

EXPRESSION OF INTEREST

Expression of Interest for engagement of agency for supply, installation and maintenance of sensors for Instrumentation for real-time measurement of various parameters on the Elevated Track over viaduct at Rohtak

EXPRESSION OF INTEREST (EOI)

For

1.0 Background:

India has 65000 km railway network across the country, forming its lifeline. This is the fourth largest network in the world. This network involves routes and trails through a widely varying terrain across the country and therefore intersected by rivers, waterways, mountains, gorges and even sea. A number of bridges are constructed for laying of the rail track amidst such terrain. The building of infrastructure was initiated around 1850 and continues till date with increasing addition of new routes.

The Elevated Track over viaduct (ballasted viaduct bridge) at Rohtak is located at Rohtak in LWR Zone-IV in Northern Railway. The gauge consists of broad gauge (1676 mm). Double track viaduct is supported on two independent piers but on single pile group between Rohtak-Gohana section. Rail-structure interaction (RSI) is an important aspect for such bridges. Based on RDSO requirements, validation of RSI analysis done on LWR/CWR when they are continued on bridges. The purpose of this project is to instrument the bridge through modern reliable sensors and data acquisition system for measuring and analyzing the bridges from longitudinal forces generated due to moving loads and also to measure the rotations/deflection of the structure and the additional stresses generated in rails due to continuation of LWR/CWR on bridges.

2.0 Purpose and service outcomes of the assignment:

2.1 The scheme of instrumentation along with the salient features are as follows:

- ✓ The static, dynamic and long-term monitoring of the identified bridge spans need to be carried out. During dynamic test, response under various speeds, under tractive effort and braking will be evaluated.
- ✓ The field investigations related to static and dynamic loading will be carried out by using the full test train formation of CC+8+2 tons of loading/25T.
- ✓ During long term monitoring, rail and bridge responses during movement of different types of trains will be carried out for a period of **two years**.

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- ✓ The response of interests is mainly strain/stress, displacement, rotation and acceleration of the structure with temperature variations and various loading conditions.
- ✓ Since both short-term investigations and long-term monitoring will be carried out, the project will be implemented in **two-three phases**.
- ✓ Instrumentation schemes and testing/measurement protocols for phase I and phase II/III are to be developed based on the requirement, site condition and other considerations.
- ✓ A separate small room with lighting, AC, and internet facilities will be provided for hosting servers etc at one location for short- and long-term monitoring studies.

2.2 The complete Instrumentation System will be installed as per the design provided by IIT Kanpur. The sensors data will be acquired by dedicated data acquisition systems of internationally reputed make and hosted in fast reliable server (connected to internet) at site.

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2.4 **Data storage and availability of extracted parameters:**

The following system will be developed for the storage and access of the collected data, and for the access of different important parameters extracted from the data:

- The collected data would need to be transferred to a server located in a room and should be available on internet through a secured connection.
- Data acquisition system will cater for collecting data from various sensors in a synchronized manner.

3.0 **Scope of Work**

The scope of this assignment will thus be as follows:

3.1 **Design of sensor connections and data transfer from sensor to DAQs to the Server.**

This will involve the connection design to transfer the data from various sensors to DAQs and then from the DAQs to the Server. The number of each type of sensors and their locations on the bridge are provided in this document (**Appendix A**)

3.2 **Procurement of sensors and related hardware**

Sensors and hardware will be procured from internationally reputed suppliers ensuring robust and reliable quality of sensors.

3.3 **Installation of sensors at the site and configuration of network**

Senor installation and configuration of hardware will be carried out.

3.4 Continuous maintenance and theft protection of the installed sensors/equipment, wires and cables for three years.

3.5 Replacement of any damaged or missing sensors/ equipment, wires and cables for three years.

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4.0 Schedule for completing the assignment:

The time period for completing the supply and installation shall be as follows:

S. No.	Activity	Time (Months)
1	Instrumentation Procurement	1
2	Installation and setup	1

After the certification of installation and setup, proper functioning of all the installed sensors and equipment should be ensured for three years.

5.0 Expected minimum requirement of expertise with the agency:

The agency should have expertise in dealing with the sensitive instrumentations.

6.0 Schedule of deliverables and period of performance:

Same as 4.0

7.0 Background material, data, reports and record of previous surveys and so on, available and to be provided to the agency:

All the required design data for the procurement and installation shall be finalized by the agency in consultation with the IIT Kanpur.

8.0 Facilities such as local conveyance, office space, office machines, secretarial assistance, utilities, local services, etc., which would be provided to the agency by the procuring entity:

A room at the site (2km long multi-span bridge) would be available during the installation for storage of sensors, cable etc. The required office space for the monitoring period of two and half years will have to in the same room.

9.0 Institutional and organisational arrangement:

The company should be an established one with at least 10 years of experience in instrumentation and should have an office near the region for at least 10 years.

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10.0 Procedure for review of the work of consultant after award of contract:

Consultant should update the work progress every week during the procurement and installation and as and when required by IITK.

11.0 Contact Information:

Samit Ray Chaudhuri, Ph.D.
Professor,
Department of Civil Engineering
Indian Institute of Technology (IIT), Kanpur
UP-208016, India
Email: samitrc@iitk.ac.in

No telephonic queries will be entertained. Only written or email queries will be entertained.

Applicants will submit their applications with all relevant enclosures in the prescribed format in sealed cover clearly marked " **EoI for Viaduct monitoring**", so as to reach **Prof. Samit Ray Chaudhuri, Dept. of Civil Engineering, IIT Kanpur, UP – 208016**, on or before **15:00 hours on August 02, 2021** at the above address. Any delay on account of courier/post etc. shall not be entertained by the Institute.

12.0 DOCUMENT PROCESSING FEES

The EOI document must be submitted along with processing fees of **Rs. 5900 (Rs five thousand Nine hundred only) (5000/- + 18% GST)** in the form of demand draft drawn on a nationalised bank in favour of "Registrar IIT Kanpur" payable at Kanpur.

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13.0 HOW TO APPLY

The documents as listed below (but not limited to) should be submitted in two respective sealed envelopes, clearly marked on the envelope its contents, as given below.

Envelope 1:-

Demand Draft towards document processing fees.

Envelope 2:-

- a) Covering letter as well as Authority letter as per Annexure 1
- b) Affidavit for registration of firm/company as per Annexure 2
- c) An undertaking of not being black listed as per Annexure 3
- d) Organization structure as per Annexure 4
- e) Details of In-house services as per Annexure 5
- f) Details of Associates/ Consultants as per Annexure 6
- g) Brief bio-Data of Key professionals as per Annexure 7
- h) The copies of valid registration/incorporation certificate of the firm(s) along with the copies of relevant documents.
- i) The document establishing that the applicant has a work experience of more than **ten (10)** years in the related field. At least one such work should be with the Indian Railways. The details be submitted as per Annexure 8
- j) The applicant shall attach work experience certificates of the works completed as per the requirement of minimum qualification criteria. The details be submitted as per Annexure 9.
- k) Copy of the audited balance sheet for the last three (3) financial years starting 2019 – 2021. The details be submitted as per Annexure 10.
- l) Income tax returns of last three (3) financial years i.e. 2018 – 2020 certified by a chartered accountant.

Please note:

13.1 Incorrect, incomplete, inadequate information may lead to rejection of the application. Canvassing in any form may lead to summarily rejection of application.

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13.2 Applicants shall submit self-attested copies of certificates, work orders, appointment letters, agreements, references etc. as proof of eligibility.

13.3 IIT Kanpur reserves the right to reject any application without disclosing the reasons.

13.4 IIT Kanpur also will not provide any explanation to the applicants related to the short listing and selection process. The decision of IIT Kanpur in this respect shall be final and binding on all applicants.

14.0 Validity of EoI

The EoI shall be valid for 60 days from the date of submission.

15.0 **Pre-Bid Meeting:** A pre-bid meeting shall be held on **July 27, 2021 at 12:00 Hours** in the Conference Room, PBCEC, Visitors' Hostel, IIT Kanpur campus.

16.0 Opening of EoI

The EoI document will be opened on **August 02, 2021 at 15:30 hours** in the presence of the representatives of the applicant, carrying authorization letter for the purpose. A maximum of two representatives will be allowed to attend.

17.0 ELIGIBILITY CRITERIA

17.1 Technical criteria

- (a) The applicant should be an organization engaged in the related field of work. A minimum of **10 years** of experience is mandatory.
- (b) The applicant must have completed a similar nature work as per the defined scope of work mentioned under para 3.0. during the last 10 years ending March 2021.
- (c) The Applicant should have experience of execution of similar projects in Indian Railways and should submit the related credentials.

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17.2 Financial criteria

- (a) The applicant must be a profit-making organisation continuously for last three years ending March 2021.
- (b) The applicant must have an average annual turnover of Rs 1.85 crores in the previous 3 years ending March 2021.

17.3 The applicant who is barred or black listed by any Central/State Government in India or road will not be eligible for qualification.

17.4 Even though an applicant may satisfy the above requirements, he/she would be liable to disqualification if he/she has:

- i. Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the prequalification document.
- ii. Record of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.

17.5 The institute reserves the right to shortlisting of the agencies, subject to thorough verification of their credential and inspection of similar nature works carried out / in progress by them, through a Technical Committee of experts to be constituted by IIT Kanpur

17.6 Persons who are individually or institutionally, in any manner, involved with the selection/ screening process of the EoI and employees of IIT Kanpur, are ineligible for applying.

17.7 Joint venture will not be permitted in this tender.

17.8 In case of partnership firm, the work experience, turn over and solvency shall be in the name of partnership firm only.

18 SELECTION PROCEDURE OF AGENCY

Two Stage Selection Process shall be carried out for the finalization of the agency by the Institute.

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The two stages are described briefly as under:

Stage	Description
Stage 1	EoI: Applicants, who will submit EoI application as per the prescribed Proforma (Annexure 1) along with Annexures 2 to 10, will be qualified on the basis of the criteria for qualification as laid in para 17 (ELIGIBILITY CRITERIA) of this document and elsewhere.
Stage 2	RFP :- All applicants, who will be qualified based on the eligibility criteria, will be issued the request for proposal (RFP). At this stage, the evaluation of the applicant shall be based on the response of the RFP and presentation before the Institute committee. It will follow the two-tier system, separate evaluation of technical proposal and financial bid, and the weightage for the same will be 65:35, respectively. The following broad detail will have to be submitted by the applicant as part of the RFP <ul style="list-style-type: none">• Approach to design including drawings, sketches, diagrams and any other information that can concisely and yet comprehensively explain the applicant’s design concept and approach.• The technical submission would be analysed on the following parameters:<ul style="list-style-type: none">○ Firm’s specific experience○ Methodology○ Adaptability to site and response to context○ Qualification and relevant experience of Key staff

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	<ul style="list-style-type: none">• Depending on the marks obtained in the technical evaluation of the RFP, a merit list will be generated for applicants.• A maximum of top five applicants of the technical evaluation will be invited for opening of their financial bids.• A composite score will be worked out considering the technical and financial scores. Based on this composite score, the work will be awarded to the applicant who scores the highest.
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19 Annexure

All Annexures from 1 to 10 are to be filled, signed and executed by all the applicants. No blank is to be left empty. In case the blank is not applicable, then that is to be mentioned as “NOT APPLICABLE”.

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Annexure 1

Format of Letter of Expression of Interest

[On Company's/Firm's letterhead]

Reference:

Date:

Department of Civil Engineering
Indian Institute of Technology Kanpur, 208016, India

SUBMISSION OF EXPRESSION OF INTEREST

for engagement of agency for supply, installation and maintenance of sensors for Instrumentation for real-time measurement of various parameters on the Elevated Track over viaduct at Rohtak

Dear Sir

We hereby submit our expression of interest for services as explained in the Invitation for Expression of Interest for the aforementioned project. In support we submit all the necessary information and relevant documents for our participation in the procedure for shortlisting of applicants as a part of the selection process.

The submission is made by us, on behalf of In the capacity of duly authorized to submit the expression of interest.

We hereby submit our willingness to get shortlisted for our participation in the process for identifying the Consultant.

We understand that IIT Kanpur reserves the right to reject the submission, without assigning any reason.

Yours faithfully,

Signature of Applicant:

Name of Signatory:

Designation:

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Name and address of firm:

Contact number:

Fax:

Email:

Enclosures:

Copy of Board Resolution/ Power of Attorney or Authority letter authorizing the representative to sign on behalf of the Company/firm as the case may be.

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Annexure 2

TO BE SWORN ON A NON-JUDICIAL STAMP PAPER OF RS.100/-

AFFADAVIT

*I/we*Director/Proprietor/Partner of(mention name of organization and its complete address) do hereby solemnly affirm and declare as under:-

1. That *I/we *am/are registered as (mention name of *firm/company) vide Registration No..... under the provisions of (Mention the name of the Act).

2. That *I/we have applied in response to the Invitation for Expression of Interest-----, IITK Kanpur for engagement of agency for supply, installation and maintenance of sensors for Instrumentation for real-time measurement of various parameters on the Elevated Track over viaduct at Rohtak

DEPONENT VERIFICATION

I/we the above-named deponent do hereby verify that the contents of the aforesaid paragraphs 1 and 2 are true and correct to the best of *my/our knowledge and belief and nothing is concealed therefrom.

Verified at(place) this Day of 2021

(Strike off whichever is not applicable)

DEPONENT

Note: Deponent will be the authorized signatory of the Applicant

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Annexure 3

TO BE SWORN ON A NON-JUDICIAL STAMP PAPER OF RS.100/-

AFFADAVIT

*I/we*Director/Proprietor/Partner of(mention name of organization and its complete address) do hereby solemnly affirm and declare as under:-

1. That (Mention name of organization) is eligible to submit the aforesaid proposal as neither the applicant has been barred and/or blacklisted by the Central Government and/or any State Government of India at any time prior to the date of submitting this affidavit.

2. That (mention name of organization) or any of its constituents during the last three years has neither failed to perform on any agreement nor was expelled from any project or agreement nor any agreement terminated for any breach by the applicants or any of its constituents.

3. That an annexure attached to this affidavit gives list of all contracts of (mention organization) or any of its constituents with the state / central government that are in arbitration.

DEPONENT

VERIFICATION

*I/we the above-named deponent do hereby verify that the contents of the aforesaid paragraphs 1 to 3 are true and correct to the best of *my/our knowledge and belief and nothing is concealed therefrom.

Verified at (place) this Day of 20.....

(Strike off whichever is not applicable)

DEPONENT

Note: Deponent will be the authorized signatory of the Applicant

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Annexure 4

Pro forma: ORGANISATIONAL STRUCTURE

(This form to be furnished not only by the Prime Consulting firm applying for the prequalification, but also furnish separately for sub-consultants who would be associated with this project work)

1	Name & Address of the applicant with Telephone No./Fax No./ Email ID	
2	a. Year of Establishment b. Date & Year of commencement of practice.	
3	Legal status of the applicant (attach copies of original document defining the legal status) A proprietary firm A firm in partnership A limited company or Corporation	
4	Names of Directors & other executives with designation	
5	Designation of individuals authorized to act for the organization	
6	Total No. of professional staff (In house):-	
7	Was the applicant ever required to suspend the project for a period of more than six months continuously after you commenced the planning? If so, give the name of the project and reasons of suspension of project.	
8	Has the applicant, or any partner in case of partnership firm, ever abandoned the awarded project before its completion? If so, give name of the project and reasons for abandonment.	
9	Has the applicant or any constituent partner in case of partnership firm, ever been debarred/black listed for competing in any organization at any time? If so, give details.	

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10	Has the applicant or any constituent partner in case of partnership firm, ever been convicted by a court of law? If so, give details.	
11	In which field of work the applicant has specialization & interest	
12	Any other information considered necessary but not included above.	
13	Address of local office if any	

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Annexure 5

DETAILS OF IN HOUSE SERVICES AVAILABLE FOR THE ASSIGNMENTS

S.No.	In-house Service	Availability of Services	Nos. of In-house Staff with experience		
			Experience of 10 years & above	Experience of 5 -10 years	Experience of less than 5 years
1		Yes/No			
2		Yes/No			
3		Yes/No			
4		Yes/No			
5		Yes/No			
6		Yes/No			
7		Yes/No			
8		Yes/No			
9		Yes/No			
10		Yes/No			
11		Yes/No			
12		Yes/No			
13		Yes/No	Numbers Available		
		Yes/No			
		Yes/No			
		Yes/No			
		Yes/No			

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14	Licensed Software's available (to be mentioned)	Yes/No			

Note:

Maximum two-page CV of each main member and key expert shall be furnished as per Annexure 7.

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Annexure 6A

TO BE SWORN ON A NON-JUDICIAL STAMP PAPER OF RS.100/-

AFFADAVIT

Details of Associates/Sub-Consultant

*I/we*Director/Proprietor/Partner of(mention name of organization and its complete address) do hereby solemnly affirm and declare that the following will be our consultants/associates for the said project – for engagement of agency for supply, installation and maintenance of sensors for Instrumentation for real-time measurement of various parameters on the Elevated Track over viaduct at Rohtak. I/we are aware of the fact that any change in the name of the consultant without taking approval of IIT Kanpur may lead to termination of contract.

Details of the sub-consultants/Associates

S.No.	Proposed Associate for	Sub-Consultant	Name & Address	Years of Experience	Years of Association with the Prime Applicant
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					

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12				
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Signature of Applicant:

Name of Signatory:

Designation:

Name and address of firm:

Contact number:

Fax:

Email:

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Annexure 7

Brief Bio-Data of Key Professionals

(This form to be furnished not only by the principal member of the firm applying for the prequalification, but also furnish separately for sub-consultants who would be associated with this project work)

Name of Firm: _____

Professional: _____

Date of Birth: _____

Years with Firm: _____

Nationality: _____

Membership in Professional Societies: _____

Detailed Task Assigned: _____

Key Qualifications: [Give an outline of staff member's experience and training relevant to responsibility in context of assignment. Describe degree of responsibility held by staff member on relevant previous assignment and give dates and location. Use up to half a page.]

Education: [Summarize college/university and other specialized education of staff member, giving names of schools, dates attended and degree(s) obtained. Use up to a quarter page.]

Employment Record: [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, name(s) of employing organization(s), title of positions held and location of assignments. For experience in last ten years, also give type of activities performed and client references, where appropriate. Use up to three quarter of a page.]

Languages: [Indicate proficiency in speaking, reading and writing of English language: excellent, good, fair, or poor.]

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these biodatas correctly describe my qualifications, my experience and myself.

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Annexure 8

DETAILS OF QUALIFYING PROJECTS HANDLED/COMPLETED DURING THE LAST TEN (10) YEARS.

SIMILAR NATURE OF ASSIGNMENT – COMPLETED WORKS				
S.No.	Description	Work No.1	Work No. 2	Work No. 3
1	Name of work / Project and location			
2	Name & Address of Employer / Organization, Telephone no. of officer to whom reference may be made.			
3	Cost of work in Rs. Lakhs (Attach copy of Work Order) and the Site Area			
4	Date of commencement as per contract			
5	Stipulated date of completion			
6	Actual date of completion			
7	Litigation / arbitration pending / in progress with details *			
8	Service rendered			
	In-house teams			
	Associated Consultants			
9	Names of Project In charge & Key staff & nos. of staff involved.			

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10	Any other information			
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* Indicate gross amount claimed and amount awarded by the Arbitrator.

At least one work should be with the Indian Railways.

The Applicant may provide in this annexure, details of maximum 3 projects, which in his/her opinion, best present his/her ability to do justice to this Design (qualifying project referring to the project)

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Annexure 9

CLIENT WISE PERFORMANCE REPORT OF WORKS

1	Name of work/Project & Location	
2	Agreement No.	
3	Estimated Cost	
4	Tendered Cost	
5	Date of start	
6	Date of completion	
	Stipulated date of completion	
	Actual date of completion	
7	Amount of compensation levied for delayed completion, if any	
8	Amount of reduced rate items, if any	
9	Performance Report	
	Quality of work	Very Good/Good/Fair/Poor
	Financial soundness	Very Good / Good / Fair / Poor
	Technical Proficiency	Very Good / Good / Fair / Poor
	Resourcefulness	Very Good / Good / Fair / Poor
	General Approach & Behaviour	Very Good / Good / Fair / Poor

Dated:

Signature & Seal of

Executive engineer or equivalent

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Annexure 10

AVERAGE ANNUAL FINANCIAL TURN OVER (GROSS) OF LAST THREE FINANCIAL YEARS

Financial Analysis –

Details to be furnished duly supported by figures in balance sheet/profit and loss account for the last three FINANCIAL years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (copies to be attached).

Particulars	Financial Year		
	Year 2018-19	Year 2019-20	Year 2020-21
Gross Annual turnover on construction work. (In Lakhs)			
Profit / Loss			
Certified by			

Financial arrangements for carrying out the proposed work.

The following certificates are enclosed:

Current Income Tax Clearance Certificate / Profit & Loss account

Signature of Chartered Accountant with Seal