I/3072128/2023

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 2022/C&IS/Project/Proposals/Umbrella 2022-23/7-Part(3) **New Delhi, Dated: 10.07.2023**

The General Manager,
Northern Railway, New Delhi.

Sub: Sanction of the work "Design, Development and Implementation of 4D Bridge Information Modelling (4D BrIM) Application for Railway Bridges and its integration with the Bridge Management System".

Ref: Northern Railway's letter No. 198-W/e-Gov/TMS/BMS/Estimate/Pt-1 dated 02.02.2023.

Approval of Board (M/O&BD, Member/Finance and Chairman & CEO) is hereby communicated for the work "**Design, Development and Implementation of 4D Bridge Information Modelling (4D BrIM) Application for Railway Bridges and its integration with the Bridge Management System**" of Northern Railway at a cost of Rs. 9.60 Crore (Rupees Nine Crore and Sixty Lakh only) chargeable to allocation "CAPITAL" under the sanctioned Umbrella 'Information Technology Projects on Indian Railways - Umbrella work 2022-23' (Pink Book Item No. 264 of 2023-24 under Northern Railway). Item-wise break-up of cost of the work is attached as 'Annexure'.

Following would need to be taken into account at the time of preparation/sanctioning of the Detailed Estimate of this work:

(a) **D&G charges may be taken as per Board's letter no. 2017/E&R/3(2)/1 dated 19.3.2018**

(b) **For works related to procurement of items, D&G charges may be deleted.**,

This issues with the concurrence of Finance Directorate of Ministry of Railways.

Signed by
Bharat Bhushan Harit
Date: 10-07-2023 16:13:33

(Bharat Bhushan Harit)
Joint Director/ME (C&IS)

No. 2022/C&IS/Project/Proposals/Umbrella 2022-23/7-Part(3) **New Delhi, Dated:10.07.2023**

Copy to:

1. **The Principal Financial Adviser, Northern Railway, New Delhi.**
2. **Principal Director of Audit, Northern Railway, New Delhi.**
3. **The Dy. Comptroller and Auditor General of India (Railways), Room No. – 224, Rail Bhawan, New Delhi.**

Signed by
Sanjay Kumar Singh
Date: 10-07-2023 16:37:09

For Member Finance

Copy to:

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1. **Chief Project Director/TMS, Northern Railway, New Delhi.**
2. **The Executive Director/CE(G), Railway Board, New Delhi.**
3. **Managing Director/CRIS, Chanakyapuri, New Delhi.**
4. **F(X)-II and Budget Branches of Railway Board.**

I/3072128/2023

Annexure

No. 2022/C&IS/Project/Proposals/Umbrella 2022-23/7-Part(3) **New Delhi, Dated:10.07.2023**

Break-up of cost of the work of "Design, Development and Implementation of 4D Bridge Information Modelling (4D BrIM) Application for Railway Bridges and its integration with the Bridge Management System"				
SN	**Item**	**Qty**	**Rate (Rs.)**	**Cost (Rs.)**
1	**Requirement Analysis, System Design & Deployment & Integration (Resources)**			
1.1	Principal Project Engineer	6	338759	2032554
1.2	Senior Project Engineer	18	326688	5880384
1.3	Asstt. Software Engineer	18	156215	2811870
1.4	Junior Software Engineer	8	141257	1130056
1.5	**Design, Development, Implementation and Integration of 4D Bridge Information Modelling (4D BrIM) with the Bridge Management System**			
1.5(a)	Requirement Analysis, Design, Development, Supply, preparing FRS and SRS, Installation and commissioning of web based IR-4DBrIMAP Application source code along with Sandbox Testing and Release on production servers. The rates also includes setting up of Production Environment viz. Including installation and commission on IT Infrastructure, Network Configuration, Operating System Set Up, Installation and configuration of required system-software components, 3D capability integration, support to CRIS data centre team as well as configuration of Central Repository Servers. The rate also includes integration of web based 4D BrIMAP application with the existing BMS Application.	1	19500000	19500000
1.5(b)	Validation of 4D BrIMAP solution through real life data collection and processing of Railway Bridges; including data capture using RTK drones, RCB Camera, LiDAR Camera and other equipment as required, post-processing of data (including video data processing, image data photogrammetry processing, Imagery Data 3D Reality Model Processing, High Resolution Geotagged Imagery for inspection). Creation of Orthomosaic, 3D Models of the bridge, analysis and measurements using engineering tools and software like Bentley's Context Capture or similar and uploading on the 4D BrIMAP Application hosted on CRIS production servers.	1500	2570	3855000
1.5(c)	Post deployment coverage such as Hand Holding by skilled software manpower deployment for customization i.e., revision to UI etc. that doesn't necessitate fundamental charges to the original application, support and technology transfer to CRIS technical team. This item also includes training for the CRIS Team as "Trained the Trainer" concept to the satisfaction of CRIS so as to enable CRIS Team to customize the 4D BrIMAP Application as and when required by Railways.	12	185000	2220000

1.5(d)	Training for the Railway users for effective field utilization of 4D BrIMAP Application Dashboard and its functionalities. Further, different methods of dataset collection and its processing at field level as per pre-defined standards/guidelines by Railways/RDSO would also be covered during training sessions.	75	22000	1650000
	Total (1)			**39079864**
2	**Skills Development**	**0**	**0**	**0**
3	**System Software**			
3.1	SSL Certificate	2	19097	38194
3.2	Application Servers Software Licenses	1120	8714	9759680
3.3	Database Server - RDBMS Software Licenses	16	480611	7689776
	Total (3)			**17487650**
4	Hardware Systems			
4.1	CRIS Private Cloud Infrastructure as a service (IaaS)	1	16405128	16405128
	Total (4)			**16405128**
5	**Network Equipment/Infrastructure Costs (FOIS/UTN, RCIL, open to Internet Option)**			
5.1	Internet Bandwidth (bursting upto twice the capacity) with DDoS Protection Services for 3 years	32	11001	352032
	Total (5)			**352032**
6	**Project Management (Establishment)**			
6.1	GM Cost	1	396390	396390
6.2	Manager/Dy. Manager	1	195655	195655
6.3	Project Asstt.	1	37000	37000
	Total (6)			**629045**
7	**Total (1 to 6)**			**73953719**
8	CRIS Charges (@10%)			7395371.90
9	**Total (7 + 8)**			**81349090.90**
10	**GST @18% of (9)**			**14642836.36**
11	**Grand Total (9 + 10)**			**95991927.26**
	Rounded Off			**Rs. 9.60 Crore**