INVITATION FOR EXPRESSION OF INTEREST (EOI)  
(E-Procurement Mode)  

As per the directives of Department of Expenditure, this EOI document has been published on the Central Public Procurement Portal (URL: http://eprocure.gov.in/eprocure/app). The bidders are required to submit soft copies of their proposals electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.

More information useful for submitting online bids on the CPP Portal may be obtained at:

http://eprocure.gov.in/eprocure/app

Inviting “Expression of Interest” for Supply, installation, commissioning, and, training of operation of Circular Accelerated Pavement Testing Facility (APTF) in IIT Kharagpur campus

- SUBMISSION OF EOI PROPOSAL: UPTO 12:00 HRS, 27/10/2022
- OPENING OF EOI PROPOSAL: 12:00 HRS, 28/10/2022
- PRESENTATION: 15:00 HRS on 03/11/2022 (Online /offline Mode – Details will be intimated to the suppliers by e-mail )

Indian Institute of Technology Kharagpur  
Sponsored Research and Industrial Consultancy (SRIC)  
Kharagpur- 721302

Email: kranthi@ciivl.iitkgp.ac.in/manreddy@ivil.iitkgp.ac.in
Sub: Inviting “Expression of Interest” for Supply, installation, commissioning, and, training of operation of Circular Accelerated Pavement Testing Facility (APTF) in IIT Kharagpur Campus

Indian Institute of Technology is set up by the Act of parliament called Indian Technology Act 1961 and it is declared as Institutions of national importance and Institutions of Eminence. Sponsored Research and Industrial Consultancy (SRIC) is a Sponsored Research and Industrial Consultancy unit of Indian Institute of Technology Kharagpur. On behalf of Sponsored Research and Industrial Consultancy, INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR (IIT KGP), Expression of Interest (EoI) for Supply, installation, commissioning, and, training of operation of Circular Accelerated Pavement Testing Facility (APTF) in IIT Kharagpur campus are invited from all entities registered in India, who fulfil the criteria mentioned in the EOI documents for Supply, installation, commissioning, and, training of operation of Circular Accelerated Pavement Testing Facility (APTF) in IIT Kharagpur campus.

1. Complete EOI Documents can be downloaded from the website “https://eprocure.gov.in/eprocure/app” from 30th September, 2022 to 27th October 2022 up to 12.00 HRS. IIT KGP -SRIC shall open the EOI Bids Electronically on the specified date and time at IIT KHARAGPUR (SRIC).

2. Interested eligible entities registered in India may submit their proposal online at https://eprocure.gov.in/eprocure/app in prescribed proforma as per Annexure-I. All the documents in support of eligibility criteria etc. are also to be scanned and uploaded along with the EOI Documents. EOI sent by any other mode will not be accepted. No EOI documents will be accepted after the expiry of stipulated date and time for the purpose under any circumstances what so ever.

3. The Competent Authority at IITKGP-SRIC reserves right to cancel the EOI at any time or amend/withdraw any of the terms and conditions contained in the EOI Document, without assigning any reason, thereof.

4. IITKGP-SRIC reserves the right to accept either in full or in part any EOI and to reject any or all offers without assigning any reason thereof.

5. The estimated cost of the whole project is approximately Rs. 120 lacs (Rupees one hundred and twenty lakhs including taxes, installation, training etc.). Any corrigendum and addendum shall only be published on the Institute Website and CPP Portal.

6. The EOI Proposal will be opened on the date and time mentioned on the title page of this document in Civil Engineering Department, IIT Kharagpur in the presence of the Committee. Authorized representative of the EOI bidders is hereby encouraged to be present during the opening of EOI bids.

7. The Institute will examine the credentials of the firms, based on the submitted documents as per the eligibility criteria. After evaluation of eligibility criteria, as part of short listing exercise, vendors will be required to make a focused presentation on company, expertise and experience in the relevant field, details of the proposed solution etc. for not exceeding 30 minutes to the Technical Committee of IIT Kharagpur.

8. Based on the proposed acceptable solution (taken in part or whole from all submissions) RFP/Tenders may be issued to the shortlisted vendors to submit their two part (Part A: Technical and Part B: Commercial) offers as per Institute rules. The shortlisted vendors may be
requested to submit their two part (Part A: Technical and Part B: Commercial) offers within a short time period for necessary evaluation and finalization of contract within two weeks.

The Institute reserves the right to (i) issue Request For Proposal (RFP)/Tenders to bidders if deemed eligible and qualified based on the evaluation of the EOI submitted by the bidders, presentations, etc. (ii) reject any or all proposed solutions from this EOI in part or in whole, (iii) create specifications based on any or all proposed solutions from this EOI in part or in whole and use them in limited or 3 open tendering for this and/or other projects, etc. The decision of the Institute in this regard shall be final.

The Director, Indian Institute of Technology Kharagpur reserves the right to reject any or all the offers without assigning any reason. Any attempt on the part of any firms to influence, negotiate directly or indirectly with the Institute will lead to exclusion from consideration.

Please note: This is not a Request for Proposal (RFP) and commercial bids are not to be submitted with EOI.

Dr. Kranthi K Kuna,
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kranthi@civil.iitkgp.ac.in

Dated: 30/09/2022

Dean (SRIC)
1 ELIGIBILITY CRITERIA

The invitation of bids is open to all entities registered in India who fulfil the criteria as specified below:

(i) Registration Certificate/Certificate of incorporation, if any, including the certificate of MSME.

(ii) Minimum FIVE years’ experience in the field of fabrication of similar equipment.

(iii) Annual Turnover of at least Rs. 50,00,000/- (Rupees Fifty Lakh) in each of the preceding last three years i.e. from 2019-20, 2020-21 and 2021-22 as per Audited Statement of Account.

(iv) Authorised dealer Certificate from Manufacturer if the agency is a dealer.

(v) All bidders should submit along with their EOI, copies of PAN Card, GST Registration certificates.

(vi) List of clients in India & Abroad.

(vii) Brochure of the company

(viii) Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation of Bids.

2 SCOPE OF WORK

2.1 Name of the Activity: Design, fabrication and installation of circular accelerated pavement test facility (APTF) of 20 m diameter inside IIT Kharagpur campus.

2.2 Brief description: The facility shall have two sets of dual wheel assemblies (positioned diametrically opposite to each other) each dual wheel set subjected to a selected load that can be varied in the range of 3 to 6 T (30 kN – 60 kN). The facility should be successfully installed and commissioned and should have an on-site comprehensive performance warranty of 3 years from the date of commissioning. The facility shall be complete with all necessary accessories and arrangements including machine foundation and safety cage (fence) etc.

2.3 General Specifications

I. Type of Accelerated Pavement Testing Facility (APTF) - Circular

II. Location – Within IIT Kharagpur Campus (West Bengal).

III. The diameter from the centerline of the one-wheel unit to another wheel unit - 20 m

IV. Each dual wheel assembly shall be subjected to a selected load in the range of 3 to 6 T (30 kN – 60 kN).

V. Two diametrical arms to be connected to a central hydraulic/electrical motor with an arrangement to add two additional arms perpendicularly in the future (so that four sets of wheels be able to apply loads). – refer to Figures 1 & 2 for the illustrative plan.

VI. The dual wheel assembly rotates on 2m wide pavement test track.

VII. The selected load on the wheelset should remain constant throughout the test cycles even the vertical deformation is taking place on the pavement test track.

VIII. The capacity of the central motor should be sufficient to operate a system with four arms with a dual wheelset and a vertical wheel load on each of the dual-wheel sets.
IX. The arms with wheel assembly shall be able to rotate at any constant rpm between 5 to 8 rpm
X. Data acquisition with computer and relevant software for recording and storing the data.
XI. The material used for all the components shall be corrosion resistant.
XII. All the components of the facility should be easily maintainable.
XIII. The facility operation must come to stop when the vertical deformation of the surface of the pavement test track is beyond 50 mm.

2.4 Technical Specifications

2.4.1 Major Components
I. Central Hydraulic/Electrical Motor placed over Machine Foundation
II. Detachable Rotating Arms connecting the central motor and the detachable dual-wheel units
III. Attachable/detachable Dual Wheel Units at end of each of the arms
IV. Digital Data Acquisitions System (DAS), Computer and, programmable logic control (PLC) unit and other relevant control units
V. Safety Fence Mechanism around the APTF

2.4.2 Central motor
I. A Central motor shall be installed over a machine foundation
II. Motor shall be able to rotate the arms (2 - 4 nos) with wheels at a selected constant rpm between 5 to 8. The motor capacity must be worked out assuming four arms, however, two arms shall be installed as part of the present tender.
III. All motor components shall be fully covered to protect them from environmental effects such as dust, rain and heat.
IV. Suitable arrangements should be made for electrical connections (overhead/underground) that are necessary to operate the facility.

2.4.3 Rotating arms
I. Number of Arms - 2 (For immediate future)
II. The arms shall be fully covered/protected with a rust-free cover and no scope for ingress of environmental contaminants like rain, moisture etc.
III. Arm(s) should be designed such that they are structurally rugged to withstand resulting forces.

2.4.4 Detachable Dual wheel Units
I. Number of wheel units – one dual-wheel unit for each of the two arms
II. Wheel assembly – dual wheel (truck tyre of a standard make)
III. Loading mechanism for the wheel unit(s) - hydraulic
IV. Wheel Dimension:
   a) Width of tire – 290 to 320 mm
   b) Aspect ratio – minimum 80
   c) Overall diameter – 1100 to 1300 mm
   d) Clear gap between the two tyre walls - 45 to 55 mm
V. **Provision for wheel movement in the vertical direction** - The wheel must always be in contact with the pavement surface throughout the testing applying the selected load throughout the test cycles. During the test, the pavement section along the wheel path deteriorates. Permanent deformation (i.e., rutting, shoving etc.), fatigue cracking etc. are expected during the test. Therefore, the system shall be adequately flexible to withstand the variation in the profile (+/- 50 mm) of the pavement surface and still function as required.

VI. At selected frequency/periodicity, during a test cycle applied load shall be cross verified and the required calibration is reset.

2.4.5 **Operational and data acquisition**

I. The facility shall be able to be remotely controlled, but outside the safety fence.

II. Shall be able to vary the load from the central control facility.

III. The facility shall be operational automatically with manual interventions as required

IV. The data acquisition system shall acquire and display parameters such as the number of cumulative rotations, the load applied, ambient temperature, surface profile data and rpm of the system.

V. After the operations, all the log files related to the operation and data shall be systematically available. These files shall be convertible to widely used formats such as CSV and Excel.

VI. A suitable data acquisition system along with required soft wares shall be part of the facility.

2.4.6 **Maintenance**

I. Must offer the user manual in pdf document with proper usage of heading styles; table of content; bibliography and references; and list of figures, tables, and equations. One set of hard copies of the user manual shall also be provided.

II. A troubleshoot manual on maintenance of Circular APTF covering the hydraulic system, mechanical parts, and electrical parts must be provided.

III. The blueprint for Circular APTF must be given in cad format. The blueprints must be compatible with the latest version of Autodesk Applications. The blueprint must include the following components of the Circular APTF:
   a. Architectural Drawing
   b. Mechanical Drawing
   c. Electrical and Electronic Drawing
   d. Drawings for Hydraulic Machines

**Note:** These drawings must be effectively managed in layered format.

IV. The technology should be currently valid and extendable.

V. After commissioning the facility, an on-site operation and maintenance phase shall start from the supplier for a 3-month period at no additional cost. During this phase, the facility will be run, data is collected and research staff are trained (all by supplier) for these activities in the subsequent period.

2.4.7 **Safety**

I. Suitable safety cage, with access facility - While the circular APTF is in motion; if the safety cage’s door is opened then the APTF must be switched OFF.

II. The control room shall have an emergency switch to stop the facility safely
A typical diagram of APTF is herewith furnished below.

**Figure 1 Illustrative plan of the proposed APT facility**

**Figure 2 Illustrative arrangement of the arms of the proposed APT facility**
3 CLARIFICATION OF EOI DOCUMENTS

3.1 A prospective bidder, requiring any clarification on the EOI Documents shall notify IITKGP-SRIC by e-mail at kranthi@civil.iitkgp.ac.in. IITKGP-SRIC shall respond through Email to any request for the clarification of the EOI Documents, which it receives not later than 7 days prior to the date of opening of the EOI. The clarifications by IITKGP-SRIC / Amendments, if any, will be uploaded/ notified on the "https://eprocure.gov.in/eprocure/app and Institute web site www.iitkgp.ac.in. Bidders are requested to refer the CPP Portal and Institute’s website frequently.

3.2 Any clarification issued by IITKGP-SRIC in response to query raised by prospective bidders shall form an integral part of EOI documents and it may amount to an amendment of relevant clauses of the EOI documents.
Annexure – 1

(I) Details of the Tenderer

- Name of the firm/company :
- Year of establishment :
- Address for correspondence:

- Office Phone number :

- Name of the authorized person:
- Designation of the authorized person :

- Email ID :

- Mobile No :

Signature of the authorized person (Tenderer)
(Name and designation)
Office stamp
Annexure-1

(II) Specification of the equipment to be provided by Vendor: Name and full address of Vendor, email, office phone number, mobile no

<table>
<thead>
<tr>
<th>Name of the equipment</th>
<th>Details of Technical Specifications</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

Signature of the authorized person (Tenderer)
(Name and designation)
Office stamp
Annexure – 1

(III) Detailed drawings (Architectural, Mechanical and Electrical drawings) of the equipment to be provided by Vendor: (AutoCAD/ any other tool generated drawings)

Part: A- Overall drawing of the equipment

Part: B- Component wise drawings

Signature of the authorized person (Tenderer)
(Name and designation)
Office stamp

Note: Drawing shown in the EOI should be considered as indicative and vendor should provide their own drawings of the equipment based on the technical specifications
Annexure – 1

(IV) Working principle and features of equipment to be provided by Vendor:

PART-A: Working principle

Part -B: Features of equipment

Signature of the authorized person (Tenderer)
(Name and designation)
Office stamp

Note: Enclose brochure of the equipment if available
## Annexure-1

(V) List of supportive documents to be enclosed for fulfilling Eligibility criteria by the Tenderer

<table>
<thead>
<tr>
<th>SNO</th>
<th>Items</th>
<th>Remarks (State Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Minimum Five (5) years’ experience in the field of supply of laboratory equipment</td>
<td></td>
</tr>
<tr>
<td>02*</td>
<td>Registration Certificate/Certificate of incorporation, if any</td>
<td></td>
</tr>
<tr>
<td>03*</td>
<td>GST Registration Certificate</td>
<td></td>
</tr>
<tr>
<td>04*</td>
<td>Copy of PAN./CIN No. of the Company</td>
<td></td>
</tr>
<tr>
<td>06*</td>
<td>Authorized dealer Certificate from Manufacturer (if applicable)</td>
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</tr>
<tr>
<td>07*</td>
<td>Lists of clients with reference in minimum five firms with name, designation and contact details</td>
<td></td>
</tr>
<tr>
<td>08*</td>
<td>List of major laboratory equipment handled during last five years</td>
<td></td>
</tr>
<tr>
<td>09*</td>
<td>List of offices/branches in India, with address and contact details, email ID</td>
<td></td>
</tr>
<tr>
<td>10*</td>
<td>Contact Person Mobile No. &amp; Land Line</td>
<td></td>
</tr>
<tr>
<td>11*</td>
<td>OEM Authorization</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Willingness to participate in pre-bidding meeting (online/offline) if invited</td>
<td></td>
</tr>
</tbody>
</table>

* relevant document/st should be attached in chronological order and each document must be signed by authorised person with office stamp.

Signature of the authorized person (Tenderer)
(Name and designation)
Office stamp