mulching
  - Fertilizing
- iii. The Contractor shall be responsible for replacing any plants which fail to survive as a result of inadequate maintenance operations, poor workmanship or poor quality of plant material prior to completion

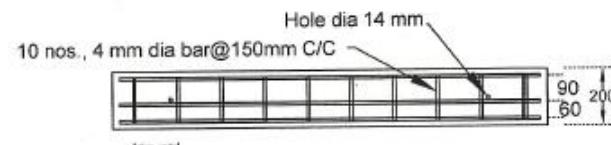
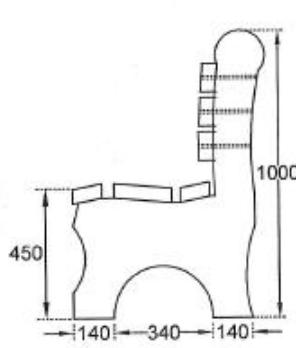
- iv. The Certificate of completion will not be issued until all plans scheduled on the Drawings and Schedule of Works are installed in a healthy condition in the manner specified.

## **SECTION 6**

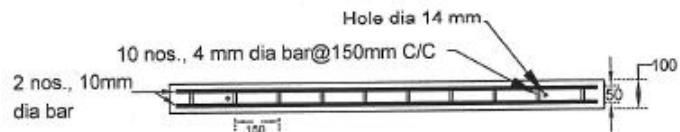
### **DRAWINGS**



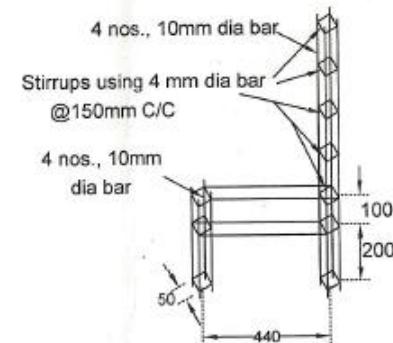
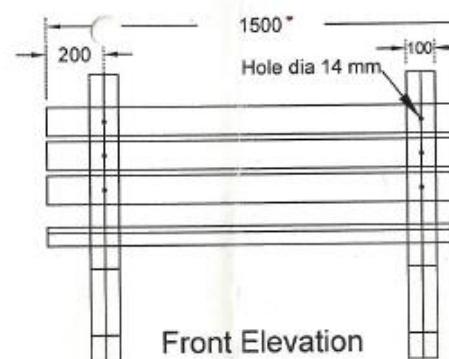
Typical Cross section near to Canal



Reinforcement Plan of Plank  
(1500mm x 200mm x 50mm)

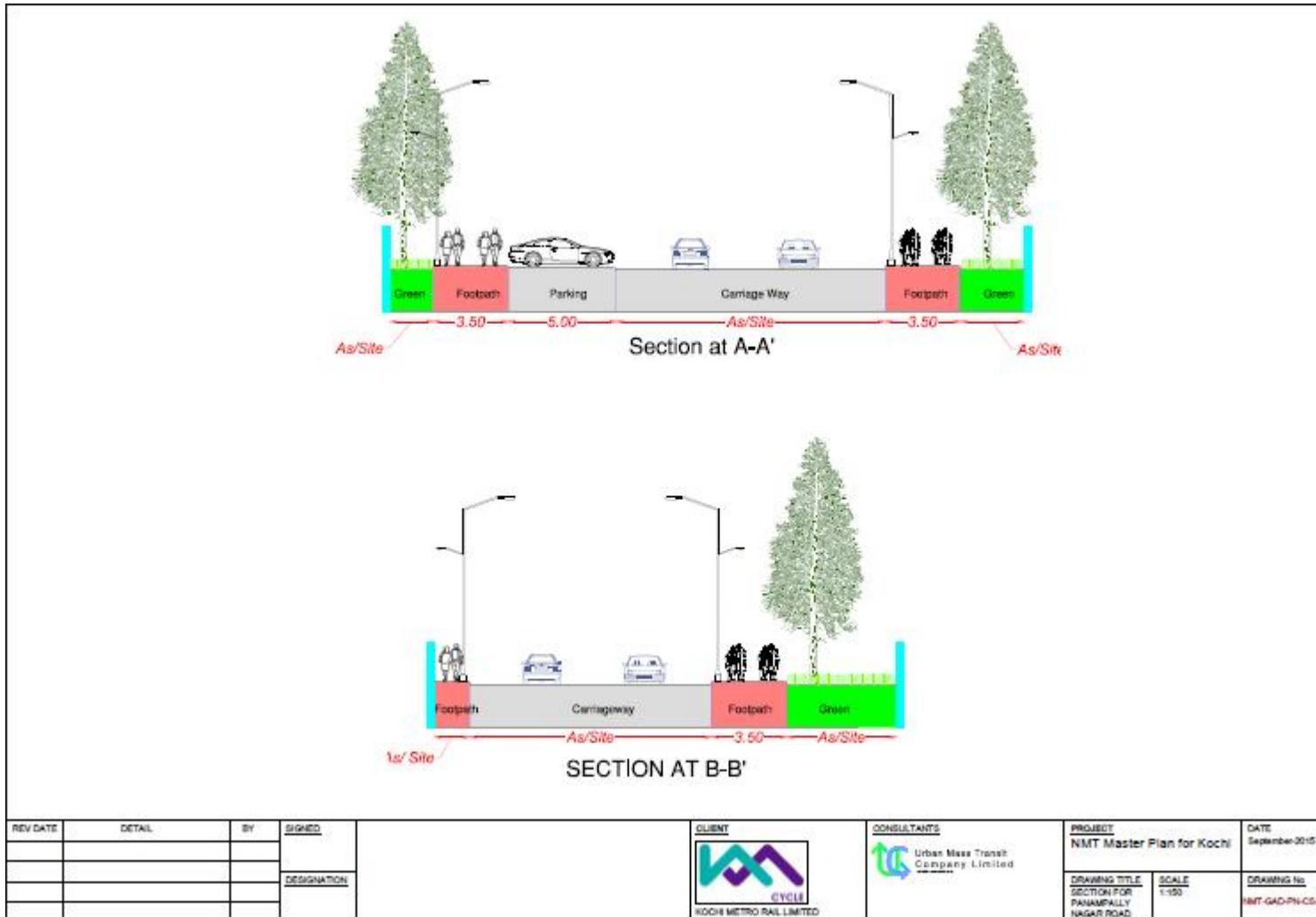


Reinforcement Plan of Plank  
(1500mm x 100mm x 50mm)



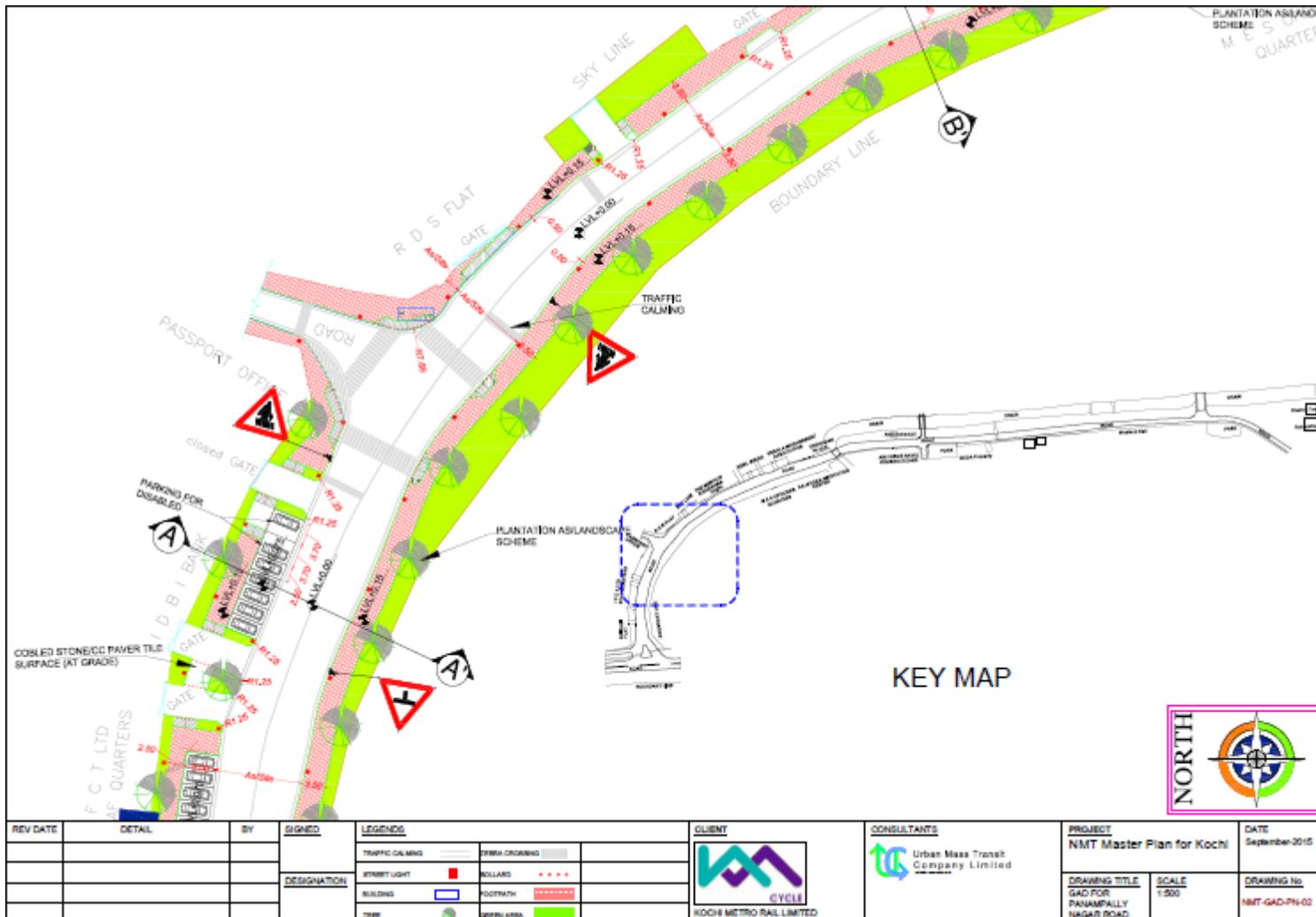
Reinforcement details of Leg  
(Isometric View)

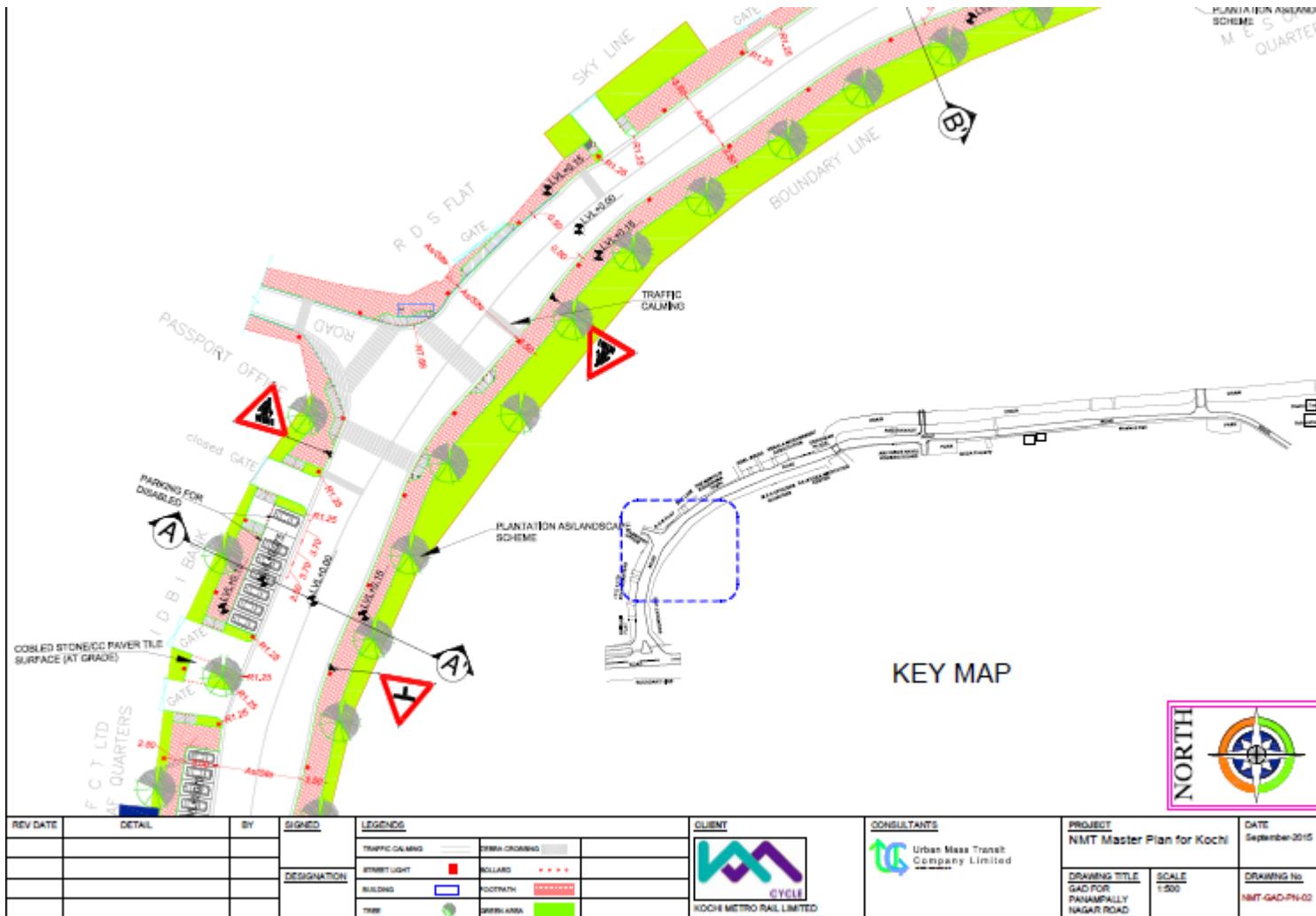
Reinforced Concrete Bench Drawing

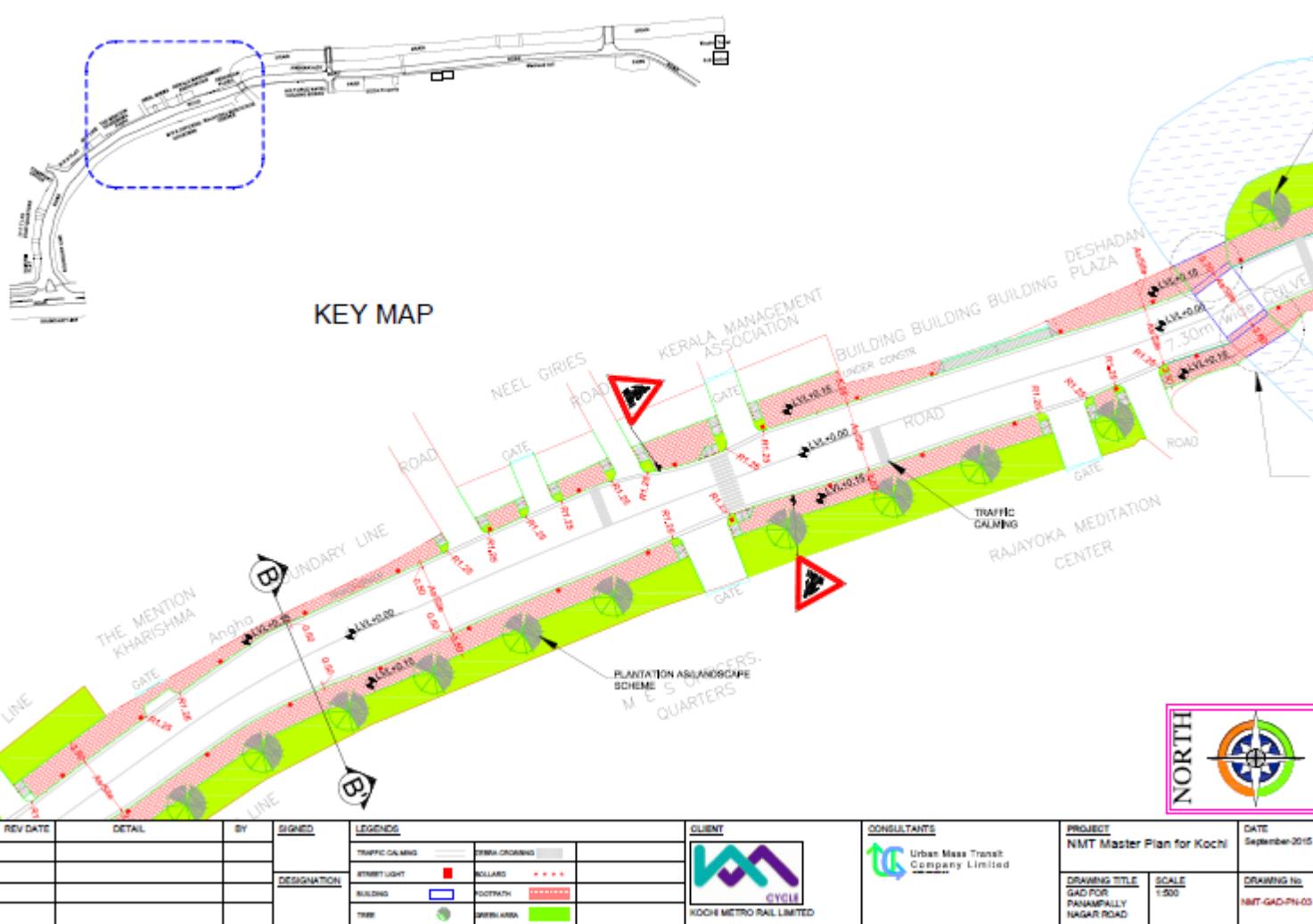


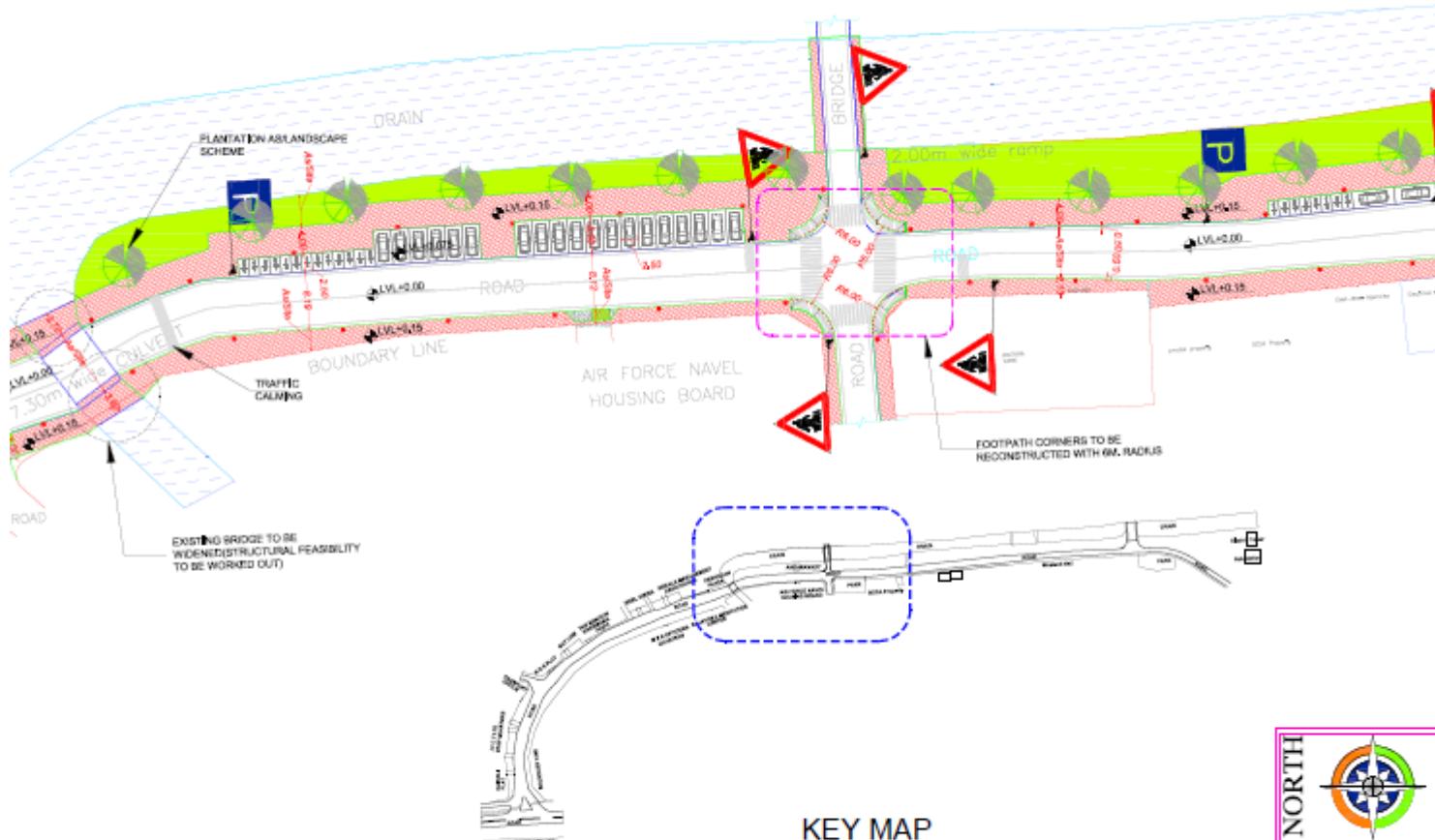
Typical Cross Section

GENERAL ALIGNMENT DRAWING IS GIVEN BELOW FOR THE PROJECT

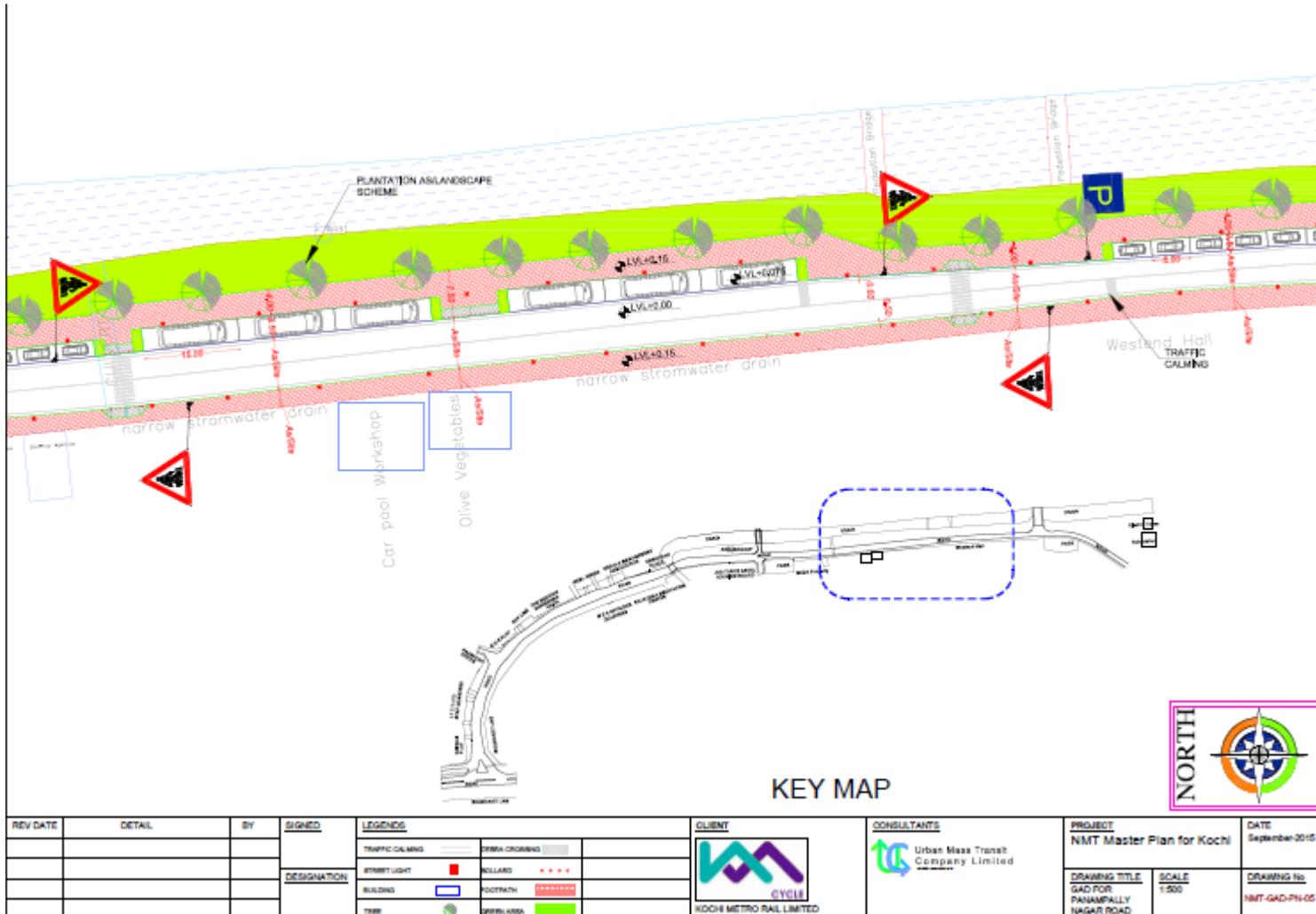




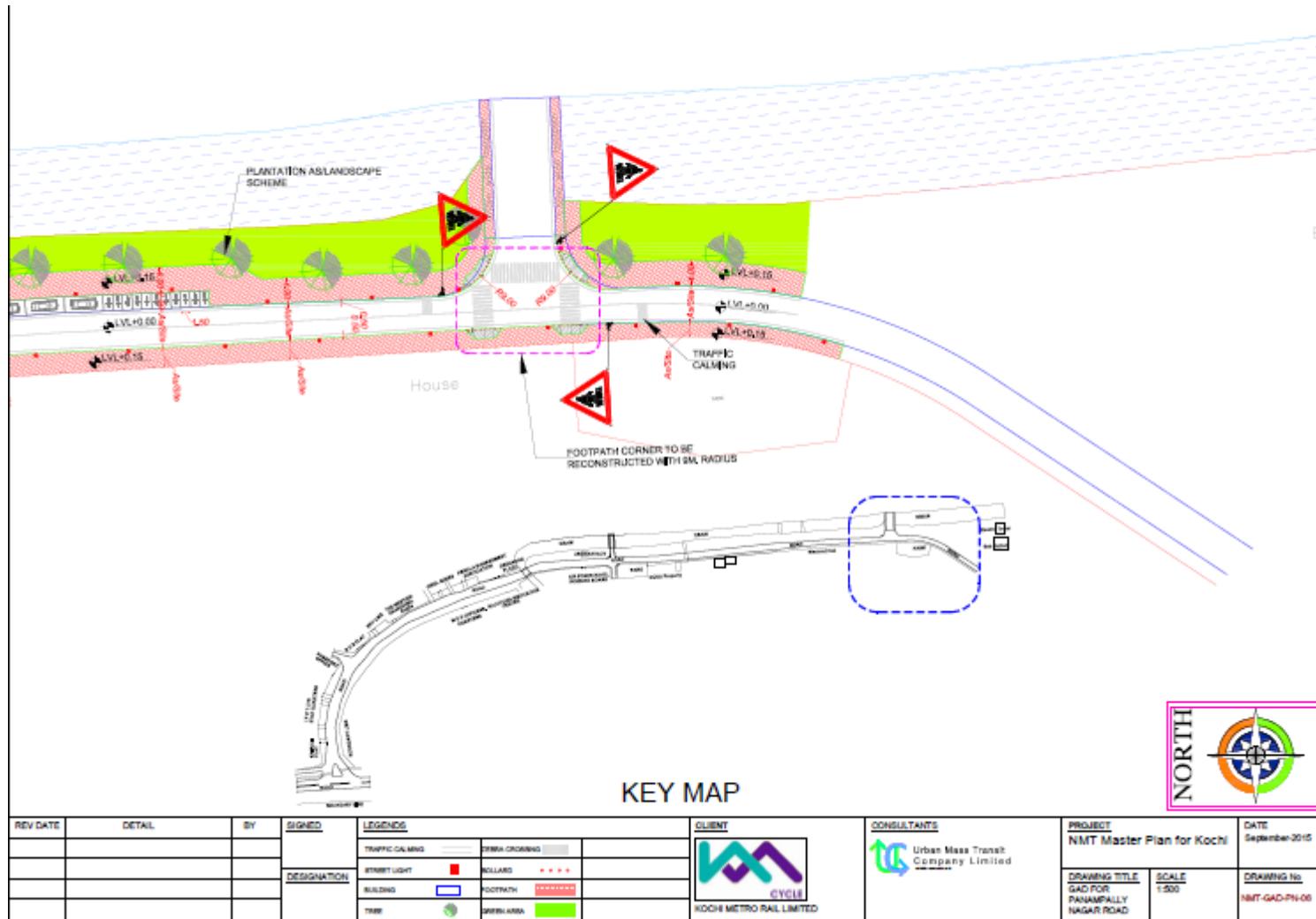




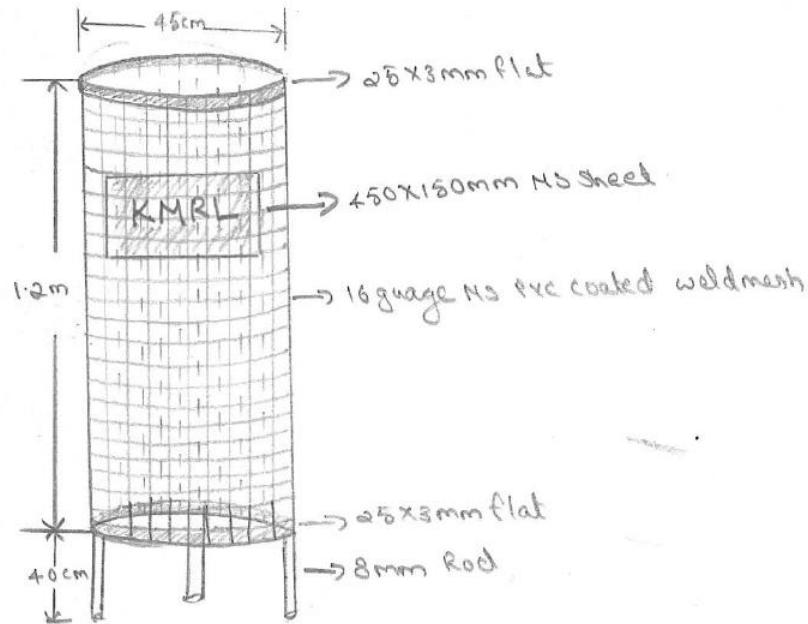
| REV DATE                      | DETAIL | BY            | SIGNED | LEGENDS | CLIENT | CONSULTANTS | PROJECT                   | DATE           |
|-------------------------------|--------|---------------|--------|---------|--------|-------------|---------------------------|----------------|
|                               |        |               |        |         | KMR    | UMT         | NMT Master Plan for Kochi | September 2015 |
|                               |        |               |        |         |        |             |                           |                |
|                               |        |               |        |         |        |             |                           |                |
| DESIGNATION                   |        |               |        |         |        |             |                           |                |
|                               |        |               |        |         |        |             |                           |                |
|                               |        |               |        |         |        |             |                           |                |
|                               |        |               |        |         |        |             |                           |                |
| DRAWING TITLE                 | SCALE  | DRAWING NO.   |        |         |        |             |                           |                |
| GAD FOR PARKERALLY NAGAR ROAD | 1:500  | NMT-GAD-PN-04 |        |         |        |             |                           |                |



| REV DATE | DETAIL | BY | SIGNED | LEGENDS     | CLIENT                   | CONSULTANTS                        | PROJECT                   | DATE           |
|----------|--------|----|--------|-------------|--------------------------|------------------------------------|---------------------------|----------------|
|          |        |    |        | DESIGNATION | KOCHI METRO RAIL LIMITED | Urban Mass Transit Company Limited | NMT Master Plan for Kochi | September-2015 |
|          |        |    |        |             |                          |                                    |                           |                |
|          |        |    |        |             |                          |                                    |                           |                |



### WELD MESH TREE GUARD TENTATIVE DRAWING



## **SECTION 7**

### **FINANCIAL BID (PART II) – COVER II**

- FORM OF BID
- BILL OF QUANTITIES

## FORM OF BID

### **Construction of modern at grade walkways and beautification on both sides of Shihab Thangal Road at Panampilly Nagar as a part of KMRL Non-Motorised Transport Initiative**

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 **120**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 of .....2015.

Signature.....in the capacity of .....duly 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 SEPARATELY**

#### **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.Rates include all sorts of lifts and leads.
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 27 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 : Construction of at grade walkways on both sides of Shihab Thangal Road and Beautification at Panampilly Nagar as a part of KMRL Non-Motorised Transport Initiative****Tender Number : KMRL/PRJ/PNGR/224/2015/TEN 09****Bidder's Name:**

| S.No. | Description of work  | No. or Qty. | Unit | Rate to be entered by Bidder |          | AMOUNT (Rs.) |
|-------|--|-------------|------|------------------------------|----------|--------------|
|       |  |             |      | In Figures                   | In words |              |
| 1     | <b>SITE CLEARANCE &amp; DISMANTLING WORKS</b>  |             |      |                              |          |              |
| 1.1   | Clearing grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared as per clause DSR 2.32   | 114         | Sqm  |                              |          |              |
| 1.2   | Scarifying the existing bituminous road surface to a depth of 50 mm and disposal of scarified material within all lifts and lead upto 1km (by mechanical means) as per DSR clause 16.77  | 1200        | Sqm  |                              |          |              |
| 1.3   | Taking out existing kerb stones of all types from footpath/ central verge including removal of mortar etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer in-Charge as per clause 16.82 of DSR | 450         | RM   |                              |          |              |

|     |  |      |      |  |  |  |
|-----|--|------|------|--|--|--|
| 1.4 | Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material within 50 metre lead as per direction of Engineer-in-Charge as per clause 16.83 of DSR | 559  | Sqm  |  |  |  |
| 1.5 | Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge  |      |      |  |  |  |
|     | In cement mortar as per clause 15.7.4 DSR  | 69   | Cum. |  |  |  |
| 1.6 | Dismantling steel work manually/ by mechanical means in built up sections without dismembering and stacking within 50 m lead as per direction of Engineer in charge as per clause 15.19 of DSR   | 1000 | Kg   |  |  |  |

|     |   |     |      |  |  |  |
|-----|---|-----|------|--|--|--|
| 1.7 | Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved as per clause 15.6 of DSR   | 750 | cum  |  |  |  |
| 2   | <b>BARRICADING WORKS</b>  |     |      |  |  |  |
| 2.1 | Providing and erecting 1.2 metre high temporary barricading at site as per drawing/ direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in- Charge. The barricading provided shall be retained in position at site continuously i/c shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, | 120 | Sqm. |  |  |  |

|     |  |      |     |  |  |  |
|-----|--|------|-----|--|--|--|
|     | painting, all incidentals, labour materials, equipment and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge as per clause 16.81 of DSR   |      |     |  |  |  |
|     | (Note :- One time payment shall be made for providing barricading from shall remain to be the property of the contractor on completion of the work).   |      |     |  |  |  |
| 3   | <b>CIVIL WORKS</b>   |      |     |  |  |  |
| 3.1 | Earth work in excavation by mechanical means/manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 metre as per clause 2.8 of DSR (All kinds of soil.) | 1748 | Cum |  |  |  |
| 3.2 | Filling available excavated earth (excluding rock) in trenches, plinth, sides of   | 78   | Cum |  |  |  |

|       |   |      |     |  |  |  |
|-------|---|------|-----|--|--|--|
|       | foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.                                      |      |     |  |  |  |
| 3.3   | Filling red earth for footpath and landscaping area properly compacted by consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m as per MoRTH        | 770  | Cum |  |  |  |
| 3.4   | Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in as per clause 6.1 of DSR with cement mortar 1:4 (1 cement : 4 Coarse sand) | 43   | Cum |  |  |  |
| 3.5   | 20mm cement plaster of mix in the ration 1:4 (1cement : 4 coarse sand) as per DSR clause 13.6.1   | 1022 | Sqm |  |  |  |
| 3.6   | Providing and laying in position specified grade of reinforced cement concrete, including the cost of centring, shuttering, finishing - All work up to plinth level :                         |      |     |  |  |  |
| 3.6.1 | M20 concrete with minimum 330 kg cement content per cum   | 356  | Cum |  |  |  |

|       |   |      |     |  |  |  |
|-------|---|------|-----|--|--|--|
| 3.6.2 | 1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size)  | 131  | Cum |  |  |  |
| 3.7   | Construction of dry rubble masonry at cross drainage works for relatively less important works as per Morth Specification   | 210  | Cum |  |  |  |
| 3.8   | STONE CLADDING  |      |     |  |  |  |
|       | Stone work (machine cut edges) for wall lining etc. (veneer work) upto 10 metre height, backing filled with a grout of average 15 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : |      |     |  |  |  |
| 3.8.1 | Granite Stone 20 mm thick with edge rounding  | 184  | Sqm |  |  |  |
| 3.8.2 | For Half Edge rounding  | 460  | RM  |  |  |  |
| 3.9   | Stone work for walls upto 10 metre height, backing filled with a grout of average 15 mm thick cement mortar 1:3 (1 cement : 3 coarse sand) including pointing in white cement mortar 1:2 (1 white cement : 2 stone dust) with an admixture of pigment matching the stone shade : with Cladding Tiles                          | 161  | Sqm |  |  |  |
| 3.10  | Providing and laying 60mm thick factory   | 4650 | Sqm |  |  |  |

|      |  |     |     |  |  |  |
|------|--|-----|-----|--|--|--|
|      | made cement concrete interlocking paver block of M -30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge as per DSR clause 16.68   |     |     |  |  |  |
| 3.11 | Providing and laying tactile tile (for vision impaired persons as per standards) of size 300x300x9.8mm having water absorption less than 0.5% and conforming to IS: 15622 of approved make in all colours and shades in for outdoor floors such as footpath, court yard, multi modals location etc., laid on 20mm thick base of cement mortar 1:4 (1cement : 4 coarse sand) in all shapes & patterns including grouting the joints with white cement mixed with matching pigments etc. complete as per direction of Engineer-in-Charge. DSR clause 16.90 | 258 | Sqm |  |  |  |
| 3.12 | Providing and laying factory made chamfered  | 501 | Sqm |  |  |  |

|      |   |     |     |  |  |  |
|------|---|-----|-----|--|--|--|
|      | edge Cement Concrete paver blocks of required strength, thickness & size/shape, made by table vibratory method, to attain superior smooth finish using PU or equivalent moulds, laid in required Grey colour & pattern over 50mm thick compacted bed of coarse sand, compacting and proper embedding / laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with jamuna sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand in footpath, parks, lawns, drive ways or light traffic parking etc. all complete as per manufacturer's specifications & direction of Engineer - in-Charge: (a) 80 mm thick c.c. paver block of M-30 grade with approved colour design and pattern. DSR clause 16.94 |     |     |  |  |  |
| 3.13 | Providing and laying at or near ground level factory made kerb stone of M- 25 grade cement concrete in position to the required line, level   | 349 | Cum |  |  |  |

|      |   |     |      |  |  |  |
|------|---|-----|------|--|--|--|
|      | and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment).                         |     |      |  |  |  |
| 3.14 | Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams. each 41.10 – DSR clause 12.44   | 160 | Each |  |  |  |
| 3.15 | Pre casting and placing in position 125 mm dia Bollards 600 mm high of required shape, including providing M.S. Pipe Sleeve 50 mm dia 300 mm long in the Bollard and M.S. Pipes 40 mm dia and 450 mm long with 150x150x6mm M.S. plate welded at bottom and embedded 150 mm in cement concrete 1:3:6 (1 Cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size), including necessary | 550 | Each |  |  |  |

|      |   |      |     |  |  |  |
|------|---|------|-----|--|--|--|
|      | excavation of size 250 x 250 x 450 mm deep for the same in bitumen/concrete pavement at specified spacing as per DSR clause 4.90  |      |     |  |  |  |
| 3.16 | Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete up to plinth level.   | 3024 | Kg  |  |  |  |
| 3.17 | Providing and fixing 1mm thick M.S. sheet door with frame of 40x40x6 mm angle iron and 3 mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using M.S. angels 40x40x6 mm for diagonal braces for inspection gates to canal– DSR clause 10.5 | 63   | Sqm |  |  |  |
| 3.18 | Finishing walls with Acrylic Smooth exterior paint of required shade : New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm) – DSR clause 13.46.1  | 837  | Sqm |  |  |  |
| 3.19 | Painting with synthetic enamel paint of   | 17   | Sqm |  |  |  |

|        |  |      |        |  |  |  |
|--------|--|------|--------|--|--|--|
|        | approved brand for new work as per DSR clause 13.61.1  |      |        |  |  |  |
| 3.20   | Providing and fixing 32mm G.I pipe class B welding etc. to the base concrete including applying priming coat of approved steel primer.   | 302  | RM     |  |  |  |
| 3.21   | Providing and fixing G.I. chain link fabric fencing of required width in mesh size 50x50 mm including strengthening with 2 mm dia wire or nuts, bolts and washers as required complete as per the direction of Engineer-incharge Made of G.I. wire of dia. 4 mm, PVC coated to achieve outer dia not less than 5 mm in required colour and shade | 1806 | Sqm    |  |  |  |
| 3.22   | Providing 1.5m wide foot bridge on both sides of the culvert using MS pipe 32mm and GI sheet aesthetically pleasing with the landscape work with all concrete foundations and handrail etc duly painted with enamel paint and duly certified from a Structural Design Engineer.  | 12   | RM     |  |  |  |
| 3.23   | Providing labour for clearing drains, other non schedule items etc   |      |        |  |  |  |
| 3.23.1 | Man Coolies  | 30   | Manday |  |  |  |
| 3.23.2 | Female Coolies   | 30   | Manday |  |  |  |
| 3.23.3 | Scavengers   | 45   | Manday |  |  |  |

| <b>4</b> | <b>LANDSCAPING</b>   |     |     |  |  |  |
|----------|--|-----|-----|--|--|--|
| 4.1      | Supplying and stacking of good earth at site including royalty and carriage up to 1 km (earth measured in stacks will be reduced by 20% for payment) (15 cm removal) as per DSR clause 23.20 | 396 | Cum |  |  |  |
| 4.2      | Supplying and stacking sludge/fine sand at site including royalty and carriage up to 1 km (sludge measured in stacks will be reduced by 8% for payment) as per DSR clause 23.30              | 396 | Cum |  |  |  |
| 4.3      | Supplying and stacking at site dump manure from approved source, including carriage up to 1 km (manure measured in stacks will be reduced by 8% for payment) as per DSR clause 23.40         | 198 | Cum |  |  |  |
| 4.4      | Mixing earth and sludge or manure in the required proportion specified or directed as per DSR clause 23.90   | 990 | Cum |  |  |  |
| 4.5      | Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded).    | 990 | Cum |  |  |  |
| 4.6      | Supply of flowering saplings of average height 150 cm as selected by Engineer in   | 61  | Nos |  |  |  |

|     |   |    |     |  |  |  |
|-----|---|----|-----|--|--|--|
|     | Charge  |    |     |  |  |  |
| 4.7 | Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts  | 61 | Nos |  |  |  |
| 4.8 | Supply and fixing of 1.2m high and 45 cm diameter GI wire mesh tree guard at site of 2"x2" square holes 1mm GI weld mesh which is supported with three 8mm MS rod of 30 cm (20 cm to be projected down from the end of weld mesh) height as its leg. Name plate of 1mm thick M.S sheet of size 450x150mm shall be welded to tree guard near the top height etc as per the approval from the concerned authorities. Tree guard shall be painted with 2 coats of enamel paint as suggested by the | 61 | Nos |  |  |  |

|      |  |      |     |  |  |  |
|------|--|------|-----|--|--|--|
|      | engineer.  |      |     |  |  |  |
| 4.9  | Supply and planting of Durva Grass   | 6600 | Sqm |  |  |  |
| 4.10 | Supply of Vetiver grass (Chrysopogon zizanioides) for a width of 1.0m along the entire length of the stream.   | 500  | Sqm |  |  |  |
| 4.11 | Grassing with selection No.1 grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the good earth shall be paid for separately). | 3000 | Sqm |  |  |  |
| 4.12 | Turfing with Mexican Grass over a layer of .025m <sup>3</sup> /m <sup>2</sup> of fine sand mixed with cowdung and coirpith(neopit) over laying mulching sheet 30 micron including dressing conveyance labour charges maintaining for a period of 30 days             | 2400 | Sqm |  |  |  |
| 4.13 | Providing and planting of shrubplants and ground cover of the genus: Bacopa, Wedelia, Melanthera, Pilea, Hopea, Pellionia, Plectranthus, Hemigraphis and other Western Ghats endemic   | 3000 | Nos |  |  |  |

|      |   |    |     |  |  |  |
|------|---|----|-----|--|--|--|
|      | genus as prescribed by the Landscape Archietct.   |    |     |  |  |  |
| 4.14 | Supply and placing Precast R.C.C. grating with frame 500x450 mm horizontal grating  | 61 | Nos |  |  |  |
| 4.15 | Supply & fixing of RCC precast benches or other furnitures cast with M30 Grade connected with 12mm dia x 65 mm long galvanized steel CSK bolt with EVA washer | 20 | Nos |  |  |  |
|      | <b>Total amount in Figures</b>  |    |     |  |  |  |
|      | <b>Total amount in Words</b>  |    |     |  |  |  |