MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
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Website: http//www.mmrda.maharashtra.gov.in

(For Upload purpose only)

STANDARD SET OF DEVIATIONS- Corrigendum-XIII

(To be an Integral Part of RFP)

Tender No : MMRDA/IT/0002697

Name of Tender : Request for Proposal for Appointment of Master System Integrator for Supply, Implementation & Support of Digital Project Management Platform including 5D-BIM, ERP, GIS, CDE and Analytics for Projects of MMRDA**.**

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
1.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **Performance Bank Guarantee** Page No. 23	**10% of the Contract Value** to be submitted within 15 days from the date of issue of a letter accepting the offer of assignment.	**3% of the Contract Value** to be submitted within 15 days from the date of issue of the letter accepting the offer of assignment
2.	Volume 1 – Definition and Abbreviations	New Clause Point no 42 page no 12	**Definition of Experience: The project which are in execution/ executed with certain Work Order value will be considered for Experience for the Project.** **The Project which are executed as a Proof of Concept (POC)/ pilot of unpaid value will not be considered under experience for the Project.**
3.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary B. ELIGIBILITY CRITERIA – For Sole Bidder /JVConsortium Point B, Sr. No. 1, Page no. 24	The Sole Bidder/ all members in case of Joint Venture/ Consortium shall be Registered Companies/ Proprietorship Firms/ Partnership Firms/ Limited Liability Partnerships nationally or globally. The sole Bidder/ Lead Bidder in case of JV/Consortium shall be in existence for a minimum period of 10 years prior to the last date of submission of bid and JV/Consortium members shall be in existence for a minimum period of **5 years** prior to the last date of submission of bid	The Sole Bidder/ all members in case of Joint Venture/ Consortium shall be Registered Companies/ Proprietorship Firms/ Partnership Firms/ Limited Liability Partnerships nationally or globally. The sole Bidder/ Lead Bidder in case of JV/Consortium shall be in existence for a minimum period of 10 years prior to the last date of submission of bid and JV/Consortium members shall be in existence for a minimum period of **7 years** prior to the last date of submission of bid.

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4.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 2,** Page no. 24	The Sole Bidder /Lead Bidder in case of Joint Venture/Consortium shall have been in Continuous Operation for a minimum period of 10 years prior to the last date of submission of bid. In case of JV/Consortium the other members shall have been in Continuous Operation for a minimum period of 5 years, prior to the last date of submission of bid.	The Sole Bidder/ Lead Bidder in case of Joint Venture/ Consortium shall have been in **Continuous Business Operation in IT/ ITES Services for a minimum period of 10 years with minimum 100 (One Hundred) manpower resources on its payroll in previous audited Financial Year (2020-21)** prior to the last date of submission of bid. In case of **JV/ Consortium the other members** shall have been in **Continuous Business Operation for a minimum period of 7 years** in IT/ ITES Services as on the date of submission of bid. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA*** ***Definition of IT Project/ Program management: The firm should have experience in project/ program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project***
5.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 3,** Page no. 25	Sole Bidder / **Lead Bidder and all members** in case of Joint Venture/ Consortium shall have a positive Net Worth (the “Financial Capacity”) for previous financial year 2020-21. **Document Proof:** • Statutory auditor certificate of Bidder specifying the Net Worth for the specified period • Kindly refer Appendix F-17	**Please Read as:** Sole Bidder/ **Lead Bidder** in case of Joint Venture/ Consortium shall have a positive Net Worth (the “Financial Capacity”) for previous financial year 2020-21. **Document Proof:** • Statutory auditor/ **Chartered Accountant certificate** of Bidder/ all the member of the Consortium specifying the Net Worth for the specified period • Kindly refer Appendix F-17

6.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION
	2.2 RFP Summary
	B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium
	Point B, Sr. No. 4, page no. 25
		Average Annual Turnover of INR. **100 Crores (Rupees One Hundred Crore only)** in the last 3 (three) financial years 2018-19, 2019-20, 2020-21 from IT / ITES Services.
		Document Proof:
		• Audited Financial Statement for Financial years 2018-19, 2019-20, 2020-21,
		• Statutory auditor’s certificate of the Bidder clearly specifying the Annual Turnover for the specified years
		• Kindly refer Appendix F-16
			Please Read as:
			Average Annual Turnover of **INR 100 Crores (Rupees One Hundred Crore only)** in the last 3 (three) financial years 2018-19, 2019-20, 2020-21 from IT/ ITES Services.
			• **Case 1: Sole Bidder: >= INR 100 CR**
			• **Case 2: Lead Bidder+P1**
			  ○ **Lead Bidder >=INR 75 CR**
			  ○ **P1 >=INR 25 CR**
			• **Case 3: Lead Bidder+P1+P2**
			  ○ **Lead Bidder >=INR 75 CR**
			  ○ **P1+P2>=INR 25 CR, where P1>= INR 5 Crs & P2>= INR 5 Crs**
			Sole Bidder
			Document Proof:

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
			• Audited Financial Statement for Financial years 2018-19, 2019-20, 2020-21, • Statutory auditor's/ **Chartered Accountant Certificate** of the Bidder clearly specifying the Annual Turnover for the specified years • Kindly refer Appendix F-16
7.	Volume 1 - Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 5, page no. 25 & 26**	The Sole Bidder / Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed **IT application Project** with minimum value of INR 50 crores in the last **7 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization** in India or Globally. *[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* **Sole bidder / Lead Bidder in case of Consortium:** Must meet criteria – 1 Similar Project >= 50 INR CR OR 2 Similar Projects>= INR 30 CR each OR 3 Similar Projects>= INR 25 CR each **Document Proof:** Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder Kindly refer Appendix F-18 & 19	**Please Read as**: The Sole Bidder/ Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed **one project comprising of IT application and Project/ Program Management** with minimum value of INR 50 crores **or as stated below** in the last **10 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21)** in India or Globally as on date of submission of bid. *[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* **Sole bidder / Lead Bidder in case of Consortium:** Must meet criteria – 1 Similar Project >= 50 INR CR OR 2 Similar Projects>= INR 30 CR each OR 3 Similar Projects>= INR 25 CR each **Document Proof:** Work Order/ Client Experience Certificate/ **Go-Live Certificate**/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder Kindly refer Appendix F-18 & 19. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA*** ***Definition of IT Project/ Program management – the firm should have experience in project/ program management having a team of IT/ITES***

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
			professional with required skill sets and have demonstrated successful implementation in similar project
8.	Volume 1- Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 6, page no. 26 & 27**	The Sole Bidder or any member in case of Joint Venture/ Consortium shall have the experience of having implemented ERP solution projects worth INR 20 Crore in India in the last **7 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization** in India or Globally. At least one project shown above should necessarily be for the organization who are into Infrastructure sector (Road / Bridges/ Railway / Metro Rail/ City Development/ utilities) in India. *[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* ***Sole Bidder:*** 1 Similar Project >= 20 INR CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each ***Lead Bidder or any member of the Consortium*** 1 Similar Project >= INR 20 CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each **Document Proof:** • **Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder** • Kindly refer Appendix F-18 & 19	**Please Read as**: The Sole Bidder or any member in case of Joint Venture/ Consortium shall have the experience of having implemented **Enterprise Resource Planning** (ERP) solution projects worth INR 20 Crore in India in the last **10 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21)** in India or Globally as on date of submission of bid. At least one project shown above should necessarily be for the organization who are into Infrastructure sector (Metro Rail / Railway /Road / Bridges /Flyover/ Real Estate/ **City Development/ Utilities**) in India. *[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* ***Sole Bidder:*** 1 Similar Project >= 20 INR CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each ***Lead Bidder or any member of the Consortium*** 1 Similar Project >= INR 20 CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each **Document Proof:** • **Work Order/ Client Experience Certificate/ <u>Go-Live Certificate from Client/</u> Other Supporting documents to substantiate the experience shall be submitted by the Bidder** • Kindly refer Appendix F-18 & 19
9.	Volume 1- Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary	The Sole Bidder / any member of the JV/ Consortium shall have experience of 5D BIM Implementation for an infrastructure Development Sector including Rail & Metro/Road/ Water/ City Development/ Utilities project worth INR 2 crore value for **any Central & state Govt./ Semi Govt./ PSUs** in India or Globally in last 7 years as on Bid submission date.	**Please Read as**: The Sole Bidder / Lead Bidder in case of a JV/ Consortium shall have experience of 5D BIM Implementation **in the last 10 Years** for an infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ **City**

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
	B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium **Point B, Sr. No. 7, page no. 27 & 28**	*[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* **Document Proof:** • Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19	**Development/ Utilities**) worth **INR 2 crore** value for **any Central & state Govt./ Semi Govt./ PSU organization/ Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21)** in India or Globally as on date of submission of bid. *[For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]* ***Sole Bidder:*** 1 Similar Project >= INR 2 CR OR 2 Similar Projects>= INR 1.2 CR each OR 3 Similar Projects>= INR 1 CR each ***Lead Bidder or any member of the Consortium*** 1 Similar Project >= INR 2 CR OR 2 Similar Projects>= INR 1.2 CR each OR 3 Similar Projects>= INR 1 CR each **Document Proof:** • Work Order/ Client Experience Certificate/ **Go-Live Certificate from Client/** Other Supporting documents to substantiate the experience shall be submitted by the Bidder. • Kindly refer Appendix F-18&19
10.	Volume 1- Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 8, page no. 28 & 29**	The Sole Bidder / any member of the Joint Venture / Consortium shall have experience of integration of engineering data with ERP, BIM, Business Analytics and GIS Systems for infrastructure Development Sector including Rail & Metro/ Road/ Water/ City Development/ Utilities for **any Central & State Govt./ Semi Govt./ PSUs** in India or Globally in the last 7 years as on Bid submission date. **Document Proof:** • Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19	**Please Read as**: The Sole Bidder/ any member of the Joint Venture/ Consortium shall have experience of integration of engineering data with any two of the following applications: a) BIM Implementation & Integration b) Business Analytics and AI c) GIS Systems d) ERP **In the last 10 Years** in infrastructure Development Sector including (Metro Rail/ Railway / Road / Bridges / Flyover/ Real Estate**/ City Development/ Utilities**) for **any Central & State Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last**

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
			3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid **Document Proof:** a) Work Order/ Client Experience Certificate/ Go-Live Certificate from Client/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder b) Kindly refer Appendix F-18&19
11.	Volume 1- Chapter 2 - RFP SUMMARY & KEY INFORMATION 2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 9, page no. 29**	**The Sole Bidder /Lead Bidder in case of Joint Venture/ Consortium members shall** have an **active CMMI- Level 5 or its higher version certification, whereas in the JV/Consortium one member shall be CMMI level 3 and another member shall be ISO 9001** as on date of submission of Bid. **Document Proof:** Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.	**Case 1:** Sole Bidder = SEI CMMI- Level 5 or its higher version certification **Case 2**: Lead Bidder + P1 **Lead Bidder:** Lead Bidder shall have a valid & active SEI or equivalent CMMI- Level 5 or its higher version certification as on date of submission of Bid. (the Certificate should be valid throughout the Project Duration). **P1:** The Partner 1 shall have a valid & active SEI or equivalent CMMI- Level 3 or its higher version certification or ISO 9001:2015 / ISO 27001 as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration). **Case 3:** Lead Bidder + P1 + P2 **Lead Bidder:** Lead Bidder shall have a valid & active SEI or equivalent CMMI- Level 5 or its higher version certification as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration). **P1:** The Partner 1 shall have a valid & active SEI or equivalent CMMI- Level 3 or its higher version certification or ISO 9001:2015 / ISO 27001 as on date of submission of Bid. (the Certificate should be valid throughout the Project Duration) **P2:** The Partner 2 shall have a valid ISO 9001:2015 / ISO 27001 certification as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration). **Document Proof:**

<table>
<tr><th>Sr. No.</th><th>No of Relevant Clause in the RFP</th><th>Clause as appearing in the published RFP</th><th>Revised Clause</th></tr>
<tr><td></td><td></td><td></td><td>Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.</td></tr>
<tr><td>12.</td><td>Volume 1- Chapter 5 - EVALUATION AND QUALIFICATION CRITERIA (EQC)
5.1.2 OEM Mandatary Compliance Criteria</td><td>Revised OEM Mandatory Compliance Criteria

Addition of “VI. OEM Criteria: Geographical Information System (GIS)”</td><td>Please refer <u>Annexure 9</u> Standard Set of Deviations for revised OEM Mandatory Compliance Criteria to RFP Volume 1 Clause 5.1.2 Page no. 63</td></tr>
<tr><td>13.</td><td>Volume 1- Chapter 5 - EVALUATION AND QUALIFICATION CRITERIA (EQC)
5.1.3 Technical Evaluation Criteria</td><td>A. Bidders Experience
Sr. No. 1
The Sole Bidder / Lead Bidder in case of Consortium shall have experience of completed or substantially completed IT application Project in the last 7 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization in India or Globally.
(Form 18 &19)

Marks will be allocated to the Bidder as per the below criteria:
<table>
<tr><th>Criteria</th><th>Marks</th></tr>
<tr><td>I. One Project value >= INR 50 Crore - OR</td><td>10</td></tr>
<tr><td>II. Two Project value >= INR 30 Crore – OR</td><td>10</td></tr>
<tr><td>III. Three Project value >= INR 25 Crore</td><td>10</td></tr>
<tr><td>IV. Each additional project value of more than INR 25 Cr. in Infrastructure development sector (Roads / Bridges / Railway / Metro Rail / City development / Utilities) in India or Globally will be given additional 5 mark maximum up to 2 projects</td><td>10</td></tr>
</table>
Note: Infrastructure sector means road/ rail/ metro/ airport/ real-estate construction/ any other relevant Infrastructure projects

(Kindly refer clause no. 5.1.1. eligibility criteria point no. 5)
Note: The project with 70% completed relevant work as described in the work order will be considered substantial for project evaluation</td><td>A. Bidders Experience
Sr. No. 1
The Sole Bidder/ Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed a <u>project in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) which includes IT application and Project / Program Management</u> with minimum value of INR 50 crores in the last 10 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid

Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, hardware installation, database management and IT emergency recovery and data center operations any other relevant application as decided by MMRDA.

Definition of IT Project/ Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project.
(Form 18 &19)

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<tr><td>III. Three Project value >= INR 25 Crore</td><td>10</td></tr>
<tr><td>IV. Each additional project value of more than INR 25 Cr. in Infrastructure development sector (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects</td><td>05</td></tr>
</table></td></tr>
</table>

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<tr><td></td><td></td><td></td><td>
<table>
<tr><td>TOTAL = (I / II / III) + IV</td><td>15</td></tr>
</table>

Note: Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)

(Kindly refer clause no. 5.1.1. eligibility criteria point no. 5)

Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of 70% based on relevant criteria or wherein <u>the projects are deemed to have achieved completion till the UAT/Go-live stage.</u>
</td></tr>
<tr><td>14.</td><td>Volume 1- Chapter 5 - EVALUATION AND QUALIFICATION CRITERIA (EQC)

5.1.4 Technical Evaluation Criteria</td><td>A. Bidders Experience
Sr. No. 2

The Sole Bidder or any member in case of JV/ Consortium shall have implemented / substantially implementing proposed ERP solutions project in India with the following modules in that project as: (Any 4 out of the below modules)
I. Finance & Accounts
II. Project planning / Management
IV. Procurement / Inventory / Material Management
IV. Analytics / Dashboards
V. Document Management System

(Form 18 &19)

Marks will be allocated to the Bidder as per the below criteria:
<table>
<tr><th>Criteria</th><th>Marks</th></tr>
<tr><td>I. One Project value >= INR 20 Crore OR</td><td>10</td></tr>
<tr><td>II. Two Project value >= INR 12 Crore OR</td><td>10</td></tr>
<tr><td>III. Three Project value >= INR 10 Crore</td><td>10</td></tr>
<tr><td>IV. Each additional project value of more than INR 10 Cr. in Infrastructure development sector (Roads / Bridges / Railway / Metro Rail / City development / Utilities) in India or Globally will be given additional 5 mark maximum up to 2 projects</td><td>10</td></tr>
</table>
Note: Infrastructure sector means road/ rail/ metro/ airport/ real-estate construction / any other relevant Infrastructure projects (refer eligibility criteria (Kindly refer clause no. 5.1.1. eligibility criteria point no. 6)

Note: The project with 70% completed relevant work as described in the work order will be considered substantial for project evaluation</td><td>A. Bidders Experience
Sr. No. 2

The Sole Bidder or any member in case of JV/ Consortium shall have implemented/ substantially implementing proposed ERP solutions project in the last10 years in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid with the following modules in that project as: (Any 3 out of the below modules)

I. Finance & Accounts
II. Project planning / Management
III. Procurement / Inventory / Material Management/ Plant Maintenance
IV. Analytics / Dashboards
V. Document Management System
(Form 18 &19) Marks will be allocated to the Bidder as per the below criteria:
<table>
<tr><th>Criteria</th><th>Marks</th></tr>
<tr><td>I. One Project value >= INR 20 Crore OR</td><td>10</td></tr>
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<tr><td>IV. Each additional project value of more than INR 10 Cr. in Infrastructure development sector (Metro Rail / Railway/ Road/ Bridges/ Flyover/ Real Estate/ City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects</td><td>05</td></tr>
<tr><td>TOTAL = (I / II / III) + IV</td><td>15</td></tr>
</table>
Note: Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)

(Kindly refer clause no. 5.1.1. eligibility criteria point no. 6)</td></tr>
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<tr><td></td><td></td><td></td><td>Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of 70% based on relevant criteria or wherein <u>the projects are deemed to have achieved completion till the UAT/ Go-Live stage.</u></td></tr>
<tr><td>15.</td><td>Volume 1- Chapter 5 - EVALUATION AND QUALIFICATION CRITERIA (EQC)

5.1.5 Technical Evaluation Criteria</td><td>A. Bidders Experience
Sr. No. 3

The Sole Bidder or any member in case of JV/ Consortium shall have experience of BIM in Integration/ Implementation / 5D Visualization

(Form 18 &19)

<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>I. One project of value 2 Crore</td><td>1</td></tr>
<tr><td>II. Two projects each with a value 2 crore</td><td>2</td></tr>
<tr><td>III. Three Project each with a value 2 crore</td><td>3</td></tr>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>IV. For project with a value of >INR 2 Crore additional 1 mark shall be awarded per project upto maximum of 3 projects</td><td>3</td></tr>
<tr><td>V. If the value of any of the above projects lies in the range of INR 3.5 to 5 crore, 1 mark shall be awarded per project upto maximum of 1 project</td><td>1</td></tr>
<tr><td>VI. If the value of any of the above project is >INR 5 crore, 1 mark shall be awarded per project up to maximum of 1 project</td><td>1</td></tr>
<tr><td>VII. If any of the claim projects, is of 5D visualization in road/ rail/ metro/ airport/ real-estate construction / any other relevant Infrastructure projects</td><td>2</td></tr>
</table>
(Kindly refer clause no. 5.1.1. eligibility criteria point no. 7)</td><td>A. Bidders Experience
Sr. No. 3
The Sole Bidder / any member of the Joint Venture / Consortium shall have experience of integration of engineering data with any two of the following applications:

a) BIM Implementation & Integration
b) Business Analytics and AI
c) GIS Systems
d) ERP

In the last 10 Years in infrastructure Development Sector including (Metro Rail/ Railway/ Road/ Bridges /Flyover/ Real Estate/ City Development/ Utilities) for any Central & State Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid (Form 18 &19).

<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>I. One project of value INR 2 Crore or more</td><td>5</td></tr>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>II. For any additional claimed project with a value of >INR 3.5 Crore and less than INR 5 Cr additional</td><td>1</td></tr>
<tr><td>III. For any additional claimed project with a value of >INR 5 crore</td><td>2</td></tr>
<tr><td>IV. If any of the claim projects, is of 5D visualization in Metro Rail/ Railway/ Road/ Bridges /Flyover/ Real Estate/ City Development/ Utilities</td><td>2</td></tr>
<tr><td>TOTAL = I + (II + III + IV)</td><td>10</td></tr>
</table>
(Kindly refer clause no. 5.1.1. eligibility criteria point no. 7)</td></tr>
</table>

<table>
<tr>
<td>16.</td>
<td>Volume 1- Chapter 5 - EVALUATION AND QUALIFICATION CRITERIA (EQC)

5.1.6 Technical Evaluation Criteria</td>
<td>B. Bidders Experience
Sr. No. 4 (Additional Clause for GIS)</td>
<td>B. Bidders Experience
Sr. No. 4

The Sole Bidder or any member in case of JV/ Consortium shall have experience of GIS Implementation for Asset Management in the last 10 Years in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in any Central & State Govt./ Semi-Govt. / Urban Development agencies/ PSU organization / Publicly Listed Companies (with minimum average annual turnover of INR 100 CR in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid

(Form 18 &19)

<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>I. Implementation in 2 Similar Projects</td><td>2</td></tr>
<tr><td>II. Implementation in 3 Similar Projects</td><td>3</td></tr>
<tr><td>III. Implementation in > 3 Similar Projects</td><td>5</td></tr>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>IV. Similar Projects executed in (Metro Rail / Railway/ Road/ Bridges/ Flyover/ Real Estate/ City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects</td><td>5</td></tr>
<tr><td>TOTAL = (I / II / III) + IV</td><td>10</td></tr>
</table>
</td>
</tr>
</table>

<table>
<tr><th>Sr. No.</th><th>No of Relevant Clause in the RFP</th><th>Clause as appearing in the published RFP</th><th>Revised Clause</th></tr>
<tr><td>17.</td><td>Volume 1- C. Competence of Key Resources to be deployed</td><td>New Position added in Competency of key resources to be deployed</td><td>Infrastructure Expert/ Engagement Director

<table><tr><th>Requirement</th></tr><tr><td>Infrastructure Expert/ Engagement Director – on the payroll of Sole bidder/ Lead Bidder</td></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE/ B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering with Post Graduate degree in Management or equivalent</td></tr><tr><td>Experience</td></tr><tr><td>>=20 years of Professional Experience</td></tr></table><table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least Two Similar projects in infrastructure/ ERP/ BIM/ IT managed services</td><td>2.0</td></tr><tr><td>Experience of handling IT infrastructure / application related complex project of worth INR 10 Crore</td><td>1.0</td></tr><tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>0.5</td></tr><tr><td>Experience in Sector like (Metro Rail / Railway / Road / Bridges /Flyover/ Real Estate/ City Development/ Utilities)</td><td>0.5</td></tr></table></td></tr>
<tr><td>18.</td><td>Volume 1- C. Competence of Key Resources to be deployed</td><td>Project Manager cum Team Leader

<table><tr><th>Requirement</th></tr><tr><td>Program Manager cum Team Leader – on the payroll of Sole bidder / Lead Bidder</td></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE, B.Tech. in Computer Science / IT / Electronics /Civil /Mechanical Engineering with Post Graduation in Management or Equivalent</td></tr><tr><td>Experience</td></tr><tr><td>>=15 years of Professional Experience</td></tr></table><table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least Two Similar projects in infrastructure / ERP / BIM / IT managed services</td><td>2.0</td></tr><tr><td>Experience of handling IT infrastructure / application related complex project of worth INR 10 Crore</td><td>1.0</td></tr><tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>1.0</td></tr><tr><td>Experience in metro / rail sector</td><td>1.0</td></tr></table></td><td>Project Manager cum Team Leader

<table><tr><th>Requirement</th></tr><tr><td>Program Manager cum Team Leader – on the payroll of Sole bidder / Lead Bidder</td></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE/ B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering or B.Arch. with Post Graduate degree in Management/ MBA/ PGDM or equivalent.</td></tr><tr><td>Experience</td></tr><tr><td>>=15 years of Professional Experience</td></tr></table><table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least Two Similar projects in infrastructure / ERP / BIM / IT managed services</td><td>2.0</td></tr><tr><td>Experience of handling IT infrastructure / application related complex project of worth INR 10 Crore</td><td>1.0</td></tr><tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>0.5</td></tr><tr><td>Experience in Sector like (Metro Rail /Railway /Road /Bridges /Flyover/ Real Estate/ City Development/ Utilities)</td><td>0.5</td></tr></table></td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>No of Relevant Clause in the RFP</th><th>Clause as appearing in the published RFP</th><th>Revised Clause</th></tr>
<tr>
<td>19.</td>
<td>Volume 1- C. Competence of Key Resources to be deployed</td>
<td>ERP/ Subject Matter Expert
<table>
<tr><th>Requirement</th></tr>
<tr><td>Minimum Qualification</td></tr>
<tr><td>Graduate BE, B.Tech. in Computer Science / IT / Electronics /Civil /Mechanical Engineering with Post Graduation in Management or Equivalent</td></tr>
<tr><td>Experience</td></tr>
<tr><td>>=10 years of Professional Experience after completion of minimum qualification as specified above</td></tr>
</table>
<table>
<tr><th>Requirement</th><th>Marks</th></tr>
<tr><td>Executed at least Two Similar projects in ERP</td><td>2.0</td></tr>
<tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>1.0</td></tr>
<tr><td>Experience in metro / rail sector</td><td>1.0</td></tr>
</table></td>
<td>ERP/ Subject Matter Expert
<table>
<tr><th>Requirement</th></tr>
<tr><td>Minimum Qualification</td></tr>
<tr><td>Graduate BE/ B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering or B.Arch.</td></tr>
<tr><td>Experience</td></tr>
<tr><td>>=10 years of Professional Experience after completion of minimum qualification as specified above</td></tr>
</table>
<table>
<tr><th>Requirement</th><th>Marks</th></tr>
<tr><td>Executed at least Two Similar projects in ERP</td><td>2.0</td></tr>
<tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>0.5</td></tr>
<tr><td>Experience in Sector like (Metro Rail/ Railway/ Road/ Bridges/ Flyover/ Real Estate/ City Development/ Utilities)</td><td>0.5</td></tr>
</table></td>
</tr>
<tr>
<td>20.</td>
<td>Volume 1- C. Competence of Key Resources to be deployed</td>
<td>Digital Project Implementation specialist
<table>
<tr><th>Requirement</th></tr>
<tr><td>Minimum Qualification</td></tr>
<tr><td>Graduate BE, B.Tech. in Computer Science / IT / Electronics /Civil /Mechanical Engineering with Post Graduation in Management or equivalent</td></tr>
<tr><td>Experience</td></tr>
<tr><td>>=10 years of Professional Experience after completion of minimum qualification as specified above</td></tr>
</table>
<table>
<tr><th>Requirement</th><th>Marks</th></tr>
<tr><td>Executed at least Two Similar projects in Infrastructure Projects with IT Exposure</td><td>2.0</td></tr>
<tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>2.0</td></tr>
<tr><td>Experience in metro / rail sector</td><td>1.0</td></tr>
</table></td>
<td>Digital Project Implementation specialist
<table>
<tr><th>Requirement</th></tr>
<tr><td>Minimum Qualification</td></tr>
<tr><td>Graduate BE / B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering or B.Arch.</td></tr>
<tr><td>Experience</td></tr>
<tr><td>>=05 years of Professional Experience after completion of minimum qualification as specified above</td></tr>
</table>
<table>
<tr><th>Requirement</th><th>Marks</th></tr>
<tr><td>Executed at least One Similar projects in Infrastructure Projects with IT Exposure</td><td>2.0</td></tr>
<tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>1.0</td></tr>
<tr><td>Experience in Sector like (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)</td><td>1.0</td></tr>
</table></td>
</tr>
</table>

<table>
<tr><th>Sr. No.</th><th>No of Relevant Clause in the RFP</th><th>Clause as appearing in the published RFP</th><th>Revised Clause</th></tr>
<tr><td>21.</td><td>Volume 1- C. Competence of Key Resources to be deployed</td><td>BIM Strategy Specialist
<table><tr><th>Requirement</th></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE, B. Tech. in Computer Science / IT/Instrumentation / Electronics / Civil /Mechanical Engineering
with post- graduation in Project Management / Construction Management or equivalent.</td></tr><tr><td>Experience</td></tr><tr><td>>=8 years of Professional Experience after completion of minimum qualification as specified above</td></tr></table>
<table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least one Similar project in Infrastructure Projects with IT Exposure</td><td>2.0</td></tr><tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>1.0</td></tr><tr><td>Experience in metro / rail sector</td><td>1.0</td></tr></table></td><td>BIM Strategy Specialist
<table><tr><th>Requirement</th></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE / B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering or B.Arch.</td></tr><tr><td>Experience</td></tr><tr><td>>=8 years of Professional Experience after completion of minimum qualification as specified above</td></tr></table>
<table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least one Similar project in Infrastructure Projects with IT Exposure</td><td>2.0</td></tr><tr><td>Experience on Govt / Semi Govt. / PSU projects</td><td>0.5</td></tr><tr><td>Experience in Sector like (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)</td><td>0.5</td></tr></table></td></tr>
<tr><td>22.</td><td>Volume 1- C. Competence of Key Resources to be deployed</td><td>GIS Expert
<table><tr><th>Requirement</th></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE, B. Tech. In Computer Science / IT / Instrumentation / Electronics / Civil / Mechanical Engineering</td></tr><tr><td>Experience</td></tr><tr><td>>=8 years of Professional Experience after completion of minimum qualification as specified above</td></tr></table>
<table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least one projects in GIS implementation for any State or Central Government</td><td>1.0</td></tr><tr><td>Experience in metro / rail sector</td><td>1.0</td></tr></table></td><td>GIS Expert
<table><tr><th>Requirement</th></tr><tr><td>Minimum Qualification</td></tr><tr><td>Graduate BE/ B.Tech. in Computer Science/ IT/ Electronics/ Civil/ Mechanical Engineering or B.Arch.</td></tr><tr><td>Experience</td></tr><tr><td>>=5 years of Professional Experience after completion of minimum qualification as specified above</td></tr></table>
<table><tr><th>Requirement</th><th>Marks</th></tr><tr><td>Executed at least one projects in GIS implementation for any State or Central Government</td><td>1.0</td></tr><tr><td>Experience in Sector like (Metro Rail / Railway /Road / Bridges /Flyover/ Real Estate/ City Development/ Utilities)</td><td>1.0</td></tr></table></td></tr>
<tr><td>23.</td><td>Volume 1- 5.2 Resource Deployment Plan and Team Composition</td><td>Additional Resource Deployment Plan & Governance structure for the project (please refer Clause 5.2: resource Deployment and Team Composition)</td><td>Please refer <u>Annexure 3</u> in Standard Set of Deviations for change in Resource Deployment Plan and Team Composition referring to RFP Clause 5.2 Page no.74</td></tr>
<tr><td>24.</td><td>Volume 2- Chapter 9: Project timelines, schedule of</td><td>Section 9.1 Project Timeline</td><td>Please refer <u>Annexure 5</u> Standard Set of Deviations for revised timelines referring to RFP Clause no 9.1 Page no. 71</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>No of Relevant Clause in the RFP</th><th>Clause as appearing in the published RFP</th><th>Revised Clause</th></tr>
<tr><td></td><td>implementation, Payment Terms</td><td></td><td></td></tr>
<tr><td>25.</td><td>Volume 2- Chapter 9: Project timelines, schedule of implementation, Payment Terms</td><td>Section 9.2 Terms of Payment</td><td>Please refer <u>Annexure 6</u> Standard Set of Deviations for revised payment terms referring to RFP Clause no 9.2 Page no. 75</td></tr>
<tr><td>26.</td><td>Volume 2- Chapter 9: Project timelines, schedule of implementation, Payment Terms</td><td>Section 9.3 Project deliverables</td><td>Please refer <u>Annexure 7</u> Standard Set of Deviations for Project deliverables referring to RFP Clause no 9.3 Page no. 81</td></tr>
<tr><td>27.</td><td>Volume 1- 9 CHAPTER FINANCIAL BID - ENVELOPE ‘C’</td><td>Schedule A- Owners Support Office (OSO)</td><td>Please refer <u>Annexure 8</u> Standard Set of Deviations for revised Schedule A - Owners Support Office (OSO) referring to RFP Clause no. 9.2 Page no.150</td></tr>
<tr><td>28.</td><td>Volume 2- Chapter 11: Implementation of Integrated Digital Delivery System</td><td>11.3 Application Licenses
a) Cloud ERP users**: - 50 to 100
b) Schedule Management System Users: 10 to 15
c) CDE Concurrent Users: 50 to100
d) 5D BIM Users: 10 to 20
e) GIS Users: 25 to 50</td><td>Application Licenses
<table><tr><th>Sr. No</th><th>Modules</th><th>No of Users</th></tr><tr><td>1.</td><td>Schedule Management System</td><td>15</td></tr><tr><td>2.</td><td>Cloud ERP on Subscription</td><td>100</td></tr><tr><td>3.</td><td>Business Analytics & AI</td><td>15</td></tr><tr><td>4.</td><td>GIS system server License</td><td>50</td></tr><tr><td>5.</td><td>GIS Desktop License</td><td>15</td></tr><tr><td>6.</td><td>CDE Concurrent Users</td><td>50</td></tr><tr><td>7.</td><td>5D BIM Users</td><td>20</td></tr></table>
In case of any additional requirement over and above the numbers mentioned in the list, MMRDA reserves the right to procure any additional license as and when required throughout the duration of the Project on prorate basis as per the Contract as decided by the Competent Authority.
**From above users, transaction users (approver & initiator) can be 30% and self-service users will be 70%
Please refer to RFP Vol 2 Clause no. 11.3: Application License for details.</td></tr>
<tr><td>29.</td><td>Volume 2 – Chapter 15 – Service Level Agreement: 15.3 Client Site Availability SLAs</td><td>Client Site Availability SLAs</td><td>Refer to <u>Annexure 10</u> of the Standard Set of Deviations for revised Client Site Availability SLAs</td></tr>
</table>

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
30.	Vol 1 Chapter 11: Form of Contract; **11.1.26 Special Conditions of Contract Point 4: Delay Damages and Liquidated Damages**	In case of any delay in the execution and/or completion of the Work that is attributable to the MSI, unless the Time for Completion has been expressly extended by the Employer, the MSI shall pay liquidated damages in terms of money as described below **In the event that the MSI fails to achieve any of the milestones prescribed in deliverables and payment Schedule, the MSI shall pay liquidated damages in terms of money equivalent to zero point 1% (one percent) of the Contract Price per day of delay, subject to a maximum of 10% (ten percent) of the total Contract Price for each milestone not achieved.**	In case of any delay in the execution and/or completion of the Work that is attributable to the MSI, unless the Time for Completion has been expressly extended by the Employer, the MSI shall pay liquidated damages in terms of money as described below **In the event that the MSI fails to achieve any of the milestones prescribed in deliverables and payment Schedule, the MSI shall pay liquidated damages in terms of money equivalent to 0.5% of the Total Project Value per week of delay, subject to a maximum of 10% (ten percent) of the Total Project Value for each milestone not achieved.**
31.	2.2 RFP Summary **B. ELIGIBILITY CRITERIA – For Sole Bidder /JV-Consortium** **Point B, Sr. No. 12, page no. 30**	The Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs.	The Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs along with all pre-requisites and mandatory compliant documents for each of the component at the proposal stage as stated in the RFP and subsequent Corrigendum. However, in case of non-availability of MAF during the proposal submission stage, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs later at the LoI stage prior to issuance of Work Order to the Successful Bidder. However, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit the pre-requisites and mandatory compliant documents by at least one or more OEMs for each of the components and later at the LoI stage prior to issuance of Work Order, the MAF shall be submitted from the OEM/ OEMs that have been proposed by the bidder for respective component in their proposal. The acceptance/ rejection of the OEM in the technical stage shall be subject to Vol 1 of the RFP, Section 4.23 Point III
32.	Volume 2 Chapter 8.4.2 Page 65 -5D BIM Solution Features	BIM Solution Features	**Refer to <u>Annexure 12</u> of the Standard Set of Deviations for revised 5D BIM and CDE Solution Features**
33.	Volume 2 Chapter 8.3 Page 63 - Business Analytics Requirement and Features	Business Analytics Requirement and Features	**Refer to <u>Annexure 13</u> of the Standard Set of Deviations for revised Business Analytics Requirement and Features**
34.	Volume 1: 7.20 Appendix F-20: CV for Key Professionals	CV for Key Professionals - Format	**Refer to <u>Annexure 14</u> of the Standard Set of Deviations for revised format of submission of CV for Key Professionals**
35.	Volume 2 Chapter 8.1.2 Page 55 - Robotic Process automation	Robotic Process Automation	**Additional Note:** Given the use case of RPA in ERP it is envisaged to be implemented when the Digital Project Management solution is at matured state i.e., 2 years post Go-Live,

Sr. No.	No of Relevant Clause in the RFP	Clause as appearing in the published RFP	Revised Clause
			which may be realized subject to mutual discussion and the subsequent approval by the Competent Authority of MMRDA. However, the bidder is required to demonstration the RPA solution that is proposed to be implemented in the operations of overall DPMS solution during the Technical Presentation as stated in the RFP.
36.	Volume 2 Chapter 19 Page 173 - Functional Requirements Specifications	Functional Requirements Specifications	Refer to **Annexure 15** of the Standard Set of Deviations for revised requirement of Functional Requirements Specifications.
37.	Volume 2 - 12.1 Cloud Requirements & Hosting Services	Cloud IT infrastructure services includes servers, storages, back up, networking, load balancers, security equipment, operating systems, database, help desk system and other related IT infra required for running and operating the envisaged system. Based on number of projects mentioned in the RFP MSI shall carry out sizing, schedule and specification etc. MSI shall make provision of cloud infrastructure for hosting of IDDS application to be developed for MMRDA. OEMs for Servers, Enterprise Storage, Switches, Routers and Wired & Wireless LAN Access Infrastructure shall be placed in Gartner MQ Leaders as per latest Gartner Report OR Top 5 in Market Share as per latest IDC Report in their respective products.	Cloud IT infrastructure services includes servers, storages, back up, networking, load balancers, security equipment, operating systems, database, help desk system and other related IT infra required for running and operating the envisaged system. Based on number of projects mentioned in the RFP MSI shall carry out sizing, schedule, and specification etc. MSI shall make provision of cloud infrastructure for hosting of IDDS application to be developed for MMRDA.

Annexure to Standard Set of Deviations

Annexure 1 of Standard Set of Deviations

- Refer RFP Volume 1 Clause 2.2 Pre-Qualification Criteria (Bidder's experience)
- Refer RFP Volume 1: Chapter 5: Clause 5.1.1 Pre-Qualification Criteria (Bidder's experience): Envelop 'A' Page no. 54-62
- Refer RFP Volume 1: Chapter 7: Clause 7.1.4 Appendix F-14: Compliance to Pre-Qualification Criteria: Page no. 109-112

Performance Bank Guarantee	**3% of the Contract Value to be submitted within 15 days from the date of issue of the letter accepting the offer of assignment.**	
A	**PRE-QUALIFICATION CRITERIA (PQ) –** **for Sole Bidder (SB) and/or JV/Consortium (LB+P1 or LB+P1+P2)**	
Sr. No.	**Pre Qualification (PQ) Criteria**	**Document Proof**
1	Tender Fees	INR 50,000 only (Indian Rs. Fifty Thousand only including GST) by way of electronic transfer through MMRDA e-Tendering portal.
2	Earnest Money Deposit	INR 75,00,000/- (Indian Rs. Seventy-Five Lakh only) – • INR 50,000/- (Indian Rs. Fifty Thousand only) by electronic transfer through MMRDA e-Tendering portal and • INR 74,50,000/- (Indian Rs. Seventy-Four Lakhs and Fifty Thousand only) by Bank Guarantee (Scanned copy to be uploaded).

B	**ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium**					
Sr. No.	**Eligibility Criteria**	**Sole Bidder**	**Joint Venture-Consortium (LB+P1)/(LB+P1+P2)**			**Document Proof**
		SB	**LB**	**P1**	**P2**	
			LB	**(P1 + P2)**		
1.	The Sole Bidder /all members in case of Joint Venture/Consortium shall be Registered Companies/ Proprietorship Firms/ Partnership Firms/ Limited Liability Partnerships nationally or globally. The sole Bidder / Lead Bidder in case of JV/Consortium shall be in existence for a **minimum period of 10 years** prior to the last date of submission of bid **and JV/Consortium members shall be in existence for a minimum period of 7 years** prior to the last date of submission of bid	>=10 yrs	>= 10 yrs	P1 >= 3 yrs	P2 >=3 yrs	• For Companies incorporated in India, Certificate of Incorporation/ Registration under Companies Act 1956 or 2013 or as amended from time to time., Partnership Firm registered under Partnership Act or Proprietorship Firm or LLP Act • PAN Card, GST Registration Certificate • Memorandum and Articles of Association • For global players, equivalent certificate in the country of incorporation • For global / international Bidders, it necessary to collaborate with an Indian firm/company to form a JV / Consortium • Self-Attested Certificate from Company's HR Department • Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder. **Note: *Definition of Experience shall be referred from point no.2 of the Standard Set of Deviations***
2.	The Sole Bidder /Lead Bidder in case of Joint Venture/Consortium shall have been in **Continuous Business Operation in IT/ITES Services for a minimum period of 10 years with minimum 100 (One Hundred) manpower resources on its payroll in previous audited Financial Year (2020-21)** prior to the last date of submission of bid. In case of **JV/Consortium the other members** shall have been in **Continuous**	>=10 yrs	>=10 yrs	P1 >= 3 yrs	P2 >=3 yrs	

B	ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium					
Sr. No.	Eligibility Criteria	Sole Bidder	Joint Venture-Consortium (LB+P1)/(LB+P1+P2)			Document Proof
		SB	LB	P1	P2	
			LB	(P1 + P2)		
	Business Operation for a minimum period of 7 years in IT/ ITES Services as on the date of submission of bid. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA*** ***Definition of IT Project / Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project***					
3.	Sole Bidder/ **Lead Bidder** in case of Joint Venture/ Consortium shall have a positive Net Worth (the "Financial Capacity") for previous financial year 2020-21.	Must meet criteria	**Must meet criteria**			• Statutory auditor/ **Chartered Accountant certificate** of Bidder/ all the member of the Consortium specifying the Net Worth for the specified period • Kindly refer Appendix F-17
4.	Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21 from IT / ITES Services. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA*** ***Definition of IT Project/ Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project***	**>= INR 100 CR**	**>=INR 75 CR**	**P1>=INR 25 CR**	**P1+P2>=INR 25 CR, where P1>= INR 5 Crs & P2>= INR 5 Crs**	• Audited Financial Statement for Financial years 2018-19, 2019-20, 2020-21, • Statutory auditor's / **Chartered Accountant Certificate** of the Bidder clearly specifying the Annual Turnover for the specified years Kindly refer Appendix F-16

B	ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium					
Sr. No.	Eligibility Criteria	Sole Bidder	Joint Venture-Consortium (LB+P1)/(LB+P1+P2)			Document Proof
		SB	LB	P1	P2	
			LB	(P1 + P2)		
5.	The Sole Bidder / Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed a project comprising of IT application and Project / Program Management with minimum value of INR 50 crores in the **last 10 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]	Must meet criteria 1 Similar Project >= 50 INR CR OR 2 Similar Projects>= INR 30 CR each OR 3 Similar Projects>= INR 25 CR each	1 Similar Project >= INR 50 CR OR 2 Similar Projects>= INR 30 CR each OR 3 Similar Projects>= INR 25 CR each			Work Order/ Client Experience Certificate/ **Go-Live Certificate**/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder Kindly refer Appendix F-18 & 19. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA*** ***Definition of IT Project/ Program management – the firm should have experience in project/ program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project***
6.	The Sole Bidder or any member in case of Joint Venture/ Consortium shall have the experience of having implemented **Enterprise Resource Planning** (ERP) solution projects worth INR 20 Crore in India in the **last 10 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. At least one project shown above should be necessarily be for the organization who are into Infrastructure sector (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ **City Development/ Utilities**) in India as on the date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian	1 Similar Project >= 20 INR CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each	1 Similar Project >= INR 20 CR OR 2 Similar Projects>= INR 12 CR each OR 3 Similar Projects>= INR 10 CR each			• **Work Order/ Client Experience Certificate/ Go-Live Certificate from Client/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder** • Kindly refer Appendix F-18 & 19

B	ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium			
Sr. No.	Eligibility Criteria	Sole Bidder	Joint Venture-Consortium (LB+P1)/(LB+P1+P2)	Document Proof
		SB	LB ← → P1 P2	
			LB ← → (P1 + P2)	
	Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]			
7.	The Sole Bidder / Lead Bidder in case of a JV/ Consortium shall have experience of 5D BIM Implementation **in the last 10 years** for an infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) worth INR **2 crore** value for **any Central & state Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]	1 Similar Project >= 2 INR CR OR 2 Similar Projects>= INR 1.2 CR each OR 3 Similar Projects>= INR 1 CR each	1 Similar Project >= 2 INR CR OR 2 Similar Projects>= INR 1.2 CR each OR 3 Similar Projects>= INR 1 CR each	• Work Order/ Client Experience Certificate/ Go live Certificate from Client/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19
8.	The Sole Bidder / any member of the Joint Venture / Consortium shall have experience of integration of engineering data **in the last 10 years** with any two of the following applications: • BIM Implementation & Integration • Business Analytics and AI • GIS Systems • ERP in infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ **City Development/ Utilities**) for **any Central & State Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid.	Must meet criteria	Any member must meet criteria	• Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19

B	ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium					
Sr. No.	Eligibility Criteria	Sole Bidder	Joint Venture-Consortium (LB+P1)/(LB+P1+P2)			Document Proof
		SB	LB	P1	P2	
			LB	(P1 + P2)		
9.	The Sole Bidder shall have a valid & active SEI CMMI-Level 5 or its higher version certification as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration) The Lead Bidder in case of a Joint Venture/Consortium shall have a valid & active SEI CMMI- Level 5 or its higher version certification, the other members shall have CMMI-Level 3 and **ISO 9001:2015 / ISO 27001**, as on date of submission of Bid.	**SEI or equivalent CMMI- Level 5 or its higher version certification**	**SEI or equivalent CMMI- Level 5 or its higher version certification**	**SEI or equivalent CMMI- Level 3 or its higher version certification or ISO 9001:2015 / ISO 27001, as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration)**	**SEI or equivalent CMMI- Level 3 or its higher version certification or ISO 9001:2015 / ISO 27001, as on date of submission of Bid. (The Certificate should be valid throughout the Project Duration)**	• Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.
10.	In case Sole Bidder/ any member in case of Joint Venture/Consortium is from **a country sharing land border with India, the Bidder shall refer and comply with sub-clause no. 6.1(f)**	Must meet criteria	Must meet criteria			• For Bidders sharing land border with India, Format of self-attested Declaration as per the Format shall be submitted. Refer Chapter 7 Section 7.24 Appendix F-24
11.	The Sole Bidder/ any member in case of Joint Venture/Consortium member shall **not be debarred/ Blacklisted by any Government body/ PSU in India or in their respective country of origin/incorporation** as on date of submission of the Bid.	Must meet criteria	Must meet criteria			• Notarised Affidavit by Bidder. • (Declaration to be submitted as per format given in Appendix F-4)
12.	**The Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs along with all pre-requisites and mandatory compliant documents for each of the component at the proposal stage as stated in the RFP and subsequent Corrigendum. However, in case of non-availability of MAF during the proposal submission stage, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF**	Any member must meet criteria	Any member must meet criteria			• Copy of original (signed) Manufacturer's Authorization Forms (MAF) for all OEMs as per Chapter 7 Section 7.21 Appendix F-21 kindly refer clause

B	ELIGIBILITY CRITERIA – For Sole Bidder/ JV- Consortium					
Sr. No.	Eligibility Criteria	Sole Bidder	Joint Venture-Consortium (LB+P1)/(LB+P1+P2)			Document Proof
		SB	LB ←→	P1 →	P2	
			LB ←→	(P1 + P2) →		
	from respective OEMs later at the LoI stage prior to issuance of Work Order to the Successful Bidder. However, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit the pre-requisites and mandatory compliant documents by at least one or more OEMs for each of the components and later at the LoI stage prior to issuance of Work Order, the MAF shall be submitted from the OEM/ OEMs that have been proposed by the bidder for respective component in their proposal. The acceptance/ rejection of the OEM in the technical stage shall be subject to Vol 1 of the RFP, Section 4.23 Point III					

Annexure 2 of Standard Set of Deviations

- Refer RFP Volume 1 Clause 5.1.3 5.1.3 Technical Evaluation Criteria: Page no. 68

<table>
<tr><th colspan="4">A. Bidder's Experience</th></tr>
<tr><th>Sr. No.</th><th>Bidder's Experience</th><th>Parameters</th><th>Maximum Marks</th></tr>
<tr><td>1</td><td>The Sole Bidder / Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed a project in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) which includes IT application and Project / Program Management with minimum value of INR 50 crores in the last 10 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on the date of submission of bid.</td><td>Marks will be allocated to the Bidder as per the below criteria:

<table><tr><th colspan="2">Criteria</th><th>Marks</th></tr><tr><td>I.</td><td>One Project value >= INR 50 Crore – OR</td><td>10</td></tr><tr><td>II.</td><td>Two Project value >= INR 30 Crore – OR</td><td>10</td></tr><tr><td>III.</td><td>Three Project value >= INR 25 Crore</td><td>10</td></tr><tr><td>IV.</td><td>Each additional project value of more than INR 25 Cr. in Infrastructure development sector (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects</td><td>05</td></tr><tr><td></td><td>TOTAL = (I / II / III) + IV</td><td>15</td></tr></table>
Note:

Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA

Definition of IT Project/ Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project

(Form 18 &19))

Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)

(Kindly refer clause no. 5.1.1. eligibility criteria point no. 5)

Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of 70% based on relevant criteria or wherein <u>the projects are deemed to have achieved completion till the UAT/ Go-live stage.</u></td><td>15 =

(I/II/III) + (IV)</td></tr>
<tr><td>2</td><td>The Sole Bidder or any member in case of Joint Venture/ Consortium shall have the experience of having implemented ERP solution projects worth INR 20 Crore in India in the last 10 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization/ Publicly Listed Companies (with minimum Average Annual</td><td>Marks will be allocated to the Bidder as per the below criteria:

<table><tr><th colspan="2">Criteria</th><th>Marks</th></tr><tr><td>I.</td><td>One Project value >= INR 20 Crore OR</td><td>10</td></tr><tr><td>II.</td><td>Two Project value >= INR 12 Crore OR</td><td>10</td></tr><tr><td>III.</td><td>Three Project value >= INR 10 Crore</td><td>10</td></tr><tr><td>IV.</td><td>Each additional project value of more than INR 10 Cr. in Infrastructure development sector (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/</td><td>05</td></tr></table></td><td>15 =

(I/II/III) + (IV)</td></tr>
</table>

<table>
<tr><th colspan="4">A. Bidder's Experience</th></tr>
<tr><th>Sr. No.</th><th>Bidder's Experience</th><th>Parameters</th><th>Maximum Marks</th></tr>
<tr><td></td><td>Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid with the following modules implemented in that project as: (Any 3 out of the below modules)

I. Finance & Accounts

II. Project planning / Management

III. Procurement / Inventory / Material Management/ Plant & Maintenance

IV. Analytics / Dashboards

V. Document Management System

(Form 18 &19)</td><td>City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects
TOTAL = (I / II / III) + IV — 15

Note: Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) (refer eligibility criteria)

(Kindly refer clause no. 5.1.1. eligibility criteria point no. 6)

Note: The Project shall be deemed substantial for Project Evaluation upon successful overall completion of 70% based on relevant criteria or wherein <u>the projects are deemed to have achieved completion till the UAT/ Go-live stage.</u></td><td></td></tr>
<tr><td>3</td><td>The Sole Bidder / any member of the Joint Venture / Consortium shall have experience of integration of engineering data with any two of the following applications:

• BIM Implementation & Integration
• Business Analytics and AI
• GIS Systems
• ERP

in the last 10 years in infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) for any Central & State Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on date of submission of bid.</td><td>
<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>I. One project of value 2 Crore or more</td><td>5</td></tr>
</table>
<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>II. For any additional claimed project with a value of >INR 3.5 Crore and less than INR 5 Cr additional</td><td>1</td></tr>
<tr><td>III. For any additional claimed project with a value of >INR 5 crore</td><td>2</td></tr>
<tr><td>IV. If any of the claim projects, is of 5D visualization in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)</td><td>2</td></tr>
<tr><td>TOTAL = I + (II + III + IV)</td><td>10</td></tr>
</table>
Note:
• The value of the Project shall include any of the 02 (two) components mentioned in the Criteria
• Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)</td><td>10 =
I + (II + III + IV)</td></tr>
</table>

<table>
<tr><th colspan="4">A. Bidder's Experience</th></tr>
<tr><th>Sr. No.</th><th>Bidder's Experience</th><th>Parameters</th><th>Maximum Marks</th></tr>
<tr><td>4.</td><td>The Sole Bidder or any member in case of JV/Consortium shall have experience of GIS Implementation for Asset Management in the last 10 years in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally as on the date of submission of bid.

(Form 18 &19)</td><td>Marks will be allocated to the Bidder as per the below criteria:

<table>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>I. Implementation in 2 Similar Projects</td><td>2</td></tr>
<tr><td>II. Implementation in 3 Similar Projects</td><td>3</td></tr>
<tr><td>III. Implementation in > 3 Similar Projects</td><td>5</td></tr>
<tr><th>Criteria</th><th>Maximum Marks</th></tr>
<tr><td>IV. Similar Projects executed in (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in India or Globally will be given additional 2.5 mark maximum up to 2 projects</td><td>5</td></tr>
<tr><td>TOTAL = (I / II / III) + IV</td><td>10</td></tr>
</table>

Note: Infrastructure sector means (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities)</td><td>10 =

(I/II/III) + (IV)</td></tr>
<tr><td></td><td colspan="2">Sub Total A</td><td>50</td></tr>
</table>

Annexure 3 of Standard Set of Deviations

- Refer RFP Volume 1 Clause 5.2 Resource Deployment Plan and Team Composition page no. 74

Sr. No.	Additional Resource Deployment Plan & Governance structure for the project	Minimum Qualification	No of Resources
1	Engagement Advisor	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. with Post Graduate degree in Management or equivalent **with minimum 15 years of experience of executing relevant projects**	1
2	Infrastructure/Metro Railway Advisor	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. or Equivalent **with minimum 15 years of experience of executing relevant projects**	1
3	Business analytics Expert	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. **with minimum 15 years of experience of executing relevant projects**	1
4	CDE Expert	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. **with minimum 10 years of experience of executing relevant projects**	1
5	Consultant Project Controls	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. **6 years of experience of executing relevant projects**	1
6	Consultant – Governance & Organization	Graduate, **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. with minimum **6 years** of experience of executing relevant projects	1
7	Consultant Time & Program Management	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. with minimum **6 years** of experience of executing relevant projects	1
8	Consultant – Risk, Governance, Compliance & Reporting	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
9	Consultant – Procurement, Contracts, & Claims Management	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
10	Consultant – Application Integration	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
11	Consultant -CDE	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. with minimum **6 years** of experience of executing relevant projects	1
12	BIM Consultant	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics / Civil / Mechanical Engineering or B.Arch. with minimum **6 years** of experience of executing relevant projects	1
13	Consultant ERP	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
14	Change Management Expert/Consultant	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
15	Consultant-Business Analytics	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1

Sr. No.	Additional Resource Deployment Plan & Governance structure for the project	Minimum Qualification	No of Resources
16	Training Expert	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
17	Package coordinator/Coordinators for the projects	Graduate **BE / B.Tech**. in Computer Science / IT / Electronics with minimum **6 years** of experience of executing relevant projects	1
Support staff			
18	GIS operator	**Any Graduate, BE / B.Tech**. with Diploma in Geo-informatics with 2 years of experience or ITI with 5 years of experience	1
19	Photogrammetry Expert	**Any Graduate, BE / B.Tech**. / Diploma in Remote Sensing with 2 years of experience	1
20	IT Support Executive	**Any Graduate,** with basic computer skill and MSCIT Certificate course or equivalent with 2 years of experience	5
21	Content Manager (English Literature)	Graduate BA Honours English with Proficiency in English Language with 2 years of experience	2

- **Annexure 4 of Standard Set of Deviations**

Sr. No.	Eligibility Criteria	Yes/ No	Document Proof
1.	The Sole Bidder /all members in case of Joint Venture/Consortium shall be Registered Companies/ Proprietorship Firms/ Partnership Firms/ Limited Liability Partnerships nationally or globally. The sole Bidder / Lead Bidder in case of JV/Consortium shall be in existence for a **minimum period of 10 years** prior to the last date of submission of bid **and JV/Consortium members shall be in existence for a minimum period of 7 Years** prior to the last date of submission of bid		• For Companies incorporated in India, Certificate of Incorporation/ Registration under Companies Act 1956 or 2013 or as amended from time to time., Partnership Firm registered under Partnership Act or Proprietorship Firm or LLP Act • PAN Card, GST Registration Certificate • Memorandum and Articles of Association • For global players, equivalent certificate in the country of incorporation • For global / international Bidders, it necessary to collaborate with an Indian firm/company to form a JV / Consortium • Self-Attested Certificate from Company's HR Department • Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder. **Note:** ***Definition of Experience shall be referred from point no.2 of the Standard Set of Deviations***
2.	The Sole Bidder /Lead Bidder in case of Joint Venture/Consortium shall have been in **Continuous Business Operation in IT/ITES Services for a minimum period of 10 years with minimum 100 (One Hundred) manpower resources on its payroll in previous audited Financial Year (2020-21)** prior to the last date of submission of bid. In case of **JV/Consortium the other members** shall have been in **Continuous Business Operation for a minimum period of 7 years** in IT/ ITES Services as on the date of submission of bid. Note: Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA Definition of IT Project/ Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project		
3.	Sole Bidder / Lead Bidder **or any members(s)** in case of Joint Venture/ Consortium shall have a positive Net Worth (the "Financial Capacity") for previous financial year 2020-21.		• Statutory auditor / **Chartered Accountant certificate** of Bidder / all the member of the Consortium specifying the Net Worth for the specified period Kindly refer Appendix F-17
4.	Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21 from IT / ITES Services. Note: Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation, database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA Definition of IT Project/ Program management – the firm should have experience in project / program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project		• Audited Financial Statement for Financial years 2018-19, 2019-20, 2020-21, • Statutory auditor's / **Chartered Accountant certificate** of the Bidder clearly specifying the Annual Turnover for the specified years Kindly refer Appendix F-16
5.	The Sole Bidder / Lead Bidder in case of Joint venture/ Consortium should have experience of completed or substantially completed a project comprising of IT application and Project / Program Management with minimum value of INR 50 crores in the **last 10 years** implemented in **any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]		Work Order/ Client Experience Certificate/ **Go-Live Certificate**/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder Kindly refer Appendix F-18 & 19. Note: ***Definition of IT Application: IT application project include web development, software development, mobile app development, network configuration, software implementation, Building Information Modelling (BIM) Implementation, hardware installation,***

Sr. No.	Eligibility Criteria	Yes/ No	Document Proof
			database management and IT emergency recovery with data center operations any other relevant application as decided by MMRDA ***Definition of IT Project/ Program management – the firm should have experience in project/ program management having a team of IT/ITES professional with required skill sets and have demonstrated successful implementation in similar project***
6.	The Sole Bidder or any member in case of Joint Venture/ Consortium shall have the experience of having implemented **Enterprise Resource Planning (ERP)** solution projects worth INR 20 Crore in India in the **last 10 years implemented in any Central & State Govt. / Semi-Govt. / Urban Development agencies / PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. At least one project shown above should necessarily be for the organization who are into Infrastructure sector (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) in India as on the date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]		• Work Order/ Client Experience Certificate/ Go-Live Certificate /Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18 & 19
7.	The Sole Bidder / Lead Bidder in case of a JV/ Consortium shall have experience of 5D BIM Implementation **in the last 10 years** for an infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) worth INR 2 crore value for **any Central & state Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid. [For completed works, value of work done shall be updated to the price level as on 28 days before the last date of bid submission assuming 5% inflation for Indian Rupees every year and 2% for foreign currency portions per year. The exchange rate of foreign currency shall be applicable 28 days before the last date of bid submission.]		• Work Order/ Client Experience Certificate/ Go-Live Certificate from Client/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19
8.	The Sole Bidder / any member of the Joint Venture / Consortium shall have experience of integration of engineering data **in the last 10 years** with any two of the following applications: • BIM Implementation & Integration (Up to 5D) • Business Analytics • GIS Systems • ERP in infrastructure Development Sector including (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) for **any Central & State Govt./ Semi Govt./ PSU organization / Publicly Listed Companies (with minimum Average Annual Turnover of INR. 100 Crores (Rupees One Hundred Crore only) in the last 3 (three) financial years 2018-19, 2019-20, 2020-21) in India or Globally** as on date of submission of bid.		• Work Order/ Client Experience Certificate/ Other Supporting documents to substantiate the experience shall be submitted by the Bidder • Kindly refer Appendix F-18&19

Sr. No.	Eligibility Criteria	Yes/ No	Document Proof
9.	The Sole Bidder shall have a valid & active SEI CMMI- Level 5 or its higher version certification as on date of submission of Bid. (the Certificate should be valid throughout the Project Duration) The Lead Bidder in case of a Joint Venture/Consortium shall have a valid & active SEI CMMI- Level 5 or its higher version certification, the other members shall have CMMI- Level 3 and **ISO 9001:2015 / ISO 27001**, as on date of submission of Bid.		• Copy of the Valid Certificate(s) signed and stamped by the Authorized Signatory of the Bidder.
10.	In case Sole Bidder/ any member in case of Joint Venture/Consortium is from **a country sharing land border with India, the Bidder shall refer and comply with sub-clause no. 6.1(f)**		• For Bidders sharing land border with India, Format of self-attested Declaration as per the Format shall be submitted. Refer Chapter 7 Section 7.24 Appendix F-24
11.	The Sole Bidder/ any member in case of Joint Venture/Consortium member shall **not be debarred/ Blacklisted by any Government body/ PSU in India or in their respective country of origin/incorporation** as on date of submission of the Bid.		• Notarised Affidavit by Bidder. • (Declaration to be submitted as per format given in Appendix F-4)
12.	The Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs along with all pre-requisites and mandatory compliant documents for each of the component at the proposal stage as stated in the RFP and subsequent Corrigendum. However, in case of non-availability of MAF during the proposal submission stage, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit MAF from respective OEMs later at the LoI stage prior to issuance of Work Order to the Successful Bidder. However, the Sole Bidder/ any member in case of Joint Venture/ Consortium shall submit the pre-requisites and mandatory compliant documents by at least one or more OEMs for each of the components and later at the LoI stage prior to issuance of Work Order, the MAF shall be submitted from the OEM/ OEMs that have been proposed by the bidder for respective component in their proposal. The acceptance/ rejection of the OEM in the technical stage shall be subject to Vol 1 of the RFP, Section 4.23 Point III.		• Copy of original (signed) Manufacturer's Authorization Forms (MAF) for all OEMs as per Chapter 7 Section 7.21 Appendix F-21 kindly refer clause

- **Annexure 5 of Standard Set of Deviations**

- Refer RFP Volume 2 Clause: 9.1, Page no. 71

PROJECT TIMELINES

Guiding principles:

Phase 1 - 4D BIM including Scheduling software + GIS + Analytics (T+9) (3 project to be onboarded in Phase 1)

Phase 2 - 5D BIM + ERP (T+16) (5 project to be onboarded in Phase 2)

Phase 3 - 5D BIM and ERP Integration (T + 18) (5 project to be onboarded in phase3)

MSI shall adhere to the following project timelines: -

Stage I: Implementation Stage (T + 18 months)

Sr. No.	Project Stage	Revised Timeline (Months)
1 Project Preparation		
I.	Letter of Award	M0
II.	Start of The Project / Work order date	T
III.	Mobilization of Resources	T+1
IV.	Finalisation of Project Prioritisation and plan	T+1.5
V.	Approval of Project Charter (Definition of Process and procedure, standards, Reporting structure, workflows, Detailed Project plan, Roles & Responsibilities etc.)	T+2
2 Establishment of OSO		
I.	Definition of Process and procedure, standards, Reporting structure, workflows Establishment of OSO & submission of monthly progress report of OSO activities and acceptance by MMRDA	T+12
3 Supply of Licenses		
A	Supply & Delivery of Business Analytics (Perpetual License)	T+4
B	Supply of CDE, GIS(Perpetual) and 5D License	
I	Procurement Plan of CDE, GIS and 5D License	T+3

Sr. No.	Project Stage	Revised Timeline (Months)
II	Delivery, installation, and related services of CDE, GIS and 5D License	T+4
C	Supply of Software License for Schedule management	
I	Procurement Plan of Schedule management license	T+3
II	Delivery, installation, and related services of Schedule management license	T+4
D	Procurement for Cloud ERP	
I	Procurement Plan of Cloud ERP (Software-As-A-service)	T+7
II	Configuration and integration of Cloud ERP	T+8
E	Supply of Helpdesk system licenses	
I	Procurement Plan of Helpdesk system licenses	T+7
II	Delivery, installation and related services of Helpdesk system licenses	T+8
4 Implementation of Integrated Digital Delivery System		
A	Implementation of Common Data Environment (CDE)	
I.	Finalization of business requirements	T+4
II.	Configuration of CDE Platform	T+5
III.	Use case & test case, Team training, UAT.	T+7
IV.	Pre-Go Live of CDE system	T+8
V.	Completion of CDE system stabilization	T+10
B	Implementation of GIS Software	

Sr. No.	Project Stage	Revised Timeline (Months)
I.	Requirement gathering AS-IS documentation, SRS finalization	T+4
II.	To-be solution mapping & sign-off	T+5
III.	GIS Configuration	T+7
IV.	Use case & test case, Team training, UAT.	T+8
V.	Final Go-Live of GIS System	T+9
VI.	Completion of GIS system stabilization	T+10
C	Cloud ERP system Implementation	
I.	Requirement gathering as-is documentation, SRS finalization	T+4
II.	To-be Solution Mapping & Sign-off	T+6
III.	Configuration / development of system and Unit testing	T+8
IV.	Use case & test case, Team training, UAT.	T+12
V.	Go-Live of ERP system	T+14
VI.	Integration of ERP with the 5D BIM system	T+16
VII.	Completion of ERP Stabilization Stage	T+17
D	Schedule Management system Implementation	
I.	Requirement gathering as-is documentation, SRS finalization	T+4
II.	To-be Solution Mapping & Sign-off	T+5
III.	Configuration / development of system and Unit testing	T+7

Sr. No.	Project Stage	Revised Timeline (Months)
IV.	Use case & test case, Team training, UAT.	T+8
V.	Go-Live of Schedule Management system	T+9
VI.	Integration of Schedule Management with the 5D BIM system (4D BIM Simulation)	T+10
VII.	Completion of Schedule Management Stabilization Stage	T+12
E	Implementation of 5D BIM	
I.	Finalization of business requirements of 5D BIM and definition of application landscape	T+4
II.	System configuration of 5D BIM	T+8
III.	Integration of 4D BIM with Schedule Management	T+10
IV.	Integration of 5D BIM with ERP & other systems	T+16
V.	Use case & test case, Team training, UAT.	T+17
VI.	Go-Live of the 5D BIM system	T+18
F	Implementation of Business Analytics	
I.	Submission and sign off on Business Requirement Document. To-be Solution Mapping & Sign- off	T+4
II.	Installation/ Configuration / Commissioning of system and Unit testing	T+4
III.	Development of Use case as per BRD submission and acceptance by MMRDA	T+6
IV.	Testing of use cases	T+8
V.	Handover Documentation	T+9
VI.	Deployment to Production & Go- Live	T+10

Sr. No.	Project Stage	Revised Timeline (Months)
G	Cloud Hosting during Implementation Phase	
I	Cloud Hosting of DPMS Solution	T+3
H	Implementation of Helpdesk system	
I	Finalization of the business process, procedure, workflow and reporting for Helpdesk management	T+4
II	Implementation & Testing of the Helpdesk Management system	T+8
III	Go-live of helpdesk management system	T+9
I	Implementation of Network and Security devices	T+3
I	Delivery, Installation, and provision for Internet Leased Line (ILL), Firewall, Layer 3 Network Switch, Layer 2 Network Switch, Laptop and Printer with 5 years on-site warranty	T+4
II	Commissioning of Firewall, Layer 3 Network Switch, Layer 2 Network Switch, Laptop and Printer along with dedicated Internet Leased Line (ILL)	T+5
5 Helpdesk & Facility Management		
I	Support – FMS & Helpdesk	T+9 to T+60

Stage II: Support /O&M Stage would start from T+19 to T+60 months. Further details for support are as below:

Sr. No.	Payment Milestone	Timeline (Months)
1	**Annual Technical Support (ATS) of Software Licenses – O&M Period**	
I	Annual Technical Support (ATS) of Software License for Schedule management & GIS	42 Months after the Project go-live
II	Annual Technical Support (ATS) of Software License for CDE, 3D and 5D License	
III	Annual Technical Support (ATS) of Business Analytics related items	42 Months after the Project go-live
IV	Support on Cloud subscription ERP	42 Months after the Project go-live
2	**Integrated Digital Delivery System – O&M (Onsite & Offsite deployment)**	

Sr. No.	Payment Milestone	Timeline (Months)
I	OSO for the project	42 months after Project go-live
II	Support of CDE, GIS and 5D system	42 Months after the Project go-live
III	Support of Schedule Management system	
IV	Support of Cloud ERP & GIS system	
V	Support for Business Analytics, Helpdesk system	
3	**Cloud Hosting During O&M Phase**	
I	Cloud Hosting of DPMS Solution	42 Months after the Project go-live

The timeline of the implementation and supply of licenses given in the RFP are tentative and the Bidder is required to provide the comprehensive plan in the technical proposal, elaborating the timeframe of the license supply and the implementation of each of the IT system.

However, Bidder need to ensure that the go-live of the complete IT landscape is carried within 18 (Eighteen) Months from the start of the project.

- **Annexure 6 of Standard Set of Deviations**

- Refer RFP Volume 2 Clause: 9.2, Page no. 75

  Stage I: Implementation Stage

Sr. No.	Project Stage	Timeline (Months)	Percentage Payment
1	**Project Preparation**		
I	Finalisation of Project Prioritisation and plan. On approval of Project Charter (Definition of Process and procedure, standards, Reporting structure, workflows, Detailed Project plan, Roles & Responsibilities etc.)	T+2	2.5% of Implementation value of 5DBIM, ERP, CDE, GIS, Schedule Management, Business Analytics, Helpdesk **5% of the 5DBIM, ERP, CDE, GIS, Schedule Management and Business Analytics License Cost**
2	**Establishment of OSO**		
I	On establishment of OSO & submission of monthly progress report of OSO activities and acceptance by MMRDA	T+18	18 Monthly Instalment of 90% of OSO Implementation cost for the implementation period.
3	**Implementation of Integrated Digital Delivery System**		
A	**Implementation of Common Data Environment (CDE)**		
I	Finalization of business requirements	T+3	20% of the cost of implementation of CDE Platform
II	Establishment of CDE Platform	T+4	20% of the cost of the implementation of CDE Platform **45% of the CDE license cost**
III	Use case & test case, Team training, UAT	T+6	20% of the cost of the implementation of CDE Platform
IV	Pre-Go Live of CDE system	T+7	17.5% of the cost of the implementation of CDE Platform **20% of the CDE license cost**
V	Completion of CDE system stabilization	T+9	10% of the cost of the implementation of CDE Platform **20% of the CDE license cost**
B	**Implementation of GIS Software**		
I	Requirement gathering AS-IS documentation, SRS finalization	T+3	20% of GIS Implementation cost
II	To-be solution mapping & sign-off	T+4	20% of GIS Implementation cost
III	GIS application development	T+6	20% of GIS Implementation cost **45% of the GIS license cost**
IV	Use case & test case, Team training, UAT.	T+7	17.5% of GIS Implementation cost
V	Final Go-Live of GIS System	T+9	5% of GIS Implementation cost

Sr. No.	Project Stage	Timeline (Months)	Percentage Payment
			20% of the GIS license cost
VI	Completion of GIS system stabilization	T+11	5% of GIS Implementation cost **20% of the GIS license cost**
C	**Cloud ERP Implementation**		
I	Requirement gathering as-is documentation, SRS finalization	T+3	20% of Cloud ERP Implementation cost
II	Configuration / development of system and Unit testing	T+8	20% of Cloud ERP Implementation cost **65% of the Subscription cost on submission of subscription contract with MMRDA**
III	Use case & test case, Team training, UAT.	T+9	20% of Cloud ERP Implementation cost
IV	Go-Live of ERP system	T+10	17.5% of Cloud ERP Implementation cost **20% of the Subscription cost**
V	Integration of ERP with the 5D BIM system	T+11	5% of Cloud ERP Implementation cost
VI	Completion of ERP Stabilization Stage	T+13	5% of Cloud ERP Implementation cost
D	**Schedule Management system Implementation**		
I	Requirement gathering as-is documentation, SRS finalization	T+2	20% of Schedule Management system Implementation cost
II	Configuration / development of system and Unit testing	T+6	20% of Schedule Management system Implementation cost **45% of the license cost**
III	Use case & test case, Team training, UAT.	T+7	20% of Schedule Management system Implementation cost
IV	Go-Live of Schedule Management system	T+8	17.5% of Schedule Management system Implementation cost **20% of the license cost**
V	Integration of Schedule Management with the 5D BIM system (4D BIM simulation)	T+9	5% of Schedule Management system Implementation cost
VI	Completion of Schedule Management Stabilization Stage	T+11	5% of Schedule Management system Implementation cost **20% of the license cost**
E	**Implementation of 5D BIM**		
I	Finalization of business requirements of 5D BIM and definition of application landscape	T+3	20% of the cost of the implementation cost 5D BIM component
II	Establishment of 5D BIM system	T+6	20% of the cost of the implementation cost 5D BIM component

Sr. No.	Project Stage	Timeline (Months)	Percentage Payment
			45% of the 5D BIM license cost
III	System configuration of 5D BIM	T+8	20% of the cost of the implementation cost 5D BIM component
IV	Integration of 5D BIM with ERP & other systems	T+11	10% of the cost of the implementation cost 5D BIM component
			20% of the 5D BIM license cost
V	Use case & test case, Team training, UAT.	T+11.5	12.5% of the cost of the implementation cost 5D BIM component
VI	Go-Live of the 5D BIM system	T+12	5% of the cost of the implementation cost 5D BIM component **20% of the 5D BIM license cost**
F	**Implementation of Business Analytics**		
I	Submission and sign off on Business Requirement Document. To-be Solution Mapping & Sign- off	T+3	20% of the cost of the implementation cost business analytics
II	Installation / Configuration / Commissioning of system and Unit testing	T+4	20% of the cost of the implementation cost business analytics
			45% of the BA license cost
III	Development of Use case as per BRD submission and acceptance by MMRDA	T+6	10% of the cost of the implementation cost business analytics
IV	Testing of use cases	T+7	20% of the cost of the implementation cost business analytics
V	Handover Documentation	T+8	5% of the cost of the implementation cost business analytics **20% of the BA license cost**
VI	Deployment to Production & Go- Live	T+9	12.5% of the cost of the implementation cost business analytics
			20% of the BA license cost
G	**Cloud Hosting during Implementation Phase**		
I	Cloud Hosting of DPMS Solution	T+3	100% of Cloud Infrastructure Implementation Cost to be paid in Quarterly instalments till Go-Live, provided one more DPMS solution component is deployed/ hosted on Cloud Platform proposed.
H	**Implementation of Helpdesk system**		
I	Finalization of the business process, procedure, workflow and reporting for Helpdesk management	T+3	30 % of Helpdesk management system implementation cost **25% of the license cost**
II	Implementation & Testing of the Helpdesk Management system	T+9	10 % of Helpdesk management system implementation cost
			50% of the license cost
III	Go-live of helpdesk management system	T+10	10 % of Helpdesk management system implementation cost
			20% of the license cost
I	**Supply of Hardware**		
I	Delivery, Installation and commissioning of Laptops and Printers with 5 years onsite warranty	T+3	70% Payment on Delivery and Installation as per technical specifications

Sr. No.	Project Stage	Timeline (Months)	Percentage Payment
			20% on Commissioning of Laptop and Printer
II	Delivery, Installation and commissioning of Firewall, Layer 3 Network Switch and Layer 2 Network Switch along with provision of dedicated ILL with 5 years onsite warranty	T+3	70% Payment on Delivery, Installation and provision as per technical specifications
			20% on Commissioning of Firewall and switches along with dedicated ILL
Sr. No.	**Payment Milestone**	**Timeline (Months)**	**Percentage payment**
1	**ATS of Software Licenses – O&M Period**		
I	ATS of Software License for Schedule management	42 Months after the Project go-live	Equal Quarterly instalments of ATS payment and balance 10% of licenses cost on end of subsequent quarter Post submission of ATS contract for 42 months
II	ATS of Software License for CDE, GIS and 5D License		
III	ATS of Software License GIS, helpdesk and other related		
IV	ATS of Business Analytics License		
2	**Integrated Digital Delivery System – O&M (Onsite & Offsite deployment)**		
I	On establishment of OSO & submission of monthly progress report of OSO activities and acceptance by MMRDA	42 Months after the Project go-live	1) Balance 10% of the Implementation OSO cost to be paid in Monthly instalments in next 12 months from Go Live
			2) OSO support cost to be paid on actual deployment of resources on monthly basis
II	Support of CDE, GIS and 5D system	42 Months after the Project go-live	1) 10 % implementation cost of all the application to be paid on equal quarterly instalments
III	Support of Schedule Management system		2) O&M period Payment to be paid on equalled quarterly instalments (payable at end of the quarter).
IV	Support for Business Analytics		
V	Subscription of Cloud ERP	42 Months after the Project go-live	Yearly subscription charges to be paid in half yearly instalments on start of the month
VI	Supply of Hardware	42 Months after the Project Go Live	Balance 10% of Hardware supply payment to be paid Post Go-live O&M payment in equal quarterly instalments
3	**Cloud Hosting during O&M Phase**		
I	Cloud Hosting of DPMS Solution	42 Months after the Project go-live	100% of Cloud Infrastructure Operations & Maintenance Cost to be paid in Quarterly instalments

Annexure 7 to Standard Set of Deviations

- Refer RFP Volume 2 Clause: 9.3, Page no. 82: **Project deliverables**

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
1 Project Preparation				
	Project Preparation	Approval of Project Charter and procurement Plan	• Project Planning • Team mobilization • Project organization and governance • Implementation plan and rollout strategy • Project management plans • Project standards and policies • Change management roadmap and training strategy • Deployment of key personnel	Project Charter • Project Plan • Training Plan • Project communication plan • Resource deployment plan
2 Establishment of OSO				
	Establishment of OSO	Definition of process and procedure, standards, Reporting structure, workflows	• Project organization structure & governance plan • Guidance on Steering committee setup & management guidance on setup of internal team of the Authority • Guidance on setup of project communication plan • IT strategy and roadmap Document • Project approval gates and responsibilities • Stakeholder Management & review system • Administration plan • Hand holding & internalization of implemented Processes • Monitoring system usage Identification of pain & improvement areas • Guiding for data discipline issues • Process audit	• Formulation of OSO and associated processes measurements, dashboards, practices, and governance plan
3 Supply of Licenses				
A	**Supply of CDE License**			

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
I		Procurement plan of CDE license	Procurement plan of CDE license	Sharing of project plan by SI to MMRDA
II		Delivery of CDE license	Delivery of CDE license	Delivery of License by CDE OEM
B	**Supply of Software License for Geographical Information System (GIS)**			
I		Procurement plan of GIS license	Procurement plan of GIS license	Sharing of project plan by SI to MMRDA
II		Delivery of GIS license	Delivery of GIS license	Delivery of License by GIS by OEM
C	**Supply of Cloud ERP Subscription**			
I		Procurement plan of Cloud ERP subscription	Procurement plan of Cloud ERP subscription	Sharing of project plan by SI to MMRDA
II		Delivery of Cloud ERP subscription	Delivery of Cloud ERP subscription	Delivery of Cloud ERP subscription by OEM
D	**Supply Schedule Management system license**			
I		Procurement plan of Schedule Management license	Procurement plan of Schedule Management license	Sharing of project plan by SI to MMRDA
II		Delivery of Schedule Management license	Delivery of Schedule Management license	Delivery of License by Schedule Management system by OEM
E	**Supply of 5D BIM licenses**			
I		Procurement plan of 5D BIM license	Procurement plan of 5D BIM license	Sharing of project plan by SI to MMRDA
II		Delivery of 5D BIM license	Delivery of 5D BIM license	Delivery of License by 5D BIM by OEM
F	**Supply Business Analytics**			
I		Procurement plan of Business Analytics	Procurement plan of Business Analytics	Sharing of project plan by SI to MMRDA
II		Delivery of Business Analytics	Delivery of Business Analytics license & AI	Delivery of License by Business Analytics & AI by OEM
G	**Supply of Software Licenses for Help desk system**			
I		Procurement plan of Helpdesk license	Procurement plan of Helpdesk license	Sharing of project plan by SI to MMRDA

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
II		Delivery of Helpdesk license or **Go-Live of Helpdesk application incase of Be-spoke software**	Delivery of Helpdesk license or **software**	Delivery of License by Helpdesk System OEM or **go-live of Software by MSI**
4. Supply & Installation of Hardware such as laptop, Printer				
I		Approval of hardware procurement as per agreed specification	Finalization of the hardware BOQ Approval of H/W BOQ by MMRDA	Approval of H/W BOQ & specifications
II		Procurement of Hardware	Award of the order to the H/W vendor	Order to H/W vendor
III		Installation and commissioning of hardware	Receipt of the hardware at MMRDA premises Installation, commissioning & testing of the H/W Acceptance of the H/W after the commissioning by MMRDA	Installation & commissioning of H/W
5 Implementation of Integrated Digital Delivery System				
A	**Implementation of Common Data Environment (CDE)**			
I		Finalization of business requirements	• Interaction with stakeholders to business requirements	Business Requirement document
II		Establishment of CDE Platform	• Setup of CDE system • Configuration of CDE System	• **Solution design documents** • **Draft Roles & Responsibilities of Users (Authorization Matrix)** • **Deployment Architecture Document** • **Configuration Document**
III		Testing, User Training, Role mapping	• Test case preparation, Testing of CDE system • Training and Orientation on BIM Configuration Documents • Security and application testing by third party auditor (TPA)	• Test cases & System testing • Training manual and user training
IV		Go Live of CDE system	Training & handholding System utilization for business transaction	Availability of CDE system for the end user
V		Completion of CDE system stabilization	System utilization by end user	System availability by end user as per SLA
B	**Implementation of GIS Software**			

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
I		Requirement gathering as-is documentation, SRS finalization	· Interaction with stakeholders to business requirements	As-is document preparation for GIS system
II		To-Be solution mapping & sign-off	Preparation of to-be document Sign-off of the to-be document from MMRDA	Acceptance and sign-off of the to-be document for GIS system
III		GIS application development	Digital data of base map inclusive of all utilities in proposed GIS in platform compatible format	System Configuration Document
IV		User Training, Role mapping	Preparation of the training manual Training plan & training to the user	User Training Document
V		Go-Live of GIS System	System setup for the business transaction	Availability of GIS system for the end user
VI		Completion of GIS system stabilization	• Security and application testing by third party auditor (TPA) • System performance testing & tuning	System availability by end user as per SLA
C	**ERP system Implementation**			
I		Requirement gathering as-is documentation, SRS finalization	• Detailed as-is study including all existing business processes, workflows, reporting requirements, process maps • System Requirement Specifications • Validation workshops Solution • Process definition	As-is document preparation for ERP system
II		To-be Solution Mapping & Sign-off	• Business Blueprint design • Gap Analysis document • Prioritized and estimated Backlog document with requirements and solution gaps • Change impact analysis and communication plan • Legacy data migration design • Technology design and setup • Learning needs analysis and Deployment Strategy	• Solution design documents • Draft Roles & Responsibilities of Users (Authorization Matrix) • Deployment Architecture Document • HLD and LLD
III		System configuration as per finalized processes	• Configurations and Developments	System configuration document

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
			• Technology setup for quality and production environment including security and authorizations	
IV		System Testing, End user manual preparation, user Training	• Technical development of custom objects • Unit testing & Defect management • Organization alignment and user enablement • Evaluation and enhancement of security/controls Technical Quality • Assurance Integration Validation • Core Team Training • End user training • User acceptance test • Technical operations setup plan • Security and application testing by third party auditor (TPA)	User Training Manual
V		Go-Live of ERP system	• Data migration - ongoing • Transition Strategy • Roles & Authorization Completion • Production Build • Production Readiness Assessment • Support for end user training • Helpdesk structure, process and operational manual • An assessment of standards for optimizing solution operation, including setup of processes, tools, organization, and roles • Knowledge transition to new support team	• Cutover Strategy & Plan • Master data upload programs • Sample data upload validation • Final Authorization matrix, Roles & related authorization • Training manual and capacity building plan
VI		Integration of ERP with the 5D BIM system	Integration script Testing & user acceptance	User Acceptance & sign-off of integrated system

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
VII		Completion of ERP Stabilization Stage	• Service delivery with no disruption to business • Daily monitoring & Reporting • Periodic performance meeting and optimized support process	• Issue List with resolution status • Daily reports of issue and their status
D	**Schedule Management system Implementation**			
I		Requirement gathering as-is documentation, SRS finalization	• Detailed as-is study including all existing business processes, workflows, reporting requirements, process maps • System Requirement Specifications • Validation workshops Solution • Process definition	As-Is document preparation for Schedule Management system
II		To-Be Solution Mapping & Sign-off	• Business Blueprint Design • Gap Analysis document	• Solution design documents • Draft Roles & Responsibilities of Users (Authorization Matrix) • Deployment Architecture Document
III		System configuration as per finalized processes	• Configurations and Developments • Technology setup for quality and production environment including security and authorizations	System configuration document
IV		System testing, End user manual preparation, user training	• Technical development of custom objects • Unit testing & Defect management • Organization alignment and user enablement • Evaluation and enhancement of security/controls Technical Quality • Assurance Integration Validation • Core Team Training • End user training • User acceptance test • Security and application testing by third party auditor (TPA)	User training document User training

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
V		Go-Live Schedule Management system	• Data migration - ongoing • Transition Strategy • Roles & Authorization Completion • Production Build • Production Readiness Assessment • Support for end user training	• Cutover Strategy & Plan • Master data upload programs • Sample data upload validation • Final Authorization matrix, Roles & related authorizations
VI		Integration of Schedule Management with the 5D BIM system	Integration script Testing & user acceptance	User acceptance & sign-off of integrated system
VII		Completion of Schedule Management Stabilization Stage	• Service delivery with no disruption to business • Daily monitoring & Reporting • Periodic performance meeting and optimized support process	• Issue List with resolution status • Daily reports of issue and their status
E	**Implementation of 5D BIM**			
I		Finalization of business requirements of 5D BIM and definition of application landscape	• Detailed as-is study including all existing business processes, workflows, reporting requirements, process maps • System Requirement Specifications • Validation workshops Solution • Process definition	As-is document preparation
II		Establishment of 5D BIM system	• Business Blueprint design • Gap Analysis document	• Solution design documents • Draft Roles & Responsibilities of Users (Authorization Matrix) • Deployment Architecture Document
III		System configuration of 5D BIM	• Configurations of 5D BIM system • Technology setup for quality and production environment including security and authorizations	System configuration document
IV		Integration of 5D BIM with ERP	• Technical development of custom objects • Unit testing & Defect management • User training • User Acceptance Test • Technical operations setup plan	User training document & User training

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
V		System Testing, End User Manual Preparation, User Training	• Roles & Authorization Completion • Support for end user training • Helpdesk structure, process and operational manual • Security and application testing by third party auditor (TPA)	• Sample data upload validation • Final Authorization matrix, Roles & related authorizations
VI		Final Go-Live of 5D BIM Software	Integration script Testing & user acceptance	User acceptance & sign-off of integrated system
VII		Completion of 5D BIM System stabilization stage	• Service delivery with no disruption to business • Daily monitoring & Reporting • Periodic performance meeting and optimized support process	• Issue List with resolution status • Daily reports of issue and their status
F	**Implementation of Business Analytics**			
I		Submission and sign off on Business Requirement & to-be solution mapping Document	• Detailed as-is study including all existing business processes, workflows, reporting requirements, process maps • System Requirement Specifications • Validation workshops Solution • Process definition • Business Blueprint design	As-is document preparation for Business Analytics system To be system document
II		Configuration / development of system and Unit testing	• Configurations and Developments • Technology setup for quality and production environment including security and authorizations	System configuration document
III		Test case finalization & Testing of the 50% of developed item	• Report layout design • Test case preparation • Testing of the report/dashboards	Report/Dashboard layout Test case design Test case result
IV		Test case finalization & Testing of the remaining 50% of developed item	• Report layout design • Test case preparation • Testing of the report/dashboard • Security and application testing by third party auditor (TPA)	Test result of the test cases

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
V		End user manual preparation, user training	Training manual Hands on training to the users	Training manual Training to the user
VI		Final preparation, data migration & Go- Live	Preparation of the data upload format Data gathering Data upload	Master & transaction data in the production system Availability of the system to the end users
VII		System stabilization of the business analytics system	• Service delivery with no disruption to business • Daily monitoring & Reporting • Periodic performance meeting and optimized support process	• Issue List with resolution status • Daily reports of issue and their status
G	**Implementation of Helpdesk system**			
I		Finalization of the business process, procedure, workflow and reporting for Helpdesk management	Finalization of the helpdesk process, workflow, and SLA	Sign-off of the helpdesk process document
II		Implementation & Testing of the Helpdesk Management system	Configuration of the helpdesk process and workflow in the helpdesk management system	System configuration and testing document
III		Go-live of helpdesk management system	Go- live of the helpdesk management system for logging the issues	Availability of the helpdesk system for issue logging
6 Helpdesk & Facility Management				
I		Support – FMS & Helpdesk	• Setup of the helpdesk & facility management H/W and software • Setting up of Helpdesk (including availability of landline and mobile numbers) • Deployment of the Helpdesk and facility team as per the scope of the project	Availability of the helpdesk and facility management staff for the helpdesk and facility management services
7 Operation & Maintenance Period				
Sr. No.	**Project Stage**	**Project Milestone**	**Project Task & Activities**	**Project Deliverables**
1	**ATS of Software Licenses – O&M Period**			
I		ATS of CDE License	Product related support and patch by the OEM	

Sr. No.	Project Stage	Project Milestone	Project Tasks/Activities	Project deliverable
II		ATS of Software License for Geographical Information System (GIS)		• System performance report & ATS Contract document for 5 year
III		ATS of Schedule Management system license		
IV		ATS of 5D BIM licenses		
V		**Cloud ERP Subscription**		
VI		ATS Business Analytics licenses		
VII		ATS of Software Licenses for Help desk & FM system		
2	**IT system support**			
I		Support of CDE system	• Service delivery with no disruption to business • Daily monitoring & Reporting • Periodic performance meeting and optimized support process	• Issue List with resolution status • Daily reports of issue and their status • System Performance Report (SLA compliance) as per requirement
II		Support of GIS system		
III		Support of ERP & Schedule Management system		
IV		Support for Business Analytics system		
V		Support for 5D BIM system		

Annexure 8 to Standard Set of Deviations

- Refer RFP Volume 1 chapter 9 Clause 9.2, Page no. 150: **Schedule A- Owners Support Office (OSO)**

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in clause 6.1 volume 2 & qualification & experience defined in clause 5.2 of volume 1)*	No of Resources		T+18			T1+42 (T1=T+18)			Total (in INR)
			Min Man month	Rate	Man-month	Amount	Rate	Man-month	Amount	
	a	b	c	D	e	f = b*d*e	g	h	i = b*g*h	s = f+i+l+o+r
A	**OSO Cost**									
1	Engagement Director/ Infrastructure Expert	1	**12**		**4**			**8**		
2	Program Manager	1	**30**		**18**			**12**		
3	Infrastructure/ (Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities) Expert	1	**24**		**18**			**6**		
4	5D BIM Strategy Specialist	1	**24**		**18**			**6**		
5	Business analytics Expert	1	**24**		**18**			**6**		
6	CDE Expert	1	**24**		**18**			**6**		
7	GIS and imagery Expert	1	**30**		**18**			**12**		
8	Project Manager – ERP	1	**24**		**18**			**6**		
9	Digital Project Implementation Specialist	1	**18**		**12**			**6**		
10	Consultant Project Controls	1	**12**		**12**			**0**		
11	Consultant – Governance & Organization	1	**12**		**12**			**0**		
12	Consultant Time & Program Management	1	**12**		**12**			**0**		

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in clause 6.1 volume 2 & qualification & experience defined in clause 5.2 of volume 1)*	No of Resources		T+18			T1+42 (T1=T+18)			
			Min Man month	Rate	Man-month	Amount	Rate	Man-month	Amount	Total (in INR)
13	Consultant – Risk, Governance, Compliance & Reporting	1	**12**		**12**			**0**		
14	Consultant – Procurement, Contracts, & Claims Management	1	**18**		**12**			**6**		
15	Consultant – Application Integration	1	**21**		**18**			**3**		
16	Consultant -CDE	1	**36**		**18**			**18**		
17	BIM Consultant	1	**42**		**18**			**24**		
18	Consultant ERP	1	**48**		**18**			**30**		
19	Change Management Expert/Consultant	1	**15**		**12**			**3**		
20	Consultant-Business Analytics	1	**24**		**18**			**6**		
21	Training Expert	1	**17**		**14**			**3**		
22	Package coordinator/Coordinators for the projects	1	**48**		**18**			**30**		
23	GIS Operator	1	**18**		**18**			**0**		
24	Photogrammetry Expert	1	**18**		**18**			**0**		
25	IT Support Executive	5	**18**		**18**			**0**		
26	Content Manager (English Literature)	2	**18**		**18**			**0**		
	Grand Total-A (Excluding Tax)									

- Refer RFP Volume 1 chapter 9 Clause 9.2, Page no. 154: **Schedule B - License Cost**

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in clause 11.3 Volume 2)*	Quantity	Price (In INR) (Year wise)			
			Unit Cost	Stage Cost		Total (in INR)
				Implementation	Operation & Maintenance	
				T+18	T1+42 (T1=T+18)	
	a	b	c	d = b x c	e	i = d+e
1	Schedule Management System					
2	Cloud on ERP Subscription					
3	Business Analytics & AI					
4	GIS System server Licenses					
5	CDE, 3D & 5D BIM system					
6	Helpdesk system and any other relevant software					
	Grand Total - B (Excluding Tax)					

- Refer RFP Volume 1 chapter 9 Clause 9.2, Page no. 155: **Schedule C - Implementation & Support Cost**

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in Chapter 5 scope of work of volume 2)*	Price (In INR) (Year wise)		
		Stage Cost		Total
		Implementation	Operation & Maintenance	(in INR)
		T+18	T1+42 (T1=T+18)	
	a	**b**	**c**	**d=b+c**
1	Schedule Management System			
2	Cloud ERP			
3	GIS based web application			
4	Common Data Environment			
5	5D Visualization			
6	Business Analytics System			
7	Helpdesk & Facility Management			
8	Any Other Item.			
	Grand Total - C (Excluding Tax)			

- Refer RFP Volume 1 chapter 9 Clause 9.2, Page no. 156: **Schedule D – Cloud Hosting**

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in Chapter 12 Cloud Infrastructure requirement of volume 2)*	Price (In INR) (Year wise)		
		Stage Cost		Total
		Implementation	Operation & Maintenance	(in INR)
		T+18	T1+42 (T1=T+18)	
	a	**b**	**c**	**d = b+c**
1	Cloud Hosting for 5 years			
	Grand Total - D (Excluding Tax)			

- Refer RFP Volume 1 chapter 9 Clause 9.2, Page no. 157: **Schedule E – Hardware**

Sr. No.	Description *(to be quoted as per the defined scope of work mentioned in Chapter 19 Hardware Technical Specification of volume 2)*	Quantity		Price (In INR) (Year wise)		
			Unit Rate	Stage Cost		Total
				Implementation	Operation & Maintenance	(in INR)
				T+18	T1+42 (T1=T+18)	
	a	**b**	**c**	**d = b x c**	**e**	**f= d+e**
1	Laptop including all OS, software and Security Software Licenses	20				
2	Printer cum scanner (Colour A3 Printer cum Scanner)	2				
	Grand Total - E (Excluding Tax)					

Annexure 9 to Standard Set of Deviations

Revised Clause for OEM Mandatary Compliance Criteria

5.1.2 OEM Mandatary Compliance Criteria

Bidder will be required to engage the original equipment manufacturer (OEM) for the Commercial off-the-shelf (COTS) products. The below mention criteria are mandatory for an OEM to comply however there are marking been given for OEM Criteria. Below are the OEM criteria for the COTS products.

I. OEM Criteria: Common data Environment (CDE)

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	Criteria	Documentary Proof
1	Presence inIndia	Proposed OEM should have office presence in India.	OEM self-certification
2	Product Implementation	The proposed products should have at least one implementationin Government/ Public Sector Agency in India or abroad	Copy of Work Orders /Go-live certificates issued by Clients
3	Experience in infrastructure sector	The proposed products should have at least one implementation in Infrastructure sector	Copy of Work Orders /Go-live certificates issued by Clients
4	Research & Development	OEM should have sufficient R&Dcapacities to support any additional requirements that may arise in the course of system Deployment	Self-declaration from theOEM on company letterhead specifying the substantial compliance
5	Commitment toSupport	The proposed COTS OEM should offer 24X7, SLA based support for priority messages. The proposed COTS OEM should have support centres/ support Partners in Maharashtra. In case of the Bidder not having an operational technical support center in the state of Maharashtra, the same shall be established before Go-Live.	OEM self-certification on company letterhead indicating the commitment to Support.

II. OEM Criteria for 5D BIM

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	OEM Criteria Required	Documentary Evidence to beenclosed in support
1	5D BIM feature	The proposed Commercial Off theShelf (COTS) 5D BIM products (i.e., each ofthe COTS software proposed as part of proposed BIM solution) have at least 2 implementations in infrastructure projects including Metro Rail / Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities.	Self declaration supported by Certificates fromClient(s) of the OEM
2	Presence inIndia	Proposed OEM should have officepresence in India and preferably in the state of Maharashtra	Declaration from the authorized signatory on OEM's Letter Head of the tothis effect
3	Product Implementation	The proposed products should have atleast one implementation in Government / Public Sector Agency inIndia or abroad	Copy of Work Orders / Go-livecertificates issued byClients
4	Experience in infrastructure sector	The proposed products should have atleast one implementation in Infrastructure sector	Copy of Work Orders / Go-livecertificates issued by Clients
5	Commitment toSupport	The proposed COTS OEM should offer 24X7, SLA based support for priority messages. The proposed COTS OEM should have support centres/ support Partners in Maharashtra. In case of the Bidder not having an operational technical support center in the state of Maharashtra, the same shall be established before Go-Live.	OEM self- certification indicating the commitment to Support.

III. OEM Criteria for ERP

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	OEM Criteria Required	Documentary Evidence to beenclosed in support
1	ImplementationPartners	The Bidder / COTS OEM should have at least 3 partners who can implementthe proposed product.	OEM self- certification
2	Implementations	The proposed products should have at least 5 implementations in Government and Public Sector Agency within India in last 10 years	Copy of Work Orders / Go-live certificates issued by Clients
3	Commitment toSupport	The proposed COTS OEM shouldoffer 24X7, SLA based support for'Very High' priority messages.	OEM self- certification indicating the commitment toSupport
		The proposed COTS OEM should have support centres in India and preferably in the state of Maharashtra. The proposed COTS OEM should have development centre in India with more than **200 Developers**.	
4	Product	COTS software should support localization features for India taxesand provides the legal changes forthese taxes as a support package from time to time.	Declaration fromthe authorized signatory on OEM's Letter Head of the to this effect.

IV. OEM Criteria for Schedule Management system

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	OEM Criteria Required	Documentary Evidence to beenclosed in support
1	Presence inIndia	Proposed OEM should have officepresence in India	OEM self- certification
2	Partner inIndia	The OEM should have at least 5 Partnersin India.	Declaration fromthe authorized signatory on OEM's Letter Head of the tothis effect
3	Experience in of handling large scale project	It should be able to handles large-scale with up to **50,000** activities with unlimited resources and an unlimited number of target plans.	Declaration from the authorized signatory on OEM's Letter Head of the to this effect
4	24/7 support	This proposed product OEM should offer 24 X 7 and SLA based support and have support centres in India	Declaration from the authorized signatory on OEM's Letter Head of the to this effect
5	Experience in large scale infrastructure project	It should have been implemented in at least 5 large Infrastructure sector i.e., Metro Rail/ Railway / Road / Bridges / Flyover/ Real Estate/ City Development/ Utilities.	Declaration from the authorized signatory on OEM's Letter Head of the to this effect

V. OEM Criteria for Business Analytics & AI Solution

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	OEM Criteria Required	Documentary Evidence to be enclosed in support
1.	Ready to Deploy	The Business Analytics & AI Platform provided by Bidder must be COTS platform comprising of Data Preparation, Visualization, Machine Learning & AI from single OEM and it should meet all the technical criterion laid down in the functional specification with no special development shall be required to meet the specification and functional requirement. **In case development is required the same shall be mentioned in the technical compliance document.**	MAF (Manufacturer Authorization Form) and Product fact sheet mentioning OEM solution & capability for Data Preparation, Visualization, Machine Learning and AI. Technical and Functional Compliance Report.
2.	Commitment to Support	The OEM for Business Analytics & AI platform should have technical support center in Maharashtra. In case of the Bidder not having an operational technical support center in the state of Maharashtra, the same shall be established before Go-Live.	Declaration from the authorized signatory of the OEM to this effect.
3.	Strong Presence	The entire Business Analytics & AI platform should be from the same OEM and OEM should be supplying this software commercially for at least last **10 years** in India.	Declaration from the authorized signatory of the OEM to this effect.
4.	Education and Training	The OEM of proposed Business Analytics & AI should have Training Centre in India	Declaration from the authorized signatory of the OEM to this effect.
5.	Experience in Government	The OEM of proposed Business Analytics & AI platform should have implemented at least 3 projects in last 3 years in any Central & State Govt./ Semi-Govt. / Urban Development agencies / PSU organization in India or globally as on date of submission of bid. Unpaid pilot or Proof of Concept will not be acceptable.	An undertaking from OEM to be provided with necessary proof Workorders / Contract / Purchase Orders from procuring Govt. Authority or associate System Integrator or service partner

VI. OEM Criteria for Geographical Information System (GIS)

Please refer Appendix F-17: Compliance to OEM Qualification Criteria

Sr. No.	Requirement	OEM Criteria Required	Documentary Evidence to be enclosed in support
1	Presence in India	Proposed OEM should have office presence in India.	OEM self-certification
2	Product Implementation	The proposed products should have at least five installations based in Government / Public Sector Agency in India or abroad	Copy of Work Orders/ Go-live certificates issued by Clients
3	Experience in infrastructure sector	The proposed products should have at least one implementation in Infrastructure sector	Copy of Work Orders / Go-live certificates issued by Clients
4	Research & Development	OEM should have sufficient R&D capacities to support any additional requirements that may arise in the course of system Deployment	Self-declaration from the OEM on company letterhead specifying the substantial compliance
5	Commitment to Support	The proposed COTS OEM should offer 24X7, SLA based support for priority messages. The proposed COTS OEM should have support centres in India.	OEM self-certification on company letterhead indicating the commitment to Support.

Annexure 10 to Standard Set of Deviations

- Refer RFP Volume 2 Chapter 15 Clause **15.3 Client Site Availability SLAs**

15.3 Client Site Availability SLAs

Please note the following SLAs apply both for CSP and MSP/SI. While the CSP will be responsible for maintaining the SLAs pertaining to the cloud infrastructure, network, controls etc., the MSP will be responsible for the SLAs related to managing and monitoring the cloud services.

Sr. No.	Service Level Objective	Measurement Methodology /	Target/Service Level	Penalty (Indicative)
Service Levels for CSP				
Availability/Uptime				
1	Availability/ Uptime of cloud services Resources for Production environment (VMs, Storage, OS, VLB, Security Components,)	Availability (as per the definition in the SLA) will be measured for each of the underlying components (e.g., VM, Storage, OS, VLB, Security Components) provisioned in the cloud. Measured with the help of SLA reports provided by CSP	Availability for each of the provisioned resources: >=99.5%	Default on any one or more of the provisioned resources will attract penalty as indicated below. <99.5% & >=99% (10% of the Respective Month) < 99% (30% of the Respective Month)
2	Availability of Critical Services (e.g., Register Support Request or Incident; Provisioning/ De-Provisioning; User Activation / De-Activation; User Profile Management; Access Utilization Monitoring Reports) over User / Admin Portal and APIs (where applicable)	Availability (as per the definition in the SLA) will be measured for each of the critical services over both the User / Admin Portal and APIs (where applicable)	Availability for each of the critical services over both the User / Admin Portal and APIs (where applicable) >= 99.5%	Default on any one or more of the services on either of the portal or APIs will attract penalty as indicated below. <99.5% and >= 99% (10% of the Respective Month) <99% (20% of the Respective Month)
3	Availability of the network links at DC and DR (links at DC / DRC, DCDRC link)	Availability (as per the definition in the SLA) will be measured for each of the network links provisioned in the cloud.	Availability for each of the network links: >= 99.5%	Default on any one or more of the provisioned network links will attract penalty as indicated below. <99.5% & >=99% (10% of the Respective Month) < 99% (30% of the Respective Month)
4	Availability of Regular Reports (e.g., Audit, Certifications,) indicating the compliance to the Provisional Empanelment Requirements.		15 working days from the end of the quarter. If STQC issues a certificate based on the audit, then this SLA is not required.	5% of Respective Month
5	Response Time	Average Time taken to acknowledge and respond, once a ticket/incident is logged through one of the agreed channels. This is calculated for all tickets/incidents reported within the reporting month.	95% within 15minutes	<95% & >=90% (5% of the Respective Month) < 90% & >= 85% (7% of the Respective Month) < 85% & >= 80% (9% of the Respective Month)
6	Time to Resolve - Severity 1	Time taken to resolve the reported ticket/incident from the time of logging.	For Severity 1, 98% of the incidents should be resolved within 30 minutes of problem reporting	<98% & >=90% (5% of the Respective Month) < 90% & >= 85% (10% of the Respective Month) < 85% & >= 80% (20% of the Respective Month)

Sr. No.	Service Level Objective	Measurement Methodology /	Target/Service Level	Penalty (Indicative)
Service Levels for CSP				
7	Time to Resolve - Severity 2,3	Time taken to resolve the reported ticket/incident from the time of logging.	95% of Severity 2 within 4 hours of problem reporting AND 95% of Severity 3 within 16 hours of problem reporting	<95% & >=90% (2% of the Respective Month) < 90% & >= 85% (4% of the Respective Month) < 85% & >= 80% (6% of the Respective Month)
Security Incident and Management Reporting				
8	Percentage of timely incident report	Measured as a percentage by the number of defined incidents reported within a predefined time (1 hour) limit after discovery, over the total number of defined incidents to the cloud service which are reported within a predefined period (i.e., month). Incident Response - CSP shall assess and acknowledge the defined incidents within 1 hour after discovery.	95% within 1 hour	<95% & >=90% (5% of the Respective Month) < 90% & >= 85% (10% of the Respective Month) < 85% & >= 80% (15% of the Respective Month)
9	Percentage of timely incident resolutions	Measured as a percentage of defined incidents against the cloud service that are resolved within a predefined time limit (month) over the total number of defined incidents to the cloud service within a predefined period. (Month). Measured from Incident Reports	95% to be resolved within 1 hour	<95% & >=90% (5% of the Respective Month) < 90% & >= 85% (10% of the Respective Month) < 85% & >= 80% (15% of the Respective Month)
Vulnerability Management				
10	Percentage of timely vulnerability corrections	The number of vulnerability corrections performed by the cloud service provider - Measured as a percentage by the number of vulnerability corrections performed within a predefined time limit, over the total number of vulnerability corrections to the cloud service which are reported within a predefined period (i.e., month, week, year, etc.). • High Severity Vulnerabilities – 30 days - Maintain 99.95% service level • Medium Severity Vulnerabilities – 90 days - Maintain 99.95% service level	99.95%	>=99% to <99.95% [10% of Respective Month] >=98% to <99% [20% of Respective Month] <98% [30% of Respective Month]
11	Percentage of timely vulnerability reports	Measured as a percentage by the number of vulnerability reports within a predefined time limit, over the total number of vulnerability reports to the cloud service which are reported within a predefined period (i.e., month, week, year, etc.).	99.95%	>=99% to <99.95% [10% of Respective Month] >=98% to <99% [20% of Respective Month] <98% [30% of Respective Month]
12	Security breach including Data Theft/Loss/Corruption	Any incident where in system compromised or any case wherein data theft occurs (including internal incidents)	No breach	For each breach/ data theft, penalty will be levied as per following criteria. Any security incident detected INR 5 Lakhs. This penalty is applicable per incident. These penalties will not be part of overall SLA penalties cap per month. In case of serious breach of security wherein the data is stolen or corrupted, MMRDA reserves the right to terminate the contract.
13	Availability of SLA reports covering all parameters required for SLA monitoring within the defined time		(e.g., 3 working days from the end of the month)	5% of Respective Month
Service levels for MSP/SI				

Sr. No.	Service Level Objective	Measurement Methodology /	Target/Service Level	Penalty (Indicative)
Service Levels for CSP				
14	1. Recovery Time Objective (RTO) (Applicable when taking Disaster Recovery as a Service from the Service Provider)	Measured during the regular planned or unplanned (outage) changeover from DC to DR or vice versa.	RTO <= 1 Business Hour	10% of Respective Month per every additional 4 (four) hours of downtime
15	2. RPO (Applicable when taking Disaster Recovery as a Service from the Service Provider)	Measured during the regular planned or unplanned (outage) changeover from DC to DR or vice versa.	RPO <= 30 mins	10% of Respective Month per every additional 2 (two) hours of downtime
16	Availability of Root Cause Analysis (RCA) reports for Severity 1 & 2		Average within 5 Working days	5% of Respective Month

Severity Levels

Below severity definition provide indicative scenarios for defining incidents severity. However, MMRDA will define/ change severity at the time of the incident or any time before the closure of the ticket based on the business and compliance impacts.

Severity Level	Description	Examples
Severity 1	Environment is down or major malfunction resulting in an inoperative condition or disrupts critical business functions and requires immediate attention. A significant number of end users (includes public users) are unable to reasonably perform their normal activities as essential functions and critical programs are either not working or are not available	- Non-availability of VM - No access to Storage, software, or application
Severity 2	Loss of performance resulting in users (includes public users) being unable to perform their normal activities as essential functions and critical programs are partially available or severely restricted. Inconvenient workaround or no workaround exists. The environment is usable but severely limited.	- Intermittent Network connectivity
Severity 3	Moderate loss of performance resulting in multiple users (includes public users) impacted in their normal functions.	

- **Key Resource SLA**

Sr. No	SLA Parameter	Description	Target
1	Team mobilization and Commencement of work including deployment of key personnel on site	Deployment of identified key personnel in MMRDA, mobilization of team and commencement of work as per the project schedule	<4 weeks
2	Change in named key personnel	Key personnel team deputed at MMRDA office to consist of same members whose names were proposed in the bid. However, in case of replacement proposed, the resource shall be equally or better qualified in terms of Education Qualification & Work Experience after mutual discussion with MMRDA and shall be as per the RFP requirements.	No deviation
3	Delay in any of the project	Measured as the difference between the planned date for the milestone and the actual date of its completion	>7 days
4	Delay in overall Go-Live date	Measured as the difference between the planned date for the Go-Live and the actual date of Go-Live	< 10 Days
5	Training and capacity building	Feedback to be taken from all attendees	>75% of training audience to give a satisfactory or above rating (per training)

Annexure 11 to Standard Set of Deviations

- **Clarifications on Cloud Infrastructure Requirements**

S No.	RFP Clause No	Content of the RFP	Clarity
1	12 Cloud Infrastructure Requirements. 12.1 Cloud Requirements & Hosting Services Point No 10	Cloud IT infrastructure services includes servers, storages, back up, networking, load balancers, security equipment, operating systems, database, help desk system and other related IT infra required for running and operating the envisaged system.	• The Server Load Balancer appliance should support Minimum 256GB RAM, 4TB HDD and should have dedicated SSL card to support Minimum 75,000 ECC TPS (ECDSA-SHA256) & 109,000 SSL TPS 2K Keys. The appliance should have minimum 10G SFP+ data interfaces from day one and should have option to convert it to 1G copper interfaces from day one. • Multi-tenant platform must support traffic isolation, fault isolation, protection against DDOS attacks and network isolation to meet the architectural environment. Each network function must have assigned dedicated hardware resources including I/O interfaces, memory, CPU, SSL card to ensure every network function performs without affecting other functions. Device should have Minimum two Server Load balancer Virtual Instances with 20Gbps of system throughput each from day one and scalable to four more Server load balancer network functions of same capacity with License upgrade. Should be one dedicated instance for Web Application Firewall with at least 1Gbps of WAF Throughput.

Annexure 12 to Standard Set of Deviations

- **Clarifications on 5D BIM & CDE Solution Features**

8.4.2 5D BIM & CDE Solution Features

Bidder shall propose a robust architecture for system, which is simple, highly secure, and scalable, and provide efficient functionalities with ease of use. The features shall include the following:

BIM and CDE for Design and Engineering phase:

- Augmentation and Integration of engineering survey data with reality modeling data – (drone-based photogrammetry data).
- 3D modeling of all designs in for all phases for design - preliminary design, detailed design, construction phase and as built. Solution may enable derivation of 2D Drawings from 3D models;
- Design integration and visibility of designs by the Contractors appointed by the MMRDA.
- 3D modeling-based planning, scheduling and project management.
- Constructability and clash detection/ avoidance.
- Co-ordination of inter-discipline's using 3D models amongst stakeholders.
- Integrated design and construction process.
- Visual analysis of construction alternatives, activities, and schedules

BIM and CDE for Construction Phase:

- Construction scheduling, planning and construction project management using 4D and 5D.
- Association of 3D models and resources (material, equipment and space) to the scheduled tasks and manage and visualize "what if" sequential changes;
- Track costs and earned value using 4D and 5D modeling and schedules.
- Daily / weekly / monthly construction process reporting based on 4D modeling.
- Co-ordination amongst EPC contractors and suppliers.
- Contract administration using the document objects and dependencies.
- Risk management through 4D scheduling.
- Communication management for managing project communications.
- Records management.
- Document management.
- Document control.
- Automated web - based dashboards for progress monitoring based on deliverables of EPC contractors.
- Mobile device review, approvals, and inspections.

BIM and CDE for Operations Phase:

- Virtual handover and commissioning.
- Information (data / attributes / document) repository for facility and asset management system.
- Document control and management to restrict uncontrolled changes to safety or mission critical documents.
- Configuration management of safety critical, high risk, and high value assets to ensure that the right equipment is installed in the correct tag location.
- BIM models tied to operational and maintenance data for effective reporting of condition, maintenance needs, planned maintenance and other important data reflected in the digital twin.
- Models readily available for use in future, brownfield projects.
- MMRDA is also planning to implement Business Analytics System, which should act as reporting as well as forecasting system. The system should provide insights on project cost, budget, schedule, risk etc., which will be used to improve costs and efficiency and identify potential problems.

Annexure 13 to Standard Set of Deviations

- **Clarifications on Business Analytics Requirement and Features**

8.3 Business Analytics Requirement and Features

The business analytics system shall help in storing, analyzing, and provide access to datato help users make better & informed business decisions. The Data Integration and Analytics platform shall be an integrated platform for business analytics, comprising data preparation, exploration and interactive statistical modeling, visualization, mobility, and administration.

To create a holistic business decision support system for proactive management of emerging issues and risks, these siloed data information needs to be collected, curated,and used for business analytics. Utilizing these data sources will lead to a faster decision,improvement in efficiency, bring data driven transparency and improve the service deliveryto various internal and external stakeholders.

The data analytics shall be used to gain the data driven insights and help organization to take the proactive and informed decisions backed by data and facts.

Following features of business Analytics are required to build the business KPI glossary for Project Planning, Procurement & Contracting, and Project Implementation unit of MMRDA. Business Analysis shall help in visualize the KPI's for each department.

The indicative data sources shall include:

- Cost, billing, claims & payment information from the proposed ERP
- Design & modeling application
- Schedule and progress monitoring application
- Other applications, such as BIM, GIS etc.

Following are the key requirements from the Business Analytics system:

a) As clean data is a must have for business analytics, the proposed system shall have robust data pipelines and data access capabilities to extract and standardize the data from siloed systems like Databases, Excel, Flat Files and ERP systems.

b) BI system should have integration and deployment capabilities for web, applications, dashboards, business intelligence, workflow, event management, KPIs, monitoring and resource optimization. The analytics visualization system shall be providing the web based secured role- based access to multiple stakeholders from various MMRDA departments. It shall also support the mobility feature on mobile and tablet for executives.

c) It should take inputs from various sources to enable proactive monitoring & analytical prediction. Through this platform, various 'mined' information can be shared with the Authority's management in form of reports, dashboard etc.

d) It should provide point-and-click interface for exploring and forecasting time series data.

e) Generate management dashboards for different management levels clearly highlighting projects at different stages

f) It shall have ability to monitor the KPI from various department at near real time, generate the alerts and warnings in case of KPI deviation / degradations, trigger email and/or SMS based alerts for senior management for potential delays / risks.

g) Generate reports at a project as well as package level with pre-defined progress metrics depending on the stage of the project (preparation, contracting, construction, O&M, land acquisition, clearances, etc.)

h) Solution should have the capability of providing on-line information to facilitate tactical and operational decision-making.

i) Tool shall also support the highly collaborative environment for creating conversational flows, templates and report sharing to improve the efficiency and turnaround time.

j) The proposed solution shall be unified having the single user interface for various business users. It should support the in-memory architecture for faster reporting and analytics performance. It should be scalable in nature and should be flexible to deploy on-premises or in cloud environment.

Expected Benefits from Business Analytics System (BAS):

a) Produce and Access Information in the Timeliest Manner

BAS will integrate data from across the enterprise and provides self-service reporting and analysis to different user groups. The application should provide role-based access to data access, query and reporting capabilities. Decision makers of the Project should have on-demand access to up-to-date, consistent information when and where they need it, whether it's from their desk, a conference room or mobile device.

b) Ensure Source Data Is Correct and Current

The BAS should have capabilities to meet the needs of every type of user, including management looking for dashboards, normal business user who want to view web, analysts or power users who need advanced data exploration, and IT staff members who need to deploy, manage, control and maintain the entire solution. The system should ensure that everyone is using consistent business rules and definitions to produce accurate information.

c) Share New Insights Across the Organization

The solution should eliminate bottlenecks and silos that occur with various application and processes and provide a single, dynamic visualization environment, a comprehensive library of graphics for presentations and customizable options. The BI solution should have analytical ability and provide insights to the users to discover hidden facts, investigate patterns in case of any anomaly.

d) Control Data Access and Provide Regulatory Compliance

Through centrally managed data, security and shared metadata, it should deliver consistent representation and control of information by providing reliable results that can be easily traced back to the source and should alleviates the repetitive task of validating which reports or results are correct. In addition, it should have ability of integration with Microsoft Office that should enable the IT team to retake control of ad-hoc Excel use without impeding use of this familiar environment

Annexure 14 to Standard Set of Deviations

- **CV for Key Professionals - Format**

Appendix F-20: CV for Key Professionals

1. Proposed Position:

2. Name of Firm:

3. Name of Staff:

4. Profession:

5. Date of Birth and Age as on Last date of Bid submission:

6. Nationality:

7. Educational Qualification:
(Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degrees obtained). [Please furnish proof of qualification]

8. Languages known:

11. Employment Record:
(Starting with present position, Year / Month wise list in reversed order, every employment held. List latest three positions held by staff member.

12. Summary of the CV

A) Education:

i) Essential Qualification (graduation/ Diploma) and Year:-
ii) Desirable Qualification (Post-graduation/ Doctorate) and Year:-
iii) Any other specific qualification
B) Experience
i) Total professional experience : Yrs.
ii) Total experience in relevant Field: Yrs.

1) Experience in IT / ITE Infrastructure Projects development and implementation: - No. of projects and for each Project cost, details such as complexities, special feature, and role performed etc. as specified in the bid document.

2) Experience in Managed Support Services / O&M Support for IT / ITE Infrastructure works: - No. of projects and for each Project cost, details such as complexities, special feature, role performed etc. as specified in the bid document.
3) Experience in similar capacity: - No. of projects and for each Project cost, details such as complexities, special feature, role performed etc. as specified in the bid document.

(Not providing details required for determination of eligibility may lead to give no points for the aspect for which details are not provided.)

Certification:
Name & Signature of the Authorized Representative of the firm
Place
Date

Annexure 15 to Standard Set of Deviations

- **Functional Requirements Specifications**

The following FRS points stands deleted from **Chapter 19: Functional Requirements Specifications** from respective Module as stated below:

19.1 Enterprise Resource Planning & Schedule Management System

19.1.1 Project Lifecycle Management

XI	**Contract and Change Management**
94	System should be able to manage all contract types (lump sum, T&M, cost plus, others) at virtually unlimited level of detail.
95	System should have full change management with visibility into risks, trends, and other change-initiating information such as RFIs.
96	System should have full multi-currency capabilities with the ability to select pegged, hedged, or floating currencies at the transaction level and full roll-up to the project and organizational levels.
97	System should allow for generation of cash flow for contract-centric views of baselines, actuals, and forecasts costs.
98	System should be able to attach drawings, specifications, and any other supporting documentation to contract records.
99	System should be able to create forms that are aligned with the contract conditions of contracts.
100	System should be able to create forms that can be used to capture information that will help in submitting a claim.
XIII	**Project Collaboration**
107	System should allow sending invitation to members with agenda of the project meeting
108	System should allow capture minutes of meeting with actionable assigned to stake holders with tracking of the progress of actionable
109	System should be able to coordinate with external parties via supplemental instructions, design change requests.
110	System should enforce compliance to daily, weekly, monthly reporting schedules.
111	System should have configurability to create virtually any business process forms and workflows.
XV	**Project Management Procedures**
115	System should be able to document your project management standard operating procedures manual
116	System should be able to capture all forms, reports and workflows like:
	· Project Charter
	· Project Business Case
	· Lessons Learned

	· Knowledge Management
	· Benefit Realization
	· Deliverable Acceptance
	· Stage Gate Review
	· Project Closeout Report
XVI	**Correspondence Requirements**
117	System should allow to create correspondences with unique number for reference. Generate the letter head formats including with automated number, automated references.
118	System should allow collaborative drafting of the correspondences by validating facts and taking inputs from all concerned.
119	System should allow delegation of authority by allowing selected users to write the correspondences on behalf of the people who are in the correspondence protocols.
120	System should allow to automatically capture the response that comes via emails to the correspondences sent to the project partners.
121	System should allow project correspondences and their responses are available in the central, searchable web-based repository for future use including for claim settlement etc.

19.2 Business analytics

III	**Data Mining & Machine Learning**
1	The proposed solution should be an easy-to-use GUI and Visual interface for the entire analytical life cycle process from data preparation and exploration to model development and deployment, everyone works in the same, integrated environment
2	The proposed solution should combine data wrangling, data exploration, visualization, feature engineering, statistical techniques, data mining and machine learning techniques all in a single, integrated in-memory processing pipeline environment.
3	The proposed solution should provide customizable in-memory algorithms in interactive and programming interfaces to analyze large, complicated data
4	The proposed solution should provide best practice templates (basic, intermediate or advanced) to help end-users to quickly develop machine learning pipeline.
5	The solution should also provide features for "AutoML"(Automated Machine Learning/AI) capability to automatic develop machine learning pipeline in order to automate the machine learning model development process i.e. to automatically performs data feature engineering, feature selection, model building, hyper-parameter tuning, model training/validation, multiple machine learning model comparison, and model selection.
6	The proposed solution "AutoML" pipeline should also provide features to allows end-users to easily edit and enhance the auto-generated pipelines within the point-and-click GUI Visual interface.
7	The proposed solution should provide low maintenance, web-based interfaces for programming and point-and-click workflows. Provides concurrent access to the same data in memory by many users improves efficiency
8	The proposed solution should provide built-in workload management ensures efficient use of compute resources and built-in failover management guarantees submitted jobs always finish.
9	The proposed solution should be open to coding language selection like python, R, Java and Lua
10	The proposed solution should use the most advanced techniques to detect rare events, outliers and/or influence points to help you determine, capture or remove them from downstream analysis (e.g., models).

11	The proposed solution should provide various out of box supports for feature engineering and dimension reduction techniques such as
	- interactive grouping methods based on WoE, information value
	- feature generation based on PCA, robust PCA, SVD, or autoencoders;
	- best variable transformation (based on exponential, log, quantile binning, inverse, tree-based binning etc.)
	- Unsupervised learning with clustering analysis and mixed variable clustering
	- imputation of missing values in features with user-specified values, mean, pseudo median and random value of non-missing values
12	The proposed solution should have modern statistical, data mining and machine-learning techniques like:
	- Unsupervised and supervised learning algorithms, such as clustering, principal component analysis, linear and nonlinear regression, GLM, logistic regression, Generalized Additive Model
	- Automated ensemble of decision trees,
	- Gradient boosting with automated generation of weighted averages, iterative search and stopping criteria,
	- Random forests with automated intelligent tuning of parameter set to identify optimal model
	- Customizable neural networks architecture and weights with ability to use an arbitrary number of hidden layers to support deep learning - CNN, DNN, RNN, autoencoders etc.
	- Support vector machines with linear and polynomial kernels and automated intelligent tuning of parameter set to identify optimal model
	- Factorization machines to allow customized recommendation systems
	- T-distributed stochastic neighbour embedding (t-SNE)
	- Semi supervised learning algorithm: Returns the predicted labels for both the unlabelled data table and the labelled data table.
	- Bayesian network structures, including naive, tree-augmented naive (TAN), Bayesian network-augmented naive (BAN), parent-child Bayesian networks and Markov blanket to select best model automatically from specified parameters
	- Ensemble modeling: develop ensemble model based on combination of other machine learning or statistical models
	- Model comparison – compare multiple machine learning models based on defined error metrics and select champion model based on lowest error and identify respective challenger model(s).
13.	The solution should provide for model selection based on either the training, validation (default) or test data using several criteria such as profit or loss, AIC, SBC, average square error, misclassification rate, ROC, Gini, or KS (KolmogorovSmirnov)
14	The Proposed solution should provide standard machine learning interpretability reports to be included such as variable importance, LIME, ICE, PD plots, Karnal SHAP etc.
15	The proposed solution should provide integrated text analytics with features like support of multiple languages, automatic identification of term part of speech, entity extraction, detection of noun groups and multi-term lists, uses default start and stop lists, machine-learned topics represent the term-by-document, matrix-generated text processing as a structured numeric representation of the document collection, extract Boolean rules from large-scale transactional data, deep learning capabilities in NLP like BERT, transformers, word to vec etc.
16	The proposed solution should provide easy-to-implement score code that is automatically generated for all machine-learning models
17	The proposed solution should provide features for intelligent auto-tuning the model parameter for supervised machine learning algorithm to automate the model development process.

18	The proposed solution should provide results of Machine Learning models to be tightly coupled and analyzed further into visualization environment
19	The proposed solution should have NLG capabilities to automatically generate model insights on the results produced by champion model (best fit model)
20	The proposed solution should be able to generate score code in multiple languages (such as Python, REST API) for model consumption on new data.
21	The Proposed solution pipelines or workflows should be sharable across enterprise wide for collaborative sharing to adopt best practice templates
22	The proposed solution should enable traditional data scientists learn to use at least some of the product's capabilities without formal training
23	The proposed solution should support wide range of Deep Learning algorithms like CNN, RNN, ResNet, VGG etc.
24	Solution should be open to ingest, and export models built in open-source frameworks like TensorFlow, Keras, Caffe etc.
25	Solution should support importing of model weights to enable transfer learning
26	Solution should be able to intelligently identify issues with the variables and suggest relevant transformations for better accuracy of the models
27	Solution should provide capability to call various machine learning & data mining analytical procedures and actions using open source programming languages (like R, Python, Lua etc.)
28	Solution should be able to apply scoring logic to training, holdout data and new data.
29	Solution should be able to provide build interactive Decision Tree allowing data scientists to incorporate parameters as they wish is relevant for the business
V	**Natural Language Processing**
1	Solution should be an easy-to-use GUI and Visual interface for the entire analytical life cycle process from data preparation and exploration to model development and deployment, everyone works in the same, integrated environment.
2	The proposed solution should combine text wrangling, text data exploration, visualization, text parsing, topics, concepts, categories and sentiment all in a single framework, integrated in-memory processing environment.
3	The proposed solution uses natural language processing (NLP) to analyse and transform text into formal representations for text processing and understanding. This includes automated text parsing, word and sentence tokenization, segmentation, stemming, compound decomposition, synonym detection, part-of-speech tagging, categorization documents, named entity recognition, Text Summarization and semantic parsing. It should also directly support the use of regular expressions (REGEX) for matching purposes.
4	The proposed solution should provide named entity recognition concepts. Predefined concepts are available – no rule writing is required. These address common entity definitions for date, location, time, etc. Custom concepts can be written using a suite of predefined operators.
5	The proposed solution should provide automatic discovery of topics using machine learning for initial taxonomy development:
	• Automated machine discovery identifies the core themes in the input document collection with associated relevance scores.
	• Term relationships within topics can be interrogated and explored with term clouds (with configurable thresholds), interactive term maps and by drilling into topics to evaluate relevancy and refine discovered topics.
	• Automatic rule builders promote topics to categories with supervised machine learning.
6	Ability of generation of configurable categorization rules; Automated initial category rule definition based on user-refined generated topics. Easy-to-understand Boolean rule definitions create the categorization model (i.e., taxonomy).

7	The proposed solution should employ sophisticated text parsing that enables to automatically text parsing, tokenization, part-of-speech tagging, stemming, mis-spelling correction, synonyms, ability to apply start & stop list, term relationships, term similarity using a single Visual node with minimal programming.
8	The proposed solution should combine Statistics and linguistics to provide more accurate sentiment analysis results based on Statistical modelling: Provides predefined default parameters – that can also be configured – to identify the document sentiment from text. Linguistic rules: Lets subject-matter experts define the elements to be examined for sentiment assessment.
9	The proposed solution should support English and Hindi languages
10	Solution should be capable to generate APIs in multiple languages like python, REST etc. for real time scoring
11	Solution should provide capability to call analytical procedures and actions using open-source programming languages (R, Python etc.)
12	Solution should capability text analytics results to be tightly coupled and further analyzed further in dashboarding environment. It should also provide document outputs modeling ready output for further integration with structured data for further analysis
13	The pipelines or workflows should be sharable across enterprise wide for collaborative sharing to adopt best practice templates
14	Solution should be able to generate automated score code for model consumption on new data in batch mode
VI	**Mathematical Optimization**
1	The proposed solution should provide flexible algebraic syntax for intuitive model formulation and provide direct invocation for linear, nonlinear, quadratic, integer and mixed integer solvers
2	The proposed optimization solution provides optimization solvers & pre-solvers techniques which run on a scalable and distributed in-memory engine of the analytics platform. Provides distributes analysis, multithreading and data tasks across multiple computing nodes and provides capability to run complex optimization business problem effectively.
3	The proposed solution should provide single language for a wide range of optimization models and constraint programming, i.e. one set of statements/ commands to build and solve a wide range of optimization models. As analysts adjust formulations to address evolving requirements, the constraints and/or objectives can change from linear to nonlinear expressions and vice versa.
4	The Proposed solution should provide powerful solvers for various type of optimization problems such as:
	- Linear solution algorithms: primal and dual simplex, network simplex, interior point with crossover, and concurrent solve capability.
	- Mixed-integer linear programming solution algorithm: branch-and-bound integer with cutting planes, primal heuristics, conflict search and option tuning.
	- Decomposition algorithm (automated Dantzig-Wolfe) for linear programming and mixed-integer linear programming problems with block-angular, block-diagonal or embedded network structure.
	- Quadratic solution algorithm: interior point with state-of-the-art solver tailored for large-scale optimization problems.
	- Nonlinear solution algorithms: active set, interior point. Concurrent solve capability. Multi-start algorithm for nonconvex problems.
5	The Proposed solution should provide flexibility to add custom loops and procedures such as DO while, For, COFOR, IF then Else, etc. within Optimization models to effective computations
6	The proposed solution should support Global/Local Search/ Blackbox Optimization and Constraint Programming
	- Local search optimization or Black box optimization: hybrid parallel algorithm, including generic algorithms,
	global GA-type heuristics and pattern search. Multi-objective optimization to identify a set of non-dominated solutions, for which no other solution delivers better values for all objectives.
	- Solve constraint satisfaction problems using domain reduction/constraint propagation
	and a choice of search strategies (look ahead and backtracking).

7	Proposed solution should provide various network optimization & diagnostics algorithms such as:
	- Connected components and biconnected components (with articulation points)
	- Clique and cycle enumeration
	- Transitive closure
	- Minimum cut
	- Minimum spanning tree
	- Minimum-cost network flow
	- Shortest path
	- Traveling salesman problem
	- Path enumeration
8	Proposed solution provides capability an open analytics coding environment; analytical professional can use Python, Java, R or Lua as language of their choice, and can call/access the power of optimization algorithms as actions/functions.
9	The proposed solution should provide results of optimization should be tightly coupled and can be analyzed further in a dashboarding environment. Solution provides capability to develop custom application to capture user inputs and run optimization code on the fly and visualize the results.
10	The proposed business analytics solution should support both on-prem / cloud deployment.

19.3 5D BIM and CDE

Virtual Construction Planning

5D Building Information Modelling

	Project
1.	Ability to record all important details related to the project including project category, contractor name, contract value, contract number, payment terms, status of project, start date, warranty dates.
2.	Ability to locating the projects against a map view with choice of google maps or open streets.
3.	Ability to archive all contractual documents against the project including bank guarantees, warranty certificates, performance bonds, GST certificates, copies of Contractor's All Risk document etc.
4.	Any revision in the aforesaid documents must also be manageable within the same 5D BIM
5.	Since most contractual certificates have expiry dates, the 5D BIM must have ability to maintain such expiry dates against each document as required.
6.	5D BIM must be configurable to automatically send out to reminders to respective authorities and/or contractors before the documents / certificates expire.
7.	5D BIM must allow configurable status like- under review, approved, rejected etc. against each document.
8.	5D BIM must have ability to maintain detailed BOQs as knowledgebase. Such detailed project BOQs shall be imported from Excel formats but maintained in the 5D BIM
9.	Ability to link detailed documents including general specifications, construction methodologies etc. against BOQ items

	Contracts Management
47	Must allow managing all critical information about all stake holders including Consultants, Contractors, Suppliers etc. within same platform. Such information includes but is not limited to company name, company address, website, GST number, branches, contact details of key individuals, bank details, etc.
48	On-boarding or blacklisting of any new Consultants, Contractors, Suppliers will involve approval processes. The 5D BIM system must allow managing various status like identified, approved, black-listed etc. and must also necessary approval workflows around it.
49	Must allow storing all critical documents like GST certificates, bank guarantees, performance bonds etc. as submitted by various stake holders in a central database.
50	Any revision in the aforesaid documents must also be manageable within the same 5D BIM
51	Since most contractual certificates have expiry dates, the 5D BIM IPMS must have ability to maintain such expiry dates against each document as required.
52	Must be configurable to automatically send out to reminders to respective authorities and/or contractors before the documents / certificates expire.
53	Must allow configurable status like- under review, approved, rejected etc. against each document.
54	Must offer an overview of all packages awarded across all projects to each Consultant, Contractor or Supplier.
55	Able to manage all details of lumpsum, item rate, milestone based or other forms of contracts.
56	Must allow automatic creation of work packages extracting latest quantities from 3D BIM, latest budgets from 4D Cost and latest schedule from 5D BIM.
57	Before the contract is tendered, one must ensure the necessary approvals are in place. The 5D BIM system shall allow a custom approval system before the formal contract package is proposed.
58	should have out of box functionality to support online tendering through its own “portal system”. However, it should also have the provision of integrating with organization’s own e-tendering systems.
59	A detailed price comparison at a BOQ level is integral part of decision-making. The 5D BIM system shall allow side-by-side comparison of all vendor quotes at a detailed BOQ item level within its system.
60	Any document including catalogues, construction methodology, technical specifications, detailed project schedule etc. as submitted by the vendor must be stored in the 5D BIM system for future reference.
61	Should allow both quantitative and qualitative analysis of contractors based on safety standard, quality issues, etc. Such information can be based on past-experience within the 5D BIM system or based on data submitted by Consultants, Contractors or Suppliers.
62	In order to ensure single source of truth, the 5D BIM IPMS must allow defining detailed payment terms, advances, milestones, retentions etc. against the contract package at the time of awarding.
63	Progress measurements are critical information driving the cost outflows. The 5D BIM IPMS shall have an integrated approach where the progress updated against detailed activities in scheduling module shall be reported against detailed BOQ items for onward verification of contractor’s invoices
64	shall compare contract quantity with quantity installed by the contractor (as reported in 4D Schedule) and previous quantity approved in the invoices.
65	shall automatically flag any discrepancies between contracted quantities and claimed quantities to ensure corrective decisions are taken by officers in charge.
66	shall enable digital invoicing at detailed BOQ level and will include summary of works done in previous month, current month, retentions, advance recovery, GST, TDS, and net payables.
67	Any adhoc deductions due to safety, quality or other reasons shall be stored in the integrated 5D BIM system against each invoice.

68	Any detailed document submitted for validations shall be maintained against each invoice within 5D BIM system
69	Validations against expired bank guarantees, performance bonds, GST tax certificates etc. shall be enabled through the integrated 5D BIM
70	Wherever applicable, BIM model must be used for reviewing the package information at any point in time.
	Change order management
71	Changes can be because of scope, quantities, cost (escalations), time (delays), site conditions etc. The 5D BIM system must be able to manage various categories of changes and link it with integrated meta data within various modules.
72	Must allow defining various status of change orders like submitted, rejected, accepted in principle, approved etc. Each status may have a date track to ensure audit trail is adequately maintained.
73	Any supporting document submitted by Consultant, Contractor, or Supplier must be stored within the 5D BIM system. This allows any reviewer to have full access to all details involved with decision making of change orders.
74	Approval of any changes proposed from its original version is critical. Multi-level approvals for change orders shall be configurable within the 5D BIM system
	Model and Design Authoring Tool, Common Data Environment
76	**Imagery and Point Cloud Processing**
77	Ability to process Point clouds that includes - Point-cloud visualization , Drape and snap elements, Classification editing, Visual Explorer, Batch tile export, Pointools, POD, LAS, and XYZ file export, Primitive fitting (extraction of planar and cylindrical elements), Linear feature extraction, presentation style manager, Class management for any type of presentation styles, Definition of custom classes, Clip and section manager, Support of geographic coordinate systems, Support of geographic coordinate systems, Support of geographic coordinate systems Scalable Terrain Modeling, Creation of scalable terrain models (STMs), High-performance display of very large digital terrain models (DTMs), Flexible display modes: smooth shading, smooth shading with shadows, aspect angle, elevation, slope, contours, High-resolution image draping on STM, STM update and synchronization with , civil DTMs, pointcloud data, and XYZ files , Calculation of view shed from a point or path
78	Ability to produce high fidelity imaging that includes - Dynamic transparency, standard tools for tools for move, scale, and rotate, Display priority settings, On-the-fly projection, Coordinate system and projection system control, Transformation of vector and raster data, Georeferenced file format support, Georeferenced “sister files” and User-defined projections
79	Ability to clean up the document, editing, enhancement and Image Manipulation that includes - Clean-up tools, Clean-up mask, Pixel-grid at high-zoom levels, Vector stamping, Drafting, Rubber sheeting
80	Ability to perform Image Enhancement that includes - Translate, scale, and rotate Set translucency/transparency, Use WYSIWYG enhancement tools, Crop non-rectangular shapes, Perform selection set operations, Perform contrast stretch
81	Ability of Registration that includes - Precision warping with register, WYSIWYG display of vectors and control points over raster, Batch resampling, Multiple warping methods, Align tool, Batch processing
82	Ability to create Image Mosaics that includes Automatic seaming and feathering Unlimited number of images Automatic color balancing, Corridor cropping to DGN elements, Mosaics processed as a single image, High- performance image display, 1- to 24-bit color support,16-bit/channel support (64-bit), Look-up-table (LUT) support, Fast file open and save
83	Ability to produce output in standard formats that includes ECW (unlimited), PDF, IMG, JPEG 2000, BIL, DOQ, FLI, SPOT CAP, and Digital Image Map ,TIFF (1- to 32-bit), GEOTIFF, iTIFF, COT, CIT, RLE, CALS, PCX, IMG, BUM, TG4, INT, RGB, TGA, JPEG, RLC, RS, HMR, BMP, and IKONOS 3 (Red), and 4 (NIR) bands from GeoEye, Compression schemes: Deflate, PackBits, CCITT3, CCITT4, and JPEG 2000, Wavelet compression schemes: ECW and MrSID

84	Ability to create Visualization that includes Image draping on DTM or 3D objects, Real-life textures, Lighting effects, Elevation, Perspective, Creation of fly-throughs and animations, Creation of 3D PDFs, Interpretation and conversion, Semi-automatic and interactive modes, Intelligent conversion, Topologically ready linework, Point, stream, and arc modes, Gap jumping, Generalization, RasterSnap, Contour conversion, Rasters erased while vectorizing, Optical character recognition (OCR)
III	**VIADUCTS - MODELING, ANALYSIS AND DESIGN**
1	Ability of 3D parametric modelling for bridge super and substructure
2	Availability of Library of fully prepared parametric bridge cross-sections.
3	Availability of CAD tools for cross section definition.
4	Ability of Laying out of Alignment in plan and elevation
5	Ability of Import of Land XML file to define the alignment, profile and cross-section
6	Ability of exchange of the model with BIM standard formats (DGN, DWG, RVT, IFC, CIS/2)
7	Ability of Automeshing of cross-sections
8	Very Well supports analysis, design and construction of all types of bridges (reinforced, prestressed, concrete, steel, composite, cable stayed, suspension).
9	Very Well supports different types of erection methods (span-by-span, advanced shoring, incremental launching, balanced cantilever, pre-cast segmental).
10	Very well handles linear as well as non-linear advanced static and dynamic analysis.
11	Very Well handles non-linear problems such as Cable sagging, 3rd order large displacements, and non-linear time history.
12	No limitations on geometry, boundary conditions, applied loadings, load combinations and construction stages.
13	Availability of Wizards for typical bridges
14	Ability of modelling the bridge using GUI as well as text input file which can be reused forother similar bridges.
15	Supports International as well as Indian Bridge Standards
16	Performs Working Stress as well as Limit State method of design and checks
17	Performs automatic Camber calculation - The module should create an Excel sheet with the required camber values. The camber line can then be presented numerically or graphically like any other displacement distribution.
18	Capable of Automatic Plan production
19	Ability of generating Automated output report in various formats, word, excel, pdf, graphical, stress diagrams etc.
20	Ability of Evaluating fiber stresses, principal stresses, shear stresses, equivalent stresses
21	Ability of calculating prestressing cable losses due to creep, shrinkage, relaxation, elastic shortening, anchorage and slip losses
22	Ability to perform full response spectrum analysis for any number of eigen values

23	Ability to carry out stability calculation – Linear Buckling
24	Ability of Hybrid FEM modeling with Shell, Plate, Shear Wall, Volume elements
25	Ability of Computational Fluid Dynamic calculations
26	Ability to transfer BIM data to CFD with mapping interface
27	Ability of Managing short line match casting for segmental box girder bridge construction
28	Ability to performing 4D time-dependent analysis
29	Ability to generate detailed calculations along with formulas and references from standards
IV	**BUILDING- MODELING, ANALYSIS AND DESIGN**
1	Multi-Classification System supported
2	Interdisciplinary modelling environment including architectural, structural, mechanical, plumbing and electrical
3	Design File format must be available openable by other applications without data CONVERSION
4	Company, Project and Local level configurations support
5	Design changes must be saved automatically during modelling
6	Ability to model in true geographical locations
7	Ability to use Company Standard Schedule Templates
8	Ability to generate Thematic Maps
9	Space area creation from Excel data
10	Native Space Planning & Space Navigation tools
11	Ability to embed the non-CAD documentation inside the project
12	Point Cloud support
13	Solar Studies and Shadow Analysis
14	Ability to generate comprehensive report on energy consumption, carbon emissions, to support green design
15	Lighting analysis, energy analysis, solar radiation
16	Output data to complement and compatible with any standard ODBC/JDBC database
17	Ability to support work sharing and project phasing
18	Ability to compare analysis between design options

19	Ability to create BIM elements with computational logic
20	Generative design/flexible component systems family supporting BIM Elements
21	Ability to import international BIM Content/Libraries
22	Generate BOQ by rooms/**space**
23	Work in plan, elevation, isometric, or perspective view at the same time with the same tools
24	Populate, validate an export a valid IFC and COBIE data
25	Ability to export BIM models to 3DS format, Vray and Mental ray support
26	Provide the instant connection between the 3D geometry and the detailed drawings of a specific element or system
27	Federate different BIM Models from the relevant design/construction team members including i-models and IFC
28	Author information to a specified in the LOD Element Table
29	Explore the objects by type and analyze its properties in a schedule
30	Assign/change the predefined object type and properties to an existing 3D geometry
31	Manage the live link to a set/group of properties that can be assigned to a 3D geometry
32	Include/import 3D components into the native objects catalog.
33	Measure and dimension the objects in a 3D view.
34	Model assembled multilayer components (i.e., Walls)
35	Create multi-category schedules for the objects catalogs
36	Natively link dynamically the spreadsheet schedule into the model and present in on a sheet.
37	Manage the graphical representation of components and handle resymbolisation
38	Handle a customized structural section catalogs
39	Create a non-editable properties to the user for the catalog components
40	Create rules to manage the automatic resymbolyzation of the elements
41	Create the floor plans, sections and elevations at the appropriate scale, dynamically from the 3D model
42	Use the same floor levels across the whole project without the need of the additional coordination
43	Support the creation of the floor sub-levels

44	Link solids and surfaces to the drawings, specifications, images, videos and documents
45	Centerline symbology
46	Create the curved beams, columns and walls using the native BIM tools (including spline)
47	Create and schedule the parametric penetrations in slabs and walls
48	Divide and Join structural members
49	Produce plans, sections, elevations and schedules for any architectural component
50	Create truly curved and double-curved surfaces, solids, and architectural assemblies
51	Model steel, concrete, timber structures including walls, foundations, columns, and other structural components
52	Produce plans, framing layouts, sections and elevations, and volume and weight analyses
53	Integrate with detailing applications
54	Employ point clouds of virtually any scale natively within the modeling environment as context for designs
55	Support common formats including i-models, DGN, RealDWG™, IFC, , DXF, SketchUp SKP, PDF, U3D, 3DS, Rhino 3DM, IGES, Parasolid, ACIS SAT, CGM, STEP AP203/, AP214, STL, OBJ, VRMLWorld, Google Earth KML, COLLADA, Esri SHP, SDF
56	Integrate geospatial information and ensure proper display within the proper context
57	Integration with Structural Analysis solutions
58	Export Concrete Structural elements with Analytical information to Analysis programs
59	Round tripping inside a complete solution including Design, Analysis and Detailing
60	Ability to create structural objects in any form
61	Ability to promote 2D CAD elements to complete structural elements
62	Create tapered structural members with the provided library
63	Create spreadsheet reports bi-directionally allowing the user to modify the graphics from an excel file
64	Apply Slope to Designed ventilation or Plumbing systems
65	Automatic hook-up between different mechanical systems
66	Ability to promote 2D CAD elements to electrical components
67	Integration with the most-used lighting analysis solutions
68	Integration with power analysis applications

69	Filter the imported data by provenience and attributes
70	Measure distances, areas, angles, and volumes with complete engineering precision
71	Simulate and resolve clashes before construction starts to avoid costly errors on-site
72	Simulate schedules to eliminate the need for guesswork during project planning
73	Group and classify items to build more intelligence into the model by adding attributes that greatly improve the quality of the information on screen
74	Create relationship sets to categorize items, enhance project insight, and make more informed decisions
75	Mark up and enhance the model with new geometry to quickly assess the impact of change without modifying the original engineering data
76	Register and preserve comments using a structured approach, and interpret comment status through a complete audit trail
77	Produce models in PDF format with business data
78	Simulate construction sequences through animation
79	Free viewer tool for desktop and tablets able to measure, analyze and segregate data
80	View large image files and multi-page PDFs
81	View, reference, and geo-coordinate models
82	View and manipulate point cloud data
83	Walk, fly, pan, and rotate to move around the model naturally
84	View the model up close with zoom-in/out capability
85	Create a unique ID for every model element
86	Save and recall pre-defined view attributes
87	Slice, section and filter 3D models
88	Attach large image files as reference files
89	Search for elements based on key attributes
90	Look for various materials, PDF references, and simple geometry
91	Isolate key components with customizable search capability
92	Accurately measure distances and angles
93	Estimate areas and volumes with complete reliability
94	Determine clearance constraints for effective planning
95	Detect clashes on native content from many sources without translation
96	Create and apply powerful suppression rules to reduce false results

97	Manage and resolve clash results effectively
98	Import project schedule information to simulate project planning
99	Review multiple schedule scenarios simultaneously
100	Animate objects based on schedule tasks or construction status
101	Automate linking of schedule data
102	Batch import for item sets
103	Group and categorize data to alter the display view
104	Assign attributes to items and classify geometry
105	Color code the model and group objects according to construction status, provide option for phasing and filtering objects
106	Organize elements by discipline or specific contractor
107	Review and mark up designs with redline comments
108	Manage markups and review workflows with markup dialog
109	Assign unique attributes and comment history to individual markups
110	Register and preserve comments against items
111	Near real-time photo realistic rendering
112	Generate paper prints of models and markups to scale
113	Google Earth integration
114	Create and reference geospatial PDFs
115	Ability to automatically set the proper geo-coordinates based on the geographic location
116	Ability to work in 2D as well 3D environment
117	Availability of 3D visualization tools with rotate and zoom functionality
118	Ability to visualize input errors
119	Ability to develop one common model for all load calculations
120	Availability of localized calculation modules
121	Ability to calculate with the appropriate method
122	Ability to compare efficient building design options
123	Ability to assess summer design conditions with no cooling
124	Ability to assess simple passive design solutions quickly

125	Ability to compare data from a common model to country specific building codes
126	Availability of comprehensive material list as well as a built-in module for calculating thermal properties
127	Ability to define quick building using standard constructions or user-defined constructions from base materials
128	Ability to define all structures around design building
129	Ability to assess beneficial shading and corresponding cooling load calculations
130	Ability to add predefined and user defined fins/louvers to windows
131	Ability to assess Fin/louver designs when considering cooling loads
132	Availability of graphical interface for easy definition
133	Ability to lay out systems in x,y,z plane and between floors
134	Availability of system types include heating, chilled water, ductwork, gas, Hot water and cold-water services
135	Ability to produce schedules and balance pressures for all sizes of ducts and pipes
136	Ability to calculate fan and pump duties
137	Availability of pump database to select pumps for design
138	Ability to automatically produce schedules
139	Control Valve Selection
140	Availability of Control valves database
141	Addition of Notes
142	Ability to add automatically add notes to the drawings
143	Ability to create simple schematic drawing in a dgn/dxf/dwg/**rvt** format
	BIM MANAGEMENT (COMMON DATA ENVIRONMENT)
66	Ability to cater for disaster management
83	documents thumbnails on a background map
	Contracts Administration
162	Ability to identify, configure and track various contractual communications and route them through business approval processes
163	Ability to record and track Claims/Compensation Events to manage Contract and Scope variations
164	Ability to relate contractual communications to document & drawings to give context to issues arising during contract administration
165	Ability to record and track Early Warning/Risks and Actions arising
166	Ability to record Payment Applications and Payment Certificates per contract/scope of work

	GIS Integration
242	Ability to integrate with a GIS solution to show assets on a map
243	Ability to select assets from a map and navigate to the information about those assets
	Mobility
244	Ability to access information in the system using a mobile device.
	Review /mark up
245	Ability to open and review models, 2D drawings and documentation of all sorts
246	Ability to access project information on the device of your choice with support for PCs, tablets and other hybrid devices running Windows, iOS, and Android operating systems
247	Ability to enjoy a touch interface on devices like tablets and other large screen touch devices to use the application and interact with models.
248	Ability to employ common gestures to rotate, zoom, and pan
249	Ability to intuitively navigate and interact with 3D models
251	Ability to create thematic displays of your models through queries of embedded properties. Visualize and better understand models and their associated project information
252	Ability to search and filter models based on property data or geometric criteria
253	Ability to locate model elements and their embedded properties and linked information
254	Ability to ensure you have the latest shared version of project information by securely accessing models and related files through integration with engineering information collaboration system
255	Ability to speed the reliable resolution of issues discovered by project team members by using forms, cloud services, and automated workflows