Sub: RFP for Construction of Two-Lane Bridge across Agardanda Creek with approaches Connecting Tokekhar Tq. Murud and Turumbadi Tq. Mhasala in Raigad District on Revas-Redi Coastal Highway (MSH-04) in the State of Maharashtra on EPC Mode

Common Set of Deviation (CSD-III)

E-Tender Notice No T-2722 (2023-24) dated 23.01.2024

<table>
<tr><th>Sr. No.</th><th>Document / Volume Name</th><th>Section/ Article</th><th>Existing Para/CSD/Clause Written as to be</th><th>To be read as</th></tr>
<tr><td>1.</td><td>Volume-I ITB</td><td>CSD for 2.2.2.2 Technical Capacity (ii) Page No.21 For Normal Highway projects (including Major Bridges / ROB / Flyovers / Tunnels)</td><td>Applicant should have completed one bridge over Creek /Perennial River of minimum 3500 m length having 4 lane/ 2 lane carriageway amounting not less than Rs 650 Cr. (INR. Six hundred Fifty Crore) in last 10 years updated to CSR.

AND

Applicant should have completed one Cable stayed Bridge having 4 lane/ 2 lane carriageway with Minimum obligatory span of 100m in last 10 years from due date of submission.

The length of bridge shall be calculated as per the factor given below
<table><tr><th>Sr. No</th><th>No. of lanes for project for completed Bridge</th><th>Factor</th></tr><tr><td>1</td><td>Two lanes</td><td>1.00</td></tr><tr><td>2</td><td>Four lanes</td><td>2.00</td></tr></table></td><td>Applicant should have completed one bridge work over Creek/Sea/Perennial River of minimum 3500 m length having 4 lane/ 2 lane carriageway amounting not less than Rs 650 Cr. (INR. Six hundred Fifty Crore) in last 10 years updated to CSR.
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2.	Volume III, Technical schedule	Schedule C, page no. 56 clause 9.3.8.4	**9.3.8.4 Traversing Type Corrosion Inhibiting (TTCI) powder additive** All grades of Concrete shall be added with Traversing Type Corrosion Inhibiting (TTCI) powder additive at the dosage of 0.5 kg per cubic meter of concrete. The (TTCI) additive shall be confirm to the following specifications: 1. The TTCI shall be tested as per ASTM G 109 for at least 20 cycles with negligible charge passed. 2. Corrosion reduction by Tafel polarization (ASTM G59): At least 85% inhibition efficiency. 3. The inhibitor shall form corrosion inhibitive, molecular film in vapour phase. 4. The typical minimum bond energy of this film (analyzed by X-ray Photoelectron Spectroscopy (XPS)) shall be as follows: a. (Fe-N): >350 eV b. (Fe-Ca): >320 eV c. (Fe-O): >450 eV 5. It shall be of bipolar corrosion inhibition type. 6. Vapour Inhibiting Ability Test (NACE TMO 208) result shall be Grade 4 (excellent corrosion protection effect) The TTCI additive powder shall be test from Institute of Chemical Technology- Mumbai or IIT Bombay for all above	**9.3.8.4 Corrosion Inhibitor** For all foundations, buried concrete and concrete in every part, bipolar, migrating, non-nitrite based concrete penetrating corrosion inhibiting admixture shall be added at a dose of 3 kgs per cum of concrete. The admixture should be accredited by Indian Roads Congress, enlisted in Engineers India Limited list of approved products and have a 4-year track record of supply and use in the Gulf Region or areas having similar corrosive environments. The admixture shall also have evaluated test reports demonstrating a corrosion rate of zero coulombs after 45 test cycles as per ASTM G-109-2005 when tested from any one of the internationally ranked among the following top 4 research institutions in the world in Annual Survey conducted by Georgia Institute of Technology on Ranking of Research Institutions: 1. Massachusetts Institute of Technology (MIT), USA 2. Delaware University, USA 3. Georgia Institute of Technology, USA 4. Institute of Chemical Technology, India Further, admixture must indicate significant reduction in corrosion after accelerated corrosion test based on JIS Z 1535 and must have undergone long term

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TTCI additive shall not affect any physical parameter of concrete, namely compressive strength, permeability and ISAT to ensure durability parameters of project specifications are adhered to. These tests, related to physical parameters of concrete shall be carried once at any approved NABL accredited lab during the course of project.
The contractor shall ensure the specified dosage of additive added in the concrete mix by reconciling the E-way bills with the concrete quantity executed.</td><td>performance tests as per ASTM G1 and ASTM G3, indicating negligible rebar weight loss of less than 5 mpy (mils per year) for both tests. pH of admixture should be alkaline in nature, specific gravity of 0.99 – 1.1. Admixture must not have any adverse effect on concrete compressive strength. The Contractor must intimate the Engineer in charge prior to addition in concrete for recording. If the admixture is put in the concrete mix at the batching plant, a written record of the amount of admixture used and the total mixing time shall be supplied to the Engineer. The Engineer must ensure the specified dosage of admixture added in concrete mix.</td></tr>
<tr><td>3</td><td>Volume III Schedule</td><td>Schedule H - Contract price weightages 1.3.2 page no 125 Payment procedure - Major Bridge works</td><td>Bridge works
Procedure for estimating the value of Major Bridge works shall be as stated in table 1.3.2:
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					determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of per foundation. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.			determined on pro rata basis with respect to the total linear length (m) of the Major Bridge. Payment against foundation shall be made on pro-rata basis on completion of per foundation. In case where load testing is required for foundation, the trigger of first payment shall include load testing also where specified.
			(2) Sub-structure	3.96%	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of per sub-structure upto abutment/pier cap level of the major bridge.	(2) Sub-structure	8.96%	(ii) Sub-Structure: Payment against Sub-structure shall be made on pro-rata basis on completion of per sub-structure upto abutment/pier cap level of the major bridge.
			(3) Super-structure (including	61.24%	(iii) Super-structure: Payment shall be made as below: 30% on Procurement of			

Sr. No.	Document / Volume Name	Section/ Article	Existing Para/CSD/Clause Written as to be			To be read as		
			bearings)		structural steel on Pro-rata basis 20% on Fabrication of structural steel on Pro-rata basis 35% on erection/ Launching of structure on Pro-rata basis 10% after final coat of paint on structural steel members on Pro-rata basis 5% on completion of Deck Slab including all required test	(3) Super-structure (including bearings)	56.24%	(iii) Super-structure: Payment shall be made as below: i) 60 % on launching of girder on prorate basis ii) 20% on casting of deck slab on Pro-rata basis iii) 10% on completion of all component of superstore with final coat of paint on super structure on Pro-rata basis iv) 10% on completion of testing of bridge and fixing of instrumentation equipment for monitoring of bridge structure.
			(4) Wearing Coat including expansion joints	1.61%	(iv) Wearing Coat: Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.	(4) Wearing	1.61%	(iv) Wearing Coat:
			(5) Miscellaneous Items (like crash barrier, Road marking, Decorative	1.09%	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all			

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			Street Lighting and High Mast, cast-in-situ brackets/ steel brackets on either side of the structures to carry the utility services as per detail design, Road Signages, Compensatory Afforestation, Bridge Lighting, Maintenance and Inspection Gallery, Plantation, Gantry, Painting of structure		respects as specified.	Coat including expansion joints		Payment shall be made on completion of wearing coat including expansion joints complete in all respects as specified.
			(6) Approaches	0.52%	vi) Approaches: Payment shall	(5) Miscellaneous Items (like crash barrier, Road marking, Decorative Street Lighting and High Mast, cast-in-situ brackets/ steel brackets on either side of the structures to carry the utility services as per detail design, Road Signages, Compensatory	1.10%	(v) Miscellaneous: Payments shall be made on completion of all miscellaneous works like hand rails, crash barriers, road markings etc. complete in all respects as specified.

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					be made on completion of approaches in all respects as specified.	Afforestation, Bridge Lighting, Maintenance and Inspection Gallery, Plantation, Gantry, Painting of structure		
						(6) Approaches	0.52%	vi) Approaches: Payment shall be made on completion of approaches in all respects as specified.
						Total	**100**	