



**RFP No: KSCCL/Smart Street-1/2017/2**

**INTERNATIONAL COMPETITIVE BIDDING**

**Project Name: Implementation of Smart City Projects under Smart City Mission in Kakinada**

**Request for Proposal (RFP) for Procurement of Implementing Agency**

**Name of Work: "Urban Street Scaping of main road from Sarpavaram Junction to Balayogi Statue Junction" as Smart Street under Smart City Mission (Re-call)**

**Employer : Kakinada Smart City Corporation Limited (KSCCL)**

**City : Kakinada**

**State : Andhra Pradesh**

**Country : India**

**Bid Date : 15<sup>th</sup> July 2017**







## Kakinada Smart City Corporation Limited (KSCCL)

Ref: KSCCL/Smart Street-1/2017, dt: 15-07-2017

### REQUEST FOR PROPOSAL (RFP)

KSCCL desires to invite Request for Proposal (RFP) for Procurement of Implementing Agency for “Urban Street Scalping of main road from Sarpavaram Junction to Balayogi Statue Junction” as Smart Street Under Smart City Mission. The detailed RFP including EMD, TOR, Eligibility criteria etc., can be downloaded from website of [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in) and available at [www.kakinada.cdma.ap.gov.in](http://www.kakinada.cdma.ap.gov.in) from 15<sup>th</sup> July’ 2017 onwards. **The last date for online submission of bids is 25<sup>th</sup> July’ 2017 up to 5.00 Pm.**

***For more details contact:***

Kakinada Smart City Corporation Ltd.  
Web : [www.kakinada.cdma.ap.gov.in](http://www.kakinada.cdma.ap.gov.in)  
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Sd/-  
Managing Director,  
KSCCL

**KAKINADA SMART CITY CORPORATION LIMITED**

Notification No. KSCCL/SMART CITY/2017

Dt.06-07-2017

Bids are invited from Eligible Bidders for the following item of works

1. Up-gradation of Primary School Infrastructure
2. Reclamation of Parlopeta MSW Dumpsite through Bio-Mining Process in Kakinada Municipal Corporation
3. Re-Development with additional Facilities to a) Pedddda Market b) Kottapeta and c) Gandhinagar Markets
4. Providing Sewerage system with STP including O&M for 5 years at Yetimoga in Kakinada
5. Build, Operate and maintain Biogas based captive Power Plant for handling 5 TPD Municipal Solid Waste
6. Design, Develop, Implement and Maintenance of Health records (E-Health) of Government Hospitals in Kakinada
7. Construction of Two Lane Road Bridge at Prathapnagar, Kakinada
8. Development of Arterial Road from Sarpavaram Junction to Jaganadhapuram Bridge via RTA Office, Diary farm junction, Port Railway gate as per design IRC 86-1983 for Urban Roads
9. Urban Street Scaping of main road from Sarpavaram Junction to Balayogi Statue Junction" as Smart Street

The proposals can be submitted online e-tendering process through e-procurement portal [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in) from 13<sup>th</sup> July 2017 onwards.

For communication, contact us through mails [smartcityofficekcd@gmail.com](mailto:smartcityofficekcd@gmail.com) & [kakinadacorporation@gmail.com](mailto:kakinadacorporation@gmail.com) , Web site: [kakinada.cdma.ap.gov.in](http://kakinada.cdma.ap.gov.in)

Sd/ xxxxxxxxxx  
Managing Director,  
KSCCL, Kakinada

//t.c.f.b.o//

Manager, KSCCL  
Kakinada

## Key Dates

S. No.	Activity	Key Date*	Time
1	Release of RFP	15 <sup>th</sup> -July-2017	11:00
2	Last date for Availability of RFP in E-Procurement	25 <sup>th</sup> -July-2017	16:00
3	Last date of receipt of queries on RFP	19 <sup>th</sup> -July-2017	17:00
4	Pre-bid Meeting date Venue: Conference Hall, Municipal Corporation, Cinema road, Kakinada AP, India	21 <sup>st</sup> -July-2017	11:00
5	Posting of response to queries	21 <sup>st</sup> -July-2017	17:00
6	Last date for submission of Bids - Electronically	25 <sup>th</sup> -July-2017	17:00
7	Physical Submission	27 <sup>th</sup> -July-2017	11:00
8	Date of opening of technical bids (online)	27 <sup>th</sup> -July-2017	11:30
9	Date of opening of Commercial bids (online)	29 <sup>th</sup> -July-2017	11:00
10	Officer Inviting Bids	Managing Director, KSCCL, Kakinada	

\* If the Date happens to fall on a holiday, next working day will be considered

For more details contact:

Kakinada Smart City Corporation Ltd.

Web : [www.kakinada.cdma.ap.gov.in](http://www.kakinada.cdma.ap.gov.in)

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# Bidding Document

## **DISCLAIMER**

### **PART 1 – Bidding Procedures**

Section I - Instructions to Bidders  
Section II - Bid Data Sheet (BDS)  
Section III – Evaluation and Qualification Criteria  
Section IV – Bidding Forms  
Activity Schedule  
Section V – Eligible Countries

### **PART 2 – Employer’s Works Requirements**

Section VII – Employers Works Requirements

### **PART 3 – Conditions of Contract and Contract Forms**

Section VIII – General Conditions of Contract  
Section IX – Particulars Conditions of Contract  
Section X – Contract Forms

# DISCLAIMER

The information contained in this Request for Proposal document (the “RFP”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of the Employer or any of their employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is neither an offer nor invitation by the Employer to the prospective Bidders or any other person. The purpose of this RFP is to provide interested entities with information that may be useful to them in preparing their bids (the “Bid”) including all the necessary submissions and the financial offers pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by the Employer in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all persons, and it is not possible for the Employer, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFP and obtain independent advice from appropriate sources.

Information provided in this RFP to the Bidder(s) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Employer accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The Employer, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way during the Bidding Process.

The Employer also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP.

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The Employer may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Employer is bound to select a Bidder or to appoint the Selected Bidder for the Project and the Employer reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Employer or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and the Employer shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.



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## **PART 1 – Bidding Procedures**



## Section I - Instructions to Bidders

### Table of Clauses

<b>A.</b>	<b>General</b>
1	Scope of Bid
2	Source of Funds
3	Corrupt and Fraudulent Practices
4	Eligible Bidders
5	Eligible Materials, Equipment and Services
<b>B.</b>	<b>Contents of Bidding Document</b>
6	Sections of Bidding Document
7	Clarification of Bidding Document, Site Visit, Pre-Bid Meeting
8	Amendment of Bidding Document
<b>C.</b>	<b>Preparation of Bids</b>
9	Cost of Bidding
10	Language of Bid
11	Documents Comprising the Bid
12	Letter of Bid and Schedules
13	Alternative Bids
14	Bid Prices and Discounts
15	Currencies of Bid and Payment
16	Documents Comprising the Technical Proposal
17	Documents Establishing the Qualifications of the Bidder
18	Period of Validity of Bids
19	Bid Security
20	Format and Signing of Bid
<b>D.</b>	<b>Submission and Opening of Bids</b>
21	Sealing and Marking of Bids
22	Deadline for Submission of Bids
23	Late Bids
24	Withdrawal, Substitution, and Modification of Bids
25	Bid Opening
<b>E.</b>	<b>Evaluation and Comparison of Bids</b>
26	Confidentiality
27	Clarification of Bids
28	Deviations, Reservations, and Omissions
29	Determination of Responsiveness
30	Nonconformities, Errors, and Omissions
31	Correction of Arithmetical Errors
32	Conversion to Single Currency
33	Margin of Preference

- 34 Sub Implementing Agencies
- 35 Evaluation of Bids
- 36 Comparison of Bids
- 37 Qualification of the Bidder
- 38 Employer's Right to Accept Any Bid, and to Reject Any or All Bids
- F. Award of Contract**
  - 39 Award Criteria
  - 40 Notification of Award
  - 41 Signing of Contract
  - 42 Performance Security
  - 43 Adjudicator

## Section I - Instructions to Bidders

<b>A. General</b>	
<b>1.Scope of Bid</b>	<p>1.1 In connection with the Invitation for Bids <b>Specified in the Bid Data Sheet (BDS)</b>, the Employer, as <b>specified in the BDS</b>, issues this Request for proposal (the “<b>RFP</b>”) (Bidding Documents) for the procurement of the Works as specified in Section VII, Employer’s Works Requirements. The name, identification of this bidding are <b>specified in the BDS</b>.</p>
	<p>1.2 Throughout this Bidding Document:</p> <ul style="list-style-type: none"> <li>(a) the term “in writing” means communicated in written form and delivered against receipt or electronically;</li> <li>(b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and</li> <li>(c) “Day” means calendar day.</li> </ul>
<b>2. Source of Funds</b>	<p>2.1 Employer has received financing (hereinafter called “funds”) from the Government of India (GoI) and Government of Andhra Pradesh (GoAP) toward the project named in the BDS. The Employer intends to apply a portion of the funds to eligible payments under the contract(s) for which these Bidding Documents are issued.</p>
<b>3. Corrupt and Fraudulent Practices</b>	<p>3.1 It requires that employer, as well bidders, suppliers, contractors and their agents (whether declared or not), observe the highest standard of ethics during the procurement and implementation/execution of such contracts. In pursuance of this Act, The Employer requires compliance to corrupt and fraudulent practices as set forth in Section VI.</p> <p>3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-Contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the Employer to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Employer.</p>

**4. Eligible Bidders**

4.1 A Bidder may be a firm that is a private entity, or a government-owned entity—subject to ITB 4.5—or any combination of them in the form of a joint venture (JV), under an existing agreement, or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture or consortium, all members shall be jointly and severally liable for the execution and implementation of the Contract in accordance with the Contract terms. The JV shall nominate a Representative (lead bidder) who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. The limit on the number of members in a JV. **is specified in the BDS.**

4.2 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:

- a. directly or indirectly controls, is controlled by or is under common control with another Bidder; or
- b. receives or has received any direct or indirect subsidy from another Bidder; or
- c. has the same legal representative as another Bidder; or
- d. has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- e. participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same sub Implementing Agency in more than one bid; or
- f. or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or
- g. or any of its affiliates has been hired (or is

	<p>proposed to be hired) by the Employer or Borrower as Engineer for the Contract implementation;</p> <p>h. would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm;</p> <p>i. has a close business or family relationship with a professional staff of the Employer (or of the Project Management Consultant of the Employer) who:</p> <p>(i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or</p> <p>(ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Financing Agency (GoI and GoAP) throughout the procurement process and execution of the contract.</p>
	<p>4.3 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-Implementing Agencies or sub-consultants for any part of the Contract including related Services.</p>
	<p>4.4 A Bidder that has been sanctioned by Employer in accordance with the above ITB 3.1, including in accordance with the Prevention of Corruption Act 1988 (INDIA) and its subsequent amendments on Preventing and Combating Corruption shall be ineligible to be prequalified for, bid for, or benefit from an</p>

	Employer's contract, financially or otherwise and as <b>specified in the BDS.</b>
	<p>4.5 Bidders that are Government-owned enterprises or institutions in the India may participate only if they can establish that they :</p> <ul style="list-style-type: none"> <li>(i) Are legally and financially autonomous</li> <li>(ii) operate under commercial law, and</li> <li>(iii) Are not dependent agencies of the Employer. To be eligible, a government-owned enterprise or institution shall establish to the Employer's satisfaction, through all relevant documents, including its Charter and other information the Employer may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government (Gol or State Govt.(s)), can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government (Gol or State Govt.) which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.</li> </ul>
	<p>4.6</p> <p>4.6.1 The sole bidder or lead bidder and each member of the consortium should never be under suspension/ debar/ block listing from bidding by Gol or State Govt. (s)/ public sector units as on bid submission date and necessary notarized declaration on Rs 100/- stamp paper should be enclosed as per the enclosed proforma.</p>
	<p>4.6.2 The sole bidder or lead bidder and each member of the consortium who have not applied/ availed CDR nor have been subjected to SDR during last five financial years are eligible to participate in the Bid. A certificate to that affect from a registered Chartered Accountant shall be uploaded by the bidder.</p>
	<p>4.7 Firms and individuals may be ineligible if so indicated in Section V and</p> <p>(a) as a matter of law or official regulations, the Employer's country prohibits commercial relations with that country, provided that the Employer is satisfied that such exclusion does</p>



	<p>not preclude effective competition for the supply of goods or the contracting of works or services required; or the Employer's country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.</p> <p>4.8 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.</p>
<p><b>5. Eligible Materials, Equipment and Services</b></p>	<p>5.1 The materials, equipment and services to be supplied under the Contract may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment and services.</p> <p>5.2 For purposes of ITB 5.1 above, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.</p>
<p><b>B. Contents of Bidding Document</b></p>	
<p><b>6. Sections of Bidding Document</b></p>	<p>6.1 The Bidding Document consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any Addenda or corrigenda issued in accordance with ITB 8.</p> <p><b>PART 1 Bidding Procedures</b>  Section I - Instructions to Bidders (ITB)  Section II - Bid Data Sheet (BDS)  Section III - Evaluation and Qualification Criteria  Section IV - Bidding Forms  Section V - Eligible Countries  Section VI –Corrupt and Fraudulent Practices</p> <p><b>PART 2 Works Requirements</b>  Section VII - Works Requirements</p> <p><b>PART 3 Conditions of Contract and Contract Forms</b></p>

## Section –I Instructions to Bidders

	<p>Section VIII - General Conditions of Contract (GCC)</p> <p>Section IX - Particular Conditions of Contract (PCC)</p> <p>Section X - Contract Forms</p>
	6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Document.
	6.3 Unless obtained directly from the Employer web portal, the Employer is not responsible for the completeness of the Bidding Documents, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer's website shall prevail.
	6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its bid all information and documentation as is required by the Bidding Documents.
<b>7. Clarification of Bidding Document, Pre-Bid Meeting</b>	<p>7.1 A Bidder requiring any clarification of the Bidding Document shall contact the Employer in writing at the Employer's address <b>specified in the BDS</b> or raise its inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of bids within a period <b>specified in the BDS</b>. The Employer upload its response on employer's website, including a description of the inquiry but without identifying its source. <b>If so specified in the BDS</b>, the Employer shall also promptly publish its response at the web page identified in the BDS. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2.</p>
	7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction and/or implementation of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
	7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose (upon a written request from bidder) of

## Section –I Instructions to Bidders

	such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
	<b>7.4 If so specified in the BDS,</b> the Bidder’s designated representative is invited to attend a pre-bid meeting. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
	<b>7.5</b> The Bidder is requested, to submit any questions in writing, to reach the Employer not later than period specified in BDS before the meeting.
	<b>7.6</b> Minutes of the pre-bid meeting, if applicable, including the text of the questions asked by Bidders and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.
<b>8. Amendment of Bidding Document</b>	<b>8.1</b> At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Documents by issuing addenda.
	<b>8.2</b> Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer’s web page in accordance with ITB 7.1.

	8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at its discretion, extend the deadline for the submission of bids, pursuant to ITB 22.2.
<b>C. Preparation of Bids</b>	
<b>9. Cost of Bidding</b>	<p>9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.</p> <p>9.2 The RFP can be downloaded from the website and necessary at the cost specified in the BDS shall be paid in the form of DD and shall be enclosed along with physical submission of bid.</p>
<b>10. Language of Bid</b>	10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language <b>specified in the BDS</b> . Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language <b>specified in the BDS</b> , in which case, for purposes of interpretation of the Bid, such translation shall govern. The translation shall be made by approved/authorized/licensed translator as <b>specified in the BDS</b>
<b>11. Documents Comprising the Bid</b>	<p>11.1 The Bid shall comprise the following:</p> <ul style="list-style-type: none"> <li>(i) Letter of Bid in accordance with ITB 12;</li> <li>(ii) Completed Schedules, in accordance with ITB 12 and 14: <b>as specified in the BDS</b>;</li> <li>(iii) Bid Security in accordance with ITB 19.1;</li> <li>(iv) Alternative bids, if permissible, in accordance with ITB 13;</li> <li>(v) Written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;</li> <li>(vi) Documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the contract if its Bid is accepted;</li> <li>(vii) Technical Proposal in accordance with ITB 16; and</li> </ul>

	<p>(viii) Any other document <b>required in the BDS</b>.</p> <p>11.2 In addition to the requirements under ITB 11.1, bids submitted by a Joint Venture (JV) shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.</p> <p>11. 3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.</p>
<b>12. Letter of Bid and Schedules</b>	<p>12.1 The Letter of Bid and Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.2. All blank spaces shall be filled in with the information requested.</p>
<b>13. Alternative Bids</b>	<p>13.1 Unless otherwise <b>specified in the BDS</b>, alternative bids shall not be considered.</p>
	<p>13.2 When alternative times for completion are explicitly invited, a statement to that effect will be <b>included in the BDS</b>, as will the method of evaluating different times for completion.</p>
	<p>13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer’s design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.</p>
	<p>13.4 When <b>specified in the BDS</b>, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be <b>identified in the BDS</b> and described in Section VII. <i>Employer’s Works Requirements</i>. The method for their evaluation will be stipulated in Section III. <i>Evaluation and Qualification Criteria</i>.</p>

<b>14. Bid Prices and Discounts</b>	14.1 The prices and discounts (including any price reduction) quoted by the Bidder in the Letter of Financial Bid and in the Schedules shall conform to the requirements specified below.
	14.2 The Bidder shall submit a bid for the whole of the works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section IV. Bidding Forms. In case of admeasurement contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.
	14.3 The price to be quoted in the Letter of Financial Price Bid, in accordance with ITB 12.1, shall be the total price of the bid, excluding any discounts offered.
	14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.
	<p><b>14.5 Unless otherwise provided in the BDS and the Conditions of Contract, the prices quoted by the Bidder shall be fixed. If the prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data in Section IV- Bidding Forms and the Employer may require the Bidder to justify its proposed indices and weightings.</b></p> <p>14.6 If so specified in ITB 1.1, bids are invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the bids for all lots (contracts) are opened at the same time.</p>
	14.7 All duties, insurances, taxes, and other levies payable by the Implementing Agency under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the total bid price

	submitted by the Bidder.
<b>15. Currencies of Bid and Payment</b>	15.1 The currency(ies) of the bid and the currency(ies) of payments shall be as <b>specified in the BDS.</b>
<b>16. Documents Comprising the Technical Proposal</b>	16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
<b>17. Documents Establishing the Qualifications of the Bidder</b>	17.1 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.
	17.2 If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITB 33.1.
<b>18. Period of Validity of Bids</b>	18.1 Bids shall remain valid for the period <b>specified in the BDS</b> after the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.
	18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for forty five (45) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its bid. Further processing of bids will be done for those bidders who extended their bid validity.
<b>19. Bid Security</b>	19.1 The Bidder shall furnish as part of its bid, a bid security <b>as specified in the BDS</b> , in original form in the amount and currency <b>specified in the BDS.</b>
	19.2 A Bid Securing Declaration is not applicable.

	<p>19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder's option:</p> <p>(a) an unconditional guarantee issued by a bank (scheduled commercial bank) or</p> <p>(b) Demand Draft – deleted.</p> <p>From an eligible country on the name of the Employer as <b>specified in the BDS</b>. If the unconditional guarantee is issued by a bank located outside the Employer's Country, the issuing bank shall have a correspondent bank located in the Employer's Country to make it enforceable. The bid security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Employer prior to bid submission. The bid security shall be valid for forty five (45) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.</p>
	<p>19.4 If a bid security is specified pursuant to ITB 19.1, any bid not accompanied by a substantially responsive bid security shall be rejected by the Employer as non-responsive.</p>
	<p>19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the performance security pursuant to ITB 42, bid not later than 30 days upon submission of the performance security by the Successful Bidder.</p>
	<p>19.6 The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.</p>
	<p>19.7 The bid security may be forfeited or the Bid Securing Declaration executed:</p> <p>(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, , or any extension thereto provided by the Bidder; or</p> <p>(b) if the successful Bidder fails to:</p>



	<p>(i) Sign the Contract in accordance with ITB 41; or</p> <p>(ii) Furnish a performance security in accordance with ITB 42.</p> <p>(iii) Accept arithmetical corrections in accordance with ITB 31</p>
	<p>19.8 The bid security of a JV shall be in the name of the JV that submits the bid. If the JV has not been constituted into a legally-enforceable JV, at the time of bidding, the Bid Security shall be in the names of all future members as named in the letter of intent mentioned in ITB 4.1 and ITB 11.2.</p>
	<p>19.9 If a bid security is <b>not required in the BDS</b>, and</p> <p>(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or</p> <p>(b) if the successful Bidder fails to: sign the Contract in accordance with ITB 41; or furnish a performance security in accordance with ITB 42;</p> <p>the Employer may, <b>if provided for in the BDS</b>, declare the Bidder ineligible to be awarded a contract for a period of time <b>as stated in the BDS</b>.</p>
<p><b>20. Format and Signing of Bid</b></p>	<p>20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL TECHNICAL BID". Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE". In addition, the Bidder shall submit copies of the bid in the number <b>specified in the BDS</b>, and clearly mark each of them "COPY." In the event of any discrepancy between the online submission, physical submission (original and the copies as the case may be), the online submission shall prevail.</p>
	<p>20.2 The original and all copies of the bid shall be typed or written in indelible ink and scanned copy of the original and shall be signed (physically or digitally as the case may be) by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as <b>specified in the BDS</b> and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.</p>

	<p>20.3 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.</p> <p>20.4 Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.</p>
<p><b>D. Submission and Opening of Bids</b></p>	
<p><b>21. Sealing and Marking of Bids</b></p>	<p>21.1 The Bidder shall enclose the online submission, original and all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as “ORIGINAL”, “ALTERNATIVE” and “COPY.” These envelopes containing the online submission and original &amp; the copies shall then be enclosed in one single envelope (Physically and/or digitally as the case may be).</p> <p>Part A: Qualification documents (Envelop A)</p> <ul style="list-style-type: none"> <li>a. Registration: Company or firm registration</li> <li>b. Latest income tax returns along with PAN details.</li> <li>c. Bid security</li> <li>d. Bid document fee</li> <li>e. JV/consortium agreement (if applicable)</li> <li>f. Lead member or authorized signatory</li> </ul> <p>Part B: Financial eligibility</p> <ul style="list-style-type: none"> <li>(c) Minimum average annual turnover Rs INR 80 Crores</li> <li>(d) In case of JV/ consortium member refer page ..... clause .... Subject to satisfying the above clause</li> </ul> <p>Part C: Technical Eligibility</p> <ul style="list-style-type: none"> <li>(e) The bidder shall over the past Ten (10) financial years preceding the bid submission date should have the following experience.</li> </ul> <p>“Design &amp; execution or execution of 4 lane road in urban area with central median or foot path or other services</p>

## Section –I Instructions to Bidders

	for a length of 4.00km”
	<p>21.2 All the envelopes (physically and digitally as the case may be) shall:</p> <ul style="list-style-type: none"> <li>(a) bear the name and address of the Bidder;</li> <li>(b) be addressed to the Employer as <b>provided in the BDS</b> pursuant to ITB 22.1;</li> <li>(c) bear the specific identification of this bidding process specified in accordance with BDS 1.1; and</li> <li>(d) bear a warning (on physically submission envelop) not to open before the time and date for bid opening.</li> </ul>
	<p>21.3 If all envelopes are not sealed and marked (Physically and digitally) as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.</p>
	<p>21.4 The bidder would be required to register on the e-procurement market place <a href="http://www.apecurement.gov.in">www.apecurement.gov.in</a> and submit their bids online.</p>
	<p>21.5 It is mandatory for all the participating bidders to pay electronically the Transaction fee to M/s Vupadi Technologies through "Payment Gateway Service on E-Procurement platform". The Electronic Payment Gateway accepts all Master and Visa cards issued by any bank and Direct Debit facility / Net Banking of ICICI Bank, HDFC to facilitate the transaction. This should be in compliance with latest applicable GST rates + Bank Charges for Credit Card Transaction of 1.85% on the transaction Amount payable to Vupadi Technologies Shall be applicable.</p>
<b>22. Deadline for Submission of Bids</b>	<p>22.1 Bids must be received by the Employer at the address and no later than the date and time <b>specified in the Key dates at page # 3</b>. When so <b>specified in the BDS</b>, bidders shall submit the bids physically and electronically (scanned copy of the original). Bidders submitting bids electronically in addition to physically submission shall follow the electronic bid submission procedures specified in 21.4 and 21.5 above.</p>
	<p>22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline</p>

	shall thereafter be subject to the deadline as extended.
<b>23. Late Bids</b>	23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
<b>24. Withdrawal, Substitution, and Modification of Bids</b>	<p>24.1 A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:</p> <p>(a) Prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and</p> <p>(b) Received by the Employer prior to the deadline prescribed for submission of bids, in accordance with ITB 22.</p>
	24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened (physically submitted) to the Bidders and electronically submitted bids shall not be opened of those bidders.
	24.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.
<b>25. Bid Opening</b>	<p>25.1 Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25.3 all bids received by the deadline, at the date, time and place <b>specified in the BDS</b>, in the presence of Bidders` designated representatives who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be <b>as specified in the BDS</b>.</p> <p>25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be</p>

	<p>permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only envelopes (physical and electronic) that are opened and read out at bid opening shall be considered further.</p>
	<p>25.3 All other envelopes holding Technical Bids (envelop A) shall be opened one at a time, reading out:</p> <p>the name of the Bidder and whether there is a modification;  the presence or absence of a bid security, or Bid Securing Declaration, as required;  and any other details as the Employer may consider appropriate.</p> <p>The Letter of Bid is to be initialed by representatives of the Employer attending bid opening in the manner <b>specified in the BDS</b>. The Employer shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 23.1).</p>
	<p>25.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, if applicable, including any discounts and alternative bids; and the presence or absence of a bid security. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.</p> <p>25.4.2 The bidders whomsoever qualified in pre-qualification criteria such as general, financial and Technical as per cl 21.1, eligible full technical proposals will be further evaluated.</p>
	<p>25.5 The bidders whosoever qualify in the Technical bids, their</p>

	financial bid shall be opened inline.
	25.6 The Employer shall prepare a record of the online Financial bid opening that shall include, as a minimum: the name of the Bidder and the Bid Price, as per contract, including any discounts offered in the financial bids. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be published on the Employer's web portal.
<b>E. Evaluation and Comparison of Bids</b>	
<b>26. Confidentiality</b>	26.1 Information relating to the evaluation, comparison of bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process.
	26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
	26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.
<b>27. Clarification of Bids</b>	27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid given a reasonable time for a response. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.
	27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification, its bid may be rejected.

<b>28. Deviations, Reservations, and Omissions</b>	<p>28.1 During the evaluation of bids, the following definitions apply:</p> <ul style="list-style-type: none"> <li>(a) “Deviation” is a departure from the requirements specified in the Bidding Document;</li> <li>(b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and</li> <li>(c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Document.</li> </ul>
<b>29. Determination of Responsiveness</b>	<p>29.1 The Employer’s determination of a bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB11.</p> <p>29.2 A substantially responsive bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,</p> <ul style="list-style-type: none"> <li>(a) if accepted, would: <ul style="list-style-type: none"> <li>(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or</li> <li>(ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer’s rights or the Bidder’s obligations under the proposed Contract; or</li> </ul> </li> <li>(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.</li> </ul>
	<p>29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VII (Employer’s Works Requirements) have been met without any material deviation, reservation or omission.</p>
	<p>29.4 If a bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.</p>
<b>30. Nonconformities, Errors, and</b>	<p>30.1 Provided that a bid is substantially responsive, the Employer may waive any nonconformities in the bid which do not</p>

<b>Omissions</b>	constitute a material deviation, reservation, or omission.
	30.2 Provided that a Technical bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
	30.3 Provided that a Technical bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the methods specified in Section III (Evaluation and Qualification Criteria).
<b>31 Correction of Arithmetical Errors</b>	31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis: <ul style="list-style-type: none"> <li>(a) only for admeasurement contracts, if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;</li> <li>(b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</li> <li>(c) if there is a discrepancy in the bid price between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.</li> </ul>
	31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid.



<b>32 Conversion to Single Currency</b>	32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as <b>specified in the BDS.</b>
<b>33 Margin of Preference</b>	<b>33.1 Unless otherwise specified in the BDS,</b> a margin of preference for domestic bidders shall not apply.
<b>34. Sub-Contractor, Implementing Agency's</b>	<p>34.1 Unless otherwise <b>specified in the BDS</b>, the Employer does not intend to execute any specific elements of the Works by sub-Implementing Agency's selected in advance by the Employer.</p> <p>34.2 The Employer may permit subcontracting for certain specialized works as indicated in Section III. When subcontracting is permitted by the Employer, the specialized sub-Implementing Agency's experience shall be considered for evaluation. Section III describes the qualification criteria for sub-Implementing Agency's.</p> <p>34.3 Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as <b>specified in the BDS.</b></p>
<b>35. Evaluation of Bids</b>	35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.
	<p>35..2 To evaluate a bid, the Employer shall consider the following:</p> <ul style="list-style-type: none"> <li>(a) The selection is based on Quality Cum Least Cost Based selection (QCLBS) as <b>specified in BDS</b></li> <li>(b) The evaluation committee shall evaluate the stage-1 qualification criteria such as preliminary qualifications, financial eligibility, and Technical eligibility. The bidder who satisfies these requirements will be made eligible for further evaluation of full technical proposals (stage-II) on the basis of their responsiveness to the Terms of Reference, applying the evaluation criteria, sub-criteria, and point system <b>specified in BDS</b>. Each responsive Proposal will be given a technical score (St). A Proposal shall be rejected at this stage if it does not respond to important aspects of the RFP, and particularly the Terms of Reference or if it fails to achieve the minimum technical score <b>specified in the BDS.</b></li> <li>(c) The bidders who score minimum qualifying score or more as <b>specified in the BDS</b> shall be treated at par and be considered technically qualified are eligible for</li> </ul>

	<p>opening of financial bid i.e. stage-3. Their financial bids only be evaluated.</p> <p>(d) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities (BoQ), Activity Schedule , but including all works items, where priced competitively;</p> <p>(e) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;</p> <p>(f) the additional evaluation factors are specified in Section III (Evaluation and Qualification Criteria);</p>
	<p>35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.</p>
	<p>35.4 If this Bidding Document allows Bidders to quote separate prices for different items under the contract, the methodology to determine the lowest evaluated price of the contract combinations.</p>
	<p>35.5 If the bid for an admeasurement contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced or, front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. If the increased amount of the performance security is not acceptable to the successful bidder, the Employer may in writing reject the bid of the successful bidder and in such case the next ranked bidder may be called for the negotiations and if such situation still persists the next placed bidder may be called for negotiations and so on till the finalization of the contract or the Employer may cancel the bidding process and recall the RFPs.</p> <p>If the bid price for a particular BoQ is seriously unbalanced ie more than 15% less, the bidder should deposit an additional security deposit for an equalent amount of deference between the 15% and quoted price.</p>

<b>36. Comparison of Bids</b>	36.1 After finalizing the technically qualified bidders the financial bid will be opened online. The system will arrange the bidders in ascending order (automatic selection will be done in online tenders). For all purposes, lowest bidder will be declared as successful bidder. After finalization of BoQ and for issuing the GFC (good for construction) drawings
<b>37. Qualification of the Bidder</b>	37.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the substantially responsive bid meets the qualifying criteria specified in Section III. Evaluation and Qualification Criteria.
	37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.
	37.3 An affirmative determination of qualification shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.
<b>38. Employer's Right to Accept Any Bid, and to Reject Any or All Bids</b>	38.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
<b>F. Award of Contract</b>	
<b>39. Award Criteria</b>	<p>39.1 Subject to ITB 37.1, the Employer shall award the Contract to the Bidder whose bid has been ranked first (L1) evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.</p> <p>39.2 If more than one bidder quoted the same lowest price, The Employer has the right to declare the successful bidder whose technical score is highest without any prejudice.</p>
<b>40. Notification of Award</b>	40.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, via the Letter of Acceptance included in the Contract Forms, that its bid has been

## Section –I Instructions to Bidders

	accepted
	40.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.
	40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected.
<b>41. Signing of Contract</b>	41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.
	41.2 Within fourteen (14) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.
<b>42. Performance Security</b>	42.1 Within twenty-one (21) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract. The performance security shall be the percentage of the contract amount as <b>specified in the BDS</b> . The performance security shall be furnished in the form of an <b>unconditional guarantee issued by a bank (scheduled commercial bank)</b> from an eligible country on the name of the Employer as <b>specified in the BDS</b> . If the unconditional guarantee is issued by a bank located outside the Employer's Country, the issuing bank shall have a correspondent bank located in the Employer's Country to make it enforceable. The performance security shall be submitted either using the Performance Security Form included in Section X. Contract Forms, or in another substantially similar format approved by the Employer prior to bid submission. The performance security shall be valid for sixty (60) days beyond the validity period of the contract, or beyond any period of extension under the contract, if agreed including defect liability period.
	42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next ranked evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.
<b>43. Adjudicator</b>	43.1 The Employer proposes the person <b>named in the BDS</b> to be

appointed as Adjudicator under the Contract, at the hourly fee **specified in the BDS**, plus reimbursable expenses. If the Bidder disagrees with this proposal, the Bidder should so state in his Bid. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the Particular Conditions of Contract (PCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator.

## Section II - Bid Data Sheet (BDS)

### A. Introduction

ITB 1.1	The Employer is: Kakinada Smart City Corporation Limited (KSCCL)
ITB 1.1	The name of the bidding process is: Procurement of Implementing Agency for “ <b>Urban Street Scaping of main road from Sarpavaram Junction to Balayogi Statue Junction</b> ” as Smart Street Under Smart City Mission
ITB 2.1	The name of the Project is: Implementation of Smart City Projects under Smart City Mission (SCM) Kakinada
	Maximum number of members in the JV shall be: <b>Three (03)</b>
ITB 4.3	Submission of incorporation or registration certificate of the bidder (all entities in case of JV or proposed sub-Implementing Agencies or sub-consultants) is mandatory

### B. Bidding Documents

ITB 7.1	<p>For <b>clarification purposes</b> only, the Employer’s address is:</p> <p>Attention: Managing Director, Kakinada Smart City Corporation Ltd.  CEO, KSCCL, Kakinada, M: +91-9989707957  CEO, KSCCL, +91-9989707957  Email : jsujayarun@gmail.com  Superintending Engineer  email: smartcitysekmc@gmail.com , M;9849906506  Executive Engineer,  email:vvenkatasurya99@yahoo.com M: 9849906516</p> <p>Web : <a href="http://www.kakinada.cdma.ap.gov.in">www.kakinada.cdma.ap.gov.in</a></p> <p>Requests for clarification should be received by the Employer no later than: <b>Refer Key dates.</b></p>
ITB 7.1	Web page: <a href="http://www.approcurement.gov.in">www.approcurement.gov.in</a>

	<a href="http://www.kakinada.cdma.ap.gov.in">www.kakinada.cdma.ap.gov.in</a>
<b>ITB 7.4</b>	A Pre-Bid meeting <b>shall</b> take place, if indicated in the key dates. <b>Refer Key dates</b> mentioned at page 3 of the document.
ITB 9.2 (a)	The transaction fee of this bid to be paid online to M/s. Vupadi Techno Services Pvt. Ltd. is Rs.11,500.00 (Rupees Eleven Thousands Five Hundred only) including service tax.
ITB 9.2 (b)	The Bid Processing fee payable by demand draft is Rs. 50,000.00 (Rupees Fifty Thousands Only) in favour of Kakinada Smart City Corporation Ltd, payable at Kakinada.

### C. Preparation of Bids

<b>ITB 10.1</b>	<p>The language of the bid is: <b>English</b></p> <p>All correspondence exchange shall be in <b>English</b> language.</p> <p>Language for translation of supporting documents and printed literature is <b>English</b></p> <p>Approved/authorized/licensed translator means certified by Government for document translation. The registration/certification number of the translator is mandatory to mention on the translated document along with full address, Phone number and mail-id.</p>
<b>ITB 11.1 (b)</b>	<p>The following schedules shall be submitted with the bid:</p> <ul style="list-style-type: none"> <li>(i) Bid Security</li> <li>(ii) Power of Attorney for signing of the Bid</li> <li>(iii) If JV, JV Agreement or Letter of Intent</li> <li>(iv) Bid–Securing Declaration : not be under suspension from bidding by GoI or State Govt.(s) or the Employer or Multilateral Funding Agencies</li> <li>(v) Unconditional Technical Proposal including all forms</li> <li>(vi) Unconditional Financial Proposal <b>(electronically submission only)</b></li> <li>(vii) Bid document fee of Rs 50,000</li> <li>(viii) Audited financial statements for the past five years</li> <li>(ix) Certificate from the chartered accountant that they have not</li> </ul>

	<p>availed the CDR</p> <p>(x) Proof of experience, certificates issued by the clients</p> <p><b>Note: If the conditional technical and financial proposal submitted, the bid shall be considered as non-responsive.</b></p>
<b>ITB 13.1</b>	Alternative bids <b>not</b> permitted.
<b>ITB 13.2</b>	Alternative times for completion <b>shall not be</b> permitted.
<b>ITB 13.4</b>	Alternative technical solutions <b>shall not be</b> permitted.
<b>ITB 14.5</b>	The prices quoted by the Bidder <b>shall not be subject</b> to adjustment during the performance of the Contract.
<b>ITB 15.1</b>	The prices shall be quoted by the bidder in: <b>Indian Rupees (INR).</b>
<b>ITB 18.1</b>	The bid validity period shall be: One Hundred Twenty (120) Days from the date of on line submission of Bids on the Employer's web portal.
<b>ITB 19.1</b>	A Bid Security in the form of BG for Rs.60,00,000/- (Rupees Sixty Lakhs only) required to be submitted along with the bid drawn in favour of Kakinada Smart City Corporation Ltd.
<b>ITB 19.3</b>	The Bid Security shall be drawn in favour of <b>Kakinada Smart City Corporation Limited</b> and payable at Kakinada (Andhra Pradesh-India).
<b>ITB 19.9</b>	Not Applicable
<b>ITB 20.1</b>	<p>In addition to the original of the Technical bid, the number of copies are: <b>Two (02)</b></p> <p>The bidder shall submit the bids as follow:</p> <p>Physical Submission : One Original and two photo copies of the Technical bid</p> <p>Online submission :</p> <p>(iv) Scanned copy of the Original Signed Technical Bid</p> <p>(v) Financial Bid</p> <p><b>Note:</b></p> <p><b>(i) If any discrepancy found between the online submission and the</b></p>



	<p><i>physical submission, the bid submitted online shall prevail and be considered as final.</i></p> <p><i>(j) Both Physical and online Technical bid submission are mandatory, if anyone is not submitted, the bid shall be considered as <u>non-responsive bid</u>.</i></p> <p><i>(k) Financial Bid shall be submitted online only.</i></p>
<b>ITB 20.2</b>	The written confirmation of authorization to sign on behalf of the Bidder shall consist of Power of Attorney (PoA) on a Notarized Non Judicial paper of minimum value of Indian Rupees 100/- (Rupees One Hundred).

#### D. Submission and Opening of Bids

<b>ITB 21.1</b>	Financial Bid submission only electronically
<b>ITB 22.1</b>	<p>For <b><u>bid submission (*physical Submission) purposes</u></b> only, the Employer's address is: <i>[insert all required and applicable information]</i></p> <p>Attention: The Managing Director</p> <p>Address: KSCCL, <b>D.no 2-33-10, Peketivari street, Perraju peta,, Kakinada</b>, 533001, Andhra Pradesh, India</p> <p>For online Submission:</p> <p><a href="http://www.apecurement.gov.in">www.apecurement.gov.in</a></p> <p>The deadline for bid submission is: As stated in Key Dates in page 3 of bid document.</p>
<b>ITB 25.1</b>	The bid opening (Electronically and physically) shall take place at: Office of the Commissioner, <b>Municipal Corporation, Cinema road Kakinada</b> , 533001, Andhra Pradesh, India
<b>ITB 25.3</b>	The Letter of Bid shall be initialed by all the representatives of the Employer conducting Bid opening.

#### E. Evaluation and Comparison of Bids

<b>ITB 32.1</b>	<p>The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: <b><i>Indian Rupees (INR)</i></b></p> <p>The source of official selling rates is: <u>State Bank of India [SBI] (New Delhi) BC Selling rate of Exchange.</u></p>
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	The date of exchange rates is: <b>Deadline/Last date for submission of proposals (electronically)</b>
<b>ITB 33.1</b>	A margin of preference <b><i>shall not</i></b> apply.
<b>ITB 34.2</b>	Not Applicable
<b>ITB 34.3</b>	Not Applicable
<b>ITB 35.2 (b)</b>	<p>(Quality Based Least Cost Selection (QBLCS))</p> <p>Technical Qualification : Quality Based</p> <p>Minimum Qualifying Score in Technical Proposal: 70 points</p> <p>Financial : Least Cost Selection</p>

#### F. Award of Contract

ITB 42.1	The performance security shall be 5% of the accepted contract amount. On receipt of the performance security by the employer, the bid security of the successful bidder shall be returned.
ITB 43.1	<p>The Adjudicator proposed by the Employer is: <b><i>Chairman Institution of Engineer (India) Kakinada</i></b>. The hourly fee for this proposed Adjudicator shall be: Rs 1000/-. The biographical data of the proposed Adjudicator is as follows: Engineering professional, with more than 20 years experience with post graduate degree in Engineering</p> <hr/> <p><b><i>[provide relevant information, such as education, experience, age, nationality, and present position; attach additional pages as necessary]</i></b></p>

## **Section III - Evaluation and Qualification Criteria**

### **1. Margin of Preference :**

Margin of Preference to domestic Implementing Agencies shall not Apply.

### **2. Evaluation**

The Bidders shall be evaluated on Quality Based Least Cost Selection (QBLCS)

- Quality Based Least Cost Selection (QBLCS)
- Stage-1: Technical and Financial eligibility: Bidders satisfying the financial and technical eligibility will be considered for further evaluation of technical proposal (stage-2).
- Stage-2: Technical Qualification : Quality Based

#### **2.1 Stage-2: Adequacy of Technical Proposal**

- Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section VII (Employer's Works Requirements)

Minimum Qualifying Score in Technical Proposal: Seventy (70) points out of total One Hundred (100) points

- Stage-3: Financial : Least Cost Selection (L1)

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Non-compliance with equipment and personnel requirements described in Section VII (Employer's Works Requirements) shall not normally be a ground for bid rejection, and such noncompliance will be subject to clarification during bid evaluation and rectification prior to contract award.

## 2. 2.2 Quantifiable Nonconformities and Omissions

3. Pursuant to ITB 30.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, including omissions where competitively priced but excluding omission of prices in the Bill of Quantities. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of bids.

### 1. Qualification

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Lead Member	Other Members	
1. Eligibility							
1.1	Nationality	Nationality in accordance with ITB 4.3	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement	Forms ELI – 1.1 and 1.2, with attachments
1.2	Conflict of Interest	No conflicts of interest in accordance with ITB 4.2	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement	Letter of Bid
1.3	Eligibility	Not having been declared, as described in ITB 4.4, 4.5, 4.6 and 4.7	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement	Letter of Bid
1.4	Government Owned Entity of the Borrower country	Meets conditions of ITB 4.5	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement	Forms ELI – 1.1 and 1.2, with attachments
2. Historical Contract Non-Performance							
2.1	History of Non-Performing	Non-performance of a contract did not	Must meet requirement <sup>12</sup>	Must meet requirements	Must meet requirement <sup>1</sup>	Must meet requirement <sup>2</sup>	Form CON-2

<sup>1</sup> This requirement also applies to contracts executed by the Bidder as JV member.

Eligibility and Qualification Criteria		Compliance Requirements					Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Lead Member	Other Members	
	Contracts	occur as a result of Implementing					
2.3	Pending Litigation	Bidder’s financial position and prospective long term profitability sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against the Bidder	Must meet requirement	N/A	Must meet requirement	Must meet requirement <sup>3</sup>	Form CON – 2
2.4	Litigation History	No consistent history of court/arbitral award decisions against the Bidder <sup>4</sup> since 1 <sup>st</sup> January [2010]	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement <sup>5</sup>	Form CON – 2
3. Financial Situation and Performance							
3.1	Annual Turnover (ATo)	Minimum Annual Turnover (ATo) calculated on total certified payments received for	Must meet requirement	Must meet requirement	Must meet minimum 50 %, of the requirement	Must meet minimum 25%, of the requirement	Form FIN – 3.2

<sup>2</sup> This requirement also applies to contracts executed by the Bidder as JV member.

<sup>3</sup> This requirement also applies to contracts executed by the Bidder as JV member.

<sup>4</sup> The Bidder shall provide accurate information on the letter of Bid about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of court/arbitral awards against the Bidder or any member of a joint venture may result in disqualifying the Bidder.

<sup>5</sup> This requirement also applies to contracts executed by the Bidder as JV member.

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Lead Member	Other Members	
		contracts in progress and/or completed during each of the last three (03) financial years (2013-14, 2014-15 and 15-16 ):INR eighty (80) Crores .					
3.2	Net Worth	Net worth as on 31 <sup>st</sup> March 2016 shall Positive	Must meet requirement	Must meet requirement	Must meet the requirement	Must meet the requirement	Form FIN – 3.1
3.3	CDR/SDR	The sole bidder or lead bidder and each member of the consortium who have not applied/availed CDR nor have been subjected to SDR during last five financial years are eligible to participate in the Bid	Must meet requirement	Must meet requirement	Must meet requirement	Must meet requirement	A certificate to that affect from a registered Chartered Accountant shall be uploaded by the bidder.

**2. Technical evaluation:****4. 4.1 The Technical evaluation criteria is specified below:**

<b>No.</b>	<b>Description</b>	<b>Maximum Points/ Marks</b>
1	<b>Ave Annual Turnover of the firm in last 5 years (From FY 2011-12 to 2015-16)</b> a) > 200 Crs : 20 Marks b) 80 Crs to 200 Crs : 10 Marks d) < 80 Crs : 5 Marks	5
2	<b>Net Worth:</b> a) Positive Net worth	5
3	<b>A. Company Profile: Construction Experience</b> a) > 10 yrs: 5 Marks b) 5 to 10 yrs : 3 Marks c) < 5 yrs : 2 Marks	3
	<b>B. International Experience</b>	2
4	<b>Contracts of Similar Size and Nature*:</b> a. Design and Execution/ Execution of Two lane / Four lane or Urban Road projects successfully completed within the last 10years a) More than 3 Projects: <b>24 Marks</b> b) 2 Projects : 16 Marks c) 1 Projects : 8 Marks <b>b. Design and Execution of 2/4 lane/Urban Road project –</b> a) 2 Projects : <b>8 Marks</b> b) 1 Projects : 4 Marks <b>c) Erection of Distribution network including UG cables – 8 Marks</b> * Bidders shall showcase the experience accompanied by user's certificate from any State Govt./ Central Govt. or their undertaking(s) in support of satisfactory performance of their above materials supplied earlier to them	40
5	<b>Laying of Under Ground Utilities</b> At least 1 project with similar works experience of 8 KM length. 1. Water Supply 2. Storm Water Drainage 3. Duct for utilities 4. Sewerage Network 5. Centre lighting 6. Undergrounding overhead power cables * 1 Mark per Project : 3 Marks	15
6	<b>Approach and Methodology</b>	10
a.	Demonstration of projects in A&M, in terms of implementation, time, adequacy of the implemented projects w.r.t. stakeholder/citizen consultations: 5 Marks	
b.	Site Coordination experience where at least 2 activity listed	

No.	Description	Maximum Points/ Marks
	in scope of work required alignment : 2 Marks	
c.	Approach & Methodology with focus on sequencing of activities in design/ construction, implementation: 3 Marks	
7	<b>Resource deployment</b> <b>The CVs of the Following personnel's shall be provided in the Technical proposal.</b>	<b>20</b>
	<b>Personnel</b>	<b>Minimum Qualification</b>
	Project Manager -1 No.	Graduate in Civil Engineering, minimum 10 Year experience in implementation of projects : 8 Marks
b.	Site engineer -1 No.	Graduate in Civil Engineering B.E. Civil + 5 years of Experience : 4 Marks
c.	Quality Assurance Engineer- 1 No.	Graduate in Civil Engineering + 7 years' experience in QA/QC : 4 Marks
d.	Electrical Expert	Graduation in Electrical Engineering +10 years experience in Distribution system – 4 Marks
	In order to complete the job (task/assignment/solution) in stipulated time period, the successful bidder may deploy additional resources (personnel/ experts/ support staff etc.,) for which additional payment shall not be paid. It is deemed that the payment for the same has already been included in the total contract amount.	
	Total	<b>100</b>
	<b>The minimum qualifying marks – Seventy (70) The Financial bids of those bidders would be opened whosoever secure at least 70 points/marks in their technical Qualification Proposal as per the criteria specified above</b>	

### 1. Financial Bid Evaluation:

The Financial Proposal of the bidders shall be opened online and shall be evaluated as specified in the respective clauses of the ITB.



## Section IV - Bidding Forms

### Table of Forms

Letter of Bid .....	
Form of Bid Security (Bank Guarantee) .....	
Technical Proposal .....	
Technical Proposal Forms .....	
Forms for Personnel .....	
Bidder's Qualification .....	
Form ELI -1.1: Bidder Information Form .....	
Form ELI -1.2: Information Form for JV Bidders .....	
Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History .....	
Form FIN – 3.1: Financial Situation and Performance .....	
Form FIN - 3.2: Average Annual Turnover .....	
( In case of Jv, all the partners shall fill and submit this form) .....	
Form EXP - 4.1: General Construction Experience .....	
Financial Proposal .....	

## Letter of Bid

*The Bidder must prepare the Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and address.*

***Note: All italicized text is for use in preparing these form and shall be deleted from the final products.***

Date: ***[insert date (as day, month and year) of Bid Submission]***

ICB No.: ***[insert number of bidding process]***

Invitation for Bid No.: ***[insert identification]***

To:

Managing Director  
Kakinada Smart City Corporation Limited,  
C/o Municipal Corporation Office,  
Cinema road, Kakinada, 533001, Andhra Pradesh, India

Dear Sir,

We the undersigned declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8)\_\_\_;
- (b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer's country in accordance with ITB 4.6
- (d) We offer to execute in conformity with the Bidding Documents the following Works as per section VII (works requirement);
- (e) Our Bid consisting of the Technical Bid and the Price Bid be valid for a period of **120 calendar days** from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (f) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

- (g) We are not participating, as a Bidder or as a sub-contractor/ sub-Implementing Agency, in more than one bid in this bidding process in accordance with ITB 4.2(e).
- (h) We, along with any of our sub-contractors, sub-Implementing Agency's, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by GoI or State Govt. (s) or the Employer or Multilateral Funding Agencies in accordance with the RfP. Further, we are not ineligible under the Employer's country laws or official regulations;
- (i) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;<sup>6</sup>
- (j) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: ***[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]***

Name of Recipient	Address	Reason	Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(If none has been paid or is to be paid, indicate "none.")

- (k) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (l) We understand that you are not bound to accept the highest ranked (L1) evaluated bid or any other bid that you may receive.
- (m) We agree to permit GOI/GOAP/KMC or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by GOI/GOAP/KMC.
- (n) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption
- (o) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 7(Employer's Requirements) and our technical proposal, or as otherwise agreed with the Employer

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6

Name of the Bidder\* **[insert complete name of person signing the Bid]**

Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* **[insert complete name of person duly authorized to sign the Bid]**

Title of the person signing the Bid **[insert complete title of the person signing the Bid]**

Signature of the person named above **[insert signature of person whose name and capacity are shown above]**

Duly authorized to sign the Bid for and on behalf of \_\_\_\_\_

Date signed \_ **[insert date of signing]** day of **[insert month]**, **[insert year]**

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\* : Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid Schedules.

## Form of Bid Security (Bank Guarantee)

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:**

*[Insert name and address of the Employer]*

**Invitation for Bids No:** \_ *[Insert reference number for the Invitation for Bids]*

**Date:** *[Insert date of issue]*

**BID GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** \_ *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of *[insert description of contract]* under Invitation for Bids No. *[insert number]* ("the IFB").

Furthermore, we understand that, according to the Beneficiary's conditions, bids must be supported by a bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *five (05) lakh* Indian rupees upon receipt by us of the Beneficiary's complying supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has withdrawn its Bid during the period of bid validity specified by the Applicant in the Letter of Bid, or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the period of bid validity, (i) fails to execute the Contract Agreement or (ii) fails to furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security issued to the Beneficiary upon the instruction of the Applicant; and (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the bidding process; or (ii) twenty-eight days after the Validity Period, which date shall be established by presentation to us of copies of the Letter of Bid and any extension(s) thereto, accompanied by the bidding document.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

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*[signature(s)]*

***Note: All italicized text is for use in preparing this form and shall be deleted from the final product.***

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**Technical Proposal**  
**Technical Proposal Forms**

## Forms for Personnel

### Form PER – 1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the Form below for each candidate.

<b>1.</b>	<b>Title of position</b>
	<b>Name</b>
<b>2.</b>	<b>Title of position</b>
	<b>Name</b>
<b>3.</b>	<b>Title of position</b>
	<b>Name</b>
<b>4.</b>	<b>Title of position</b>
	<b>Name</b>
<b>5.</b>	<b>Title of position</b>
	<b>Name</b>
<b>6.</b>	<b>Title of position</b>
	<b>Name</b>
<b>etc.</b>	<b>Title of position</b>
	<b>Name</b>



## Form PER – 2: Resume of Proposed Personnel

The Bidder shall provide all the information requested below. Fields with asterisk (\*) shall be used for evaluation.

<b>Position*</b>		
<b>Personnel information</b>	<b>Name *</b>	<b>Date of birth</b>
	<b>Professional qualifications</b>	
<b>Present employment</b>	<b>Name of Employer</b>	
	<b>Address of Employer</b>	
	<b>Telephone</b>	<b>Contact (manager / personnel officer)</b>
	<b>Fax</b>	<b>E-mail</b>
	<b>Job title</b>	<b>Years with present Employer</b>

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

[illegible]

## Equipment

### Form EQU: Equipment

The Bidder shall provide adequate information and details to demonstrate clearly that it has the capability to meet the equipment requirements indicated in Section 6 (Employer's Requirements), using the Forms below. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

<b>Item of Equipment</b>		
<b>Equipment Information</b>	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
<b>Current Status</b>	Current location	
	Details of current commitments	
<b>Source</b>	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Bidder.

<b>Owner</b>	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
<b>Agreements</b>	Details of rental / lease / manufacture agreements specific to the project	

**Site Organization**

**Method Statement**

**Mobilization Schedule**

**Others**

## **Bidder's Qualification**

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder

## Form ELI -1.1: Bidder Information Form

Date: \_\_\_\_\_  
 ICB No. and title: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's name	
In case of Joint Venture (JV), name of each member:	
Bidder's actual or intended country of registration: <i>[indicate country of Constitution]</i>	
Bidder's actual or intended year of incorporation:	
Bidder's legal address [in country of registration]:	
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____	
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not dependent agency of the Employer</li> </ul> 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.	

## Form ELI -1.2: Information Form for JV Bidders

(to be completed for each member of Joint Venture)

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

ICB No. and title: \_\_\_\_\_

Bidder's Joint Venture name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

## Form CON – 2: Historical Contract Non-Performance, Pending Litigation and Litigation History

Bidder's Name: \_\_\_\_\_

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

Joint Venture Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Non-Performed Contracts in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> Contract non-performance did not occur since 1 <sup>st</sup> December 2011 specified in Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 <sup>st</sup> December 2011 specified in Section III, Evaluation Criteria and Qualifications, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount in INR (current value, currency, exchange rate and US\$ equivalent)
		Contract Identification: Name of Employer: Address of Employer: Reason(s) for nonperformance:	
Pending Litigation, in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3 as indicated below.			

## Form FIN – 3.1: Financial Situation and Performance

### Financial Capacity of the Applicant

An Applicant consisting of a single entity should fill in details as per the row titled Single entity Applicant and ignore the rows titled Consortium Members. In case of a Consortium, row titled Single entity Applicant may be ignored.

For conversion of other currencies into rupees, kindly refer to web site of Reserve Bank of India Website. The rates shall be applicable as on the last date of the respective financial year

(In INR. crore)

Applicant Type	Member Name	Net Worth (Unconsolidated) as on 31 <sup>st</sup> March 2016
Single entity Applicant		
JV		
Member 1		
TOTAL		

Name of the auditor issuing the certificate

Name of the auditor's Firm:

Seal of auditor's Firm:

Date:

(Signature, name and designation of the authorized signatory for the Auditor's Firm)



**Form FIN - 3.2: Average Annual Turnover**

(In case of JV, all the members shall fill and submit this form)

Bidder's Name : \_\_\_\_\_

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

Joint Venture Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

**Financial Capacity of the Applicant**

S. No.	Financial Year	Annual Turnover (ATo)		
		Amount Currency	Exchange Rate	INR Equivalent
1	Financial Year 2013-14			
2	Financial Year 2014-15			
3	Financial Year 2015-16			

*Note: The audited Financial Statements for the corresponding year has to be attached.*

Name of the auditor issuing the certificate

Name of the auditor's Firm:

Seal of auditor's Firm:

Date:

## Form EXP - 4.1: General Construction Experience

Bidder's Name: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Joint Venture Member's Name \_\_\_\_\_  
 ICB No. and title: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Starting Year	Ending Year	Contract Identification	Type of Supporting document attached
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ <i>Date of commencement of the contract</i> _____ <i>Date of completion of the Contract</i> _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ <i>Date of commencement of the contract</i> _____ <i>Date of completion of the Contract</i> _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Bidder: _____ Amount of contract: _____ <i>Date of commencement of the contract</i> _____ <i>Date of completion of the Contract</i> _____ Name of Employer: _____ Address: _____	
		-----	
		-----	
		n <sup>th</sup>	

## **Activity Schedule**

The Employer shall indicate the list of major activities comprising the works and the number of measurement units consistent with the description of works, drawings, and specifications in Section 6 (Employer's Requirements). Each work item shall be described in sufficient detail to provide clear guidance to Bidders with respect to the type of works, their scope and complexity, and compliance with the required standards.

Bidders are required to enter the prices against each work item on a lump sum basis in line with the estimated BOQ quantities. Work items against which no lump sum price is entered by the Bidder will not be paid by the Employer when executed and shall be deemed covered by other work items against which the lump sum prices were entered. The sum of prices entered against each work item will represent the total bid price.

The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the Activity Schedule, and where no Items are provided, the cost shall be deemed to be distributed among the Amounts for the related Items of Work

.

## Financial Proposal- Fin-1

(To be submitted online Only)

Description of Work	Total Amount in INR inclusive of all applicable Taxes in Figure	Total Amount in INR inclusive of all applicable Taxes in Words
<p>Implementation of Urban Streetscaping of main road from Sarpavaram Jn. To Balayogi Statue Jn - Smart Street-1 under Smart City Mission (SCM) in Kakinada - Estimated Length of the Smart Street- Approx. 8.0 Kms.</p> <p>Smart Street should include all the scope as defined in Section VII – Employer's Works Requirements* i.e.</p> <p>(1) Road work, road markings, signs, street furniture, foot path, cycle track parking, land scaping, underground cables</p> <p>(2) Shifting and relocation of road dividers, foot path railing, kerb stones etc.</p> <p>(3) Shifting of Over Ground Electrical lines to Underground cabling, Pipes for cables, Pipes for landscape irrigation etc..</p> <p>(4) Preparation of GFC, necessary surveys, designs, investigations, as built drawings etc.. as per the scope defined in the RFP complete</p> <p><b>The Bidders shall Quote the Lumpsum rate (BOQ is attached in Annexure 4 is Indicative and for information)</b></p>		
<b>GST at the Applicable rates</b>		
<b>Total Cost of Contract</b> inclusive of All Applicable Taxes @ the prevailing rate		

Signature

(Authorized Signatory)

Note: The Bidders should refer to the detailed scope of work given in, "Employer's Work Requirement / Scope of work / Terms of Reference"



## **Section V - Eligible Countries**

### **Eligibility for the Provision of Goods, Works and Services for Procurement**

All countries are eligible





## Section VI - Corrupt and Fraudulent Practices

(Section VI shall not be modified)

**In accordance with the Prevention of Corruption Act 1988 (INDIA) and its subsequent amendments on Preventing and Combating Corruption**

**“Fraud and Corruption:**

1. It is Employer country Prevention of Corruption Act 1988 to require that bidders, suppliers, Implementing Agency’s and their agents (whether declared or not), sub-Implementing Agency’s, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution . In pursuance of this Act, the Employer:
  - (a) defines, for the purposes of this provision, the terms set forth below as follows:
    - (i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
    - (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
    - (iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
    - (iv) “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
    - (v) “obstructive practice” is
  - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or
  - (b) will reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-Implementing Agency’s, service providers, suppliers and/or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question.
2. For more details, refer Prevention of Corruption Act 1988 (INDIA) and its subsequent amendments on Preventing and Combating Corruption

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## **PART 2 – Employer’s Works Requirements**

**Section VII – Employer’s Works Requirements**

**Table of Contents**

**Employer’s Work Requirement / Scope of work / Terms of Reference ..... 2**

**Annexures .....**

## **Employer's Work Requirement / Scope of work / Terms of Reference**

### **1. GENERAL**

#### **1.1 BACKGROUND**

With the India Smart Cities Challenge, the Government of India took the first step towards realizing its vision of building 100 smart cities in the country. As part of the India Smart Cities Challenge, Kakinada is one of the cities that were selected amongst top 20, in a nationwide competition between 100 cities (ranked 14<sup>th</sup>).

Kakinada is now working on an implementation plan to convert the Smart City Proposal (SCP) ideas into reality, beginning with retrofitting a designated area within the city known as the Area Based Development (ABD) that will catalyze future scalability to entire city.

Kakinada the district headquarters and a seaport city on the Bay of Bengal is located in the East Godavari District of Andhra Pradesh State. It is located 65km from Rajahmundry. It is the headquarters and largest city of East Godavari district. Kakinada is part of a Special Economic zone and proposed petroleum, Chemical and Petrochemical Investment Region (PCPIR). The Kakinada Municipal Corporation (KMC) population 3,25,985, and administrative boundary spreads over the 30.15 sq.km area and divided into 50 wards, and total roads of 474 km.

#### **Existing Transport System**

The town of Kakinada is divided into two distinct parts of the Salt Creek. The northern part of the creek is an extension of Kakinada and South of creek is the Old Town, which is famously known as Jagannaickpur. There are two bridges across the Salt Creek, between the old and the new towns. The roads in the old town are narrow when compared to the roads on the north of the Salt Creek.

#### **a) Existing Scenario:**

##### **Major Roads**

Generally roads in the town are straight running from North to South all along the town. The major Arterial roads run through the length of the town and provide connectivity to major areas of the town. Major roads of Kakinada City include:

- Cinema Road
- Main Road
- Temple Street
- Raja ram Mohan Roy Road
- Wharf Road

The first three roads are North – South corridors. Cinema road is one way up to Kalpana Centre with traffic moving in North direction only. The number of lanes varies from 2 to 4 at various stretches.

Main Road is one way road towards South Direction from Two town P.S Junction to Munsub Junction. Major Junctions along this corridor include Jagannaickpur Junction, Masjid Junction, Two Town Police Station Junction and Bhanugudi Junction.

Temple street is one way towards north. Major Junctions along this corridor include Balji Tank Junction, BalatripuraSundari Temple Junction and Nookalamma Temple Junction.

Raja ram Mohan Roy Road is a major street providing access to important facilities of the town. ZillaParishad Office, Government Hospital and Court buildings located on the street. This route also serves as bus route going to Samalkot.

Salient Features of Main Road to be developed, Kakinada

- Following drawings shows the typical Map of existing and proposed road stretches to be developed all along the Main road from Sarpavaram Junction to Balayogi Statue junction

**Salient Features of Main Road, Kakinada, the development of which is a part of this present project**

<b>Length of the Road</b> (Sarpavaram Junction – Balayogi Statue Junction)	8.0 Kms
<b>No. of Lanes</b> at various stretches and Carriageway available	Sarpavaram Junction to Boats Club – 14.5m average Carriageway (4 lanes)
	Boats Club to Asst. Salt Commissioner Bungalow – 16.5m average Carriageway (4 lanes)
	Asst. Salt Commissioner Bungalow to Bhanugudi Centre – 17.5 m average Carriageway (4 lanes)
	Bhanugudi Junction to Two town PS (flyover) – 7.6 m Carriageway (2 lanes)
	Two town PS to Masjid Centre – 20 m (4 lanes) Parking slots are marked on road at this stretch
	Masjid Centre to NunnaVari Street – 12m average Carriageway (3 lanes)
	NunnaVari Street to Munsub Junction – 6.0 m average Carriageway (2 lanes)
	Munsub junction to Balayogi Statue Junction – 11.5m average Carriageway (3 lanes)
	Near Ashram School – 1.3m to 3.5m
	Near Nagamallithota Junction - 1.3 m

<b>Pedestrian footpath</b> available	From JNTU to S.P Camp Office – 1.5m to 2.5
	Bhanugudi & Jaganayakpur Flyover – 1.5m
	Two town P.S to Masjid Centre – 1.5m to 3.0m
<b>Parking Bays</b>	Parking is done mainly on street all along the Main road, only some commercial establishments like Subhadra Arcade at Bhanugudi Junction and Café Coffee day commercial complex has their own Parking area in their premises.
<b>Bus shelters</b>	Saravaram Junction Cancer Hospital Ashram School Bhanugudi Junction, JNTU K
<b>Street lighting</b>	LED street lights are installed by the Municipal Corporation on the Main Road
<b>Underground drainage</b>	No underground piped sewerage system is existing in Kakinada. Question of rasing sewerage manholes does not arise. However provision of space for the future pipe laying on both sides of road shall be kept.

## 2. PROJECT OBJECTIVE AND KEY COMPONENTS

2.1 Transforming roads into Smart Streets has been conceptualized by the Employer, to create 21<sup>st</sup> century public realm infrastructure for all strata of the society. This entails comprehensive upgrading of the public Right of Way (ROW) of the main road which includes (but is not limited to) – refurbishment of existing carriageway, laying of new footpaths and cycle tracks, shifting of select utilities from its current location to new location (under footpaths), external development works for landscape, hardscape, street furniture, lighting. Transforming existing bus stops as smart bus stops clustered with public toilets and ATM is to be carried out.

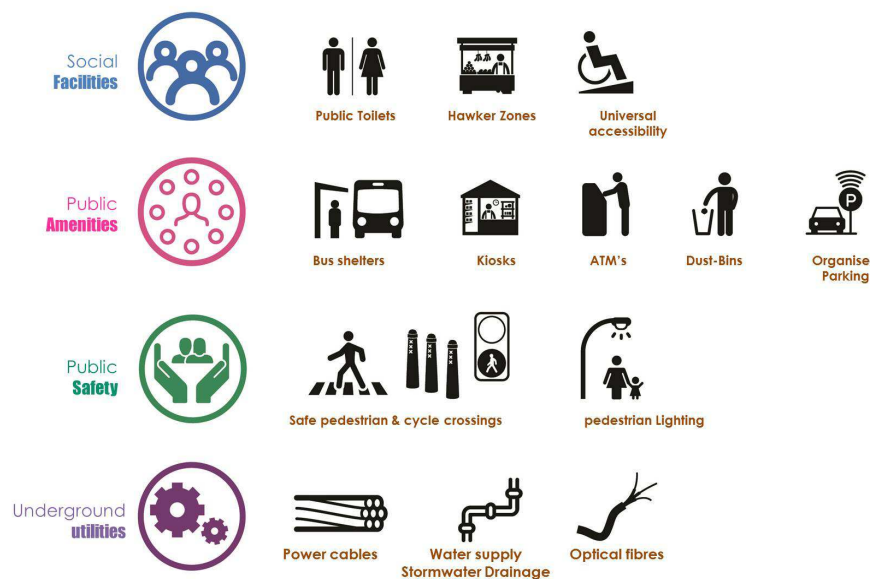
Smart Streets include **Four Broad Objectives**, namely:

- **ROAD DIET & SAFE STREETS:** Also known as lane-width reduction or road re-channelization, is a technique in transportation planning whereby the effective width of the carriageway is reduced in order to achieve systemic improvements. Streets with clearly demarcated spaces for vehicles, pedestrians, cyclists and dedicated on-street parking to minimize conflicts between vehicular and pedestrian traffic. Safe streets with shaded walkways promoting walking as a daily activity – encouraging healthy lifestyles
- **RESILIENT STREETS:** Streets with defined utility corridor including undergrounding overhead utilities where upgraded utilities can withstand severe natural and man-

made disasters. Streets that provide infrastructure allowing safe walking experience in night through pedestrian lighting and clean public space through dustbins at regular intervals.

- **INCLUSIVE STREETS:** Streets that allow and provide multiple mobility options to its citizens including walking, cycling, driving private vehicles and commuting through public transport. Universal accessible design that allow safe walking experience to all citizens especially elderly and people with special needs.
- **STREETS AS PUBLIC SPACES:** Streets that provide spaces outside our homes for social, cultural or intellectual interactions, to walk or to just breathe fresh air. Streets that reduces congestion through replacement of encroachments on streets to its designated areas and achieving low carbon emission.

**KEY COMPONENTS** The key components of Smart Streets Include (but not limited to) are illustrated in figure below



### 3. SCOPE OF WORK

Kakinada Municipal Corporation has taken up the project of Urban Street scaping of the Main road in Kakinada. The following points have been incorporated in this project.

**The Entire road from sarpavaram junction is to be takenup for execution in 2 (Two) phases.**

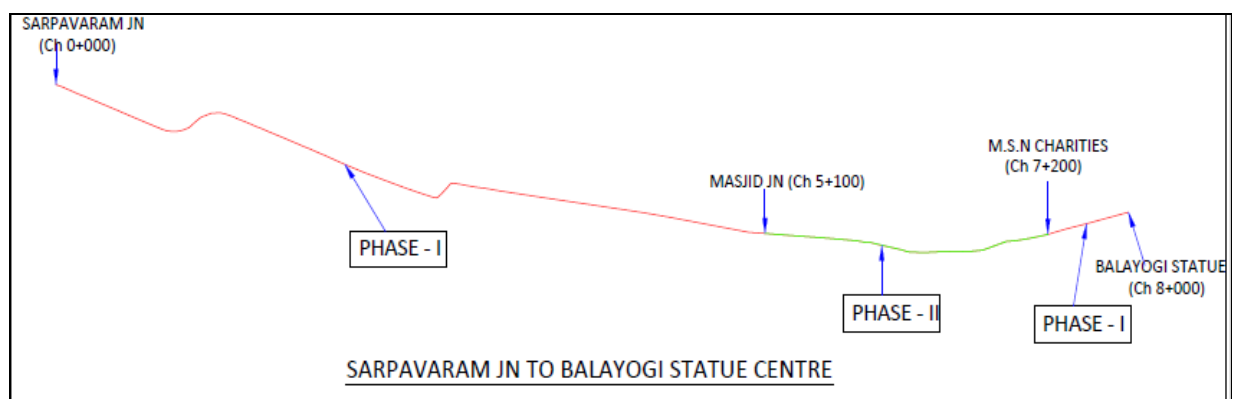
**Phase-I:** The stretches from a) sarpavaram junction to masjid junction (chainage 0+000 to 5+100 = 5.100kms length,) b) MSN Charities to Balayogi statue junction (chainage 7+200 to 8+000)(0.800kms length).

The two stretches, to be taken up in phase (I), have required width of right of way (ROW) ranging from 19 m to 26 m. This enables comprehensive upgrading of the right of way(ROW)of the stretches, totaling to 5.9 kms approx..—refurbishment of existing carriage, laying of new foot path cycle track shifting and selected utilities from its current location to new location (under greenery), external development works for landscape, handscape, street furniture, lighting, transforming the existing bus stops as a smart bus stops clustered public toilets and water ATM.

These items are to be taken up straightway in the stretches under phase (I) as sufficient ROW is available.

**Phase –II :** The stretch from Masjid junction to MSN Charites (Chainage 5+100 to 7+200) (length 2.100kms). The stretch of 2.100kms to be taken up for execution in phase-II , after completing Phase-I.

The stretch is having less ROW (Right of way). Necessary action plan will be taken up to be obtain sufficient ROW for providing smart city infrastructure. To gain sufficient time to clean the hurdles, the stretch is scheduled to be taken up in phase-II.





Sl.no	Reach		Chainage		Approx. Length in Kms	Phase
	From	To	From	To		
1	Sarpavaram	Masjid Jn	0 + 000	5+100	5.100	<b>Phase -I</b>
2	MSN Charities	Bala Yogi Statue JN	7 + 200	8 + 000	0.800	
					5.900	
3	Masjid Jn	MSN Charities	5+100	7 + 200	2.100	<b>Phase -II</b>

The following items are covered in the Scope of work in Phase I and as well as Phase II.

- 1) All required Topo Surveys/ Traffic / Inventory Surveys /Investigations of soil, pavement, primary or secondary surveys required for identifying underground utilities along the roads shall be done by the contractor. A survey report of over ground utilities/ underground utilities shall be submitted by the contractor to KSCCL.
- 2) Development and strengthening of carriageway with uniform lane widths and providing lane separators, kerbs etc.
- 3) Development of footpath with uniform footpath widths and pedestrian friendly ways.
- 4) Cleaning Storm water drains for easing out rain water with Covered slabs at footpath level and also reduce the footpath height to 0.15 m only for ensuring walker friendly footpaths i.e. physically disabled people and old aged people etc...
- 5) Development of Junctions across entire road.
- 6) Development of Urban Landscaping / Street scaping of the footpath, Junctions, central median where ever possible and Beautification of roads.
- 7) Provision of street furniture (Signage's, Lane marking) along the smart Road
- 8) Provision for Bus bays both sides near Sarpavaram , JNTU K, Balayogi statues ,Urinals and Public convenience, Dust Bins (S S ), C.I. Tree grating, Ornamental lighting for Foot paths, shifting of poles etc..
- 9) Coordinating with various departments like electricity department, KMC, R&B NH, Telephone operators etc. During the execution for ensuring the smooth running projects and avoid repetition of works.
- 10) Development of Cycle track along the Stretch from sarpavaram jn to Boat's club, Boat's club to Bhanugudi , 2-Town to Masjid , MSNC to Balayogi proposed road along with Bicycle Stations
- 11) Provision of Sophisticated dust bins at different intervals for collection/transfer arrangement
- 12) Provision of utility Corridor all along the main road to run all utility services like water supply, sewerage lines, cables etc.. underground.
- 13) Auto stands or E Riksha stands, where ever space permits

14) Provision of Table –top @ every 500 m interval along the smart street

Supply, erection& fixing and raised table-top of top 2m width with side slope 1:15 on either side using Bituminous macadam etc., complete for finished item of work, as directed by Engineer-in-Charge as per MORTH 5<sup>th</sup> revision specifications and IRC-103-2012



Figure showing a Typical Table Top for Predestrain Crossing

15) Providing Audible signals and Radar speed boards at regular interval if necessary

16) Provision of road crossing ducts or pipes for utility crossing

17) Providing Gantry sign board over designed support system of aluminum alloy or galvanized steel at entry and exit of the road stretch.

18) Providing decorative painting for existing trees and walls along the road stretch

19) Scope for contractor with regards to Utilities:

- a. Running of overhead



Radar Speed Gun



Figure showing Typical Walk way

power cables below ground in the specified corridor on both sides of the road, Shifting of House service Connections. 1 m Space is allocated for HL/LT/Distribution electrical cables on one side and 0.5 m on the other side for distribution lines.

- b. Contractor shall minimize the number of transformers and Shift transformers to a suitable offsite locations. Contractor should ensure that the roads are free from cables/transformers/ poles.
- c. Laying of three 100 mm dia pipes for running OFC and telecom lines. However, bidder shall also assess the requirement.
- d. Laying 250 mm dia treated waste water supply line below landscape area for watering for full length, along with drip system for watering streetscape area and junctions.
- e. Smart poles will be laid by another contractor and this does not fall in the scope of this contract, however contractor should coordinate with the KSCCL/ system integrator (other contractor for control and command center).
- f. No relocation of storm water drainage, water supply pipelines and gas pipes are expected under this project.
- g. Reserving the Utility crossing Duct at every 500 m c/c along the Smart Street
- h. Contractor shall only plan for reserved allocations for various utilities (like sewerage/ water/ etc.. in additional to power/gas in utility corridor for future use, while in the planning and design phase. Largely the space for utilities shall be between the drain edge to carriage way. Utilities below carriage way shall be avoided unless it is very essential.

Smart Street project basic requirement is to shift the entire overhead cabling to underground. Only recently laid street lights will be in place. Shifting of street lights does not arise. Removal of electrical poles is mandatory.

- i. No underground piped sewerage system is existing in Kakinada. Question of rising sewerage manholes does not arise. However provision of space for the future pipe laying on both sides of road shall be kept.

In addition to the above, if any item is required to be executed, all such items, which are not listed in the BOQ, bidder shall be paid based on the quantity executed. The Bidder is also required to quote rate for items as per the BOQ attached. Any item not covered in the BOQ will be paid as per the APSOR 2015-16 and Contactor should oblige and execute the complete work without any objections based on APSOR 2015-16. No additional claims will be permitted in this case. Any rate analysis (if required) with respect to such missing items should be approved by the KSCCL. Depending on the availability of Row, other items shall be taken into consideration for development at the execution stage.

In this project, the above said points have been considered for the standard development of the Main road. **The objective of this smart street project is to**

- Make road for longer duration usage
- Free from zig-zag movement of vehicles
- Ease out the pedestrian movement and for the safety of school children and old aged.
- Ensures avoiding of un-necessary road cuttings by various utility agencies.
- Development of Urban Landscaping / Street - scaping of the footpath, Junctions, central median where ever possible and Beautification of roads.

**Detailed Scope of work to achieve the objectives is divided into 3 phases**

1. Pre-Construction Phase – 6 Months
2. Construction Phase – 12 Months
3. Post Construction Phase – 24 Months (Defect liability period-DLP)

The works under Contract comprises the construction of proposed improvement of main road in city area as per the RFP standards, Junction, drainage works, re cambering/resurfacing of the existing and adjacent roads, strengthening of carriageway, provision of utility corridors, utility crossings ducts cross drains or pipes, culverts, foot path, cycle track, development of parking areas & bus bays, landscaping, coordinating with various departments, electrification of the road etc..

In addition cycle track, development of parking areas and other structures shall be explored and all other structures required for completion of the Works.

- Contractors are requested to visit the site prior to fill/submit the tender and check all the necessary attributes/matters related for completion of this project.
- All the activities required to be carried out for successful and timely completion of this project shall be carried out by the successful bidder i.e. contractor.

Scope covers design for Laying of all utilities like water supply, cables, landscape irrigation pipeline, fixing street lights, cross drains, culverts, foot path, cycle track, development of parking areas & bus bays, Street landscaping, Street Furniture, Traffic Signage's, Bus Shelters, Vending Kiosks and other miscellaneous works. The above facilities depends on the availability of sufficient Row.

*Details and drawings given in document is for information purpose only and successful bidder shall undertake confirmatory survey for accuracy and completeness of data. The drawings provided with this document are also available in AutoCAD and Bidders can collect the same, (if required) from Employer. It is in scope of successful Bidder to undertake all Site surveys, Geotechnical investigations, Collection of information pertaining to underground utilities, Surveying and Scanning of the roads*

*for utility shifting, obtaining all required approvals from the relevant authorities, Carry out Design and Drawings for all the components of the work as per Employers requirement and submit the same to client for review and approval, Prepare Good for Construction Drawings, submit maintenance manual to client for approval before start of post construction period.*

*The successful bidder shall have to prepare and submit both 'Good for Construction Drawings' before execution and 'As Built Drawings' after execution depicting the exact construction carried out on site, in soft (GIS/CAD) copy format and hard copy and get the same approved by KSCCL. Statutory and other charges for getting various required approvals shall be in scope of Successful bidder.*

*KSCCL will ensure to expedite for approvals and coordinate with the contractor and other agencies for expediting the same. The delays, if any due to force majeure, additional time (equivalent to time lost in approvals) will be given to contractor, without attracting any penalties, however the claims for the delays will not be entertained.*

### **3.1 Pre-Construction Phase (Design & Good for Construction (GFC) drawings)**

This phase starts from the date of signing of the Agreement and the total timeline for this phase is 6months w.e.f. from the date of signing of Agreement.

Applying the principles, objectives and expected outcomes illustrated in the RFP as well as attached drawings/documents provided by the employer, the contractor must develop on the concept provided and coordinate with the respective departments, assess any additional requirements and any innovative ideas may also be suggested along with concepts and indicate the same to KSCCL. KSCCL will discuss and consider appropriate aspects felt required and also provide the contractor with any additional drawings for execution. During this process, any approvals required will have to be coordinated by the contractor. However KSCCL and PMC will cooperate with contractor to expedite the dialogues and approvals from department. , to create a Good for construction (GFC) drawings package, which on approval, shall be followed by on-site implementation. During this process, the contractor shall review the concepts design and planning for betterments or improvements which may be incorporated to better achieve the Employer's goals and objectives. These betterments, if any, shall be submitted by the contractor to the Client representative/PMC for review during this pre-construction period. And for the approval before the closure of the Good for construction drawings stage.

Key tasks/deliverables by the contractor during Good for Construction Stage will include:

- This contract shall conduct the working surveys covering the complete street.

- Suggest for improvement of concepts and designs to meet the objectives of project as explained above.
- Identify any major issues likely impacting the project and bring the same to the notice of KSCCL.
- Coordinate with various departments involved in the project and resolve the issues, if any. However KSCCL and PMC will cooperate with contractor to expedite the dialogues and approvals from department wherever required, including submission and obtaining of all necessary approvals from the relevant authorities). The contractor shall prepare GFC for the works included in the RFP in accordance with the concept design developed by Employer.
- The contractor should submit a complete timeline for scope of work to be carried out.
- The Client Representative/PMC will supervise and monitor the progress of this phase and contractor shall provide necessary coordination.
- Contractor shall conduct traffic studies and road investigations , Inventory of roads and any other surveys like Geotech investigations required as per the IS standards for the relevant works and design for its structural stability and propose any new pavement, junction improvements , if required
- Based on the revised cross section, traffic and other relevant parameters, contractor will have to design the geometry of road to ensure proper camber and pavement etc. as per IRC and get it vetted and approved by 'Engineer'.
- Preparation and Submission of Complete Bill of Materials (BoM) along with detailed technical specifications, manufacturer's details and delivery schedule at the sites. Shall also provide the codification for all the items delivered.
- Preparation and submission of the details of the man power deployment for the project.
- Dispatch of materials as per the implementation accepted timelines / implementation schedule and phasing of the project by the employer.
- Preparation and submission of monthly progress report for all the stages.
- Employer will provide all the available information pertaining to these roads to the successful bidder. However contractor has to validate the information provided by carrying of field/site surveys/other relevant surveys as deemed necessary independently without any extra cost to employer. The contractor shall conduct site survey and investigation of the road and prepare survey report highlighting the site feasibility, GFC drawings, and site specific requirements / dependencies for successful implementation.

**I. Landscape, Hardscape and Cycle Tracks Works**

- a) The various components included (but not limited to) in this are –footpaths, cycle tracks, landscape corridor with trees, pedestrian street lighting, bus bays, on/off-street parking, road markings, median, hawker zone, improved junctions, table tops, universal accessible design by introduction of ramps, benches and planting beds, provision for future bus stops, public toilets and ATMS
- b) Design and Construction of bus stops, public toilets and ATMs is not part of the contractor scope of work. Although the contractor is required to ensure site coordination and construction activity alignments when these works are being undertaken by other contractors.
- c) Development of Cycle track all along the proposed Urban Street scaping project & General Arrangement Plans (Surface Finishes Layouts) including Materials, Site Furniture, cycle tracks etc.
- d) Levels and Grading Layouts; Material/Lighting/Furniture Schedules; Hardscape Details (including ramps, cycle tracks, bus bays, on-street parking and benches); pedestrian Lighting details; planting schedule; planting and soil details
- e) Design and preparation of GFC for items listed in Employers BoQ
- f) Hard Landscape Specification including all details in Employers Bill of Quantities (BoQ) and Technical Specs
- g) Soft scape Specifications including all details in Employers BoQ and Technical Specs
- h) Final Setting-Out Plan for hardscape, soft scape,; furniture, cycle tracks, footpaths, lighting etc.
- i) All detail construction drawings suitable for construction works to be undertaken by contractor and vetted by concerned field experts
- j) All necessary coordinated services drawings (including but not limited to location of light fixtures, cycle tracks, footpaths, existing site services and any new added services etc.)
- k) Shop drawings for all proprietary items/vendor items
- l) Beautification and Landscaping of the footpath, Junctions.

Provision of street furniture (Signage's, Lane marking)The contractor must be aware of general and specific site conditions, topography and any existing landscape prior to commencement of any landscape works on site.

## **II. Utilities - Scope of Infrastructure for Contractor**

- a) Objectives for Infrastructure Layout: A sustainable approach to design and implementation of roads based on three basic principles outlined in the Tender i.e. Focus on pedestrians/cyclist movement for safety, Consistent traffic & travel lane widths and Intelligent relaying of all sub terrain utilities so that no more

digging up of smart roads. Every effort to include parking spaces, street landscape, garbage pickup points, adequate lighting, clean signage's, ramped footpaths etc.. In the smart streets.

- b)** The project of Smart Street has been considered under smart city for showcasing the pilot development to the rest of the city, which makes the area liveable and better eco-friendly environment. The scope of work for infrastructure is explained in the following section.

1. Development and Strengthening of Carriage way with uniform lane widths. This would require removal of existing median and relocating it at a new defined road center with Street lighting and landscape elements as shown in concept drawings

2. Development of footpath and Pedestrian friendly ways.

3. Reserving the space for utilities in a specified corridor

4. Reserving the Utility crossing Duct at every 500 m c/c along the Smart Street

5. Rehabilitation of Tertiary Storm Water road side drain for easing out of rain water with proper shoulders etc. This does not involve reconstruction of drains. Rehabilitation should allow the surface water to properly drain in storm water drains.

Existing drains is adjacent to the property boundary and are in good condition. Only desilting silting them and providing the cover over the drain is in the scope of contractor. Covered drain will be a part of the footpath at a later stage of construction. Existing drain will not be disturbed. Only provision of covering the open drain is only in scope.

6. Development of junction across entire road.

7. Construction Bus bays, Auto bays, Urinals and Public convenience, Dust Bins (S S ), C.I. Tree , gratings, Bicycle stations, Ornamental lighting for Foot paths as per requirement.

In this project, the above said points have been considered/ incorporated for the standard development of roads. The objective of these standards is to make road for longer duration usage and to be free from zig-zag movement of vehicles, to ease out the pedestrian movement and for the safety of school children and elderly. Further, this project should ensure to avoid un-necessary road cuttings by various utility agencies.



Following drawings in Annexure 3 shows the typical Map of existing and proposed road stretches to be developed all along the Main road from Sarpavaram Junction to Balayogi Statue junction

1. **Layout plan of the Smart street**
2. **Typical cross sections at various sections**
3. **Typical Junction Drawings**

### **III. Proposals for the infrastructure:**

The above information is given for a quick reference only for the contractor and it is the contractors responsibility to verify the same/ visit the site and submit the proposal/ bid to ensure the '*objectives of Infrastructure layout*' are met with. The contractor's proposal should include all elements required to meet the objectives, even though it is not explicitly specified in the scope.

In the smart street, based on the availability of space/ Row, specific corridor and pipe alignment is planned and provided in the drawings (Refer Annexures 3). The quantities and diameters are provided in the BOQ. Employer will provide all available information and data to successful contractor. However contractor has to validate the data on field using any suitable latest technology and modify the plans, if required and the same shall be submitted to the Engineer for approval before taking up any action of implementation on the ground.

Contractor of this project is like a master developer for Smart street and should coordinate with various other contractors/agencies/departments for phasing the different components of his work (like utility laying, Pavement, Footpaths, over ground facilities etc.) in such a way that repetition/ duplication and clashes shall be avoided and work is completed in optimum time period assigned as per the contract. Engineer / Employer will extend their cooperation in organizing the meetings and coordination.

Clash Analysis has to be done in BIM software before execution and the same shall be submitted for approval to engineer.

- New water supply lines of the same dia, with DI/HDPE material and class have to be laid in the proposed corridor and the house service connections shall be transferred to the proposed line. After transferring, earlier connections shall be disconnected from old lines and made defunct. It is not envisaged to remove old lines from the roads.
- Contractor should note that, in the above table, it is to be noted that AC pipes shall be replaced with HDPE pipes and CI pipes shall be replaced with DI pipes of same diameter.

- Contractor shall check any variation in the footpath depths will impact the SWD and modify accordingly without impacting final discharge point levels. No stagnation of water is envisaged in these roads in the past due to good slopes available in this area. However, Contractor shall verify the Adequacy and rehabilitate/provide side drainage to ensure free discharge.
- Power Supply: 33 KV / 11 KV and LT overhead lines are passing along the road, which will be shifted by the department on their own in the proposed corridor of 1.2 m x 1.2 m on either side of the road (which shall be provided by contractor). Contractor has to coordinate with the APEPDCL while laying the underground cabling.
- Street Lights/ Telephone Posts: Running in the center along with its cable. Since the center line of the road may be getting shifted, the poles also have to be shifted.

#### **IV. General Conditions of Work:**

Prior to starting the works on site Appointed Contractor shall submit the following documentation for approvals:

##### **a) Detailed Programme of Work for all Works:**

- i. Prepare a detailed programme showing the stages, sequence and timing of all parts of work in MS Project (including subcontractor's involvement/items and itemized items from Outline Programme of Work); It should include the resources, men, material, equipment required with *clear critical path* to execute the work as per agreed implementation schedules by employer.
- ii. Timelines should be clearly defined. They should include estimated completion date and number of working days;
- iii. Programme should include detailed information on resources (manpower, equipment etc.), works by subcontractors etc.;
- iv. Schedules are to be coordinated with the main contractor's program and subject to Client's approval;
- v. Method statement for all works, including transport & delivery of materials, site works including earth works, hard works installation, plant protection, temporary storage etc. should be clearly defined;
- vi. Potential risks to programme should be summarized and mitigation methods provided (alternative programme of work if applicable);
- vii. Special coordination requirements to be defined.

**b) Procurement Plan:**

- i. Submit a Procurement Plan based on Client Representative's comments regarding the Procurement Schedule (as submitted with the tender document). The submitted Procurement Plan shall provide clear information on the following;
- ii. Procurement schedule for all materials (including utility services, landscape elements, site furnishings, lighting, bus stops, public toilets ATMs etc.);
- iii. Information of Supplier's
- iv. Existing and future availability of materials;
- v. Information of Supplier's and/or Contractor's Off- site;
- vi. Existing and future availability of materials.

**c) Material/Product samples:**

- i. All samples for material are to be submitted as required;
- ii. Product certificates for manufactured products should be submitted;
- iii. Type and number of samples as specified in relevant sections of this document;
- iv. All samples need to be approved by Employer & PMC prior to commencement of works on site.
- v. For material, re-submit list with source and quantity available for each representative materials.
- vi. Landscape species should include tree, palm, shrub, climber, bamboo and ground cover species indicating height, spread, calliper and root ball size, for final approval by Client's Representative & PMC. Any agreed substitutions to plants species or specifications should be included here.
- vii. Contractor to arrange for visit by Client's Representative and PMC staff to supplier or manufactures site location for an eye witness and material testing to approve selected materials prior to procurement at this own cost (including travel/per diems/accommodation etc. To the employer's representative and PMC staff).

**d) Site Management Plan**

Measures to be taken before commencement of works as well as during the works and maintenance period,

- i. Site arrangement layout for temporary structures, storage, water and electricity supply etc.;
- ii. **PHASING Plan** to be submitted for approval to Employer/PMC prior to commencement of site work. Contractor has to ensure that there is little or no disturbance to the traffic, while planning the implementation phasing. Commuters shall be provided with proper signages, warnings, alternative routing etc... after discussions and approvals of Employer/ Engineer. It is to be ensured that at no time during the construction phase, the functioning of each of the roads is to be disturbed or stopped. Consultation will be required with the relevant authorities for construction phasing;
- iii. Contractor has to show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earth work begins.

**e) Health and Safety Plan**

- i. Prior to commencing site works the following will be provided to the Client's representative:
- ii. Method statements on how risks from hazards will be addressed;
- iii. Details of management structure and responsibilities;
- iv. Arrangements for issuing health and safety directions;
- v. Procedures for informing other contractors and employees of health and safety hazards ;
- vi. Procedures for communications between the project team, other contractors and site operatives;
- vii. Arrangements for coordination and cooperation between contractors;
- viii. Procedures for carrying out risk assessments and for managing and controlling the risks;
- ix. Emergency procedures including those for fire prevention and escape;
- x. Arrangements for ensuring that all accidents, illness and dangerous occurrences are recorded;

- xi. Arrangements for welfare facilities;
- xii. Procedures for ensuring that all persons on site have received relevant health and safety information and training;
- xiii. Arrangements for consulting and taking the views of people on site;
- xiv. Arrangements for preparing site rules and drawing them to the attention of those affected and ensuring their compliance;
- xv. Monitoring procedures to ensure compliance with site rules, selection of management procedures, health and safety standards and statutory requirements;

**f) Site Waste Management Plan**

- i. Plan should include details on type and quantities of the waste generated – including demolition waste, day to day generated waste, disposal of the same safely considering the environmental and social consideration etc.;
- ii. Detail description of the waste management methods and actions to minimize/reuse/recycle waste,
- iii. Recourses required and detail plan of work for waste management team;
- iv. Record keeping procedures;
- v. Auditing protocols;
- vi. All of the above should be approved by the Client/Client's representative prior to commencement of works on site. No works shall be executed without above mentioned approvals.

**3.2 CONSTRUCTION PHASE**

This phase starts from the date of approved good for construction drawings (GFC). The total timeline for this phase is 12 months w.e.f the date of approved GFC by client/PMC.

This contract involves the design (wherever required, including submission and obtaining of all necessary approvals from the relevant authorities), construction and completion of the following based on the design developed by the Employer and Contractor's good for construction drawings and handing over of the same in full accordance with the Employer's requirements. Key tasks include:

- i. Site clearance, demolition works, earthworks, temporary works, Traffic diversion, Barricading the construction site, Utility shifting and all ancillary

works as shown on the Drawings and deemed necessary for the carrying out of temporary and permanent construction works;

- ii. Narrowing/re-cambering/raising/milling down and overlaying of existing carriageways, flexible/rigid pavement at at-grade road intersections and accesses to adjoining developments;
- iii. Contractor has to ensure the safety and security of existing buildings adjacent to roads.
- iv. Trees cutting (if any) approved in the Drawings by KSCCL;
- v. Excavation of trenches; relocating of median, removal of existing poles / transformers, etc.. And other road related facilities as per standards / drawings.
- vi. Provision of Utility Corridors, cross drains shall be proposed by contractor based on the site suitability and they should be approved by Engineers per the drawing.;
- vii. Construction of footpath, cycle track, kerbs, vehicular impact guardrails, wherever required, and other road-related facilities as per drawings;
- viii. Supply and installation of new Electric poles and light fittings as shown and approved in the Drawings;
- ix. Temporary and permanent diversion and restoration of footpath, drains, roads and street furniture including the supply and painting of road/lane markings for all temporary and permanent carriageway in accordance with the Employer's requirements and to the satisfaction of the Engineer;
  - The contractor should submit a complete implementation timeline
  - The Client Representative/PMC will supervise and monitor the progress of the implementation and contractor shall provide necessary coordination.
  - Technical Specifications for Various Civil Works to be followed in the project duration including works under post construction period, by the Selected Bidder

**Refer Annexure 5 for the quality standards & control which includes**

- For Product and Execution – Hardscape Works
- For Product and Execution – Soft scape Works
- For Product and Execution including list of standards
- For under post construction period
- Material/Product samples:
  - All materials/samples to be submitted to the Client representative & PMC for comments and approval prior to commencement of works;
  - Type and number of samples as specified in relevant sections of this document

- Contractor shall arrange factory inspection to the client representative & PMC staff at his own cost for various equipment/ material that is being used by contractor.
- Sample panels:
  - Mock-ups All sample panel/mock-up to be presented to the Client/Client's Representative for comments and approval prior to commencement of works;
  - Type and number of sample panels as specified in relevant sections of this document.
- Operations & Maintenance Manual:
  - This should include schedule and instructions for all activities to be undertaken for operations and maintenance of established works.
- As-built drawings:
  - The Contractor shall prepare As-Built drawings and certify on these drawings that the drawings reflect the actual works executed / installed.
  - Three sets of these drawings (A1 hardcopy, printed to scale and softcopy in AutoCAD /GIS and also in PDF on a CD/ hard disc) shall be submitted to the client post approval and record.
  - The contractor shall ensure that this submission of As-Built drawings will not delay subsequent inspections and tests by the relevant authorities; otherwise he shall be fully responsible for any consequence due to his delay.

### **3.3 POST CONSTRUCTION**

Post construction activities shall include Defect Liability (works specified under this RFP) and also maintenance of roads, landscape and also the utilities laid by the contractor in the smart roads. Any faults, repair and general maintenance, watering of landscape etc.. shall start from the date of practical completion for a period of 24 months and contractor shall undertake all responsibility for defects of the equipment and landscape materials during this period.

General scope provided in the section below, applies to both the phases i.e. pre-construction construction and post construction.

### **3.4 GENERAL SCOPE**

The general scope is a part of the project and rates quoted by the contractor should cover all such provision to adhere to the general scope (if not covered in BOQ) as a part of this project. No additional payment is allowed for this general scope of work of contractor.

- a) The work in this RFP involves the design (wherever required, including submission and obtaining of all necessary approvals from the relevant authorities), supply, installation, construction and completion of all road works, utility works, landscape works and allied civil and services work. The Contractor shall furnish all labour, material, tools and equipment necessary to complete the works as indicated on the drawings. Any item not specifically shown in the drawings or specified but normally required to conform to such intent, should be considered part of the work unless raised by the Contractor at the time of pre bid meeting. Otherwise it is presumed that the rates quoted in the BOQ are covering all the requisite activities or Contractor shall include and price for such item in the BOQ accordingly;
- b) All works indicated in the Drawings by notes are to be provided for, whether or not mentioned in this specification. Any item not specified nor specifically shown in the drawings, but are normally required to conform to such intent, are considered part of the work and deemed to be included in this contract and their execution shall be covered by the contract price, in the same manner as if they have been expressly shown on the drawings and described in the specifications.
- c) Contractor shall provide necessary office space at site with all required amenities to the employer's representative and PMC staff during the construction and supervision of works.
- d) Contractor shall also provide min four air conditioned cars with fuel and driver for the Employers representative at this own cost during the construction period at their disposal.
- e) The works shall be completed within the scheduled time and shall be certified by the Client's Representative in consultation with the PMC upon Practical Completion;
- f) The landscape planting shall be provided in the areas shown in the Drawings with plants in a healthy and vigorous growing condition.
- g) The Contractor shall submit for approval, his proposed Work Programme based on the criteria of the overall programme showing the intended sequences, stages and order of proceeding with the works together with the period of time he has estimated for each and every stage of the progress upon notification of his successful tender price for the project;
- h) *Adjustments To Scope*
  - i. Client's Representative/PMC reserves the right to make field adjustments and reasonable substitutions to ensure implementation of the design concept in relation to field conditions.
  - ii. If any material or installation specified is not available or achievable, the Contractor shall submit a written proposal to the client within two (2) weeks of award of the contract. This request may present an alternative material or



process which fulfills the same design intent, with the proposed adjustment to the contract price for each item due to the change.

- iii. Substitution of materials is not permitted unless authorized in writing by the Client.

*i) Timelines*

The Contractor shall complete the works within or by the date of completion as set forth in the Contract.

*j) Discrepancies*

The Contractor to study the drawings at the time of the tender and notify Client's Representative of any discrepancy at the time of the tender submission.

*k) Error And Omission*

- The general description of the works mentioned above is only for the guidance of the Contractor and any error or omission shall not constitute ground for claim by the Contractor. The onus for investigating and ensuring the actual extent and nature of the works comprised in this Contract prior to the submission of the quotation is solely with the Contractor. Any doubts should be clarified with the Client's Representative before the quotation is submitted. No claim arising out of lack of clarity or availability of information will be entertained post Contract award. Allowance for any or all of these provisions shall be made in the tender BOQ.
- Contractor shall maintain skeleton staff for the works under post construction period and also maintenance to ensure that there is no O&M issue during this period.

*l) List Of Relevant Documents To Be Referred*

This specification to be read in conjunction with:

- **Concept** Design Intent Drawing Package (roadworks, underground / over ground utilities, landscape with allied services, junction design etc) included in Annexures or most up to date revision issued thereafter;
- **Bills of Quantities (BoQ)** : Indicative list of BoQ, is included in the bid and most up to date revision issued thereafter;
  - Note: If work item is not included in Indian Standards, appointed contractor should refer to relevant international standard (BS or equivalent). This should be approved by Client's representative prior to commencing any works on site;

- All relevant specifications of latest MoRTH will be Applicable always. In case relevant standards are not available in MoRTH, then BS standards will be applicable.
- Other documents – any documents not included above but relevant to the tender process. These should be provided/made available to Contractor by the Client/Client's representative if applicable.

**The list of drawings are enclosed in Annexure 3**

### **3.5 Services to be provided by the Contractor**

#### **A. The Contractor shall be responsible for all the testing and inspection to be conducted as specified.**

1. Supply, erection as per manufacturers recommendations, inspection, testing, start up and running of the equipment during trial run / performance guarantee period at rated capacity and speed.
2. Furnishing all erection and commissioning supervision service. The Contractor shall also arrange for maintenance of equipment during performance guarantee and commissioning period.
3. The Contractor after complete erection and testing shall do application of the final paints of approved colour.
4. The Contractor shall arrange for onsite supervision of technical experts, of equipment's from proprietary supplier as and when necessary until the commissioning and guarantee-run of the plant are completed.

#### **B. Contractor's Obligations**

The Contractor should ensure technical feasibility of their tender offer, after inspecting the site. It must be understood that it is a turnkey project and the firm shall be required to execute every such items of work, which are considered necessary for satisfactory completion, even though such items are not specified in the tender documents.

All the works under the scope are to be designed and executed as per the technical specifications and requirements.

The Contractor can take up the works of site clearance and grading and other mobilization works with the permission of the Engineer after the award of the Contract.

However, before taking up the construction work, the Contractor shall be

responsible for preparing and submitting for checking and approval of the following:

1. General arrangement drawings for each unit and showing existing and finished ground levels, necessary provision for civil/structural works and electrical/mechanical works separately.
2. Civil structural design calculations & drawings for each unit shall be submitted for approval and execution purposes.
3. Schedule for designs, drawings & execution, Bar Charts-CPM / PERT charts shall be prepared in Ms Project.
4. During the course of construction and its completion, the Contractor shall submit the following designs, drawings/ documents for Civil and Electrical works, which may be needed for utility shifting, telephone lines/ street light poles etc.

### **3.6 Special conditions to be fulfilled by the Contractor**

The Contractor is advised to note that the following special conditions are part of the Contract and he will not have any right to claim at any time for delays or for expenditure incurred by him caused by the following special conditions.

#### **3.6.1 DESIGN DRAWINGS**

The drawings issued with these Tender Documents are Design Drawings. These drawings if stands finalized at the time of executing the agreement, together with additional drawings and / or modified drawings, signed and made part of the contract will be called contract drawings. Tender Drawings are prepared in such detail as are necessary to give a comprehensive idea of the works. Any questions or alterations affecting the requirements or information on the Contract Drawings shall be submitted in writing to the **Engineer** and shall be reviewed by the **Engineer**.

The lines indicated on the Contract Drawings denoting locations of the existing and proposed utilities or services are approximate locations. The Contractor is not to assume that they are exact. He has to confirm the exact location of the utilities in consultation with the relevant authorities.

### 3.6.2 WORKING DRAWINGS

The Design Drawings shall be supplemented by working drawings or shop drawings prepared by the Contractor which are required for the execution of the works. These working drawings shall include, electrical single line drawings, mechanical drawings, piping drawings setting out construction details, layouts, utility relocation and protection, and any other detail the **Engineer** may ask during construction.

All drawings shall be computerized and shall be submitted both in hard copy as well as digital data.

Existing ground levels for different features shall be taken at intervals not exceeding 25m. Information related to all existing structures, obstructions and services should be located in the survey drawing.

Approval by the Engineer of the Contractor's working drawings shall not relieve the Contractor from responsibility for the accuracy of dimensions and details, nor shall such mutual agreement and compliance to his working drawings constitute an acceptance by the Employer of the correctness and adequacy of the drawings.

Working drawings as required or as directed by the Engineer shall be prepared and submitted by the Contractor sufficiently in advance. All working drawings shall be checked by the Engineer and work can commence only upon getting approval of the working drawing.

Delays to work by reason of lack of approvals of working drawings and shop drawings are deemed to be a risk the Contractor is taking with full knowledge and no compensation shall be claimed by the Contractor or none given by the Employer, on account of such delay.

The costs of furnishing working drawings shall be included in the rates for various paying items given in the Bill of Quantities.

In this respect the Contractor shall employ his Engineers and AutoCAD Draughtsman specifically for planning and preparation of working drawings. The Contractor shall also provide as part of the mobilization to site a latest model Pentium Computer and software together with new colour printer, for the preparation of his working Drawings. The PMC Consultants shall have access to this Computer.

### **3.6.3 ADDITIONAL WORK**

Any additional works, instructed during the Contract Period and within the Contract Amount, will be paid as per Bill of Quantity rates and it shall not be considered as a cause for the Contractor to claim for delay, incurred overhead, mobilization etc.

### **3.6.4 PROTECTION OF THE WORKS DURING CONTRACT PERIOD**

It is clearly understood that any damage occurring to the Works (done or under execution) is the Contractors responsibility and no claims will be entertained by the Employer since the matter shall be covered by the relevant Insurances.

### **3.6.5 DISCREPANCIES IN ALIGNMENT**

The Contractor at his own cost shall rectify discrepancies in alignment and levels etc., noticed during construction and/or on completion, Engineer's approval does not relieve the Contractor of his responsibilities.

## **3.7 Temporary Water Supply**

All costs, both for temporary installations and water required for testing of pipelines and tanks, shall be borne by the Contractor.

## **3.8 Performance Bond and Insurances**

Payments for Performance Bond (Security Deposit) and for the Insurances shall not be made directly but their costs shall be considered included in the various pay items of the Bill of Quantities.

## **3.9 Contractor's Facilities**

### **3.9.1 SITE OFFICES OF THE CONTRACTOR**

The successful tenderer is to provide and maintain site office(s) in Project Area as directed by the Engineer.

The Contractor shall submit to the Engineer his proposed layout of the site office for approval. The site office must be ready for use within 15 days from the date of work order or delivery of materials at site, whichever is earlier.

The contractor shall provide updated progress information at site office/s on a computer for the review of the Engineer.

Throughout the whole period as specified below during which the site office is being occupied and used by the contractor, he shall provide, pay for all

charges and maintain at his own expense electricity, water and telephone facilities for the site office.

The Contractor shall provide sufficient water tanks to ensure constant supply of potable water for the site office at all times.

The Contractor shall provide acceptable bio digestible septic tank for the staff / workers etc..so that the project area is free from any contamination. This shall be at a distance of more than 10m from any building.

The Contractor shall keep the site office clean and tidy.

The site office with all those provisions mentioned above shall be provided and maintained by the Contractor throughout the whole construction period until three months after the issuance of the Preliminary Handing Over Certificate or until all the work required under the Contract are in the opinion of the Engineer 100% (one hundred percent) completed, whichever period is the later one.

The office and its facilities will not, however, be removed from the site without prior written approval of the Engineer

### **3.9.2 SURVEYING EQUIPMENT**

The Contractor shall provide, at his own expense one approved set of surveying and measuring equipment for the sole use of the Engineer's Representative. The set shall consist of (i) One Total Station, (ii) One pogo with reflector, (iii) One big tripod and (iv) One small tripod (v) Two fiber glass tape (cased 30 m ) (vi) Four steel pocket tape 3 m long (vii) Two surveying umbrellas (viii) Ten ranging rods 2.5 m long (ix) Required numbers of level books and field books.

All accessories and assistance required for setting out, measuring etc. shall be supplied as and when required by the Engineer / Engineer's representative.

The contractor shall be solely responsible for the maintenance of all such instruments and equipment's and shall ensure that they are at all times in good condition.

All the surveying equipment's shall remain the property of the Contractor at the end of the Contract. The Contractor is obliged to replace any instrument or part thereof damaged during the Contract Period.

There will be no direct payment for surveying equipment. It is deemed to be included in the various paying items in the Bill of Quantities.

### **3.9.3 LABORATORY AND LABORATORY TESTING**

The contractor shall establish full-fledged field laboratory with all testing equipment for testing of the materials and finished products.

All materials shall be tested as per Indian Standards for. The rates quoted for concrete shall be inclusive of cost for establishing laboratory for testing.

### **3.9.4 NOTICE BOARDS**

Three Notice Boards shall be provided and erected as directed by the Engineer. The boards shall be maintained and repainted if directed by the Engineer till the final handing over of project.

The Contractor shall submit for approval of the Employer and Engineer working drawing showing all details needed in the board and the location of the board. Cost of providing and installing the notice board is deemed to be included in various items of the bill of quantities.

### **3.9.5 PROGRESS PHOTOGRAPHS AND REPORTS**

Contractor shall submit monthly 6 progress Photographs 12" x 8" size in five copies as part of his monthly progress report.

Each photograph shall be mounted on A4 size chart paper on which the following information shall be written:

- Name of the project
- Location
- Type of Work
- Serial Number of the Photographs
- Date of photographs

At the end of the Project the Contractor shall deliver to the Handing over Committee two albums having the most significant Photographs taken during the Contract Period. The cost of photographs and album are deemed to be included in various items of the bill of quantities.

### **3.9.6 SAFETY ON SITE**

Measures to ensure safety of workers and plant at site shall be taken by the contractor. Excavations shall be protected by barriers and lighting shall be

provided at all times to warn pedestrians and vehicles. Traffic diversions shall be arranged as per the Traffic management plans which will be issued before commencement of works. The Contractor shall designate a Safety Officer who will be in charge of all Safety Measures. The cost of all safety equipment's and the cost of providing a safety officer at site would be deemed to be included in various Items of the Bill of quantities. Contractors work force has to use the safety measures like helmets, gloves, shoes etc..For the safety and security.

#### **3.9.7 AS BUILT DRAWINGS**

The Contractor shall prepare As Built Drawings both in hard copy and in digital format.

The drawings shall be prepared for any given section of the work as soon as the work for that particular section is completed. Preparation of as built drawings shall keep pace with the work and shall not be left over towards the end of the project. 3 hard copies and one soft copy of all drawings shall be submitted.

No separate payment will be made for the preparation of As-Built Drawings; Cost of preparation of As Built Drawing is deemed to be included in all other priced bill items.

### **4. PIPEWORKS**

#### **SECTION A:**

##### **CLAUSE 1      TREATED SEWAGE EFFLUENT (TSE) Line, and CABLES SERVICES**

#### **4.1 Scope:**

Providing TSE, Cable Services in the Service Corridor, parallel to the Roads and across country.

#### **4.2 Excavation**

- 4.2.1 The excavation for pipelines shall be in open cutting (with proper shoring and strutting arrangements without impacting other utilities) unless the permission of the engineer-in-charge, for the ground to be tunneled is given in writing.
- 4.2.2 Removal of water from trenches etc.: The contractor at all times during the progress of the work shall keep the trenches and the excavations free from the water which shall be disposed of by him in a manner as will neither cause injury to the public health nor public or private property nor to the work completed or in progress nor to the surface of any road.



4.2.3 Excavation in rectangular trenches for pipe laying will be as per details given below:

Bw = Bottom width of trench  
=  $(d+0.6)$

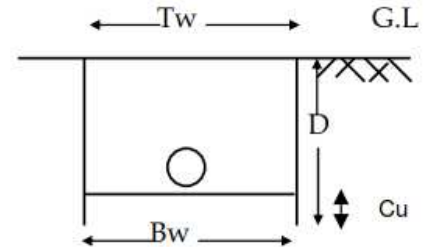
Tw = Bw

D = Total depth of cutting D  
=  $(d + Cu + b)$ , m

Where d = diameter of pipe in m

Cu = Earth cushion over pipe line  
= 1.2 m

b = bedding below pipe line  
= 0.15 m (in case of sandy soils  $b=0$ )



In the case of multiple pipes, a minimum clearance of 300mm between the outside walls of the pipes shall be maintained and the dimension Bw shall be adjusted accordingly.

The excavated soil will be stacked not more than 3 meters from the edge of the excavation or as directed by the Engineer on site. The backfill will be compacted in 15 cm layers consolidating each deposited layer by ramming, watering and then disposing of the surplus excavated earth as directed by Engineer-in-charge with all leads and lifts in all kind of excavated material.

#### 4.3 Backfilling:

4.3.1 After the pipeline or the other work has been executed and proved to be watertight, the trench and other excavation is to be refilled. The utmost care shall be taken in doing this so that no damage shall be caused to the pipeline and other permanent work.

4.3.2 The refilling will be done carefully in 15 cm layers with selected excavated material, each layer being watered to assist the consolidation and properly rammed to the satisfaction of the Engineer-in-charge. In service corridors along roads and roadway crossings, field density tests shall be carried out on the trench backfill to ensure 98% standard relative density has been achieved.

#### 4.4 Disposal of surplus soil:

The contractor shall dispose of all the surplus material into the depressions or other suitable sites as approved by the Engineer-in-charge. The soil at the disposal point shall be dressed and trimmed as directed by the Engineer-in-charge. The surplus materials not used for restoration and shall be removed by the contractor before the final payment.

#### **4.5 Pipe Material:**

4.5.1 For TSE main lines, HDPE pipes with PN 6 shall be used. For TSE service connections, HDPE pipe of PN 4, shall be used for plot service connections & Scouring pipe connections. All pipes shall be procured from approved manufacturers which shall be nominated in the tender.

4.5.2 The pipe diameters shall generally range from 25mm to 300mm.

4.5.3 Length of pipe:

The standard working length of 6.0 meters for HDPE pipes as approved by the Engineer-In-Charge.

#### **SPECIFICATIONS FOR FITTINGS**

4.5.4 HDPE fittings:

The HDPE Fittings shall be with electro fusion/butt joint and include bends, tees, tapers, flanged spigot & flanged socket, etc... as per the site requirements. All HDPE Fittings shall confirm to relevant IS code. All fittings shall be of an approved make and the manufacturer shall be nominated with the tender.

#### **4.6 Laying, Jointing & Testing of Pipelines:**

4.6.1 Scope of work

For HDPE Pipes: Laying in trenches high density polyethylene pressure pipes of class PN 6 and PN 4 as per IS: 14333, IS 4984 (High Density Polyethylene Pipes for Sewerage) including jointing (Electro fusion/Butt joint), bends of all degrees, tees, collars, tapers, crosses, branched pipes, where required. Testing of pipes should be done for hydraulic characteristics, reversion, density, MFR and carbon black content/dispersion requirements as per IS:14333.

4.6.2 Carting of pipes and fittings from factory to works site:

Each pipe / fittings consignment shall loaded with due care at factory using methods acceptable to the carrier appointed by the contractor and get inspected with care on arrival at site even though the pipes/ fittings. It is the responsibility of the contractor to deliver the goods in good condition without any loss or damage during transit from store to site. While unloading the pipes, the contractor will take due care by using either mechanical equipment or care should be taken to unload the pipes on

timber skids with steadying ropes so that the pipes do not bump hard against one another. The pipes should be stored properly. The rubber gaskets should be stored properly in a cool dark place protected from heat. HDPE pipes shall, in no case, be exposed to the sunlight during storage & shall be kept in the proper covered space.

#### 4.6.3 Laying of pipes:

Before laying of the pipes, the bottom of the trench should form a continuous bed. Contractor has to do the bedding design for rigid pipes and flexible pipes separately as per international standards and get it approved by Engineer before going for construction. Where rock is encountered, trenches should be dug deeper, then filled and compacted to the required grade with a bedding material such as sand or selected soil (Murum). At the end of each day, the end of the pipe should be plugged to prevent the entry of animals, foreign material or water. Sufficient space must be provided for jointing of the pipes. Push on joints requires space for socket. The pipe should never be allowed to drop into the trench and should be lowered carefully into the position.

#### 4.6.4 Jointing of HDPE pipes

Two methods are suggested here for jointing of HDPE pipes.

1. Butt-welding is a very economical and reliable jointing technique for making non-detachable welded joints, requiring only butt-welding equipment. All spigot fittings can be joined by this welding method. Butt-welding is extremely suitable for prefabricating pipe sections and special fittings. Both fittings with short spigot ends and fittings with long spigot ends are suitable for butt-welding. It is only allowed to butt-weld PE products to each other from the same wall thickness series.
2. Electro-fusion is a simple and rapid jointing technology for realizing non-detachable welded joints. The efficient assembly on site of pipes, fittings or prefabricated pipe segments can be achieved using electro-fusion couplers and electro-fusion welding equipment. Fittings made of pipe with long spigot end are suitable for electro-fusion.

#### 4.6.5 Testing of HDPE pipeline:

##### a. Pressure Testing Outside the Trench:

- If specified by the engineer, pressure testing may be conducted prior to pipe installation.
- After the pipe has been joined, fill it with water, carefully bleed off any trapped air. Subject the pipe to a hydrostatic test pressure that is 1.5 times the system design pressure for a maximum of 3 hours. During this

time, add water periodically to maintain the test pressure; this compensates for the initial stretching of the pipe. The line pressure tightness is determined by visual observation; therefore, it is not necessary to measure the make-up water. Examine every fused joint; any leakage must be repaired and then retested.

NOTE: It shall be the responsibility of the contractor to ensure that appropriate safety precautions are observed during hydrostatic testing above ground.

b. Testing In the Trench:

- Fill the pipeline with water after it has been laid; bleed off any trapped air. Subject the lowest element in the system to a test pressure that is 1.5 times the design pressure, and check for any leakage. When, in the opinion of the engineer, local conditions require that the trenches be backfilled immediately after the pipe has been laid, apply the pressure test after backfilling has been completed but not sooner than a time which will allow sufficient curing of any concrete that may have been used. Typical minimum concrete curing times are 36 hours for early strengths and 7 days for normal strengths.
- The test procedures consist of two steps; the initial expansion and the test phase. When test pressure is applied to a water filled pipe, the pipe expands. During the initial expansion of the pipe under test, sufficient make-up water must be added to the system at hourly intervals for 3 hours to maintain the test pressure. After about 4 hours, initial expansion should be complete and the actual test can start.
- When the test is to begin, the pipe is full of water and is subjected to a constant test pressure of 1.5 times the system design pressure. The test phase should not exceed 3 hours, after which time any water deficiency must be replaced and measured. Add and measure the amount of make-up water required to return to the test pressure and compare this to the maximum allowance in the table below.
- An alternate leakage test consists of maintaining the test pressure (described above) over a period of 4 hours and then dropping the pressure by 10 psi (0.69 MPa). If the pressure then remains within 5% of the target value for 1 hour, this indicates there is no leakage in the system.
- NOTES:

- Under no circumstances shall the total time under test exceed 8 hours at 1.5 times the system pressure rating. If the test is not complete within this time limit (due to leakage, equipment failure, etc.), the test section shall be permitted to “relax” for 8 hours prior to the next test sequence.
- Air testing is not recommended. Additional safety precautions may be required.

#### 4.7 Providing & Fixing of TSE Appurtenances:

All appurtenances shall be of an approved make and the manufacturer shall be nominated with the tender. In the case of unavailability of the specified item, the tenderer shall nominate an alternative supplier to be approved by the Engineer in Charge.

All valves/ Meters and other appurtenances should be compatible with GIS and remote operable (SCADA controlled) electrically actuated / automated. The valves and meters, pressure loggers etc.. should be fitted with GPRS, which will communicate with the SCADA and remote control of those appurtenances should be possible. Contractor shall submit the details of the valves / meters manufacturers details and contractor shall proceed with execution only after client approval of manufacturer, specification, chamber construction details and size and construction details of the electrical control panel etc.

##### 4.7.1 Sluice Valves

Specifications for C.I. sluice valves should be as per IS: 780 class PN 1.0 up to 300 mm diameter including brass spindle and as per IS: 2906 class PN 1.0 for diameter more than 300 mm.

Selection and installation of sluice valves should be as per IS: 2685- 1971.

Considering high pressure in pipelines, sluice valves used should be of PN 1.0 or 1.6 as mentioned in BOQ.

Testing: Each valve shall be subjected to hydrostatic tests as described in 3.1.5 to the test pressure for a duration according to table given below and the valve shall show no sign of leakage under these tests. Unless otherwise specified, the valve shall be tested for closed- end test only.

##### 4.7.2 Test Pressure (Gauge) and Test duration of Sluice Valves

PN Rating of Valve	Test	Test Pressure (Gauge), Min MPa	Test Duration, Min Minute
PN 1.0	Body Test	1.8	5
	Seat Test	1.0	2

#### 4.7.3 Closed End Test (IS: 780:1984 & 2906:1984)

The testing machine, which may be of either the hydraulic or the mechanical type, shall make the joint at each end of the valve and the force applied shall be sufficient to compress a joint ring made of flexible material without exerting undue load on the valve body.

Each valve shall be subject to three hydrostatic testes. The first test shall be made with the wedge open and the pressure applied for a period of minimum 5 min to the whole body of the valve after releasing air through the gland. The second and third tests shall be made to determine water tightness of the face with the wedge closed. After the first test, the body pressure shall be reduced to working pressure and the wedge shall be closed so that the bonnet remains filled with water. The second test shall be conducted with the pressure applied to one face and the third test with the pressure applied to the other face of the wedge. Under this condition, the valve seating on the downstream side shall be watertight.

#### 4.7.4 Information to be supplied with Enquiry or Order:

The following information shall be supplied with the enquiry or order:

- Nominal pressure of valve
- Size of valve
- Whether hand wheel or cap is required
- Whether hand wheels are required with special finish.
- Whether the water is specially corrosive and, if so, details should be given.
- Whether open-end test is required.
- Whether additional tests other than those specified are required.
- Maximum static pressure.
- Nature operation- vertical, horizontal or inclined; and
- Whether flanges other than those covered in IS: 1538-1976 are required to be drilled and the type of flange facing required.

#### 4.7.5 The following information shall be cast on each valve body in raised letters: The manufacturer's name or trademark.

- The nominal pressure of valve (PN 1 or PN 1.6).
- The size of valve.
- Heat number of cast.
- Serial number in punch, and
- Where a valve has been tested for only open-end test, it should be marked 'O' distinctly and permanently.

- The product may also be marked with Standard Mark (BIS Certification marking).

#### 4.7.6 Package and storage:

All valves shall be supplied with the wedge closed. Bright parts shall be protected against rust. Valve of small diameter may be packed in wooden cases. Valves with smooth finished flanged joint faces shall be suitably protected against damage. Parts liable to injury in transit shall be wrapped with wood-wool or similar material as a protection. Valves shall be stored in covered stores away from dirt.

#### 4.7.7 Air Valves

Providing and fixing of cast iron double acting air valves (ISI mark) with isolating hex-nipple for air vent ebonite and rubber ball for large and small orifice respectively mounted on moulded rubber dextrin with forged bronze or high tensile extruded brass rod spindle, flange drilled as per IS: 1538 table no. 4 and 5 to 20 Kg/cm<sup>2</sup> body and 10 Kg/cm<sup>2</sup> seat. Valves are to be fitted with a sluice valve between the valve and the tee connection from the main line.

#### 4.7.8 Pressure Reduction Stations at subzones

The dual sluice valve arrangement is used to control the pressure at the subzones. The chamber will have two sluice valves with one pressure gauge in between. First valve will be used to set the pressure in the subzone by referring the pressure gauge. Once the pressure is set, its spindle shall not be touched. Second sluice valve (at downstream end) will be used for regular on-off operation during the maintenance.

#### 4.7.9 C.I. Strainer

The strainer shall be "Y" type, stainless or brass mesh suitable for working pressure 16 Kg/sqcm.

#### 4.7.10 Valve Chambers

The Valve chamber shall be constructed with approved cement concrete solid block masonry manufactured with 1:3:6 (M-15) on an automatic block making machine, mechanically vibrated and hydraulically pressed to size 400 x 200 x 100 mm. The jointing of chamber shall be in 1:4 cement mortar, PCC 1:2:4 raft, CI Covers and frame of medium duty fixed with 160 mm thick M20 grade RCC slab as detail given in the BOQ and drawings.

These shall be facilitated for Water meter chamber, Sluice valve, Scour valve and Air Release Valves.

Size of chambers shall be 900mm x 600mm x 700mm deep inside size for water meter; 900 mm x 900 mm x 1500 mm deep inside size for 100 mm & below valves; 1000 mm x 1100 mm x 1500 mm deep inside size for above 100 mm valves and 1000 mm x 1500 mm x 1500 mm deep inside size for sub zonal dual sluice valves used for pressure setting. The sizes which are not mentioned above shall not be constructed without the consent in writing by the Engineer-In-Charge.

## **5. SOURCE OF AGGREGATES FOR PAVING LAYERS**

### **5.1 AGGREGATES**

- 5/1.1 All aggregates for use in the construction of the Pavement Layers shall be obtained only from sources approved by the Engineer.
- 5/1.2 The contractor shall have determined the location, suitability and quantity of material available before tendering as well as the cost and the amount of work required to extract, crush, screen and clean the material and the length of haul to the job site.
- 5/1.3 The Contractor shall provide the Engineer, within thirty (30) days prior to the scheduled beginning of the crushing and screening operations, with a complete report on the origin and composition of all stone and/or gravel aggregates to be used in the Work (Aggregate Resources Report). All materials shall comply with the specified requirements for the various aggregates.
- 5/1.4 The source and manufacture of the aggregates which will meet the requirements of the Specification is the sole responsibility of the Contractor. It is also the contractor's sole responsibility to manufacture such aggregates at the rates and in the quantities required to complete the work within the specified Contract Period.
- 5/1.5 The approval of the Contractor's crushing and screening plant equipment by the Engineer shall in no way relieve the Contractor of the responsibility of producing aggregates which meet the Specifications and in the quantities required for the completion of the work within the specified Contract Period.
- 5/1.6 No aggregate producing equipment shall be put into operation prior to the approval of the equipment by the Engineer. If after the equipment is put into operation it fails to perform as proposed, the Contractor shall provide additional equipment or replace the original equipment with more suitable equipment, as may be directed by the Engineer.
- 5/1.7 The Contractor shall commence crushing and screening of aggregate immediately after the Contractor receives approval of his aggregate sources.



## **5.2 TESTING OF AGGREGATES**

- 5/2.1 Testing to ascertain the properties of all aggregate materials shall be carried out in accordance with relevant clause specified.

## **5.3 APPROVAL AND INSPECTION OF AGGREGATES**

- 5/3.1 All sources of aggregates shall be approved by the Engineer prior to the processing of material from such sources. An individual source of aggregate is deemed to be a particular location within a quarry or borrow pit where material of a constant specific gravity is obtained (with possible variation due to minor changes in characteristics of rock). Test certificates obtained by the Contractor or tests performed by the Contractor at his expense are intended to assist him in his estimate of the location, extent and quantities which will comply with the Specifications, when properly processed, and will in no way obviate the need for future testing by the Engineer.
- 5/3.2 Only materials from approved sources shall be processed for incorporation into the work. Approval of specific sources of materials shall not be considered as final approval and acceptance of materials from such sources. The presence of weathered materials discovered in the quarry areas shall be a cause of rejection of the source of materials.
- 5/3.3 After having received approval of specific sources of material the Contractor cannot change these without prior written approval of the Engineer.
- 5/3.4 All processed materials shall be tested and approved before being stored on the site or incorporated in the works and may be inspected and tested at any time during the progress of their preparation and use. Questionable materials, pending laboratory testing and subsequent approval shall not be unloaded and incorporated with materials previously approved and accepted.
- 5/3.5 If the grading and quality of the material delivered to the site does not conform to the grading and quality as previously inspected and tested, or does not comply with the Specifications, the Engineer reserves the right to reject such material at the site of the work.
- 5/3.6 Samples must meet all test requirements as specified under the Specifications. The Contractor shall permit- the Engineer to inspect any and all material used or to be used, at any time during or after its preparation, or while being used during the process of the work or after the work has been completed. All such materials not complying with the required specifications, whether in place or not, shall be rejected and shall be removed promptly from the work. The Contractor shall supply, or arrange with any producers or

manufacturers to supply, all necessary material, labor, tools and equipment for such inspection.

#### **5.4 STORAGE OF AGGREGATES**

- 5/4.1 The stockpile site shall be prepared by clearing and smoothing and must be approved by the Engineer. Prior to any stockpiling of aggregates, cross-sections of the stockpile site shall be taken and control points established for use in determining the quantity of subsequently stockpiled material.
- 5/4.2 The equipment and methods used for stockpiling aggregates and for removing aggregates from the stockpiles must be approved by the Engineer and shall be such that no segregation of the aggregate will result and no foreign material will contaminate the aggregate.
- 5/4.3 Material shall be stored in a manner that will ensure preservation of their specified quality and fitness for the work. They shall be placed on hard, clean surfaces and, when required by the Engineer they shall be placed under cover. Stored materials shall be located in such a manner to facilitate prompt inspection and control. Private property shall not be used for storage purposes without written consent of the owner or lessee and payment to him, if necessary, at the Contractor's expense.
- 5/4.4 The center of the storage area shall be elevated and sloped to the sides in order to provide proper drainage of excess moisture. The material shall be stored in such a way to prevent segregation and to allow proper control of moisture. Aggregate stockpiles shall be built up in layers not exceeding one (1) meter. The height of each stockpile shall be limited to a maximum of five (5) meters.
- 5/4.5 Sufficient material must be stored in stockpiles to allow for testing and approval of such materials prior to use in the works.

#### **5.5 TIDYING-UP OF QUARRY AREA**

- 5/5.1 The Contractor shall tidy-up the quarry areas on completion and ensure that side-slopes are not steeper than 1 to 2 and in a condition acceptable to the Employer and to the Engineer.

#### **5.6 GRANULAR SUB-BASE (As per Section 401 MORTH 5<sup>th</sup> Revision)**

##### **5/6.1 DESCRIPTION**

This work shall consist of laying and compacting well-graded material on prepared subgrade in accordance with the requirements of these Specifications. The material shall be laid in one or more layers as sub-base or lower sub-base and upper sub-base

(termed as sub-base hereinafter) as necessary according to lines, grades and cross-sections shown on the drawings or as directed by the Engineer.

### 5/6.2 MATERIALS

The material to be used for the work shall be natural sand, crushed gravel, crushed stone, crushed slag, or combination thereof depending upon the grading required. Use of materials like brick metal, Kankar and crushed concrete shall be permitted in the lower sub-base. The material shall be free from organic or other deleterious constituents and shall conform to the grading given in Table 400-1 and physical requirements given in Table 400-2. Gradings III and IV shall preferably be used in lower sub-base. Gradings V and VI shall be used as a sub-base-cum-drainage layer. The grading to be adopted for a project shall be as specified in the Contract. Where the sub-base is laid in two layers as upper sub-base and lower sub-base, the thickness of each layer shall not be less than 150 mm.

If the water absorption of the aggregates determined as per IS.2386 (Part 3) is greater than 2 percent, the aggregates shall be tested for Wet Aggregate Impact Value (AIV) (IS.5640). Soft aggregates like Kankar, brick ballast and laterite shall also be tested for Wet AIV (IS:5640).

**Table 400-1: Grading for Granular Sub-base Materials**

IS Sieve Designation	Percent by Weight Passing the IS Sieve
	Grading III
75.0 mm	-
53.0 mm	100
26.5 mm	55-75
9.50 mm	-
4.75 mm	10-30
2.36 mm	-
0.85 mm	-
0.425 mm	-
0.075 mm	<5

**Table 400-2: Physical Requirements for Materials for Granular Sub-base**

Aggregate Impact Value (AIV)	IS:2386 (Part 4) or IS:5640	40 maximum
Liquid Limit	IS:2720 (Part 5)	Maximum 25
Plasticity Index	IS:2720 (Part 5)	Maximum 6
CBR at 98% dry density (at IS:2720-Part 8)	IS:2720 (Part 5)	Minimum 30 unless otherwise specified in the Contract

### 5/6.3 CONSTRUCTION

#### **5/6.3.1 Preparation of Sub-grade**

Immediately prior to the laying of sub-base, the subgrade already finished to Clause 301 or 305 as applicable shall be prepared by removing all vegetation and other extraneous matter, lightly sprinkled with water, if necessary and rolled with two passes of 80-100kN smooth wheeled roller

#### **5/6.3.2 Spreading and Compacting**

The sub-base material of the grading specified in the Contract and water shall be mixed mechanically by a suitable mixer equipped with provision for controlled addition of water and mechanical mixing. So as to ensure homogenous and uniform mix. The required water content shall be determined in accordance with IS: 2720 (Part 8). The mix shall be spread on the prepared subgrade with the help of a motor grader of adequate capacity, its blade having hydraulic controls suitable for initial adjustment and for maintaining the required slope and grade during the operation, or other means as approved by the Engineer. Moisture content of the mix shall be checked in accordance with IS: 2720 (Part 2) and suitably adjusted so that, at the time of compaction, it is from 1 to 2 percent below the optimum moisture content.

Immediately after spreading the mix, rolling shall be done by an approved roller. If the thickness of the compacted layer does not exceed 100 mm, a smooth wheeled roller of 80 to 100kN weight may be used. For a compacted single layer up to 200 mm the compaction shall be done with the help of a vibratory roller of minimum 80 to 100kN static weight capable of achieving the required compaction. Rolling shall commence at the lower edge and proceed towards the upper edge longitudinally for portions having unidirectional cross fall or on super elevation. For carriageway having cross fall on both sides, rolling shall commence at the edges and progress towards the crown.

Each pass of the roller shall uniformly overlap not less than one-third of the track made in the preceding pass. During rolling, the grade and cross fall (camber) shall be checked and any high spots or depressions which become apparent, corrected by removing or adding fresh material. The speed of the roller shall not exceed 5 km per hour.

Rolling shall be continued till the density achieved is at least 98 percent of the maximum dry density for the material determined as per IS: 2720 (Part 8). The surface of any layer of material on completion of compaction shall be well closed, free from movement under compaction equipment and from compaction planes, ridges, cracks or loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of layer and re-compacted.

#### **5/6.3.3 Surface Finish and Quality Control of Work**

The surface finish of construction shall conform to the requirements of Clause 902. Control on the quality of materials and works shall be exercised by the Engineer in accordance with Section 900.

**Table 900-3: Control Tests and their Minimum Frequency for Sub-Bases and Bases (Excluding Bitumen Bound Bases)**

S.No	Type of Construction	Test	Frequency (min.)
1)	Granular	i) Gradation ii) Atterberg limits iii) Moisture content prior to compaction iv) Density of compacted layer v) Deleterious constituents vi) CBR	One test per 400 cu.m One test per 400 cu.m One test per 400 cu.m  One test per 1000 sq.m  As required As required

#### 5/6.3.4 Arrangements for Traffic

During the period of construction, arrangements for the traffic shall be provided and maintained in accordance with Clause 112.

### 5.7 WET-MIX MACADAM ROADBASE, DESCRIPTION (As per Section 406 MORTH 5<sup>th</sup> Revision)

#### 5/7.1 DESCRIPTION

This work shall consist of laying and compacting clean, crushed, graded aggregate and granular material, premixed with water, to a dense mass on a prepared sub-grade/sub- base/ base or existing pavement as the case may be in accordance with the requirements of these Specifications. The material shall be laid in one or more layers as necessary to lines, grades and cross-sections shown on the approved drawings or as directed by the Engineer.

The thickness of a single compacted Wet Mix Macadam layer shall not be less than 75 mm. When vibrating or other approved types of compacting equipment are used, the compacted depth of a single layer of the sub-base course may be up to 200 mm with the approval of the Engineer

#### 5/7.2 WET-MIX MACADAM ROADBASE MATERIAL

Coarse aggregates shall be crushed stone. If crushed gravel/shingle is used, not less than 90 percent by weight of the gravel/shingle pieces retained on 4.75 mm sieve shall have at least two fractured faces. The aggregates shall conform to the physical requirements set forth in Table 400-12.

If the water absorption value of the coarse aggregate is greater than 2 percent, the soundness test shall be carried out on the material delivered to site as per IS.2386 (Part-5).

**Table 400-12: Physical Requirements of Coarse Aggregates for Wet Mix Macadam for Sub-base/Base Courses**

S. No.	Test	Test Method	Requirements
1)	Los Angeles Abrasion value or Aggregate Impact value	IS:2386 (Part-4) IS:2386 (Part-4) or IS.5640	40 percent (Max.) 30 percent (Max.)
2)	Combined Flakiness and Elongation indices (Total)	IS:2386 (Part-1)	35 percent (Max.)*

To determine this combined proportion, the flaky stone from a representative sample should first be separated out. Flakiness index is weight of flaky stone metal divided by weight of stone sample. Only the elongated particles be separated out from the remaining (non-flaky) stone metal. Elongation index is weight of elongated particles divided by total non-flaky particles. The values of flakiness index and elongation index so found are added up.

### 5/ 7.3 Grading Requirements

The aggregates shall conform to the grading given in Table 400-13

**Table 400-13: Grading Requirements of Aggregates for Wet Mix Macadam**

IS Sieve Designation	Percent by weight passing the IS Sieve
53.00 mm	100
45.00 mm	95-100
26.50 mm	--
22.40 mm	60-80
11.20 mm	40-60
4.75 mm	25-40
2.36 mm	15-30
600.00 micron	8-22
75.00 micron	0-5

Material finer than 425 micron shall have Plasticity Index (PI) not exceeding 6. The final gradation approved within these limits shall be graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa.

### 5/7.4 Construction Operations

#### 5/7.4.1 Preparation of Base

As per MORTH 5<sup>th</sup> Revision Clause 404.3.1 shall apply.

#### **5/7.4.2 Provision of Lateral Confinement of Aggregates**

While constructing wet mix macadam, arrangement shall be made for the lateral confinement of wet mix. This shall be done by laying materials in adjoining shoulders along with that of wet mix macadam layer and following the sequence of operations described in As per MORTH 5<sup>th</sup> Revision Clause 404.3.3.

#### **5/7.4.3 Preparation of Mix**

Wet Mix Macadam shall be prepared in an approved mixing plant of suitable capacity having provision for controlled addition of water and forced/ positive mixing arrangement like pugmill or pan type mixer of concrete batching plant. The plant shall have following features:

- i) For feeding aggregates- three/ four bin feeders with variable speed motor
  - ii) Vibrating screen for removal of oversize aggregates
  - iii) Conveyor Belt
  - iv) Controlled system for addition of water
  - v) Forced/positive mixing arrangement like pug-mill or pan type mixer
  - vi) Centralized control panel for sequential operation of various devices and precise process control
  - vii) Safety devices
- Optimum moisture for mixing shall be determined in accordance with IS: 2720 (Part-8) after replacing the aggregate fraction retained on 22.4 mm sieve with material of 4.75 mm to 22.4 mm size.

While adding water, due allowance should be made for evaporation losses. However, at the time of compaction, water in the wet mix should not vary from the optimum value by more than agreed limits. The mixed material should be uniformly wet and no segregation should be permitted.

#### **5/7.4.4 Spreading of Mix**

Immediately after mixing, the aggregates shall be spread uniformly and evenly upon the prepared sub-grade/sub-base/base in required quantities. In no case shall these be dumped in heaps directly on the area where these are to be laid nor shall their hauling over a partly completed stretch be permitted.

The mix may be spread by a paver finisher. The paver finisher shall be self-propelled of adequate capacity with following features:

- i) Loading hoppers and suitable distribution system, so as to provide a smooth uninterrupted material flow for different layer thicknesses from the tipper to the screed.
- ii) Hydraulically operated telescopic screed for paving width up to to 8.5 m and fixed screed beyond this. The screed shall have tamping and vibrating arrangement for initial compaction of the layer.
- iii) Automatic leveling control system with electronic sensing device to maintain mat thickness and cross slope of mat during laying procedure.

In exceptional cases where it is not possible for the paver to be utilized, mechanical means like motor grader may be used with the prior approval of the Engineer. The

motor grader shall be capable of spreading the material uniformly all over the surface.

The surface of the aggregate shall be carefully checked with templates and all high or low spots remedied by removing or adding aggregate as may be required. The layer may be tested by depth blocks during construction. No segregation of larger and fine particles should be allowed. The aggregates as spread should be of uniform gradation with no pockets of fine materials.

The Engineer may permit manual mixing and /or laying of wet mix macadam where small quantity of wet mix macadam is to be executed. Manual mixing/laying in inaccessible/ remote locations and in situations where use of machinery is not feasible can also be permitted. Where manual mixing/laying is intended to be used, the same shall be done with the approval of the Engineer.

#### **5/7.4.5 Compaction**

After the mix has been laid to the required thickness, grade and cross fall/camber the same shall be uniformly compacted to the full depth with suitable roller. If the thickness of single compacted layer does not exceed 100 mm, a smooth wheel roller of 80 to 100kN weight may be used. For a compacted single layer up to 200 mm, the compaction shall be done with the help of vibratory roller of minimum static weight of 80 to 100kN with an arrangement

For adjusting the frequency and amplitude. An appropriate frequency and amplitude may be selected. The speed of the roller shall not exceed 5 km/h.

In portions having unidirectional cross fall /super elevation, rolling shall commence from the lower edge and progress gradually towards the upper edge. Thereafter, roller should progress parallel to the center line of the road, uniformly over-lapping each preceding track by at least one-third width until the entire surface has been rolled. Alternate trips of the roller shall be terminated in stops at least 1 m away from any preceding stop.

In portions in camber, rolling should begin at the edge with the roller running forward and backward until the edges have been firmly compacted. The roller shall then progress gradually towards the center parallel to the center line of the road uniformly overlapping each of the preceding track by at least one-third width until the entire surface has been rolled.

Any displacement occurring as a result of reversing of the direction of a roller or from any other cause shall be corrected at once as specified and/or removed and made good.

Along forms, kerbs, walls or other places not accessible to the roller, the mixture shall be thoroughly compacted with mechanical tampers or a plate compactor. Skin patching of an area without scarifying the surface to permit proper bonding of the added material shall not be permitted.

Rolling should not be done when the sub-grade is soft or yielding or when it causes a wavelike motion in the sub-base/base course or sub-grade. If irregularities develop during rolling which exceed 12 mm when tested with a 3 m straight edge, the surface should be loosened and premixed material added or removed as required



before rolling again so as to achieve a uniform surface conforming to the desired grade and cross fall. In no case shall the use of unmixed material be permitted to make up the depressions.

Rolling shall be continued till the density achieved is at least 98 percent of the maximum dry density for the material as determined by the method outlined in IS.2720 (Part-8).

After completion, the surface of any finished layer shall be well-closed, free from movement under compaction equipment or any compaction planes, ridges, cracks and loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of the layer and recompacted.

#### **5/7.4.6 Setting and Drying**

After final compaction of wet mix macadam course, the road shall be allowed to dry for 24 hours.

135 Section 400 Sub-Bases, Bases (Non-Bituminous) and Shoulders

#### **5/7.4.7 Opening to Traffic**

No vehicular traffic shall be allowed on the finished wet mix macadam surface.

Construction equipment may be allowed with the approval of the Engineer.

#### **5/7.4.8 Surface Finish and Quality Control of Work**

##### **5/7.4.8(a) Surface Evenness**

The surface finish of construction shall conform to the requirements of Clause 902.

##### **5/7.4.8 (b) Quality Control**

Control on the quality of materials and works shall be exercised by the Engineer in accordance with Section 900.

**Table 900-3: Control Tests and their Minimum Frequency for Sub-Bases and Bases (Excluding Bitumen Bound Bases) (As per MORTH 5<sup>th</sup> Revision)**

S.No	Wet Mix Macadam	i) Aggregate Impact Value	One test per 1000 cu.m of aggregate
		ii) Grading of aggregate	One test per 200 cu.m of aggregate
		iii) Combined Flakiness and Elongation Indices	One test per 500 cu.m of aggregate
		iv) Atterberg limits of portion of aggregate passing 425 micron sieve	One test per 200 cu.m of aggregate
		v) Density of compacted layer	One set of three tests per 1000 sq.m

#### **5/7.4.9 Rectification of Surface Irregularity**

Where the surface irregularity of the wet mix macadam course exceeds the permissible tolerances or where the course is otherwise defective due to sub-grade

soil getting mixed with the aggregates, the full thickness of the layer shall be scarified over the affected area, re-shaped with added premixed material or removed and replaced with fresh premixed material as applicable and recompactd in accordance with Clause 406.3. The area treated in the aforesaid manner shall not be less than 5 m long and 2 m wide. In no case shall depressions be filled up with unmixed and ungraded material or fines.

#### **5/7.5 Arrangement for Traffic**

During the period of construction, arrangements for traffic shall be done as per Clause 112

### **5.8 TACK COAT (As per Section 503 MORTH 5<sup>th</sup> Revision)**

The work shall consist of the application of a single coat of low viscosity liquid bituminous material to existing bituminous, cement concrete or primed granular surface preparatory to the superimposition of a bituminous mix, when specified in the Contract or as instructed by the Engineer. The work shall be carried out on a previously prepared surface in accordance with Clause 501.8.

#### **5/8.1 Materials**

The binder used for tack coat shall be either Cationic bitumen emulsion (RS 1) complying with IS: 8887 or suitable low viscosity paving bitumen of VG 10 grade conforming to IS: 73. The use of cutback bitumen RC: 70 as per IS: 217 shall be restricted only for sites at sub-zero temperatures or for emergency applications as directed by the Engineer. The type and grade of binder for tack coat shall be as specified in the Contract or as directed by the Engineer.

#### **5/8.2 Weather and Seasonal Limitations**

Bituminous material shall not be applied during a dust storm or when the weather is foggy, rainy or windy or when the temperature in the shade is less than 10°C. Where the tack coat Bases and Surface Courses (Bituminous) consists of emulsion, the surface shall be slightly damp, but not wet. Where the tack coat is of cutback bitumen, the surface shall be dry.

#### **5/8.3 Construction**

##### **5/8.3.1 Equipment**

The tack coat shall be applied by a self-propelled or towed bitumen pressure sprayer, equipped for spraying the material uniformly at a specified rate. Hand spraying shall not be permitted except in small areas, inaccessible to the distributor, or narrow strips, shall be sprayed with a pressure hand sprayer, or as directed by the Engineer.

##### **5/8.3.2 Preparation of Base**

The surface on which the tack coat is to be applied shall be clean and free from dust, dirt, and any extraneous material, and be otherwise prepared in accordance with the requirements of Clause 501.8. The granular or stabilized surfaces shall be primed as per Clause 502. Immediately before the application of the tack coat, the surface shall be swept clean with a mechanical broom, and high pressure air jet, or by other means as directed by the Engineer.

#### **5/8.3.3 Application of Tack Coat**

The application of tack coat shall be at the rate specified in Table 500-5, and it shall be applied uniformly. If rate of application of Tack Coat is not specified in the contract, then it shall be the rate specified in Table 500-5. No dilution or heating at site of RS1 bitumen emulsion shall be permitted. Paving bitumen if used for tack coat shall be heated to appropriate temperature in bitumen boilers to achieve viscosity less than 2 poise. The normal range of spraying temperature for a bituminous emulsion shall be 20°C to 70°C and for cutback, 50°C to 80°C. The method of application of tack coat will depend on the type of equipment to be used, size of nozzles, pressure at the spray bar, and speed or forward movement. The Contractor shall demonstrate at a spraying trial, that the equipment and method to be used is capable of producing a uniform spray, within the tolerances specified.

**Table 500-5: Rate of Application of Tack Coat**

Type of Surface	Rate of Spray of Binder in Kg per sq. m
Bituminous surfaces	0.20-0.30
Granular surfaces treated with primer	0.25-0.30
Cement concrete pavement	0.30 - 0.35

#### **5/8.3.4 Curing of Tack Coat**

The tack coat shall be left to cure until all the volatiles have evaporated before any subsequent construction is started. No plant or vehicles shall be allowed on the tack coat other than those essential for the construction.

#### **5/8.3.5 Quality Control of Work**

For control of the quality of materials and the works carried out, the relevant provisions of Section 900 shall apply.

#### **5/8.3.6 Arrangements for Traffic**

During the period of construction, arrangements for traffic shall be made in accordance with the provisions of Clause 112

### **5.9 DENSE BITUMINOUS MACADAM (As per section 505 MORTH 5<sup>th</sup> Revision)**

The specification describes the design and construction procedure for Dense Bituminous Macadam, (DBM), for use mainly, but not exclusively, in base/binder and profile corrective courses. The work shall consist of construction in a single or multiple layers of DBM on a previously prepared base or sub-base. The thickness of a single layer shall be 50 mm to 100 mm

### **5/9.1 Material**

#### **5/9.1.1 Bitumen**

The bitumen shall be viscosity grade paving bitumen complying with the Indian Standard Specification IS: 73 modified bitumen complying with Clause 501.2.1 or as otherwise specified in the Contract. The type and grade of bitumen to be used shall be specified in the Contract. Guidelines for selection of bitumen are given in Table 500-1.

#### **5/9.1.2 Coarse Aggregates**

The coarse aggregates shall consist of crushed rock, crushed gravel or other hard material retained on 2.36 mm sieve. They shall be clean, hard, durable, of cubical shape, free from dust and soft or friable matter, organic or other deleterious substances. Where the Contractor's selected source of aggregates has poor affinity for bitumen, the Contractor shall produce test results that with the use of anti-stripping agents, the stripping value is improved to satisfy the specification requirements. The Engineer may approve such a source and as a condition for the approval of that source, the bitumen shall be treated with an approved anti-stripping agent, as per the manufacturer's recommendations, at the cost of the Contractor. The aggregates shall satisfy the requirements specified in Table 500-8.

Where crushed gravel is proposed for use as aggregate, not less than 90 percent by weight of the crushed material retained on the 4.75 mm sieve shall have at least two fractured faces.

#### **5/9.1.3 Fine Aggregates**

Fine aggregates shall consist of crushed or naturally occurring mineral material, or a combination of the two, passing the 2.36 mm sieve and retained on the 75 micron sieve. These shall be clean, hard, durable, dry and free from dust, and soft or friable matter, organic or other deleterious matter. Natural sand shall not be allowed in binder courses. However, natural sand up to 50 percent of the fine aggregate may be allowed in base courses. The fine aggregate shall have a sand equivalent value of not less than 50 when tested in accordance with the requirement of IS: 2720 (Part 37). The plasticity index of the fraction passing the 0.425 mm sieve shall not exceed 4, when tested in accordance with IS: 2720 (Part 5).

#### **5/9.1.4 Filler**

Filter shall consist of finely divided mineral matter such as rock dust, hydrated lime or cement approved by the Engineer. The filler shall be graded within the limits indicated in Table 500-9.

The filler shall be free from organic impurities and have a plasticity Index not greater than 4. The Plasticity Index requirement shall not apply if filler is cement or lime. Where the aggregates fail to meet the requirements of the water sensitivity test in Table 500-8, then 2 percent by total weight of aggregate, of hydrated lime shall be used and percentage of fine aggregate reduced accordingly.

#### 5/9.1.5 Aggregate Grading and Binder Content

505.2.5.1 When tested in accordance with IS:2386 Part 1 (wet sieving method), the combined grading of the coarse and fine aggregates and filler for the particular mixture shall fall within the limits given in Table 500-10 for grading 1 or 2 as specified in the Contract. To avoid gap grading, the combined aggregate gradation shall not vary from the lower limit on one sieve to higher limit on the adjacent sieve.

**Table 500-8: Physical Requirements for Coarse Aggregate for Dense Bituminous Macadam**

Property	Test	Specification	Method of Test
Cleanliness (dust)	Grain size analysis	Max 5% passing 0.075 mm sieve	IS.2386 Part I
Particle shape	Combined Flakiness and Elongation Indices*	Max 35%	IS:2386 Part I
Strength	Los Angeles Abrasion Value or Aggregate Impact Value	Max 35% Max 27%	IS:2386 Part IV
Durability	Soundness either .Sodium Sulphate or Magnesium Sulphate	Max 12% Max 18%	IS:2386 PartV
Water Absorption	Water Absorption	Max 2%	IS:2386 Part III
Stripping	Coating and Stripping of Bitumen Aggregate Mix	Minimum retained coating 95%	IS.6241
Water Sensitivity	Retained Tensile Strength**	Min. 80%	AASHTO 283

To determine this combined proportion, the flaky stone from a representative sample should first be separated out. Flakiness index is weight of flaky stone metal divided by weight of stone sample. Only the elongated particles be separated out from the remaining (non-flaky) stone metal. Elongation index is weight of elongated

particles divided by total non-flaky particles. The values of flakiness index and elongation index so found are added up.

If the minimum retained tensile test strength falls below 80 percent, use of anti-stripping agent is recommended to meet the requirement.

**Table 500-9: Grading Requirements for Mineral Filler**

IS sieve (mm)	Cumulative Percent Passing by Weight of Total Aggregate
0.6	100
0.3	95-100
0.075	85-100

**Table 500-10: Composition of Dense Graded Bituminous Macadam**

Grading	1	2
Nominal aggregate size*	37.5 mm	26.5 mm
Layer thickness	75-100 mm	50 - 75 mm
IS Sieve1 (mm)	Cumulative % by weight of total aggregate passing	
45	100	
37.5	95-100	100
26.5	63-93	90-100
19	—	71-95
13.2	55-75	56-80
9.5	—	-
4.75	38-54	38-54
2.36	28-42	28-42
1.18	—	—
0.6	—	-
0.3	7-21	7-21
0.15	—	—
0.075	2-8	2-8
Bitumen content % by mass of total mix	Min 4.0**	Min 4.5**

The nominal maximum particle size is the largest specified sieve size upon which any of the aggregate is retained.

Corresponds to specific gravity of aggregates being 2.7. In case aggregate have specific gravity more than 2.7, the minimum bitumen content can be reduced proportionately. Further the region where highest daily mean air temperature is 30°C or lower and lowest daily air temperature is - 10°C or lower, the bitumen content may be increased by 0.5 percent.

505.2.5.2 Bitumen content indicated in Table 500-10 is the minimum quantity. The quantity shall be determined in accordance with Clause 505.3.

#### 5/9.1.6 Mix Design

The bitumen content required shall be determined following the Marshall mix design procedure contained in Asphalt Institute Manual MS-2.

The Fines to Bitumen (F/B) ratio by weight of total mix shall range from 0.6 to 1.2.

#### 5/9.1.7 Requirements for the Mix

Apart from conformity with the grading and quality requirements for individual ingredients, the mixture shall meet the requirements set out in Table 500-11.

**Table 500-11: Requirements for Dense Graded Bituminous Macadam**

Properties	Viscosity Grade Paving Bitumen	Modified bitumen		Test Method
		Hot climate	Cold climate	
Compaction level	75 blows on each face of the specimen			
Minimum stability (kN at 600C)	9.0	12.0	10.0	AASHTO T245
Marshall flow (mm)	2-4	2.5-4	3.5-5	AASHTO T245
Marshall Quotient (Stability/ Flow)	2-5	2.5 -5		MS-2 and ASTM D2041
% air voids	3-5			
% Voids Filled with Bitumen (VFB)	65-75			
Coating of aggregate particle	95% minimum			IS:6241
Tensile Strength ratio	80% Minimum			AASHTO T 283
% Voids in Mineral Aggregate (VMA)	Minimum percent voids in mineral aggregate (VMA) are set out in Table			

#### 5/9.1.8 Binder Content

The binder content shall be optimized to achieve the requirements of the mix set out in Table 500-11. The binder content shall be selected to obtain 4 percent air voids in the mix design. The Marshall method for determining the optimum binder content shall be adopted as described in the Asphalt Institute Manual MS-2.

Where maximum size of the aggregate is more than 26.5 mm, the modified Marshall method using 150 mm diameter specimen described in MS-2 and ASTM D 5581 shall be used. This method requires modified equipment and procedures. When the

modified Marshall test is used, the specified minimum stability values in Table 500-12 shall be multiplied by 2.25, and the minimum flow shall be 3 mm.

**Table 500-12: Minimum Percent Voids In Mineral Aggregate (VMA)**

Nominal Maximum Particle Size <sup>1</sup> (mm)	Minimum VMA Percent Related to Design Percentage Air voids		
	3.0	4.0	5.0
26.5	11.0	12.0	13.0
37.5	10.0	11.0	12.0

Note; Interpolate minimum voids in the mineral aggregate (VMA) for designed percentage air voids values between those listed.

#### **5/9.1.9 Job Mix Formula**

The Contractor shall submit to the Engineer for approval at least 21 days before the start the work, the job mix formula proposed for use in the works, together with the following details:

- i) Source and location of all materials;
- ii) Proportions of all materials expressed as follows:
  - a) Binder type, and percentage by weight of total mix;
  - b) Coarse aggregate/Fine aggregate/Mineral filler as percentage by weight of total aggregate including mineral filler;
- iii) A single definite percentage passing each sieve for the mixed aggregate;
- iv) The individual grading of the individual aggregate fraction, and the proportion of each in the combined grading;
- v) The results of mix design such as maximum specific gravity of loose mix (G<sub>mm</sub>), compacted specimen densities, Marshall stability, flow, air voids, VMA, VFB and related graphs and test results of AASHTO T 283 Moisture susceptibility test;
- vi) Where the mixer is a batch mixer, the individual weights of each type of aggregate, and binder per batch;
- vii) Test results of physical characteristics of aggregates to be used;
- viii) Mixing temperature and compacting temperature.

While establishing the job mix formula, the Contractor shall ensure that it is based on a correct and truly representative sample of the materials that will actually be used in the work and that the mix and its different ingredients satisfy the physical and strength requirements of these Specifications.

Approval of the job mix formula shall be based on independent testing by the Engineer for which samples of all ingredients of the mix shall be furnished by the Contractor as required by the Engineer.



The approved job mix formula shall remain effective unless and until a revised Job Mix Formula is approved. Should a change in the source of materials be proposed, a new job mix formula shall be forwarded by the Contractor to the Engineer for approval before the placing of the material.

#### **5/9.1.10 Plant Trials - Permissible Variation in Job Mix Formula**

Once the laboratory job mix formula is approved, the Contractor shall carry out plant trials to establish that the plant can produce a uniform mix conforming to the approved job mix formula. The permissible variations of the individual percentages of the various ingredients in the actual mix from the job mix formula to be used shall be within the limits as specified in Table 500-13 and shall remain within the gradation band. These variations are intended to apply to individual specimens taken for quality control tests in accordance with Section 900

**Table 500-13: Permissible Variations in the Actual Mix from the Job Mix Formula**

<b>Description</b>	<b>Base/binder Course</b>
Aggregate passing 19 mm sieve or larger	$\pm 8\%$
Aggregate passing 13.2 mm, 9.5 mm	$\pm 7\%$
Aggregate passing 4.75 mm	$\pm 6\%$
Aggregate passing 2.36 mm, 1.18 mm, 0.6 mm	$\pm 5\%$
Aggregate passing 0.3 mm, 0.15 mm	$\pm 4\%$
Aggregate passing 0.075 mm	$\pm 2\%$
Binder content	$\pm 0.3\%$
Mixing temperature	$\pm 10^\circ$

#### **5/9.1.11 Laying Trials**

Once the plant trials have been successfully completed and approved, the Contractor shall carry out laying trials, to demonstrate that the proposed mix can be successfully laid and compacted all in accordance with Clause 501. The laying trial shall be carried out on a suitable area which is not to form part of the works. The area of the laying trials shall be a minimum of 100 sq.m of construction similar to that of the project road, and it shall be in all respects, particularly compaction, the same as the project construction, on which the bituminous material is to be laid.

The Contractor shall previously inform the Engineer of the proposed method for laying and compacting the material. The plant trials shall then establish if the

proposed laying plant, compaction plant, and methodology is capable of producing satisfactory results. The density of the finished paving layer shall be determined by taking cores, no sooner than 24 hours after laying, or by other approved method. The compacted layers of Dense Graded Bituminous Macadam (DBM) shall have a minimum field density equal to or more than 92% of the density based on theoretical maximum specific gravity (Gmm) obtained on the day of compaction in accordance with ASTM D 2041. Once the laying trials have been approved the same plant and methodology shall be applied to the laying of the material on the project, and no variation of either shall be acceptable, unless approved in writing by the Engineer, who may at his discretion require further laying trials.

## **5/9.2 Construction Operations**

### **5/9.2.1 Weather and Seasonal Limitations**

The provisions of Clause 501.5.1 shall apply

### **5/9.2.2 Preparation of Base**

The base on which Dense Graded Bituminous Material is to be laid shall be prepared in accordance with Clauses 501 and 902 as appropriate, or as directed by the Engineer.

### **5/9.2.3 Geo synthetics**

Where Geo synthetics are specified in the Contract, this shall be in accordance with the requirements stated in Clause 703.

### **5/9.2.4 Stress Absorbing Layer**

Where a stress absorbing layer is specified in the Contract, this shall be applied in accordance with the requirements of Clause 517.

### **5/9.2.5 Prime Coat**

Where the material on which the dense bituminous macadam is to be laid is other than a bitumen bound layer, a prime coat shall be applied, as specified, in accordance with the provisions of Clause 502, or as directed by the Engineer.

### **5/9.2.6 Tack Coat**

Where the material on which the dense bituminous macadam is to be laid is either bitumen bound layer or primed granular layer, tack coat shall be applied, as specified, in accordance with the provisions of Clause 503, or as directed by the Engineer.

### **5/9.2.7 Mixing and Transportation of the Mix**

The provisions as specified in Clauses 501.3 and 501.4 shall apply. Table 500-2 gives the mixing, laying and rolling temperature for dense mixes using viscosity grade bitumen. In case of modified bitumen, the temperature of mixing and compaction shall be higher than the mix with viscosity grade bitumen. The exact temperature

depends upon the type and amount of modifier used and shall be adopted as per the recommendations of the manufacturer. In order to have uniform quality, the plant shall be calibrated from time to time.

#### **5/9.2.8 Spreading**

The provisions of Clauses 501.5.3 and 501.5.4 shall apply.

#### **5/9.2.9 Rolling**

The general provisions of Clauses 501.6 and 501.7 shall apply, as modified by the approved laying trials. The compaction process shall be carried out by the same plant, and using the same method, as approved in the laying trials, which may be varied only with the express approval of the Engineer in writing.

#### **5/9.2.10 Opening to Traffic**

It shall be ensured that the traffic is not allowed without the approval of the Engineer in writing, on the surface until the dense bituminous layer has cooled to the ambient temperature.

#### **5/9.2.11 Surface Finish and Quality Control of Work**

The surface finish of the completed construction shall conform to the requirements of Clause 902. All materials and workmanship shall comply with the provisions set out in Section 900 of these Specifications.

#### **5/9.2.12 Arrangements for Traffic**

During the period of construction, arrangements for traffic shall be made in accordance with the provisions of Clause 112

### **5.10 BITUMINOUS CONCRET (As per Section 507 MORTH 5<sup>th</sup> Revision )**

This work shall consist of construction of Bituminous Concrete, for use in wearing and profile corrective courses. This work shall consist of construction in a single layer of bituminous concrete on a previously prepared bituminous bound surface. A single layer shall be 30 mm/40 mm/50 mm thick.

#### **5/10.1 Material**

##### **5/10.1.1 Bitumen**

The bitumen shall conform to As per MORTH (5<sup>th</sup> Revision) Clause 504.2.1.

##### **5/10.1.2 Coarse Aggregates**

The coarse aggregates shall be generally as specified in Clause 504.2.2, except that the aggregates shall satisfy the physical requirements of Table 500-16 and where crushed gravel is proposed for use as aggregate, not less than 95 percent by weight

of the crushed material retained on the 4.75 mm sieve shall have at least two fractured faces.

**Table 500-16: Physical Requirements for Coarse Aggregate for Bituminous Concrete**

Property	Test	Specification	Method of Test
Cleanliness (dust)	Grain size analysis	Max 5% passing 0.075 mm sieve	IS:2386 Part I
Particle shape	Combined Flakiness and Elongation Indices	Max 35%	IS:2386 Part I
Strength	Los Angeles Abrasion Value or Aggregate impact Value	Max 30% Max 24%	IS:2386 Part IV
Durability	Soundness either: Sodium Sulphate or Magnesium Sulphate	Max 12% Max 18%	IS:2386 Part V
Polishing	Polished Stone Value	Min 55	BS:812-114
Water Absorption	Water Absorption	Max 2%	IS:2386 Part III
Stripping	Coating and Stripping of Bitumen Aggregate Mix	Minimum retained coating 95%	IS:6241
Water Sensitivity	Retained Tensile Strength*	Min 80%	AASHTO 283

If the minimum retained tensile test strength falls below 80 percent, use of anti-stripping agent is recommended to meet the requirement.

#### **5/10.1.3 Fine Aggregates**

The fine aggregates shall be all as specified in Clause 505.2.3.

#### **5/10.1.4 Filler**

Filler shall be as specified in Clause 505.2.4

#### **5/10.1.5 Aggregate Grading and Binder Content**

When tested in accordance with IS: 2386 Part 1 (Wet grading method), the combined grading of the coarse and fine aggregates and filler shall fall within the limits shown in Table 500-17. The grading shall be as specified in the Contract.

**Table 500-17: Composition of Bituminous Concrete Pavement Layers**

Grading	1	2
Nominal aggregate size*	19 mm	13.2 mm

Layer thickness	50 mm	30-40 mm
IS Sieve1 (mm)	Cumulative % by weight of total aggregate passing	
45		
37.5		
26.5	100	
19	90-100	100
13.2	59-79	90-100
9.5	52-72	70-88
4.75	35-55	53-71
2.36	28-44	42-58
1.18	20-34	34-48
0.6	15-27	26-38
0.3	10-20	18-28
0.15	5-13	12-20
0.075	2-8	4-10
Bitumen content % by mass of total mix	Min 5.2*	Min 5.4**

*Notes:*

The nominal maximum particle size is the largest specified sieve size up on which any of the aggregate is retained. Corresponds to specific gravity of aggregate being 2.7. In case aggregate have specific gravity more than 2.7, the minimum bitumen content can be reduced proportionately. Further the region where highest daily mean air temperature is 30°C or lower and lowest daily air temperature is - 10°C or lower, the bitumen content may be increased by 0.5 percent.

## **5/11 Mix Design**

### **5/11.1 Requirements for the Mix**

Clause 505.3.1 shall apply.

### **5/11.2 Binder Content**

Clause 505.3.2 shall apply.

### **5/11.3 Job Mix Formula**

Clause 505.3.3 shall apply.

**5/11.4 Plant Trials - Permissible Variation in Job Mix Formula**

The requirements for plant trials shall be as specified in Clause 505.3.4 and permissible limits for variation as given in Table 500-18.

**Table 500-18 : Permissible Variations in Plant Mix from the Job Mix Formula**

<b>Description</b>	<b>Permissible Variation</b>
Aggregate passing 19 mm sieve or larger	±7%
Aggregate passing 13.2 mm, 9.5 mm	±6%
Aggregate passing 4.75 mm	±5%
Aggregate passing 2.36 mm, 1.18 mm, 0.6 mm	±4%
Aggregate passing 0.3 mm, 0.15 mm	+ 3%
Aggregate passing 0.075 mm	±1.5%
Binder content	± 0.3%
Mixing temperature	±10°C

**5/11.5 Laying Trials**

The requirements for laying trials shall be as specified in Clause 505.3.5. The compacted layers of bituminous concrete (BC) shall have a minimum field density equal to or more than 92 percent of the average theoretical maximum specific gravity (Gmm) obtained on the day of compaction in accordance with ASTM D2041.

**5/12 Construction Operations****5/12.1 Weather and Seasonal Limitations**

The provisions of Clause 501.5.1 shall apply.

**5/12.2 Preparation of Base**

The surface on which the bituminous concrete is to be laid shall be prepared in accordance with Clauses 501 and 902 as appropriate, or as directed by the Engineer. The surface shall be thoroughly swept clean by mechanical broom and dust removed by compressed air. In locations where a mechanical broom cannot get access, other approved methods shall be used as directed by the Engineer.

### **5/12.3 Geosynthetics**

Where Geosynthetics are specified in the Contract, this shall be in accordance with the requirements stated in Clause 703.

### **5/12.4 Stress Absorbing Layer**

Where a stress absorbing layer is specified in the Contract, this shall be applied in accordance with the requirements of Clause 517.

### **5/12.5 Tack Coat**

The provisions as specified in Clause 504.4.6 shall apply.

### **5/12.6 Mixing and Transportation of the Mix**

The provisions as specified in Clauses 501.3, 501.4 and 504.4.7 shall apply.

### **5/12.7 Spreading**

The general provisions of Clauses 501.6 and 501.7 shall apply, as modified by the approved laying trials.

### **5/12.8 Rolling**

The general provisions of Clauses 501.6 and 501.7 shall apply, as modified by the approved laying trials.

### **5/12.9 Opening to Traffic**

Provisions in Clause 504.5 shall apply.

### **5/12.10 Surface Finish and Quality Control**

The surface finish of the completed construction shall conform to the requirements of Clause 902. All materials and workmanship shall comply with the provisions set out in Section 900 of these Specifications.

### **5/12.11 Arrangements for Traffic**

During the period of construction, arrangements for traffic shall be made in accordance with the provisions of Clause 112.

**Turnkey Contract (Supply & Erection) for conversion of overhead distribution network to underground Cable network at Smart City, Kakinada.**

**INDEX**

1. TENDER DOCUMENTS FOR
2. PREAMBLE1
3. NATURE OF WORK
4. SAFETY MEASURES
5. LAYING
6. TRENCHING
7. CABLE INSTALLATION
8. TRIAL HOLES
9. CABLE HANDLING
10. DAMAGE TO PROPERTY
11. CABLE ROUTE MARKERS / JOINT MARKERS
12. DEPTH OF LAYING & SPACING BETWEEN CABLES
13. SUPPLIES
14. STANDARDS
15. SCOPE
16. TESTING OF EQUIPMENT AND ACCESSORIES
17. ADDITIONAL TESTS
18. PRE COMMISSIONING TESTS
19. INSPECTION
20. QUALITY ASSURANCE PLAN
21. TRAINING
22. DRAWINGS & CATALOGUES
23. NAME PLATES
24. QUALIFICATION AND BIDDERS
25. SPECIFICATIONS
26. DRAWINGS AND DESIGNS.



**PREAMBLE:**

**Energy** is the backbone of life in cities, affecting every area of their infrastructure. Water distribution, public transport, communications and medical services for instance all require a reliable and resilient energy supply – it is vital for communities and businesses alike. However, if a distribution network is affected by severe weather events, millions of customers may lose power and be literally left standing in the dark. under grounding is the replacement of overhead cables providing electrical power or telecommunications, with underground cables . This is typically performed for [aesthetic](#) purposes, but also serves the additional significant purpose of making the power lines less susceptible to outages during high wind thunderstorms or heavy snow or ice storms. Thus contributing to general welfare of the citizens. Therefore It is proposed to take up this work of replacing overhead distribution network with underground system to upgrade Kakinada town to an ideal smart city. Hence the tenders are floated aiming at highly qualified contractors and reliable suppliers to ensure quality work.

### **NATURE OF WORKS:**

Essentially, the works are to be carried out in coordination with and under monitoring of replacing Overhead Distribution network with Underground system with the Smart City authorities as well as the APEPDCL who will watch the quality and speed of execution. Finally vetting of the project is to be done by both the authorities.

Sometimes, the works require to be attended during the Line Clears in various weather conditions under supervision of the departmental staff,. The contractor has to pre plan the works to be done for getting the proper scheduled line clears. The line clears will be given by the AP EPDCL as per practical convenience even on Sundays and holidays **within minimum interruption period.**

The contractor would proceed with the work diligently and complete work as required without causing any inconvenience to the department. The contractors should produce test reports of equipments, cables and samples of all electrical materials, such as earth pipes, lugs, distribution boxes, GI strip, GI wire, GI Pipes, MS Pipes, Cement pipes, hume pipes, cement slabs, PVC Pipes, wires, fuses, fuse bases etc., well in advance and get written approval before the ordering and fulfilling.

It's vitally important for electrical contractors installing underground mains cabling to accurately document the routes and locations of their cabling and submit this documentation to the appropriate authorities. Contractor shall submit to the authorities for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast (PERT Charts etc.,)

An update of the Program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities shall also be submitted for approval.

### **SAFETY MEASURES:**

The Contractors shall take all necessary precautions for the safety of workers and *preserving their health while working in such jobs as require special protection and preventive steps. It is essential to take necessary steps towards training the workers concerned on the*

machinery before they are allowed to handle them independently and taking all necessary precautions in and around the areas where machines hoists and similar units are working.

The contractor has to provide safety equipment to his staff & workers at his cost only. It is the responsibility of the contractor to insure the personal working under his control.

## **LAYING AND INSTALLATION**

### **CABLE LAYING (33/11 kV)**

Cable as per scope indicated in this specification, shall be laid underground in flat / vertical formation throughout the route as per relevant IS and approved drawing. However, as per requirement of the field, the cables shall also have to be laid in an appropriate manner as per practical exigencies.

Digging of trenches would have to be done in all types of surfaces, which may include soft soil, hard soil, rocky soil or even along the side of the road with a width 0.5 mtrs X and 1.20 mtrs for single trench .or as per the direction of field engineers. In many cases the digging of trenches and cable laying are to be done along narrow road with high traffic. Filling with sand for 75 mm before laying the cable ( or as per approved drawing ).

As per requirement of the field, the 33KV,11KVXLPE UG cable shall also have to be laid:

1. In Hume Pipe or GI pipe at entry and exit points.
2. In air at terminations in GI pipe of length 2.5Mtrs. as per field condition.
3. At varying depths due to obstructions.
4. The cost of Hume pipe/GI pipe and accessories such as clamp etc., should be included in the bid price.

In general, the cables would be laid along the road and in certain cases along the sides of the roads in case such berm is not available in narrow roads. Covering the laid cable with a sand layer of 225mm on the laid cable.

Providing of protective cover of shabad stones (0.3x0.5m) with 2 inch thickness / cover slabs over the sand as directed. The cable has to be rerouted for laying along roads even if not shown in the bid document drawing, in consultation with Employer site engineer.

The route plan of the cable is enclosed with bid documents to enable the bidder to have an assessment of the work involved. The final route shall however be site specific. The

contractor shall prepare the final route drawing based on the design and planning criteria provided in this document and get the same approved from Employer before starting the cable laying work.

**TRENCHING :**

The cable trench work involves earth excavation for cable trench, back filling and removal of excess earth from site. The work site shall be left as clean as possible. The trench shall be excavated using manual and mechanical methods including air compressor driven pneumatic drill as per field conditions.

Most main roads are of asphalt surface and some of the roads with cement concrete surface. An air compressor with pneumatic drill or equivalent mechanical tool will be essential if the road crossings are to be speedily made. Special system of laying Hume pipe under road without digging the surface maybe adopted if feasible. Where paved footpaths are encountered, the pavement slabs shall be properly stored and reinstated. Identification markers of other services shall be properly stored and restored.

The sides of the excavated trenches shall, wherever required, be well shored up with timber and sheeting.

**CABLE INSTALLATION:**

Suitable wooden/ sheet steel barriers should be erected between the cable trench and pedestrian/ motorway to prevent accidents.

The barrier could be made out of sheet steel or wood planks. These could be portable types of size 1.5 m long by 1.2 m (height).

These should be painted with red and white coloured cross stripes.

Warning and caution boards should be conspicuously displayed.

Red lights as warning signal should be placed along the trench during the nights.

The excavated material shall be properly stored to avoid obstruction to public and traffic movement.

The bottom of the excavated trench should be levelled flat and free from any object, which would damage the cables. Any gradient encountered shall be removed.

### **TRIAL HOLES:**

The bidder shall excavate trial holes, for alignment purpose at appropriate distance apart as warranted by the local conditions, keep a record of findings and close the trial holes properly to avoid hindrance / accidents to pedestrian traffic.

The final route alignment of cable shall be decided based on the finding of the trial hole.

It is the responsibility of the contractor to maintain as far as possible the required statutory clearances from other utility services.

Any damage caused, inadvertently to any utility services shall be the sole responsibility of the contractor.

The scope also includes the Trench less laying of H.T.Cables

### **CABLE HANDLING :**

The inspection of cable on receipt, handling of cables, paying out, flaking, cushioning with sand or sieved compacted native soil, back-filling, reinstatement of road surfaces, providing and fixing joint markers, route markers , precautions of joint pits, sump holes and all necessary precautions that are required shall be carefully planned and in general conform to IS 1255-1983 or its equivalent.

### **DAMAGE TO PROPERTY:**

The contractor shall take all precautions while excavation of trench, trial pits etc., to protect the public and private properties and to avoid accidental damage. Any damage so caused shall be immediately repaired by contractor at his own cost and brought to the notice of the concerned persons and to the Employer.

Contractor shall arrange third party liability insurance for the above purpose.

- The contractor shall bear all responsibilities and liabilities and shall bear all costs of the damages so caused by him or by his workman or agents.
- At places where the cables cross private roads, gates of residential houses or buildings, the cables shall be laid in RCC hume pipes.

### **CABLE ROUTE MARKERS/CABLE JOINT MARKERS**

Permanent means of indicating the position of joints and cable route shall be fabricated, supplied and erected.

Route Marker shall be provided at every 100 meter and at the turning points.

Markers provided shall be as per the field requirement. If the route passes through open fields, markers should be conspicuously visible and above ground surface and particularly along the Road berms except on road & pavements where they may interfere in the movement of traffic or pedestrians.

The markers should incorporate the relevant information. The name of the owner, voltage shall be marked on the route marker.

The markers shall be of stone or tile construction. The design shall be such that it cannot be pulled out. Tile type marker shall be used along the pavement. Stone/ PCC markers shall be used at other locations. The stone/PCC markers shall be cut into proper size as per drawing, covered with cement plaster with engraving of the information required.

### **DEPTH OF LAYING & SPACING BETWEEN CABLES:**

Minimum depth of laying from ground surface to **top of cable** shall be as following:

33kV Cable :1.20 meter

11 kV cable :1.05 meter

Wherever the proper depth is not achievable due to presence of other services or for other reasons, the cable shall be laid deeper or in hume pipe or GI pipe as required depending upon the site condition.

The pipes shall be supplied by the Contractor at no extra cost.

### **SUPPLIES :**

The Contractor has to supply the Equipment and Materials as per the BOQ . Strict adherence to the relevant Standards are to be ensured and must be produced for Inspection for quality from time to time before Ordering and Supplying. APEPDCL has to certify all the Equipment and Quality of Work .

The main Items are Supply and Erection of 500 KVA, 315 KVA & 160 KVA Distribution Transformers of ratio 11 KV / 433 V . The Transformers are to be Erected on RCC plinths of approved size and provided with suitable Earthing system . Cast Iron Grounding Pipes are to be installed in Standard Earth pits and connected with Earth Flats of the sizes mentioned. Separate double Earthing is to be done for Neutral bushings of the Transformers. In addition , Earthing is to be done from transformer to the Earth pipe of Feeder Pillar Boxes . Chain Link Fencing is to be Erected around the Transformer Plinths For Protection to Civilians and Cattle.

The XLPE Under Ground Cables of size 3 \* 400 sq mm are to be supplied and used for 33 kv level . The Contract Includes testing , laying and Commissioning . Jointing is to be made with Heat shrinkable Cable Jointing Kits , Indoor & Outdoor type as per requirement . The Straight running joints are to be done with Straight heat shrinkable Jointing Kits suitable for 3 \* 400 sq mm UG Cable.

In addition, 3\* 185 sq mm, 3\*120 sq mm and 3\* 70 sq mm Cables are to be Supplied and laid for 11kv level . The Joints are to be made using Standard Cable Jointing Kits ( Heat shrinkable type ) Indoor & Outdoor type as per the requirement. The Cables and Jointing Kits are to be as per Standard Specifications and are to be quality tested and approved by Appropriate authority before Installation.

Extensible Ring Main Units of Standard Specification are to be Supplied , tested, Erected &

Commissioning as per Standard procedures . RCC Plinths of Standard size are to be constructed and the RMU's fixed on the Plinths.

Proper Earthing & fencing arrangements are also to be done as per Standards Separate Earth pits with CI Grounding pipes are to be installed for RMU. The requirement of 33 KV & 11 KV RMU'S is given in the BOQ.

Transformer feeder Pillar boxes of types FP-1 , FP-2 ,JB-1 & JB-2 are to be supplied and Erected as per requirement and as per Standard practice at suitable Locations. Earthing is to be ensured and the Terminals & Connections should be of Standard Quality.

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For Smart metering Single phase, 2 wire & 3 ph 4 wires smart energy meters of Capacities and specifications mentioned. The supply and installation of Metering is to be done strictly under APEPDCL guidance.

Essential auxiliary equipment and materials like earth rods, lugs, connectors, tapes etc. necessary for the installation are to be arranged by the bidder at his own cost, irrespective of being or not being mentioned in the schedule of the contract .

Finally after successful commissioning of Underground Distribution network , the Existing Overhead lines & PSCC poles & Iron poles will be dismantled to ensure achievement of the objective of the bid, i.e., to provide an aesthetic and elegant appearance along with reliable power supply for the Smart city.



## **STANDARDS :**

All equipment and material shall be designed, manufactured and tested in accordance with the latest applicable IEC standard.

Equipment and material conforming to any other standard, which ensures equal or better quality, may be accepted. In such case copies of English version of the standard adopted shall be submitted. The electrical installation shall meet the requirement of Indian Electricity Rules-1956 as amended up to date; relevant IS code of practice and Indian Electricity Act-1910. In addition other rules and regulations applicable to the work shall be followed. In case any discrepancy the most stringent and restrictive one shall be binding. The high-tension switchgear offered shall in general comply with the latest issues including amendments of the following standards but not restricted to them. .

## SCOPE:

Design, Engineering, Manufacture, assembly, Stage testing, inspection and testing before supply and delivery at site, Erection, Installation, testing & commissioning of UG Cables and related equipment and. Switchgear.

The objective of the RMUs is for **extremely small construction width, compact, maintenance free**, independent of climate, easy installation, operational reliability, Safe and easy to operate, minimum construction cost, minimum site work and minimum space requirement. . The RMUs shall conform in all respects to high standards Of Engineering design, workmanship and latest revisions of relevant standards at the time of offer.

**RMU to be installed on Plinth Erection of plinth with cost of cement etc** as per below requirement Plinth size minimum 5'x4'x2' or as per required Cement ratio 1: 2 : 4 ;Weight of RMU 510 kg to 1000 kg.

Relevant IE rules for clearances, safety and operation inside the enclosure shall be applicable. **The enclosure shall be IP 54 and type tested for weather proof at EREDA/CPRI.**

All live parts except for the cable connections in the cable compartments shall be insulated with SF6 gas. The SF6 gas tank shall be made of robotic or TIG or MIG welded stainless steel, to have the best weld quality. The gas cubicle shall be metal enclosed with stainless Steel of thickness as per IEC tested/ designed so as to provide safety and to avoid leakage of gas and should be provided with a pressure relief arrangement away from operator.

Any accidental over pressure inside the sealed chamber shall be limited by the opening of a pressure-limiting device in the top or rear-bottom part of the tank or enclosure. Gas will be release to the rear of the switchboard away from the operator and should be directed towards the bottom, into the trench to ensure safety of the operating personnel and the pedestrians / civilians. All the manual operations should be carried out on the front of the switchboard.

Sulphur Hex fluoride Gas (SF6 GAS) The SF6 gas shall comply with IEC 376,376A, and 376B and shall be suitable in all respects for use in 11 KV RMUs under the operating conditions. The SF6 shall be tested for purity, dew point air hydrolysable fluorides and water content as per IEC 376,376A and 376B and test certificate shall be furnished to the owner indicating all the tests as per IEC 376 for each Lot of SF6 Gas.

The switchgear should have the minimum degree of protection (in accordance with IEC 60529) - IP 67 for the tank with high voltage components - IP 2X for the front covers of the mechanism - IP 3X for the cable connection covers - IP 54 for the outdoor enclosure.

## **TESTING OF EQUIPMENT & ACCESSORIES :**

1. **TYPETEST** : The Tenderers should, along with the tender documents, submit copies of all Type test certificate of their make in full shape as confirming to relevant ISS/IEC of latest issue obtained from a International/National Govt. Lab/Recognized laboratory. The above type test certificates should accompany the drawings for the materials duly signed by the institution who has type test certificate.
2. **ACCEPTANCE AND ROUTINE TESTS** :All acceptance and routine tests as stipulated in the latest IEC- shall be carried out by the supplier in the presence of APEPDCL representative. The supplier shall give at least 7 days advance intimation to the APEPDCL to enable them to depute their representative for witnessing the tests. . As this test checks and guarantees for the high insulation level and thus the complete life of switchgear.
3. **ADDITIONAL TESTS** :The APEPDCL reserves the right for carrying out any other tests of a reasonable nature at the works of the supplier/laboratory or at any other recognized laboratory/research institute in addition to the above mentioned type, acceptance and routine tests at the cost of the Board to satisfy that the material complies with the intent of this specification.
4. **PRE-COMMISSIONING TESTS** :All the pre-commissioning tests will be carried out in the presence of the APEPDCL testing engineer and necessary drawing manual and periodical test tools shall be arranged to be supplied.

**INSPECTION:**

The inspection may be carried out by the APEPDCL and Employers Representative at any stage of manufacture.

The supplier shall grant free access to APEPDCL representative at a reasonable time when the work is in progress. The supplier shall keep the APEPDCL informed in advance, about the manufacturing programme so that arrangement can be made for inspection. The APEPDCL reserves the right to insist for witnessing the acceptance/routine testing of the bought out items. The APEPDCL has rights to inspect the supplier's premises for each and every consignment for type & routine test. No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested

**QUALITY ASSURANCE PLAN:**

The bidder shall invariably furnish following information along with his offer / in case of event of order. I.

Statement giving list of important raw materials Name of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of test normally carried out on raw materials in presence of Bidder's representative, copies of test certificates. Information and copies of test certificates as in above in respect of bought out accessories & raw materials. List of areas in manufacturing process, where stage inspections are to be carried out. Normally carried out for quality control and details of such tests and inspections Special features provided in the equipment to make it maintenance free.

**TRAINING:**

**The supplier shall give rigorous training to the engineers & staff in attending trouble shooting and maintenance.**

### **DRAWINGS AND CATALOGUES:**

All drawings shall be in ink and suitable for microfilming. The tenderer shall submit along with his tender dimensional general arrangement drawings of the equipments, illustrative and descriptive literature in triplicate for various items.

- I. Schematic diagram
- II. Instruction manuals
- III. Catalogues of spares recommended with drawing to indicate each items of spares
- IV. List of spares and special tools recommended by the supplier.
- V. Copies of Type Test Certificates as per latest IS/IEC.
- VI. Drawings of equipments,
- VII. Foundation drawings of all Equipments.
- VIII. Dimensional drawings of each material.
- IX. Actual single line diagram.

Copies of printed and bound volumes of operation, maintenance and erection manuals in English along with the copies of approved drawings and type test reports etc.. A soft copy of the all Technical and Drawing furnished in a CD

### **NAME PLATE:**

Each SWITCH GEAR EQUIPMENT and its associated equipments shall be provided with a nameplate legible and indelibly marked with at least the following information. a. Name of manufacturer b. Type, design and serial number c. Rated voltage and current d. Rated frequency e. Rated short time current and its duration .f. Purchase Order number and date. g. Month and Year of supply. h .Rated lighting impulse withstand voltage .i. Feeder name (Incoming and Outgoing), DTs Structure name, 11000 Volts Dangers etc.

### **PROTO TYPE SAMPLE:**

The successful bidders should manufacture 2no's of proto type equipment's as per the specification and keep ready at their works for the purpose of sample inspections and testing. The APEPDCL at their option may sent a team of engineers to this inspection may not b e given to the Bidder.

### **GENERAL :**

The offered materials should be type-tested at CPRI/ NABL accredited laboratory. The bid shall accompanying with type-test reports conducted at Central Power Research Institute / NABL accredited laboratory for the offered materials conducted within five years before the date of opening of the tender.

The Employer reserves the right to waive minor deviation, if they do not materially affect the capacity of the bidder to perform the contract.

## **List of Annexures**

Annexure 1: Design Intent

Annexure 2: Existing System

Annexure 3: Drawings

Annexure 4: Bill of Quantities

Annexure 5: Technical Specifications

## **PART 3 – Conditions of Contract and Contract Forms**



## **Section VIII. General Conditions of Contract**

## 5.8 General Conditions of Contract

### A. General

<p><b>1. Definitions</b></p>	<p><b>1.1</b> Boldface type is used to identify defined terms.</p> <ul style="list-style-type: none"> <li>(a) The <b>Accepted Contract Amount</b> means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.</li> <li>(b) The <b>Activity Schedule</b> is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events.</li> <li>(c) The <b>Adjudicator</b> is the person appointed jointly by the Employer and the Implementing Agency to resolve disputes in the first instance, as provided for in GCC 29.1 [Appointment of Adjudicator] hereunder.</li> <li>(d) GOI means Government of India.</li> <li>(e) <b>Bill of Quantities</b> means the priced and completed Bill of Quantities forming part of the Bid.</li> <li>(f) <b>Compensation Events</b> are those defined in GCC 51.1 [Compensation Events] hereunder.</li> <li>(g) The <b>Completion Date</b> is the date of completion of the Works as certified by the Project Manager, in accordance with GCC 69.1 [Completion].</li> <li>(h) The <b>Contract</b> is the Contract between the Employer and the Implementing Agency to execute, complete, and maintain the Works. It consists of the documents listed in GCC 2.3 below.</li> <li>(i) The <b>Implementing Agency/ Contractor</b> is the party whose Bid to carry out the Works has been accepted by the Employer.</li> <li>(j) The <b>Implementing Agency's Bid</b> is the completed bidding document submitted by the Implementing Agency to the Employer.</li> <li>(k) The <b>Contract Price</b> is the Accepted Contract Amount</li> </ul>
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	<p>stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.</p> <p>(l) <b>Days</b> are calendar days; months are calendar months.</p> <p>(m) <b>Day works</b> are varied work inputs subject to payment on a time basis for the Implementing Agency's employees and Equipment, in addition to payments for associated Materials and Plant.</p> <p>(n) A <b>Defect</b> is any part of the Works not completed in accordance with the Contract.</p> <p>(o) The <b>Defects Liability Certificate</b> is the certificate issued by the Project Manager upon correction of defects by the Implementing Agency.</p> <p>(p) The <b>Post Construction Phase Period</b> is the period calculated from the Completion Date where the Implementing Agency remains responsible for remedying defects.</p> <p>(q) "Drawings" means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.</p> <p>(r) The <b>Employer</b> is the party who employs the Implementing Agency to carry out the Works, as specified in the <b>PCC</b>.</p> <p>(s) <b>Equipment</b> is the Implementing Agency's machinery and vehicles brought temporarily to the Site to construct the Works.</p> <p>(t) <b>Force Majeure</b> means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.</p> <p>(u) <b>In writing</b> or <b>written</b> means hand-written, type-written, printed or electronically made, and resulting in a permanent record.</p> <p>(v) The <b>Initial Contract Price</b> is the Contract Price listed in the Employer's Letter of Acceptance.</p> <p>(w) The <b>Intended Completion Date</b> is the date on which it is</p>
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	<p>intended that the Implementing Agency shall complete the Works. The Intended Completion Date is specified in the <b>PCC</b>. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.</p> <p>(x) <b>Letter of Acceptance</b> means the formal acceptance by the Employer of the Bid and denotes the formation of the Contract at the date of acceptance.</p> <p>(y) <b>Materials</b> are all supplies, including consumables, used by the Implementing Agency for incorporation in the Works.</p> <p>(z) <b>Party</b> means the Employer or the Implementing Agency, as the context requires.</p> <p>(aa) <b>PCC</b> means Particular Conditions of Contract.</p> <p>(bb) <b>Plant</b> is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.</p> <p>(cc) The <b>Project Manager</b> is the person named in the <b>PCC</b> (or any other competent person appointed by the Employer and notified to the Implementing Agency, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.</p> <p>(dd) <b>Retention Money</b> means the aggregate of all monies retained by the Employer pursuant to GCC 55.1 [Retention].</p> <p>(ee) <b>Schedules</b> means the document(s) entitled schedules, completed by the Implementing Agency and submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.</p> <p>(ff) The <b>Site</b> is the area defined as such in the <b>PCC</b>.</p> <p>(gg) <b>Site Investigation Reports</b> are those that were included in the bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.</p> <p>(hh) <b>Specification</b> means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.</p> <p>(ii) The <b>Start Date</b> is given in the <b>PCC</b>. It is the latest date</p>
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	<p>when the Implementing Agency shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.</p> <p>(jj) A <b>Sub-Implementing Agency/ Sub-Contractor</b> is a person or corporate body who has a Contract with the - to carry out a part of the work in the Contract, which includes work on the Site.</p> <p>(kk) <b>Temporary Works</b> are works designed, constructed, installed, and removed by the Implementing Agency that are needed for construction or installation of the Works.</p> <p>(ll) A <b>Variation</b> is an instruction given by the Project Manager which varies the Works.</p> <p>(mm) The <b>Works</b> are what the Contract requires the Implementing Agency to construct, install, and turn over to the Employer, as defined in the <b>PCC</b>.</p>
<b>2. Interpretation</b>	<p>2.1 In interpreting these GCC, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.</p>
	<p>2.2 If sectional completion is specified in the <b>PCC</b>, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).</p>
	<p>2.3 The documents forming the Contract shall be interpreted in the following order of priority:</p> <ul style="list-style-type: none"> <li>(a) Contract Agreement,</li> <li>(b) Letter of Acceptance,</li> <li>(c) Letter of Bid,</li> <li>(d) Particular Conditions of Contract,</li> <li>(e) the List of Eligible Countries that was specified in Section 5 of the bidding document,</li> <li>(f) General Conditions of Contract,</li> <li>(g) Specifications,</li> <li>(h) Drawings,</li> </ul>

	<p>(i) Completed Activity Schedules or Bill of Quantities, and</p> <p>(j) Any other document listed in the <b>PCC</b> as forming part of the Contract.</p>
<b>3. Language and Law</b>	<p>3.1 The language of the Contract and the law governing the Contract are stated in the <b>PCC</b>.</p> <p>3.2 Throughout the execution of the Contract, the Implementing Agency shall comply with the import of goods and services prohibitions in the Employer's country when</p> <p>(a) By an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's Country prohibits any import of goods from, or any payments to, a particular country, person, or entity. Where the borrower's country prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded.</p>
<b>4. Contract Agreement</b>	<p>4.1 The Parties shall enter into a Contract Agreement within 21 days after the Implementing Agency receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the attached Contract forms in Section 8. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.</p>
<b>5. Assignment</b>	<p>5.1 Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party</p> <p>(a) May assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Part.</p>
<b>6. Care and Supply of Documents</b>	<p>6.1 The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, one (01) copies of the Contract and of each subsequent Drawing shall be supplied to the Implementing Agency, who may make or request further copies at the cost of the Implementing Agency.</p>
	<p>6.2 Each of the Implementing Agency's Documents shall be in the custody and care of the Implementing Agency, unless and until taken over by the Employer. Unless otherwise stated in the</p>

	Contract, the Implementing Agency shall supply to the Engineer four copies of each of the Implementing Agency's Documents.
	<p>6.3 The Implementing Agency shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Implementing Agency's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.</p> <p>6.4 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.</p>
<b>7. Confidential Details</b>	<p>7.1 The Implementing Agency's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Implementing Agency's compliance with the Contract and allow its proper implementation.</p>
	<p>7.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Implementing Agency shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.</p>
	<p>7.3 Notwithstanding the above, the Implementing Agency may furnish to its Sub-Implementing Agency(s) such documents, data and other information it receives from the Employer to the extent required for the Sub-implementing agency/Sub Contractor (s) to perform its work under the Contract, in which event the Implementing Agency shall obtain from such Sub-Implementing Agency(s) an undertaking of confidentiality similar to that imposed on the Implementing Agency under this Clause.</p>
<b>8. Compliance with Laws</b>	<p>8.1 The Implementing Agency shall, in performing the Contract, comply with applicable Laws.</p>
	<p>8.2 Unless otherwise stated in the Particular Conditions,</p>

	<p>(a) the Employer shall acquire and pay for all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertakings in the [Employer's Country or country where the Site is located] which (i) such authorities or undertakings require the Employer to obtain in the Employer's name, and (ii) are necessary for the execution of the Contract, including those required for the performance by both the Implementing Agency and the Employer of their respective obligations under the Contract;</p> <p>(b) the Implementing Agency shall acquire and pay for all permits, approvals, and/or licenses from all local, state, or national government authorities or public service undertakings in the [Employer's Country or country where the Site is located] which such authorities or undertakings require the Implementing Agency to obtain in its name and which are necessary for the performance of the Contract, including, without limitation, visas for the Implementing Agency's and Subcontractor's personnel and entry permits for all imported Implementing Agency's Equipment. The Implementing Agency shall acquire all other permits, approvals, and/or licenses that are not the responsibility of the Employer under Sub clause 8.2(a) hereof and that are necessary for the performance of the Contract. The Implementing Agency shall indemnify and hold harmless the Employer from and against any and all liabilities, damages, claims, fines, penalties, and expenses of whatever nature arising or resulting from the violation of such laws by the Employer or its personnel, including the Subcontractors and their personnel, but without prejudice to Sub clause 8.1 hereof.</p>
<b>9. Joint and Several Liability</b>	<p>9.1 If the Implementing Agency is a joint venture of two or more persons, all such persons shall be jointly and severally liable to the Employer for the fulfillment of the provisions of the Contract, and shall designate one of such persons to act as a leader with authority to bind the joint venture. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.</p>
<b>10. Project Manager's</b>	<p>10.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the</p>



<b>Decisions</b>	<b>Implementing Agency in the role representing the Employer.</b>
<b>11. Delegation</b>	11.1 The Project Manager may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Implementing Agency, and may cancel any delegation after notifying the Implementing Agency.
<b>12. Communica-tions</b>	12.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.
<b>13. Subcontracting</b>	13.1 The Implementing Agency may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Implementing Agency's obligations.
<b>14. Other Contractors/ Implementing Agency's</b>	14.1 The Implementing Agency shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the <b>PCC</b> . The Implementing Agency shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Implementing Agency of any such modification.
<b>15. Personnel and Equipment</b>	15.1 The Implementing Agency shall employ the key personnel and use the equipment identified in its Bid to carry out the functions stated in the Schedule or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.
	15.2 If the Project Manager asks the Implementing Agency to remove a person who is a member of the Implementing Agency's staff or work force, stating the reasons, the Implementing Agency shall ensure that the person leaves the Site within 7 days and has no further connection with the work in the Contract.
	15.3 If the Employer, Project Manager, or Implementing Agency determines, that any employee of the Implementing Agency be determined to have engaged in corrupt, fraudulent, collusive, coercive, or other prohibited practices during the execution of the Works, then that employee shall be removed in accordance with Clause 15.2 above.

<b>16. Employer's and Implementing Agency's Risks</b>	16.1 The Employer carries the risks which this Contract states are Employer's risks, and the Implementing Agency carries the risks which this Contract states are Implementing Agency's risks.
<b>17. Employer's Risks</b>	<p>17.1 From the Start Date until the Post Construction Completion Certificate has been issued, the following are Employer's risks:</p> <ul style="list-style-type: none"> <li>(a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to <ul style="list-style-type: none"> <li>(i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works, or</li> <li>(ii) Negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Implementing Agency.</li> </ul> </li> <li>(b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.</li> </ul>
	<p>17.2 From the Completion Date until the Post Construction Phase Completion Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer's risk except loss or damage due to</p> <ul style="list-style-type: none"> <li>(a) a Defect which existed on the Completion Date,</li> <li>(b) an event occurring before the Completion Date, which was not itself an Employer's risk, or</li> <li>(c) The activities of the Implementing Agency on the Site after the Completion Date.</li> </ul>
<b>18. Implementing Agency's Risks</b>	18.1 From the Starting Date until the Post Construction Phase Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer's risks, are Implementing Agency's risks.
<b>19. Insurance</b>	19.1 The Implementing Agency shall provide, in the joint names of the Employer and the Implementing Agency, insurance cover from the Start Date to the end of the Post Construction Phase

	<p>Period, in the amounts and deductibles stated in the <b>PCC</b> for the following events, which are due to the Implementing Agency's risks:</p> <ul style="list-style-type: none"> <li>(a) loss of or damage to the Works, Plant, and Materials;</li> <li>(b) loss of or damage to Equipment;</li> <li>(c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and</li> <li>(d) Personal injury or death.</li> </ul>
	<p>19.2 Policies and certificates for insurance shall be delivered by the Implementing Agency to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.</p>
	<p>19.3 If the Implementing Agency does not provide any of the policies and certificates required, the Employer may effect the insurance, which the Implementing Agency should have provided and recover the premiums the Employer has paid from payments otherwise due to the Implementing Agency or, if no payment is due, the payment of the premiums shall be a debt due.</p>
	<p>19.4 Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.</p>
	<p>19.5 Both parties shall comply with any conditions of the insurance policies.</p>
<p><b>20. Site Investigation Reports</b></p>	<p>20.1 The Implementing Agency, in preparing the Bid, shall refer the Reports provided RFP for information purpose, unless otherwise specified in the <b>PCC</b>. However the agency shall recheck with the site conditions.</p>
<p><b>21. Implementing Agency to Construct the Works</b></p>	<p>21.1 The Implementing Agency shall construct and install the Works in accordance with the Specifications and Drawings.</p>
<p><b>22. The Works to</b></p>	<p>22.1 The Implementing Agency may commence execution of the</p>

<b>Be Completed by the Intended Completion Date</b>	Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Implementing Agency, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.
<b>23. Designs by Implementing Agency and Approval by the Project Manager</b>	23.1 The Implementing Agency shall carry out design to the extent specified in the <b>PCC</b> . The Implementing Agency shall promptly submit to the Employer all designs prepared by him. Within 14 days of receipt, the Employer shall notify any comments or shall ask for additional information for approvals. The Implementing Agency shall not construct any element of the permanent work designed by him within 14 days after the design has been submitted to the Employer or where the design for that element has been rejected. Design that has been rejected shall be promptly amended and resubmitted. The Implementing Agency shall resubmit all designs commented on, taking these comments into account as necessary.
	23.2 The Implementing Agency shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, who is to approve them if they comply with the Specifications and Drawings..
	23.3 The Implementing Agency shall be responsible for design of Temporary Works.
	23.4 The Project Manager's approval shall not alter the Implementing Agency's responsibility for design of the Temporary Works.
	23.5 The Implementing Agency shall obtain approval of third parties to the design of the Temporary Works, where required.
	23.6 All Drawings prepared by the Implementing Agency for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use.
	23.7 Employer's Use of Implementing Agency's Documents : As between the Parties, the Implementing Agency may retain the copyright and other intellectual property rights in the Implementing Agency's Documents and other design documents made by (or on behalf of) the Implementing Agency.  The Implementing Agency shall be deemed (by signing the Contract) to give to the Employer a transferable exclusive

	<p>royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:</p> <ul style="list-style-type: none"> <li>(a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,</li> <li>(b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Implementing Agency's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and</li> <li>(c) In the case of Implementing Agency's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Implementing Agency.</li> </ul>
<b>24. Safety</b>	24.1 The Implementing Agency shall be responsible for the safety of all activities on the Site.
<b>25. Discoveries</b>	25.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Implementing Agency shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
<b>26. Possession of the Site</b>	26.1 The Employer shall give possession of all parts of the Site to the Implementing Agency. If possession of a part is not given by the date stated in the <b>PCC</b> , the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.
<b>27. Access to the Site</b>	27.1 The Implementing Agency shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.
<b>28. Instructions, Inspections, and Audits</b>	<p>28.1 The Implementing Agency shall carry out all instructions of the Project Manager, which comply with the applicable laws where the Site is located.</p> <p>28.2 The Implementing Agency shall keep, and shall make all reasonable efforts to cause its Sub-Implementing Agency's and</p>

	sub-consultants to keep accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs.
	28.3 The Implementing Agency shall permit GOI/GAP/KMC (GOI- Government of India, GAP-Government of Andhra Pradesh, Kakinada Municipal Corporation) to inspect the Implementing Agency's accounts, records, and other documents relating to the submission of bids and contract performance and to have them audited by auditors appointed by KMC. The Implementing Agency shall maintain all documents and records related to the Contract for a period of three (3) years after completion of the Works. The Implementing Agency shall provide any documents necessary for the investigation of allegations of fraud, collusion, coercion, or corruption and require its employees or agents with knowledge of the Contract to respond to questions from KMC.
<b>29. Appointment of the Adjudicator</b>	29.1 The Adjudicator shall be appointed jointly by the Employer and the Implementing Agency, at the time of the Employer's issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the <b>PCC</b> , to appoint the Adjudicator within 14 days of receipt of such request.
	29.2 Should the Adjudicator resign or die, or should the Employer and the Implementing Agency agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Employer and the Implementing Agency. In case of disagreement between the Employer and the Implementing Agency, within 30 days, the Adjudicator shall be designated by the Appointing Authority at the request of either party, within 14 days of receipt of such request.
<b>30. Procedure for Disputes</b>	30.1 If the Implementing Agency believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager's decision.
	30.2 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

	<p>30.3 The Adjudicator shall be paid by the hour at the rate specified in the <b>PCC</b>, together with reimbursable expenses of the types specified in the <b>PCC</b>, and the cost shall be divided equally between the Employer and the Implementing Agency, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision shall be final and binding.</p>
	<p>30.4 The arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and in the place specified in the <b>PCC</b>.</p>
<b>B. Staff and Labor</b>	
<b>31. Forced Labor</b>	<p>31.1 The Implementing Agency shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty. This covers any kind of involuntary or compulsory labor, such as indentured labor, bonded labor, or similar labor-contracting arrangements.</p>
<b>32. Child Labor</b>	<p>32.1 The Implementing Agency shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where national laws have provisions for employment of minors, the Implementing Agency shall follow those laws applicable to the Implementing Agency. Children below the age of 18 years shall not be employed in dangerous work.</p>
<b>33. Workers' Organizations</b>	<p>33.1 In countries where national law recognizes workers' rights to form and to join workers' organizations of their choosing without interference and to bargain collectively, the Implementing Agency shall comply with national law. Where national law substantially restricts workers' organizations, the Implementing Agency shall enable alternative means for the Implementing Agency's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. In either case described above, and where national law is silent, the Implementing Agency shall not discourage the Implementing Agency's Personnel from forming or joining workers' organizations of their choosing or from</p>

	bargaining collectively, and shall not discriminate or retaliate against the Implementing Agency's Personnel who participate, or seek to participate, in such organizations and bargain collectively. The Implementing Agency shall engage with such workers representatives. Worker organizations are expected to fairly represent the workers in the workforce.
<b>34. Nondiscrimination and Equal Opportunity</b>	<p>34.1 The Implementing Agency shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Implementing Agency shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where national law provides for non-discrimination in employment, the Implementing Agency shall comply with national law. When national laws are silent on nondiscrimination in employment, the Implementing Agency shall meet this Sub clause's requirements. Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination.</p>

### C. Time Control

<b>35. Program</b>	<p>35.1 Within the time stated in the <b>PCC</b>, after the date of the Letter of Acceptance, the Implementing Agency shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.</p>
	<p>35.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.</p>
	<p>35.3 The Implementing Agency shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the <b>PCC</b>. If the Implementing Agency does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the <b>PCC</b> from the</p>



	<p>next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Implementing Agency shall provide an updated Activity Schedule within 14 days of being instructed to by the Project Manager.</p>
	<p>35.4 The Project Manager's approval of the Program shall not alter the Implementing Agency's obligations. The Implementing Agency may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.</p>
<p><b>36. Extension of the Intended Completion Date</b></p>	<p>36.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Implementing Agency taking steps to accelerate the remaining work, which would cause the Implementing Agency to incur additional cost.</p>
	<p>36.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Implementing Agency asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Implementing Agency has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.</p>
<p><b>37. Acceleration</b></p>	<p>37.1 When the Employer wants the Implementing Agency to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Implementing Agency. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Implementing Agency.</p>
	<p>37.2 If the Implementing Agency's priced proposals for an acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation.</p>
<p><b>38. Delays Ordered by the Project Manager</b></p>	<p>38.1 The Project Manager may instruct the Implementing Agency to delay the start or progress of any activity within the Works.</p>

<b>39. Management Meetings</b>	39.1 Either the Project Manager or the Implementing Agency may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
	39.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.
<b>40. Early Warning</b>	40.1 The Implementing Agency shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Implementing Agency to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Implementing Agency as soon as reasonably possible.
	40.2 The Implementing Agency shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.

#### **D. Quality Control**

<b>41. Identifying Defects</b>	41.1 The Project Manager shall check the Implementing Agency's work and notify the Implementing Agency of any Defects that are found. Such checking shall not affect the Implementing Agency's responsibilities. The Project Manager may instruct the Implementing Agency to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.
<b>42. Tests</b>	42.1 If the Project Manager instructs the Implementing Agency to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Implementing Agency shall pay for the test and any samples.

	If there is no Defect, the test shall be a Compensation Event.
<b>43. Correction of Defects</b>	43.1 The Project Manager shall give notice to the Implementing Agency of any Defects before the end of the Post Construction phase (Defects Liability Period), which begins at Completion, and is defined in the <b>PCC</b> . The Post Construction Phase Period shall be extended for as long as Defects remain to be corrected.
	43.2 Every time notice of a Defect is given, the Implementing Agency shall correct the notified Defect within the length of time specified by the Project Manager's notice.
<b>44. Uncorrected Defects</b>	44.1 If the Implementing Agency has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Implementing Agency shall pay this amount at the rate of thrice the expenditure incurred by the employer.

#### E. Cost Control

<b>45. Contract Price</b>	45.1 In the case of an admeasurement contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Implementing Agency. The Bill of Quantities is used to calculate the Contract Price. The Implementing Agency will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item.
	45.2 The Implementing Agency shall provide updated Activity Schedules within 14 days of being instructed to by the Project Manager. In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Implementing Agency. The Activity Schedule is used to monitor and control the performance of activities on which basis the Implementing Agency will be paid. If payment for Materials on Site shall be made separately, the Implementing Agency shall show delivery of Materials to the Site separately on the Activity Schedule.
<b>46. Changes in the Contract Price</b>	46.1 In the case of an admeasurement contract: <ul style="list-style-type: none"> <li>(a) If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25%, provided the change exceeds 1% of the Initial Contract Price, the Project Manager shall adjust the</li> </ul>

	<p>rate to allow for the change.</p> <p>(b) The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 10%, except with the prior approval of the Employer.</p> <p>(c) If requested by the Project Manager, the Implementing Agency shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.</p>
	<p>46.2 In the case of a lump sum contract, the Activity Schedule shall be amended by the Implementing Agency to accommodate changes of Program or method of working made at the Implementing Agency's own discretion. Prices in the Activity Schedule shall not be altered when the Implementing Agency makes such changes to the Activity Schedule.</p>
<b>47. Variations</b>	<p>47.1 All Variations shall be included in updated Programs, and, in the case of a lump sum contract, also in the Activity Schedule, produced by the Implementing Agency.</p>
	<p>47.2 The Implementing Agency shall provide the Project Manager with a detailed proposal for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the proposal following applicable procedures, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.</p>
	<p>47.3 If the Implementing Agency's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Implementing Agency's costs.</p>
	<p>47.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.</p>
	<p>47.5 The Implementing Agency shall not be entitled to additional payment for costs that could have been avoided by giving early warning.</p>

	<p>47.6 In the case of an admeasurement contract, if the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in GCC 46.1 [Changes in the Contract Price] or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Implementing Agency shall be in the form of new rates for the relevant items of work.</p>
<b>48. Cash Flow Forecasts</b>	<p>48.1 When the Program, or, in the case of a lump sum contract, the Activity Schedule, is updated, the Implementing Agency shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.</p>
<b>49. Payment Certificates</b>	<p>49.1 The Implementing Agency shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.</p>
	<p>49.2 The Project Manager shall check the Implementing Agency's monthly statement and certify the amount to be paid to the Implementing Agency.</p>
	<p>49.3 The value of work executed shall be determined by the Project Manager.</p>
	<p>49.4 The value of work executed shall comprise,</p> <ul style="list-style-type: none"> <li>(a) in the case of an admeasurement contract, the value of the quantities of work in the Bill of Quantities that have been completed; or</li> <li>(b) In the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule.</li> </ul>
	<p>49.5 The value of work executed shall include the valuation of Variations and Compensation Events.</p>

	49.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.
<b>50. Payments</b>	50.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Implementing Agency the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Implementing Agency shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.
	50.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Implementing Agency shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
	50.3 Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.
	50.4 Items of the Works for which no rate or price has been entered in shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.
	50.5 The certified payment shall be made as specified in PCC
<b>51. Compensation Events</b>	<p>51.1 The following shall be Compensation Events:</p> <ul style="list-style-type: none"> <li>(a) The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC 26.1 [Possession of the Site].</li> <li>(b) The Employer modifies the Schedule of Other Implementing agencies in a way that affects the work of the Implementing Agency under the Contract.</li> <li>(c) The Project Manager orders a delay or does not issue</li> </ul>

	<p>Drawings, Specifications, or instructions required for execution of the Works on time.</p> <p>(d) The Project Manager instructs the Implementing Agency to uncover or to carry out additional tests upon work, which is then found to have no Defects.</p> <p>(e) The Project Manager unreasonably does not approve a subcontract to be let.</p> <p>(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.</p> <p>(g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.</p> <p>(h) Other Implementing agencies, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Implementing Agency.</p> <p>(i) The advance payment is delayed.</p> <p>(j) The effects on the Implementing Agency of any of the Employer's Risks.</p> <p>(k) The Project Manager unreasonably delays issuing a Certificate of Completion.</p>
	<p>51.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.</p>
	<p>51.3 As soon as information demonstrating the effect of each Compensation Event upon the Implementing Agency's forecast cost has been provided by the Implementing Agency, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Implementing Agency's forecast is</p>

	deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Implementing Agency shall react competently and promptly to the event.
	51.4 The Implementing Agency shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Implementing Agency's not having given early warning or not having cooperated with the Project Manager.
<b>52. Tax</b>	52.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Implementing Agency, provided such changes are not already reflected in the Contract Price or are a result of GCC 54.1 [Price Adjustment].
<b>53. Currencies</b>	53.1 Where payments are made in currencies other than the currency of the Employer's country specified in the <b>PCC</b> , the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Implementing Agency's Bid.
<b>54. Price Adjustment</b>	<p>54.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the <b>PCC</b>. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type indicated below applies to each Contract currency:</p> $P_c = A_c + B_c \text{ Imc/loc}$ <p>where:</p> <p><math>P_c</math> is the adjustment factor for the portion of the Contract Price payable in a specific currency "c."</p> <p><math>A_c</math> and <math>B_c</math> are coefficients<sup>7</sup> specified in the <b>PCC</b>, representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency "c;" and</p>

<sup>7</sup> The sum of the two coefficients  $A_c$  and  $B_c$  should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulas for all currencies, since coefficient A, for the nonadjustable portion of the payments, is a very approximate figure (usually 0.10 ~ 0.20) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency is added to the Contract Price.



	<p>Imc is a consolidated index prevailing at the end of the month being invoiced and loc is the same consolidated index prevailing 28 days before Bid opening for inputs payable, both in the specific currency “c.”</p>
	<p>54.2 If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs.</p>
<b>55. Retention</b>	<p>55.1 The Employer shall retain from each payment due to the Implementing Agency the proportion stated in the <b>PCC</b> until Completion of the whole of the Works.</p>
	<p>55.2 Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC 69.1 [Completion], half the total amount retained shall be repaid to the Implementing Agency and half when the Post Construction Phase Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Implementing Agency before the end of this period have been corrected. The Implementing Agency may substitute retention money with an “on demand” bank guarantee.</p>
<b>56. Liquidated Damages</b>	<p>56.1 The Implementing Agency shall pay liquidated damages to the Employer at the rate per day stated in the <b>PCC</b> for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the <b>PCC</b>. The Employer may deduct liquidated damages from payments due to the Implementing Agency. Payment of liquidated damages shall not affect the Implementing Agency’s liabilities.</p>
	<p>56.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Implementing Agency by adjusting the next payment certificate. The Implementing Agency shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC 50.1 [Payments].</p>
<b>57. Bonus</b>	<p>57.1 The Implementing Agency shall be paid a Bonus calculated at the rate per calendar day stated in the <b>PCC</b> for each day (less</p>

	any days for which the Implementing Agency is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.
<b>58. Advance Payment</b>	58.1 The Employer shall make advance payment to the Implementing Agency of the amounts stated in the <b>PCC</b> by the date stated in the <b>PCC</b> , against provision by the Implementing Agency of an unconditional bank guarantee in a form and by a bank acceptable to the Employer in amounts and currencies 110% to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Implementing Agency. Interest shall not be charged on the pending advance payment.
	58.2 The Implementing Agency is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Implementing Agency shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.
	58.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Implementing Agency, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.
<b>59. Securities</b>	59.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount specified in the <b>PCC</b> , by a bank acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a bank guarantee including defect liability period.
<b>60. Day works</b>	60.1 If applicable, the Day works rates in the Implementing Agency's Bid shall be used for small additional amounts of work only when the Project Manager has given written instructions in

	advance for additional work to be paid for in that way.
	60.2 All work to be paid for as Day works shall be recorded by the Implementing Agency on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within 2 days of the work being done.
	60.3 The Implementing Agency shall be paid for Day works subject to obtaining signed Day works forms.
<b>61. Cost of Repairs</b>	61.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Implementing Agency at the Implementing Agency's cost if the loss or damage arises from the Implementing Agency's acts or omissions.
<b>F. Force Majeure</b>	
<b>62. Definition of Force Majeure</b>	62.1 In this Clause, "Force Majeure" means an exceptional event or circumstance, <ul style="list-style-type: none"> <li>(a) which is beyond a Party's control;</li> <li>(b) which such Party could not reasonably have provided against before entering into the Contract;</li> <li>(c) which, having arisen, such Party could not reasonably have avoided or overcome; and</li> <li>(d) Which is not substantially attributable to the other Party.</li> </ul>
	62.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied: <ul style="list-style-type: none"> <li>(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;</li> <li>(b) rebellion, terrorism, sabotage by persons other than the Implementing Agency's Personnel, revolution, insurrection, military or usurped power, or civil war;</li> <li>(c) riot, commotion, disorder, strike or lockout by persons other than the Implementing Agency's Personnel;</li> <li>(d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Implementing Agency's use of such munitions, explosives, radiation or radio-activity; and</li> </ul>

	(e) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
<b>63. Notice of Force Majeure</b>	63.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
	63.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.
	63.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.
<b>64. Duty to Minimize Delay</b>	64.1 Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.
	64.2 A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.
<b>65. Consequences of Force Majeure</b>	<p>65.1 If the Implementing Agency is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC Sub clause 63 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Implementing Agency shall be entitled subject to GCC Sub clause 30.1 [Procedure for Disputes] to</p> <ul style="list-style-type: none"> <li>(a) an extension of time for any such delay, if completion is or will be delayed, under GCC Sub clause 36 [Extension of the Intended Completion Date]; and</li> <li>(b) if the event or circumstance is of the kind described in subparagraphs (a) to (d) of GCC Sub clause 62.2 [Definition of Force Majeure] and, in the case of subparagraphs (b) to (d), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destructed by Force Majeure,</li> </ul>

	to the extent they are not indemnified through the insurance policy referred to in GCC Sub clause 19 [Insurance].
	65.2 After receiving this notice, the Project Manager shall proceed in accordance with GCC Sub clause 10 [Project Manager's Decisions] to agree or determine these matters.
<b>66. Force Majeure Affecting Subcontractor/ Sub-Implementing Agency</b>	66.1 If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Implementing Agency's nonperformance or entitle him to relief under this Clause.
<b>67. Optional Termination, Payment and Release</b>	67.1 If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under GCC Sub clause 63 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Implementing Agency shall proceed in accordance with GCC Sub clause 73.5 [Termination].
	67.2 Upon such termination, the Project Manager shall determine the value of the work done and issue a Payment Certificate, which shall include <ul style="list-style-type: none"> <li>(a) the amounts payable for any work carried out for which a price is stated in the Contract;</li> <li>(b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Implementing Agency, or of which the Implementing Agency is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Implementing Agency shall place the same at the Employer's disposal;</li> <li>(c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Implementing Agency in the expectation of completing the Works;</li> <li>(d) the Cost of removal of Temporary Works and</li> </ul>

	<p>Implementing Agency's Equipment from the Site and the return of these items to the Implementing Agency's works in his country (or to any other destination at no greater cost); and</p> <p>(e) The Cost of repatriation of the Implementing Agency's staff and labor employed wholly in connection with the Works at the date of termination.</p>
<b>68. Release from Performance</b>	<p>68.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises, which makes it impossible or unlawful for either or both Parties to fulfill its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance,</p> <p>(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract; and</p> <p>(b) The sum payable by the Employer to the Implementing Agency shall be the same as would have been payable under GCC Sub clause 67 [Optional Termination, Payment and Release] if the Contract had been terminated under GCC Sub clause 67.</p>

#### G. Finishing the Contract

<b>69. Completion</b>	<p>69.1 The Implementing Agency shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the work is completed.</p>
<b>70. Taking Over</b>	<p>70.1 The Employer shall take over the Site and the Works within 7 days of the Project Manager's issuing a certificate of Completion.</p>
<b>71. Final Account</b>	<p>71.1 The Implementing Agency shall supply the Project Manager with a detailed account of the total amount that the Implementing Agency considers payable under the Contract before the end of the Post Construction Phase Period. The Project Manager shall issue a Post Construction Completion Certificate and certify any final payment that is due to the Implementing Agency within 56 days of receiving the Implementing Agency's account if it is</p>

	correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Implementing Agency and issue a payment certificate.
<b>72. Operating and Maintenance Manuals</b>	72.1 If “as built” Drawings and/or operating and maintenance manuals are required, the Implementing Agency shall supply them by the dates stated in the <b>PCC</b> .
	72.2 If the Implementing Agency does not supply the Drawings and/or manuals by the dates stated in the <b>PCC</b> pursuant to GCC 72.1, or they do not receive the Project Manager’s approval, the Project Manager shall withhold the amount stated in the <b>PCC</b> from payments due to the Implementing Agency.
<b>73. Termination</b>	73.1 The Employer or the Implementing Agency may terminate the Contract if the other party causes a fundamental breach of the Contract.
	73.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following: <ul style="list-style-type: none"> <li>(a) the Implementing Agency stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;</li> <li>(b) the Project Manager instructs the Implementing Agency to delay the progress of the Works, and the instruction is not withdrawn within 28 days;</li> <li>(c) the Employer or the Implementing Agency is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;</li> <li>(d) a payment certified by the Project Manager is not paid by the Employer to the Implementing Agency within 84 days of the date of the Project Manager’s certificate;</li> <li>(e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Implementing Agency fails to correct it within a reasonable period of time determined by the Project Manager;</li> </ul>

	<p>(f) the Project Manager gives two consecutive Notices to update the Program and accelerate the works to ensure compliance with GCC Sub clause 22.1 [The Works to be Completed by the Intended Completion Date] and the Implementing Agency fails to update the Program and demonstrate acceleration of the works within a reasonable period of time determined by the Project Manager;</p> <p>(g) the Implementing Agency does not maintain a Security, which is required;</p> <p>(h) the Implementing Agency has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the <b>PCC</b>; and</p> <p>(i) If the Implementing Agency, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract, pursuant to GCC 74.1 [Fraud and Corruption].</p>
	<p>73.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC 73.2 above, the Project Manager shall decide whether the breach is fundamental or not.</p>
	<p>73.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.</p>
	<p>73.5 If the Contract is terminated, the Implementing Agency shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.</p>
<p><b>74. Fraud and Corruption</b></p>	<p>74.1 GOI's Anticorruption Policy requires that Borrowers (including beneficiaries of GOI-financed activity), as well as Implementing agencies, Subcontractors, Manufacturers, and Consultants under GOI-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the GOI</p> <p>(a) defines, for the purposes of this provision, the terms set forth below as follows:</p> <p>(i) "Corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything</p>



	<p>of value to influence improperly the actions of another party;</p> <p>(ii) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;</p> <p>(iii) "Coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;</p> <p>(iv) "Collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;</p> <p>(v) "obstructive practice" means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an GOI investigation; (b) making false statements to investigators in order to materially impede an GOI investigation; (c) failing to comply with requests to provide information, documents or records in connection with an Office of Anticorruption and Integrity (OAI) investigation; (d) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or (e) materially impeding GOI's contractual rights of audit or access to information; and</p> <p>(vi) "integrity violation" is any act which violates GOI's Anticorruption Policy, including (i) to (v) above and the following: abuse, conflict of interest, violations of GOI sanctions, retaliation against whistleblowers or witnesses, and other violations of GOI's Anticorruption Policy, including failure to adhere to the highest ethical standard.</p> <p>(b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity</p>
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	<p>violations in competing for the Contract;</p> <p>(c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the borrower or of a beneficiary of GOI-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the borrower having taken timely and appropriate action satisfactory to GOI to remedy the situation; and</p> <p>(d) will impose remedial actions on a firm or an individual, at any time, in accordance with GOI's Anticorruption Policy and Integrity Principles and Guidelines (both as amended from time to time), including declaring ineligible, either indefinitely or for a stated period of time, to participate<sup>8</sup> in GOI-financed, administered, or supported activities or to benefit from an GOI-financed, administered, or supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations.</p>
<b>75. Payment upon Termination</b>	<p>75.1 If the Contract is terminated because of a fundamental breach of Contract by the Implementing Agency, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the <b>PCC</b>. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Implementing Agency, the difference shall be a debt payable to the Employer.</p>
	<p>75.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal</p>

<sup>8</sup> Whether as an Implementing Agency, Nominated Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document). A Nominated Subcontractor is one which either has been: (i) included by the Bidder in its prequalification application or bid because it brings specific and critical experience and know-how that are accounted for in the evaluation of the Bidder's prequalification application or the bid; or (ii) appointed by the Employer.

	of Equipment, repatriation of the Implementing Agency's personnel employed solely on the Works, and the Implementing Agency's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.
<b>76. Property</b>	76.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Implementing Agency's default.
<b>77. Release from Performance</b>	77.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Implementing Agency, the Project Manager shall certify that the Contract has been frustrated. The Implementing Agency shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterward to which a commitment was made.
<b>78. Suspension of GOI Loan or Credit</b>	<p>78.1 In the event that GOI suspends the Loan or Credit to the Employer, from which part of the payments to the Implementing Agency are being made,</p> <ul style="list-style-type: none"> <li>(a) The Employer is obligated to notify the Implementing Agency, with copy to the Project Manager, of such suspension within 7 days of having received GOI's suspension notice.</li> <li>(b) If the Implementing Agency has not received sums due it within the 28 days for payment provided for in GCC 50.1 [Payments], the Implementing Agency may immediately issue a 14-day termination notice.</li> </ul>
<b>79. Eligibility</b>	79.1 The Implementing Agency shall have the nationality of an eligible country as specified in Section 5 [Eligible Countries] of the bidding document. The Implementing Agency shall be deemed to have the nationality of a country if the Implementing Agency is a citizen or is constituted, or incorporated, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed subcontractors or suppliers for any part of the Contract including related services.
	79.2 The materials, equipment, and services to be supplied under the

	<p>Contract shall have their origin in eligible source countries as specified in Section 5 [Eligible Countries] of the bidding document and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, the Implementing Agency may be required to provide evidence of the origin of materials, equipment, and services.</p>
	<p>79.3 For purposes of GCC 79.2, "origin" means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.</p>

## Section IX. Particular Conditions of Contract

*Except where otherwise specified, all PCC should be filled in by the Employer prior to issuance of the Bidding Documents. Schedules and reports to be provided by the Employer should be annexed.*

<b>A. General</b>	
<b>GCC 1.1 (d)</b>	The financing institutions is : Government of India (Gol) and Government of Andhra Pradesh (GoAP)
<b>GCC 1.1 (r)</b>	The Employer is : Kakinada Smart City Corporation Limited (KSCCL)
<b>GCC 1.1 (w)</b>	The Intended Completion Date for the whole of the Works shall be : (a) Pre-Construction Phase- 6 Months (b) Construction/Implementation Phase- 12 Months (c) Post Construction Phase- 24 Months
<b>GCC 1.1 (cc)</b>	The Project Manager is <span style="background-color: yellow;"> </span>
<b>GCC 1.1 (ff)</b>	The Site is located at Kakinada Main road from Sarpavaram Junction to Balayogi statue junction Approx. 8.00 km
<b>GCC 1.1 (ii)</b>	The Start Date shall be 15 days after the signing of the date of Contract Agreement
<b>GCC 1.1 (mm)</b>	The Works consist of Implementation of Smart Streets as per Section 7, Employer's requirement
<b>GCC 2.3 (j)</b>	The following documents also form part of the Contract: any addendum , corrigendum, queries and replies
<b>GCC 3.1</b>	The language of the contract is English  The law that applies to the Contract is the law of India
<b>GCC 13.1</b>	Not Allowed

<b>GCC 19.1</b>	<p>The minimum insurance amounts &amp; deductibles shall be: <b>10 %</b> of the Contract Value:</p> <p>(a) for loss or damage to the Works, Plant and Materials: <b>1.5%</b></p> <p>(b) for loss or damage to Equipment: <b>1.5%</b></p> <p>(c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract ; <b>2%</b></p> <p>(d) for personal injury or death:</p> <p>(i) of the Contractor's employees: <b>2.5%</b></p> <p>(ii) of other people: <b>2.5%</b></p>
<b>GCC 23.1</b>	<p>The soft copy of survey details done by Total Station and the soft copy of the drawing in Dwg format shall be provided to the implementing agency by the Employer.</p> <p>The Implementing Agency shall do required surveys, investigations, complete designs, prepare Good for Construction (GFC) Drawings and get all the same vetted by the Employer/ Employer's Representative at different stages.</p>
<b>GCC 26.1</b>	The Site Possession Date(s) shall be: within 15 days from the date of signing the contract
<b>GCC 30.3</b>	Hourly rate & reimbursable expenses to be paid to the Adjudicator shall be notified at the time of appointment of Adjudicator.
<b>GCC 30.4</b>	<p>Institution whose arbitration procedures shall be used: Government of India</p> <p>(a) <b>Contracts with foreign contractors:</b></p> <p>International arbitration shall be conducted in accordance with the rules of India</p> <p>Arbitration shall be administered by Engineers Association-India</p> <p>The place of arbitration shall be: the place of the institution administering the arbitration.</p> <p>(b) <b>Contracts with domestic contractors:</b></p> <p>Arbitration shall be conducted in accordance with the laws of the India.</p>
<b>C. Time Control</b>	
<b>GCC 35.1</b>	The Contractor shall submit for approval a Program for the Works within 28 days from the date of the Letter of Acceptance.
<b>GCC 35.3</b>	<p>The period between Program updates is 30 days.</p> <p>The amount to be withheld for late submission of an updated Program is 1% of the total Contract Price</p>

D. Quality Control					
GCC 43.1	The Post Construction Phase Period is: 24 Months				
E. Cost Control					
GCC 50.5	Deliverable and Payment Stages				
	Sr. No	Package	Report Submission / Delivery / Stage	Duration	Payment in % of the total Agreed Contract Value
	1	Mobilization Advance	On submission of the Bank Guarantee from Scheduled commercial Bank for 110% value of of the 10% of value of the accepted Contract Price.		10%
	2	Pre-Construction Stage	Submission & Approval of Surveys / Investigations / Designs & Good for Construction Drawings	6 Months	5%
	3	Construction Stage		12 Months	
		8Km Road (both side) work including all respect as specified in Employer’s Requirements	0.25 Km will be considered as One unit for payments. Min. 0.25 Km (i.e. One Unit) must be completed in all respect for claim of Intermediate Payment certificate (IPC).	Actual	60% (Any length part there off shall be considered on Prorata basis)
		a) In Phase I:- Sarpavaram junction to Masjid jn and MSN Charity to Balayogi Statue Jn is to be taken up and completed.	Note : A). 0.25 Km mean completion of the 0.25 Km. Smart Street length on both side of the smart street including median and Junctions. Or 0.25 Km. means on completion of smart street on one side of the median 0.5 Km including median and junctions.	I <sup>st</sup> 6 Months	
		b) In Phase II:- Balance Stretch from Masjid JN to MSN charity is to be taken up and completed.		II <sup>nd</sup> & Last 6 Months	
			On Completion of each Junction the payment		20%

			shall be made on the prorata basis i.e. per junction payment = 20% of the contract value/Nos. of Smart Street junctions		
	4	<b>Post Construction Phase Period</b>	(i) Quarterly payment on Prorata basis- 75% (iii) Quarterly payment on Prorata basis after submission of Quarterly Post construction completion certificate	24 months	15%
	<p>* In stage 3 – Construction Phase: If electrical works gets delayed i.e. shifting of APEPDCL property gets delayed by any means for the want of approvals (only) for more than 60 days, payment to the contractor shall be released after withholding 30% of the Unit payment. The same will be paid back only after completing the work in aspects as per the satisfaction of the Engineer In charge.</p>				
<b>GCC 31</b>	The implementing agency shall employ and maintain labour as per local labour act. Necessary Safety measures shall be taken as per the act				
<b>GCC 53.1</b>	The currency of the Employer's country is: INR (Indian Rupees)				
<b>GCC 54.1</b>	The Contract is not subject to price adjustment in accordance with GCC Clause 54.				
<b>GCC 55.1</b>	The proportion of payments retained is: 5% of the certified payments				
<b>GCC 56.1</b>	<p>The liquidated damages for the whole of the Works are 0.05 % of the final Contract Price per day.</p> <p>The maximum amount of liquidated damages for the whole of the Works is 10% of the final Contract Price.</p>				
<b>GCC 57.1</b>	In the event of project completion date occurs prior to the schedule completion date, the Implementing Agency shall be entitled to receive the payment of Bonus equivalent to 0.05%(Zero point Zero Five percent) of the contract price for each day by which the completion date precedes the schedule completion date. The max ceiling on the Bonus is 0.5% of the total contract value.				
<b>GCC 58.1</b>	The Advance Payments shall be 10%.				
<b>GCC 58.3</b>	<p>The mobilization advance payment will be set off by the Client in equal 06 (six) portions against the payment made to the contractor.</p> <p>If the contract is terminated due to default of the contractor, the "mobilization advance" would be deemed as interest bearing advance at an Prime lending Rate (PLR)/ base rate of State bank of India, (to be stipulated depending on the prevailing rate at the time of issue</p>				



	of NIT) to be compounded quarterly.
<b>GCC 59.1</b>	The Performance Security amount is 5% of the accepted Contract Price in the form of Bank Guarantee as per the Sec-9 Contract Forms.
<b>G. Finishing the Contract</b>	
<b>GCC 72.1</b>	<p>The date by which operating and maintenance manuals are required is during Implementation Stage and at least 30 days the completion of the work.</p> <p>The date by which “as built” drawings are required is within 30 days after completion of the work.</p>
<b>GCC 72.2</b>	The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required in GCC 72.1 is 5% of the Contract Price.
<b>GCC 73.2 (h)</b>	The maximum number of months is: Eight (08) months



## **Section X - Contract Forms**

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

### **Table of Forms**

- ❖ Letter of Acceptance
- ❖ Contract Agreement

Performance Security (Bank Guarantee)

## Letter of Acceptance

*[On letterhead paper of the Employer]*

..... *[Date]* .....

To: ..... *[Name and address of the Implementing Agency]* .....

Subject: ..... *[Notification of Award Contract No.]* .....

This is to notify you that your RfP/Bid dated .... *[Insert date]* .... for execution of the ..  
..... *[insert name of the contract and identification number, as given in the PCC]* .....  
for the Accepted Contract Amount of ..... *[insert amount in numbers and words and  
name of currency]*, as corrected and modified in accordance with the Instructions to  
Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 21(twenty one) days in  
accordance with the Conditions of Contract, using for that purpose the of the  
Performance Security Form included in Section X. Contract Forms, of the Bidding  
Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Agency: .....

Attachment: Contract Agreement

## Contract Agreement

THIS AGREEMENT made the . . . . . day of . . . . ., . . . . ., between . . . . .  
[***name of the Employer***]. . . . . (hereinafter “the Employer”), of the one part, and . . . . .  
[***name of the Implementing Agency***]. . . . . (hereinafter “the Implementing Agency”), of the  
other part:

WHEREAS the Employer desires that the Works known as . . . . . [***name of the Contract***] . . . . .  
should be executed by the Implementing Agency, and has accepted a Bid by the  
Implementing Agency for the execution and completion of these Works and the  
remedying of any defects therein,

The Employer and the Implementing Agency agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This agreement shall prevail over all other contract documents-

Appendix A: RFP including addendum, corrigendum and Prebid replies  
Appendix B: Special or Particular Conditions of Contract  
Appendix C: General Conditions of Contract  
Appendix D: Letter of Intent from Authority and Letter of Acceptance  
Appendix E: Bidders Technical Bid  
Appendix F: Price Bid – Forms  
Appendix G: Form of Performance Bank Guarantee, if applicable

In the event of any ambiguity or conflict between the Contract Documents listed in Section 2 of this Contract form, the order of precedence shall be the order in which the Contract Documents are listed in Section 2 of this Contract Form. However with in the Appendix A, the order of precedence will be Addendum, corrigendum and Prebid replies, BOQ and Drawings, RFP Volume.

3. In consideration of the payments to be made by the Employer to the Implementing Agency as specified in this Agreement, the Implementing Agency hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Implementing Agency in consideration of the execution and completion of the Works and the remedying of 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.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of . . . . . ***[name of the borrowing country]*** . . . . . on the day, month and year specified above.

Signed by: \_\_\_\_\_  
for and on behalf of the Employer

Signed by: \_\_\_\_\_  
for and on behalf the Implementing Agency

in the  
presence of: \_\_\_\_\_  
Witness, Name, Signature, Address, Date

in the  
presence of: \_\_\_\_\_  
Witness, Name, Signature, Address, Date

## Performance Security (Bank Guarantee)

### Option 1: (Bank Guarantee)

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of Employer]*

**Date:** *\_ [Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *\_ [insert name of Implementing Agency, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *\_ [insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_) *[insert amount in words]*,<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

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<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup> Insert the date twenty-eight days after the expected completion date as described in GC Clause 53.1. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

**Note:** *All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

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*paragraph: “The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”*



## Advance Payment Security

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Insert name and Address of Employer]*

**Date:** *[Insert date of issue]*

**ADVANCE PAYMENT GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called “the Applicant”) has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *[insert name of contract and brief description of Works]* (hereinafter called “the Contract”).

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* () *[insert amount in words]* is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* *[insert amount in words]*<sup>1</sup> upon receipt by us of the Beneficiary’s complying demand supported by the Beneficiary’s statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
- (b) Has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary’s bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant’s bank]*..

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<sup>1</sup> The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (80) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the *[insert day]* day of *[insert month]*, 2 *[insert year]*,<sup>2</sup> whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

**Note:** *All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

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<sup>2</sup> *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: “The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Beneficiary’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.”*