

**VOLUME-I**



**BRIHANMUMBAI MUNICIPAL CORPORATION**

**e-TENDER**

<b><u>Name of Work:</u></b>	<p><b>Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower &amp; (iii) Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years.</b></p> <p>To be displayed by 15.00 hours on 13/09/2024 at the e-Procurement System of Government of Maharashtra (Mahatenders) (<a href="http://mahatenders.gov.in">http://mahatenders.gov.in</a>)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"><p>Office of:- Dy.C.E. (B.C.) City Engineering Hub Building, Third Floor Dr. E.Moses Road, Worli Naka, Worli,</p></div> <p><b>Prepared by: PMC (Project Management Consultants) M/s. Master &amp; Associates 34/38 Hamam House Ambalal Doshi Marg Fort, Mumbai- 400001 Email: - udaymaster@gmail.com</b></p>
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<b>Dy. C.E. (B.C.) City</b>	<b>City Engineer</b>	<b>Director (E.S.&amp;P.)</b>
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<b>A.E.(B.C.) City</b>	<b>A.E.(M&amp;E) B.C. City</b>	<b>E.E.(B.C.)City</b>
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<b>S.E. (B.C.) City</b>	<b>S.E.(B.C.) City</b>	<b>S.E. (M&amp;E)B.C. City</b>

Dy. City Engineer (Building Construction City), Engineering Hub Building, Third Floor,  
Dr. E. Moses Road, Worli Naka, Worli, Mumbai- 400 018

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**INDEX**

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>PG-NO</b>
	<b>VOLUME I</b>	
<b>1</b>	<b>E-TENDER NOTICE</b>	<b>5</b>
<b>2</b>	<b>ELIGIBILITY CRITERIA</b>	<b>12</b>
<b>3</b>	<b>DISCLAIMER</b>	<b>19</b>
<b>4</b>	<b>INTRODUCTION</b>	<b>21</b>
<b>5</b>	<b>E-TENDER ONLINE SUBMISSION PROCESS</b>	<b>23</b>
<b>6</b>	<b>INSTRUCTIONS TO APPLICANTS</b>	<b>27</b>
<b>7</b>	<b>SCOPE OF WORK</b>	<b>60</b>
<b>8</b>	<b>BILL OF QUANTITIES</b>	<b>76</b>
<b>9</b>	<b>SPECIAL DIRECTIONS TO THE BIDDER</b>	<b>79</b>
<b>10</b>	<b>SPECIAL CONDITIONS OF CONTRACT</b>	<b>84</b>
<b>11</b>	<b>GENERAL CONDITIONS OF CONTRACT</b>	<b>96</b>
<b>12</b>	<b>SPECIFICATIONS &amp; SELECTION OF MATERIAL</b>	<b>182</b>
<b>13</b>	<b>FRAUD AND CORRUPT PRACTICES</b>	<b>295</b>
<b>14</b>	<b>PRE BID MEETING</b>	<b>298</b>
<b>15</b>	<b>LIST OF APPROVED BANKS</b>	<b>300</b>
<b>16</b>	<b>APPENDIX</b>	<b>304</b>
<b>17</b>	<b>PROFORMAS</b>	<b>317</b>
<b>18</b>	<b>TYPICAL DRAWINGS</b>	<b>330</b>
<b>19</b>	<b>FINANCIAL BID AND OTHER FORMS</b>	<b>331</b>
<b>20</b>	<b>SCHEDULE OF PAYMENT</b>	<b>334</b>
<b>21</b>	<b>PROJECT ESTIMATE</b>	<b>346</b>
<b>22</b>	<b>FORMS</b>	<b>348</b>
<b>23</b>	<b>CIRCULARS</b>	<b>354</b>
<b>24</b>	<b>SOIL INVESTIGATION REPORT</b>	<b>411</b>
<b>25</b>	<b>SCOPE AND SPECIFICATIONS OF MAINTENANCE WORKS</b>	<b>412</b>
<b>26</b>	<b>SCOPE OF COMPREHENSIVE ANNUAL MAINTENANCE AND SERVICING OF PARKING SYSTEM</b>	<b>417</b>
<b>27</b>	<b>HOUSEKEEPING TERMS AND CONDITIONS</b>	<b>419</b>
<b>28</b>	<b>M&amp;E SERVICES MAINTENANCE</b> <b><u>END OF DOCUMENT AT PAGE 466</u></b>	<b>427</b>

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**SECTION - 1**  
**E-TENDER NOTICE**

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**BRIHANMUMBAI MUNICIPAL CORPORATION MUMBAI**

Deptt. :Dy. City Engineer (Building Construction) City DYC.E/BC/ -----

/City ,Dtd.-----

**E-TENDER NOTICE**

<b>Subject :</b>	<b>Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower &amp; (iii) Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years.</b>
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The Brihanmumbai Municipal Corporation Mumbai (BMC) invites e-tender to appoint Contractor the aforementioned work from Private sector organizations, contractors of repute, multidisciplinary engineering organizations i.e. eminent firm, Proprietary/Partnership Firms/ Private Limited Companies/ Public Limited Companies/ Companies registered under the Indian companies' act 2013, the contractors registered with the Brihanmumbai Municipal Corporation Mumbai, (BMC) **in Class I(A) as per new registration and** from the contractors/firms equivalent and superior classes registered in Central or State Government/Semi Govt. Organization/Central or State PublicSector Undertakings, *excluding those who are blacklisted, demoted and debarred in BMC,P.W.D, other Government/ Semi Govt. organizations in India/abroad and having their office in Mumbai* will be allowed subject to condition that, the contractors who are not registered with BMC will have to apply for registering their firm within three months' time period from the award of contract, otherwise their Bid Security i.e. E.M.D (Earnest Money Deposit) will be forfeited/recovered and a penalty of 0.1 % of contract or Rs. 10,000/- whichever is more will be recovered/deducted from the contractors payment /Bill by the executing department.

**Bidding Process will comprise of THREE stages.**

**The applicant (Tenderer) shall note that the tender scrutiny fee of Rs. 27,500 + 18% GST shall be payable immediately after opening of Packet A and B (as per Circular No. CA/FRG/10 dated 19.10.2023). In any of the citizen facility centers (CFC's) and receipt of the same shall be submitted on email [dycebccity@mcgm.gov.in](mailto:dycebccity@mcgm.gov.in) before opening of Packet C. Challan for making the payment maybe obtained from administrative office of DyCE (BC) City Department.**

**Bidders attention is requested to the new circular regarding Goods and Service Tax (GST)Refer New Circular no. CA/F/PROJECTS/28 Dated 28.03.2023. Revised Circular is attached with this Tender.**

The application form can be downloaded from e-Procurement System of Government of Maharashtra (Mahatenders) (<http://mahatenders.gov.in>) on payment of Rs.27500 (Scrutiny Fees) + Applicable GST. The applicants not registered with BMC are mandated to get registered (Vendor Registration) with BMC for e-tendering process & obtain login credentials to participate in theonline bidding process.

Name and location of work	Contract period	Estimated Cost of Project
<p><b>Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower &amp; (iii) Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years.</b></p>	<p>6 months for Approvals including transit facility as enumerated + <b>36</b> Months (inclusive of monsoon)</p>	<p><b>Quoted Price (Part A + Part B + Part C1 + Part C2 of financial bid)</b></p> <p><b>PART A:</b> - Including Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (pt) of Lower Division at S.K. Ahira Marg in G/S Ward inclusive of planning, design, construction of facility with transit accommodation, civil, HVAC, electrical, firefighting, fire detection and BMS works inclusive of equipment foundations- <b>Rs. 401,51,74,200/- (Excluding GST)</b></p> <p><b>PART B:</b> - Planning, designing, construction and commissioning of underground and elevated Multilevel Electro Mechanical Car Parking System (Shuttle and Robo Parker System) including comprehensive annual maintenance for 20 years free of cost for 450 parking systems and 98 nos stack parkings. -<b>Rs. 100,90,00,000/- (Excluding GST)</b></p> <p><b>PART C1:</b> - Operation, Maintenance and Housekeeping for 5 years of parking system by engaging manpower- <b>Rs. 7,50,00,000/- (Excluding GST)</b></p> <p><b>PART C2:</b> - Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years- <b>Rs. 9,22,51,556.45/- (Excluding GST)</b></p> <p><b>TOTAL (A+B+C1+C2)</b> <b>Rs. 519,14,25,756.45/- (Excluding GST)</b></p>
<b>Bid Number</b>		

In terms of the 3-stage system of e-tendering, a Bidder will be required to deposit, along with its Bid, an Earnest Money Deposit of **Rs. 5,19,14,300/- (Rs. Five crore Nineteen Lakhs Fourteen Thousand and Three Hundred only)** (the "EMD"), refundable in accordance to the relevant clause of bid document, from the Bid Due Date, except in the case of the selected Bidder whose Bid Security/EMD shall be retained. The Bidders will have to provide Earnest Money Deposit through the payment gateways while submitting the bids. The Bid shall be summarily rejected if it is not accompanied by the Earnest Money Deposit. The e-tender is available on e-Procurement System of Government of Maharashtra (Mahatenders) (<http://mahatenders.gov.in>) as mentioned in the Header Data of the tender. **Bidder will deposit 100% EMD amounting to 1% contract cost through online payment gateway of [www.mahatender.gov.in](http://www.mahatender.gov.in)**

As per THREE Packet systems, the document for Packet A, B and C is to be uploaded by the bidder in vendors' document online in Packet A, B and C. Packet A, B & C shall be opened on dates as mentioned in header data. All the responsive and eligible bidders if they so wish can be present at the time of opening of bids, in the office of Tender inviting authority. The Packet C shall be opened if bids submission in Packet A & B satisfies/includes all the requirements and same are found acceptable to the Authority.

The Municipal Commissioner reserves the right to reject all or any of the e-tender(s) without assigning any reasons at any stage.



The dates and time for submission and opening the bids are as shown in the Header Data. If there are any changes in the dates the same will be displayed on the e-Procurement System of Government of Maharashtra (Mahatenders)(<http://mahatenders.gov.in>) The Applicants interested for the above referred works may contact the Dy. City Eng. (B.C.) E.S at the following address on any working day during office hours.

Office of: Dy. City Engr.(B.C) City, Engineering Hub Building 3<sup>rd</sup> Floor, Dr. E. Moses Road, Worli Naka, Worli, Mumbai- 400 018

The applicants may wish to visit the site under reference located **at Asphalt Plant Compound on land bearing C.S. No. 1629 (pt) of Lower Parel at S.K.Ahire Marg in G/S Ward** Mumbai and can collect the information of the present status from the department who have invited the bids.

The BMC reserves the rights to accept any of the application or reject any or all the application received for above works, without assigning any reasons thereof. The information regarding above subject matter is available on e-Procurement System of Government of Maharashtra (Mahatenders)(<http://mahatenders.gov.in>)

**Dy.City.Eng(B.C.)City**

**HEADER DATA**

Tender Document No (Bid No.)	
Name of Organization	Brihanmumbai Municipal Corporation
Subject	<b>Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower &amp; (iii) Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years.</b>
Scrutiny fee	<b>Rs.27500+ Applicable GST to be paid to BMC CFC (Addition to Mahatender Rs. 500/- scrutiny charges)</b>
Cost of E-Tender (Estimated Cost)	<b>519,14,25,756.45/- (Excluding GST)</b>
Bid Security Deposit/ EMD	<b>Bidder will deposit 100% EMD amounting to 1% contract cost through online payment gateway of <a href="http://www.mahatender.gov.in">www.mahatender.gov.in</a></b>
Date of issue and sale of tender	13.09.2024 from 15:00Hrs
Last date & time for <b>Sale of Tender</b>	07.10.2024 upto 12:00Hrs
Submission of Packet A, B & Packet C (Online) & <b>Receipt of Bid Security Deposit</b>	07.10.2024 upto 16:00Hrs
Pre-Bid Meeting	<b>27.09.2024 At 16:00 Hrs (Office of AMC, Conference Hall, BMC Head Office, Mumbai-400001)</b>
Opening of Packet A	08.10.2024 after 16:01Hrs.
Opening of Packet B	08.10.2024 after 16:10Hrs.
Opening of Packet C	15.10.2024 after 15:00Hrs.
Address for communication	Office of: Dy. City Engr.(B.C) City, Engineering Hub Building 3 <sup>rd</sup> Floor, Dr. E.Moses Road, Worli Naka, Worli, Mumbai- 400 018 Email id <a href="mailto:dycebccity.ce@mcgm.gov.in">dycebccity.ce@mcgm.gov.in</a> , <a href="mailto:eebccity01.ce@mcgm.gov.in">eebccity01.ce@mcgm.gov.in</a> <a href="mailto:aebccity02.ce@mcgm.gov.in">aebccity02.ce@mcgm.gov.in</a> Contact No- 9167490756, 9892667503
Venue for opening of bid	In the office of Dy. City. Eng. (BC) City Through computerized system
Contact No.	<b>Shri Vaibhav Bhagwat, Assistant Engineer (B.C.) City Office No. 022-26848209 (ext-4154) Mobile No- 9819546546 Email: <a href="mailto:aebccity02.ce@mcgm.gov.in">aebccity02.ce@mcgm.gov.in</a>, <a href="mailto:dycebccity.ce@mcgm.gov.in">dycebccity.ce@mcgm.gov.in</a> <a href="mailto:eebccity01.ce@mcgm.gov.in">eebccity01.ce@mcgm.gov.in</a></b>

**This tender document is not transferable.**

The BMC reserves the rights to accept any of the application or reject any or all the application received for above subject without assigning any reason thereof.

**Dy. City. Eng(B.C.) City**

**SECTION 2**  
**ELIGIBILITY CRITERIA**

## **1. For New and Original works Eligibility criteria:**

### **Technical Capacity (Project Experience):**

**1.1** The tenderer(s) in their own name should have satisfactorily executed the work of similar nature BMC /Semi Govt. /Govt. & Public Sector Organizations during **last Seven (7) years** ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a nominated sub-Contractor, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied)

**a) Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area)**

**OR**

**b) Two similar completed works or currently executing two similar works of similar nature admeasuring not less than 18900 sq. mtr (30% of constructed area)**

**OR**

**c) One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area)**

**AND**

**1.3** The tenderer(s), either in their own name or in technical association (that is through MOA and registered/notarized undertaking) of OEM (Original Equipment Manufacturer) should have satisfactorily executed a minimum cumulative 1000 car parking spaces involving Shuttle & Robo Car Parking Systems subject to at least one project of minimum 450 car spaces in BMC/Semi-Govt./Govt., Public Sector Organizations, and Private Sector Organizations during the last five (5) years in India, ending on the last day of the month prior to the one in which bids are invited. This can be as a prime contractor or as a nominated subcontractor for the OEM work. If the bidder is a Civil Contractor (Class 1(A)) without experience in Supply, Installation, Testing, and Commissioning (SITC), they must submit a registered / Notarized undertaking along with Memorandum of Understanding (MOU) with an Original Equipment Manufacturer (OEM). The OEM should have successfully executed and completed Supply, Installation, Testing, and Commissioning (SITC) as mentioned herein above, as well as Operation and Maintenance (O&M), for a minimum of 450 car spaces under automatic multilevel electromechanical car parking systems (Shuttle and Robo-Parker systems) in India over the last five years, ending on the last day of the month prior to the one in which bids are invited. And Registered/Notarized MOA with such OEM is to be submitted along with the bid. At least one work out of above shall be for Government/ Semi. Govt./ Corporation /Govt. Institution/ PSU. OEM (Original Equipment Manufacturer) the foreign originated company can be considered with the Indian Partners jointly or severally for technical experience.

The bidder shall submit in Packet B the details of Construction Methodology/Technology which will be proposed for the said work.

The bidder shall submit an undertaking in Packet B to obtain all approvals/demarcation/NOC/Permits etc. required for implementing the project from government/Semi government/ Service Provider/ BMC etc. in timely manner. The cost of the same shall be included in the tender bid by the bidder. Technical Documentation for all approvals will be prepared by PMC in conjunction with the Bidder and submitted after BMC approval at each stage. Scrutiny fee/premium etc. for BMC departments will be borne by bidder and will be reimbursed on case to case basis by BMC. Scrutiny fee, deposits and premiums payable to agencies outside BMC will be borne by bidder and will not be reimbursed by BMC. Built up area will be considered Floor plate/Foot print of the building for the purpose of calculating eligibility i.e. construction area which includes any areas towards elevation treatments, shafts, projections, voids etc.

#### **1.1.2 Similar experience is spelt in definite sense, such as-**

Construction of multistory building of minimum 10 stories or 30m building height (Applicable for commercial/institutional and residential).

### For Building Construction

<b>Nos of stories</b>	Experience of construction
<b>Up to 4 stories</b>	No special experience
<b>From 5 to 10 stories</b>	Minimum 5 stories
<b>From 11 to 15 stories</b>	Minimum 8 stories
<b>From 15+ stories</b>	(a)Minimum 10 stories or 30m building Height. (b) Out of the 10 stories of building, minimum topmost 3 stories to be of residential/commercial/institutional use only.

### **Building height definition to read as stated below:-**

“Height of a building” means the vertical distance measured, in the case of flat roofs, from the average level of the ground around and contiguous to the building to the top of the terrace level. (For example, 30mtr. height shall be excluding height of parapet wall, staircase room, LMR & OHWT)

#### **1.3. Financial Capacity**

- To ascertain this, tenderer(s) shall furnish /upload the financial statement (Audited balance sheet) duly certified by Chartered Accountant.
- The turnover can be enhanced by 10% every year to bring the present level.
- The Financial year **2024-25** will be considered current financial year.
- Enhancement will be applicable for F.Y.2023-24 completed on 31<sup>st</sup> March, 2024

Financial capacities of the above-mentioned entities including the bidder and OEM are combined, a registered/ notarized undertaking along with a Memorandum of Association must be submitted to BMC (Brihanmumbai Municipal Corporation). This document should affirm that the associated companies will continue to provide services in accordance with the tender requirements at all times until the completion of Defect Liability Period (D.L.P.) To verify this, tenderer (s) are required to provide/upload the financial statements (Audited Balance sheets) certified by a Chartered Accountant for the aforementioned entities including the bidder and OEM.

#### **A) Turnover**

Achieved a average annual financial turnover as certified by ‘Chartered Accountant’ (in all classes of civil engineering works) equal to **30%** of the estimated cost of work in **last three (3) financial years** immediately preceding the Financial Year in which bids are invited. However, the combined turnover can be considered of the bidder and OEM.

#### **B) Net Worth Certificate**

The Bidder should have net worth certificate for 15 % of estimated cost of Work. (Scanned copy of Net worth Certificate issued by Certified Chartered Accounts to be uploaded). However, the combined net worth can be considered of the bidder and OEM.

### **C. Bid Capacity:**

**The bid capacity of the prospective bidders will be calculated as under: Assessed Available Bid**

$$\text{Capacity} = (A * N * 2 - B)$$

Where,

**A** = Maximum value of Civil Engineering with Electrical/Mechanical works executed in any one year (year means Financial year) during **the last five years** (updated to the price level of the Financial year in which bids are received at a rate of 10% per year) taking into account the completed as well as works in progress.

**N** = Number of years prescribed for completion of the Project/Works, **excluding monsoon period**, for which these bids are being invited. (E.g. 7 months = 7/12 year) For every intervening monsoon 0.33 shall be added to N.

**B** = Value of existing commitments (only allotted works) on the last date of submission of bids as per bidding document and on-going works to be completed during the period of completion of the Project/Works for which these bids are being invited.

However, the combined Bid Capacity can be considered of the above-mentioned entities **including** of the bidder and OEM.

Note: The statement showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be attached along with certificates duly signed by the Engineer-in Charge, not below the rank of an Executive Engineer or equivalent.

**Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:**

- made misleading or false representation in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Record for poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history (circular u/no. MGC/F/6565 dated 25/09/2018), or financial failures etc.

**The bidder should have bid capacity equal to or more than the tender estimated cost of Rs. 519,14,25,756.45/- (Excluding GST)**

### **Mechanical & Electrical Works:**

#### **Eligibility criteria for specialized Mechanical & Electrical Works:**

If specialized jobs are to be executed by the prime bidder in-house, then the bidder has to submit documents for having fulfilled the technical capacity criteria. In case, specialized jobs are to be executed through nominated Sub-contractor fulfilling technical capacity criteria then, the prime bidder should submit the credentials of nominated sub-contractors for specialized work (Electrical work, Firefighting HVAC work), along with mandatory enclosures as mentioned below. The Memorandum of Undertaking (MoU) on Rs.500/- Stamp Paper with the nominated sub- contractor shall be submitted for each specialized job (Electrical work, Firefighting work, HVAC and Housekeeping) separately by prime bidder along with the bid in Packet B. It will be binding on the contractor to get the individual M&E work executed through such approved nominated Sub-contractor (with MOU) only. All MOU with specialized subcontractor to be submitted on Rs. 500 stamp paper and should be binding to the effect that bidder cannot change sub-contractor without consent of BMC. To change in appointed sub-contractor bidder shall have to refer conditions mentioned in the section of special directions to bidders, clause no. 52 "Special instructions for appointment of sub-contractor for M&E works, firefighting works, HVAC and housekeeping. With regard to experience of Specialized agency submitted by the bidder for M&E Work, Firefighting, HVAC and Housekeeping works in Eligibility Criteria, change in agency will be allowed during the execution stage subject to written permission being obtained for the Department for the same.

### **Technical Capacity**

#### **A) For Electrical Work:-**

- 1) Tenderer/Nominated Sub Contractor of electrical shall have registered with the MCGM in Class "A" as per new registration rule 2016. Tenderer/Nominated Sub Contractor of electrical works shall have valid PWD's electrical contractors license and his own office setup in Mumbai/Navi Mumbai/Thane area.
- 2) Registered electrical contractors of Railways / CIDCO / Central Public Works Dept./ Maharashtra State Public Works Department whose office is in Mumbai/Navi Mumbai/Thane area having class equivalent to Class "A" of BMC as per new registration rules '2016' are also eligible to quote for the tender subject to the condition that the contractor who are not registered with BMC shall apply for registration within three months' time period in similar category in BMC from the award of contract, otherwise their EMD and ASD

will be forfeited and the award of contract will be treated as cancelled. The contractor shall have valid PWD's electrical contractor's license. and his own office setup in Mumbai/Navi Mumbai/Thane area.

*(Supporting documents and certificates shall be uploaded by main contractor.)*

The contractor(s) or Specialized agencies of electrical work in their own name should have satisfactorily executed the work of similar nature in MCGM /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector Organizations during **last seven (7) years** ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a nominated sub-Contractor, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied).

a) **Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

b) **Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

c) **One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

*(Supporting documents and certificates shall be uploaded by main contractor.)*

**Similar Experience:**

Similar work shall mean, Work of Supply, installation, testing & commissioning of Electrical systems.

**B) Fire Fighting, fire alarm and fire detection Work:-**

Firms dealing in the line of installations of Fire Fighting and fire detection / supression systems enlisted with Directorate of Maharashtra fire services as eligible (as on the date of invitation on tender) licensing agency for SITC of Fire Fighting and fire detection / supression systems having their office at Mumbai/Navi Mumbai/ Thane area.

*(Supporting documents and certificates shall be uploaded by main contractor.)*

The contractor(s) or Specialized agencies of fire-fighting work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area

a) **Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

b) **Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

c) **One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

**Similar Experience:**

**Similar work shall mean, Work of Supply, installation, testing & commissioning of Fire Fighting and fire detection/ suppression systems.**

All MOU with specialized subcontractor (Electrical & Fire-Fighting Works) for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.



### C) HVAC Works

Firms dealing in the line of installations of HVAC work enlisted with BMC as eligible (as on the date of invitation on tender) licensing agency for SITC of HVAC works having their office at Mumbai/Navi Mumbai/ Thane area from list of approved makes only.

(Supporting documents and certificates shall be uploaded by main contractor.)

The contractor(s) or Specialized agencies of HVAC work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area

**Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

**Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

**One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

### **Similar Experience:**

**Similar work shall mean, Work of Supply, installation, testing & commissioning of HVAC systems.**

All MOU with specialized subcontractor (HVAC Works) for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.

### **D) Housekeeping Works**

Firms dealing in the line of installations of Housekeeping work enlisted with BMC as eligible (as on the date of invitation on tender) Housekeeping Agency having their office at Mumbai/Navi Mumbai/ Thane area.

(Supporting documents and certificates shall be uploaded by main contractor.)

The contractor(s) or Specialized agencies of Housekeeping work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area

**Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

**Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

**One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

**Similar Experience:**

**Similar work shall mean Housekeeping and Maintenance Works for Projects of area mentioned above.**

All MOU with specialized Housekeeping Agencies for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.

**1.3 Joint Venture (JV) is not allowed for this tender**

**NOTE:- The bidder has the right to change Specialized agency (Electrical, Firefighting Works, HVAC and Housekeeping) subject to prior written permission of the BMC. Subject that the new agency fulfils the Tender Criteria.**

**SECTION 3**  
**DISCLAIMER**

## **DISCLAIMER**

The information contained in this e-tender document or provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of the Brihanmumbai Municipal Corporation Mumbai (BMC), hereafter also referred as “The Authority”, or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this e-tender and such other terms and conditions subject to which such information is provided.

This e-tender includes statements, which reflect various assumptions and assessments arrived at by the Brihanmumbai Municipal Corporation Mumbai (BMC) in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Applicant may require. This e-tender may not be appropriate for all persons, and it is not possible for the Brihanmumbai Municipal Corporation Mumbai (BMC), its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this e-tender. The assumptions, assessments, statements and information contained in this e-tender may not be complete, accurate, adequate or correct. Each Applicant should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this e-tender and obtain independent advice from appropriate sources.

Information provided in this e-tender to the Applicant(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Brihanmumbai Municipal Corporation Mumbai (BMC) accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed here.

The Brihanmumbai Municipal Corporation Mumbai (BMC), its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this e-tender or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the e-tender and any assessment, assumption, statement or information contained therein or deemed to form part of this e-tender or arising in any way with pre-qualification of Applicants for participation in the Bidding Process. The Brihanmumbai Municipal Corporation Mumbai (BMC) also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Applicant upon the statements contained in this e-tender.

The Brihanmumbai Municipal Corporation Mumbai (BMC) may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this e-tender.

The issue of this e-tender does not imply that the Brihanmumbai Municipal Corporation Mumbai (BMC) is bound to select and short-list pre-qualified Applications for Bid Stage or to appoint the selected Bidder or Concessionaire, as the case may be, for the Project and the Brihanmumbai Municipal Corporation Mumbai (BMC) reserves the right to reject all or any of the Applications or Bids without assigning any reasons whatsoever.

The Applicant shall bear all its costs associated with or relating to the preparation and submission of its Application including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by The Brihanmumbai Municipal Corporation Mumbai (BMC) or any other costs incurred in connection with or relating to its Application. All such costs and expenses will remain with the Applicant and the Brihanmumbai Municipal Corporation Mumbai (BMC) shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by an Applicant in preparation or submission of the Application, regardless of the conduct or outcome of the Bidding Process.

**SECTION 4**

**INTRODUCTION**

## INTRODUCTION

### 1. Background:

The Brihanmumbai Municipal Corporation Mumbai covers an area of 437.71sq.kms.with a population of **1.24 Crores as per census of 2011**. The metropolis accounts major portion of India's international trade and government's revenue, from being one of the foremost centers of education, science and technological research and advancement.

The Mumbai Metropolis has historic tradition of strong civic activism dedicated to the cause of a better life for all its citizens. And it's the Brihanmumbai Municipal Corporation Mumbai (BMC), hereafter called the "corporation", the primary agency responsible for urban governance in Greater Mumbai.

BMC (The Authority) is one of the largest local self-governments in the Asian Continent. In observance of historic traditions of strong civic activism, with the change in time and living conditions to match with the urbanization, BMC has mainly focused in providing almost all kinds of engineering services viz, Hydraulics, storm water drain, sewerage, water supply projects, roads, bridges, solid waste management, and environmental services. Beside this, the BMC is also providing dedicated services in various segments such as Health, Primary Education as well as the construction and maintenance of Public Markets and Slaughter Houses.

BMC is an organization having different departments, right from engineering depts. to health depts. Moreover, we have other dept. like education, market, fire brigade dept., Octroi and other such departments where quite a good number of staff members are working.

### Scope of Work:

BMC is primarily an organization, which in the interest of citizens and with the speed of urbanization deals with the variety of the infrastructure services and delivered to the public by different departments like Water Supply Projects, Sewerage Projects, Hydraulics, Storm Water Drain/Roads and bridges and Building Construction etc.

**Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

### **Detailed constructed area statement is enclosed below:-**

		<b>PART I- BUILDING - Cost includes Civil, Electrical, Plumbing, Firefighting, Fire Detection, Lifts, Lighting, Video Surveillance, Access Control, Data, UPS, Server, Furniture, Accessories and Security System.</b>	<b>CONSTRUCTED AREA SQM</b>
	<b>A</b>	<b>TESTING LABS AND OFFICES</b>	
1	Ground Floor	Testing Lab with Heavy Equipment and Common Facilities	2089.94
2	14th floor	Concrete Testing Office (including Atrium)	2110.50
3	15th floor	Piping Testing Lab and Vigilance Office Civil	2002.14
4	16th floor	M&E Testing Lab and Vigilance Office (M&E)	2002.14
5	17th floor	Façade Testing, Wind Tunnel and Fire Testing and new product testing and new Vigilance Office	2002.14
6	18th floor	Road Department Office 1	2002.14
7	19th floor	Road Department Office 2	2002.14
	<b>B</b>		
8	20th Floor	Office Area including atrium (without furniture)	2110.5
9	21st to 29th floor	Office Area 2002.14 x 9 (without furniture)	18019.26
	<b>C</b>	<b>BASEMENTS AND PODIUM</b>	
10	Basement 1 and Access Ramp	Two Wheeler and Four Wheeler Parking (2 Stack Parking)	2777.1
11	Podium P1 to P13	Four Wheeler Robotic Parking 1917.73 x13	24930.49
12	General Areas	Security Rooms, Staircase Rooms, Lift Machine Rooms, Substation, Effluent Treatment Plant, Lift Machine Room and Overhead Tanks	953.4
		<b>TOTAL</b>	<b>63001.89</b>

**SECTION 5**  
**E-TENDERING ONLINE SUBMISSION PROCESS**

## **E-TENDERING ONLINE SUBMISSION PROCESS**

### **IMPORTANT NOTICE TO BIDDERS ON e-TENDERING**

GOVERNMENT E-PROCUREMENT SYSTEM has successfully rolled out the e-bid submission Tendering System through its web site <https://mahatenders.gov.in> Tenders of various Departments have been uploaded, their bids submitted and the same have been opened on line. Bids for various tenders published in the web site of Government Departments can be submitted online by enrolling with the above-mentioned web site.

The bidders can enroll themselves on the website <https://mahatenders.gov.in> using the option “Online Bidder Enrollment”. Possession of a Valid Class III Digital Signature Certificate (DSC) in the form of smart card/e-token in the Company's name is a prerequisite for registration and participating in the bid submission activities through this web site. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the web site <https://mahatenders.gov.in> under the link “Information about DSC”.

The web site also has user manuals with detailed guidelines on enrollment and participation in the online bidding process. The user manuals can be downloaded for ready reference. Vendors can also attend the training/familiarization programme on the e-tendering system conducted periodically by the GOVERNMENT E-PROCUREMENT SYSTEM in association with NIC.

#### **Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal**

1. Bidder should do Online Enrolment in [www.mahatenders.gov.in](http://www.mahatenders.gov.in) Portal using the option to Enroll available in the Home Page. Then the Digital Signature enrolment has to be done with the e-token, after logging into the portal. The e-token may be obtained from one of the authorized Certifying Authorities such as Mudhra CA/ GNFC/ IDRBT/ Mtnl Trust line/ Safe Scrypt/ TCS.
2. Bidder then logs into the portal giving user id / password chosen during enrolment.
3. The e-token that is registered should be used by the bidder and should not be misused by others.
4. DSC once mapped to an account cannot be remapped to any other account. It can only be Inactivated.
5. The Bidders can update well in advance, the documents such as certificates, purchase order details etc., under **My Documents** option and these can be selected as per tender requirements and then attached along with bid documents during bid submission. This will ensure lesser upload of bid documents.
6. After downloading / getting the tender schedules, the Bidder should go through them carefully and then submit the documents as per the tender document, otherwise, the bid will be rejected.
7. Applicant will upload Packet A documents in cover 1 “Fee” and Packet B related Documents in cover 2 “PQC” respectively.
8. The BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns in the uploaded BOQ, else the bidder is liable to be rejected for that tender. For commercial details (in Packet C) contractors will fill data in financial bid in BOQ and quotes his “(+) or (-) Percentage” (i.e.% quoted) figure..



9. If there are any clarifications, this may be obtained online through the eProcurement Portal, or through the contact details given in the tender document. Bidder should take into account of the corrigendum published before submitting the bids online.
10. Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender schedule and they should be in PDF/XLS/RAR/DWF formats. If there is more than one document, they can be clubbed together.
11. Bidder should arrange for the EMD **Online** as specified in the tender.
12. The bidder reads the terms and conditions and accepts the same to proceed further to submit the bids
13. The bidder has to submit the tender document(s) online well in advance before the prescribed time to avoid any delay or problem during the bid submission process.
14. There is no limit on the size of the file uploaded at the server end. However, the upload is decided on the Memory available at the Client System as well as the Network bandwidth available at the client side at that point of time. In order to reduce the file size, bidders are suggested to scan the documents in 75-100 DPI so that the clarity is maintained and also the size of file also gets reduced. This will help in quick uploading even at very low bandwidth speeds.
15. It is important to note that, **the bidder has to Click on the Freeze Bid Button, to ensure that he/she completes the Bid Submission Process. Bids Which are not Frozen are considered as Incomplete/Invalid bids and are not considered for evaluation purposes.**
16. The **Tender Inviting Authority (TIA)** will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
17. The bidder may submit the bid documents online mode only, through this portal. Offline documents will not be handled through this system.
18. At the time of freezing the bid, the eProcurement system will give a successful bid updation message after uploading all the bid documents submitted and then a bid summary will be shown with the bid no, date & time of submission of the bid with all other relevant details. The documents submitted by the bidders will be digitally signed using the e-token of the bidder and then submitted.
19. After the bid submission, the bid summary has to be printed and kept as an acknowledgement as a token of the submission of the bid. The bid summary will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening event.
20. Successful bid submission from the system means, the bids as uploaded by the bidder is received and stored in the system. System does not certify for its correctness.
21. The bidder should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected

22. The time that is displayed from the server clock at the top of the tender Portal, will be valid for all actions of requesting bid submission, bid opening etc., in the e-Procurement portal. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission.
23. All the data being entered by the bidders would be encrypted at the client end, and the software uses PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission and not viewable by any one until the time of bid opening. Overall, the submitted bid documents become readable only after the tender opening by the authorized individual.
24. During transmission of bid document, the confidentiality of the bids is maintained since the data is transferred over secured Socket Layer (SSL) with 256-bit encryption technology. Data encryption of sensitive fields is also done.
25. The bidders are requested to submit the bids through online eProcurement system to the TIA well before the bid submission end date and time (**as per Server System Clock**).
26. The Municipal Commissioner reserves the right to reject all or any of the e-Tender(s) without assigning any reason at any stage. The dates and time for submission and opening the tenders are as shown in the Header Data. If there are any changes in the dates the same will be displayed on the e-Procurement System of Government of Maharashtra (Mahatenders) (<http://mahatenders.gov.in>).
27. Due to any unforeseen circumstances if any of the date mentioned in the header data is declared as public holiday, in that case all the dates\* will get shifted by one day or next working day.
28. **BARRING PHYSICAL SUBMISSIONS**
29. As the entire tendering procedure is online process; the physical submission of documents shall not be entertained.
30. The information about DSC, guidelines for bid submission, bidders manual kit, Help for Contractor, FAQ, etc are available on <https://mahatenders.gov.in>

**SECTION 6**  
**INSTRUCTIONS TO APPLICANTS**

## INSTRUCTIONS TO APPLICANTS

### ➤ **Scope of Application**

The Authority wishes to receive Applications for Qualification in order to SELECT experienced and capable Applicants for the Bid Stage.

### ➤ **Eligibility of Applicants**

The Brihanmumbai Municipal Corporation Mumbai (BMC) invites e-tender to appoint Contractor for the aforementioned work from Private sector organizations, contractors of repute, multidisciplinary engineering organizations i.e. eminent firm, Proprietary/Partnership Firms/ Private Limited Companies/ Public Limited Companies/ Companies registered under the Indian companies' act 2013, the contractors registered with the Brihanmumbai Municipal Corporation Mumbai, (BMC) in **Class 1(A) as per new registration** and from the contractors/firms equivalent and superior classes registered in Central or State Government/Semi Govt. Organization/Central or State Public Sector Undertakings, excluding those who are blacklisted, demoted and debarred in BMC, P.W.D, other Government/ Semi Govt organizations in India/abroad and having their office in Mumbai will be allowed subject to condition that, the contractors who are not registered with BMC will have to apply for registering their firm within three months' time period from the award of contract, otherwise their Bid Security i.e. E.M.D (Earnest Money Deposit) will be forfeited/recovered and a penalty 0.1% of contract cost OR Rs.10,000/- whichever is more will be recovered / deducted from the Contractors payment / bill by the executing department.

To be eligible for pre-qualification and short-listing, an Applicant shall fulfill the following conditions of eligibility:

#### **1. For New and Original works**

**Name of work:-**

**Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

#### **A) Eligibility criteria:**

##### **1.1 Technical Capacity (Project Experience):**

**1.1** The tenderer(s) in their own name should have satisfactorily executed the work of similar nature BMC /Semi Govt. /Govt. & Public Sector Organizations during **last seven (7) years** ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a nominated sub-Contractor, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied)

- a) **Three similar completed works or currently executing three similar works of similar nature measuring not less than 15750 sq. mtr (25% of constructed area)**

**OR**

- b) **Two similar completed works or currently executing two similar works of similar nature measuring not less than 18900 sq. mtr (30% of constructed area)**

**OR**

- c) **One similar completed works or currently executing one similar works of similar nature measuring not less than 25200 sq. mtr (40% of constructed area)**

**AND**

**1.3** The tenderer(s), either in their own name or in technical association (that is through MOA and registered/notarized undertaking) of OEM (Original Equipment Manufacturer) should have satisfactorily executed a minimum of cumulative 1000 car parking spaces involving Shuttle & Robo Car Parking Systems subject to at least one project of minimum 450 car spaces in BMC/Semi-Govt./Govt., Public Sector Organizations, and Private Sector Organizations during the last five (5) years in India, ending on the last day of the month prior to the one in which bids are invited. This can be as a prime contractor or as a nominated subcontractor for the OEM work. If the bidder is a Civil Contractor (Class 1(A)) without experience in Supply, Installation, Testing, and Commissioning (SITC), they must submit a registered / Notarized undertaking along with Memorandum of Understanding (MOU) with an Original Equipment Manufacturer (OEM). The OEM should have successfully executed and completed Supply, Installation, Testing, and Commissioning (SITC) as mentioned herein above, as well as Operation and Maintenance (O&M), for a minimum of 450 car spaces under automatic multilevel electromechanical car parking systems (Shuttle and Robo-Parker systems) in India over the last five years, ending on the last day of the month prior to the one in which bids are invited. And Registered/Notarized MOA with such OEM is to be submitted along with the bid. At least one work out of above shall be for Government/ Semi. Govt./ Corporation /Govt. Institution/ PSU. OEM (Original Equipment Manufacturer) the foreign originated company can be considered with the Indian Partners jointly or severally for technical experience.

The bidder shall submit in Packet B the details of Construction Methodology/Technology which will be proposed for the said work.

The bidder shall submit an undertaking in Packet B to obtain all approvals/demarcation/NOC/Permits etc required for implementing the project from government/Semi government/ Service Provider/ BMC etc. in timely manner. The cost of the same shall be included in the tender bid by the bidder. Technical Documentation for all approvals will be prepared by PMC in conjunction with the Bidder and submitted after BMC approval at each stage. Scrutiny Fee/Premium etc. for BMC department, will be borne by the bidder and will be reimbursed on case to case basis by BMC. Scrutiny fees, deposits and premium payable to agencies other than BMC will be borne by the bidder and will not be reimbursed by BMC. For example, Building Proposal, CFO, SWD, HE, SO charges will be reimbursed but charges of outside agencies like BEST/Adani/Tata Power etc. will not be reimbursed. Built up area will be considered Floor plate/Foot print of the building for the purpose of calculating eligibility i.e. construction area which includes any areas towards elevation treatments, shafts, projections, voids etc.

**The bidder has the right to change Specialized agency (Electrical, Firefighting , HVAC, Housekeeping works and Robotic parking system ) subject to prior written permission of the BMC. Subject that the new agency fulfils the Tender Criteria**

**1.1.2 Similar experience is spelt in definite sense, such as-**

Construction of multistory building of minimum 10 stories or 30m building height (Applicable for commercial/institutional and residential)

**For Building Construction**

<b>Nos of stories</b>	<b>Experience of construction</b>
<b>Up to 4 stories</b>	No special experience
<b>From 5 to 10 stories</b>	Minimum 5 stories
<b>From 11 to 15 stories</b>	Minimum 8 stories
<b>From 15+ stories</b>	(a) Minimum 10 stories or 30m building Height (b) Out of the 10 stories of building, minimum topmost 3 stories to be of residential/commercial/institutional use only.

“Height of a building” means the vertical distance measured, in the case of flat roofs, from the average level of the ground around and contiguous to the building to the top of top most terrace level. (For example, 30m height shall be excluding height of parapet wall, staircase room, LMR & OHWT.)

### **Building height definition to read as stated below:-**

“Height of a building” means the vertical distance measured, in the case of flat roofs, from the average level of the ground around and contiguous to the building to the top of the terrace level. (For example, 30mtr. height shall be excluding height of parapet wall, staircase room, LMR & OHWT)

- The bidder shall submit in Packet B the details of Construction Methodology / Technology which will be proposed for the said work.
- The bidder shall submit an undertaking in Packet B to obtain all approvals /NOC/Permits etc required for implementing the project from government /Semi government /Service Provider /BMC etc. in timely manner. Scrutiny Fee/Premium etc. for BMC department, will be borne by the bidder and will be reimbursed on case to case basis by BMC. Scrutiny fees, deposits and premium payable to agencies other than BMC will be borne by the bidder and will not be reimbursed by BMC. For example, Building Proposal, CFO, SWD, HE, SO charges will be reimbursed but charges of outside agencies like BEST/Adani/Tata Power etc. will not be reimbursed
- Constructed area will be considered Floor plate/Foot print of the building for the purpose of calculating eligibility. Construction area includes any areas towards elevation treatments, shafts, projections, voids etc.

**For Robotic Parking, the similar experience criteria will mean multilevel electromechanical shuttle and robo car parker system meeting the following criteria: -**

1. System based on RCC slab and not steel plates
2. System to have car stalls on which car will be dropped and retrieved at every parking space
3. System to have car centering device at entry and exit lobby
4. OEM (Original Equipment Manufacturer) should have satisfactorily executed a minimum of aggregate 1000 car parking spaces involving Shuttle & Robo Car Parking Systems subject to at least one project of minimum 450 car spaces in BMC/Semi-Govt./Govt., Public Sector Organizations, and Private Sector Organizations during the last five (5) years in India and as well as Operation and Maintenance (O&M), for a minimum of 450 car spaces under automatic multilevel electromechanical car parking systems (Shuttle and Robo-Parker systems) in India over the last five years, ending on the last day of the month prior to the one in which bids are invited.
5. Rob parker to consist of:-
  - d) Car lifting mechanism without pressing of tire or dragging of car i.e. comb arrangement.
  - e) High speed elevators
  - f) Retrieval time not more than 150 seconds.
  - g) Throughput of entire parking system not less than 100 cars per hour
  - h) Design life for minimum 20 years and thereafter refurbishment to extend the life for further 15 years.
  - i) Turntable arrangement at entry/exit level along with turntable arrangement on shuttle to improve the efficiency and parking flow.

In case of ongoing works to be considered, the bidder must have received payment bills of 80% of the contract sum for the work/works executed last day of month previous to the one in which bids are invited.

## 1.2 Financial Capacity

- To ascertain this, tenderer(s) shall furnish /upload the financial statement (Audited balancesheet) duly certified by Chartered Accountant.
- The turnover can be enhanced by 10% every year to bring the present level.
- The Financial year **2024-25** will be considered current financial year.
- Enhancement will be applicable for F.Y.2023-24 completed on 31<sup>st</sup> March, 2024

Financial capacities of the above-mentioned entities including the bidder and OEM are combined, a registered/ notarized undertaking along with a Memorandum of Association must be submitted to BMC (Brihanmumbai Municipal Corporation). This document should affirm that the associated companies will continue to provide services in accordance with the tender requirements at all times until the completion of Defect Liability Period (D.L.P.) To verify this, tenderer (s) are required to provide/upload the financial statements (Audited Balance sheets) certified by a Chartered Accountant for the aforementioned entities including the bidder and OEM.

### A) Turnover

Achieved a average annual financial turnover as certified by ‘Chartered Accountant’ (in all classes of civil engineering construction works with electrical and mechanical works) equal to **30%** of the estimated cost of work in **last three (3) financial years** immediately preceding the Financial Year in which bids are invited. However, the combined turnover can be considered of the bidder and OEM.

### B) Net Worth Certificate

The Bidder should have net worth certificate for 15 % of estimated cost of Work. (Scanned copy of Net worth Certificate issued by Certified Chartered Accounts to be uploaded). However, the combined net worth can be considered of the bidder and OEM.

### C. Bid Capacity:

**The bid capacity of the prospective bidders will be calculated as under:Assessed**

$$\text{Available Bid Capacity} = (A * N * 2 - B)$$

Where,

**A** = Maximum value of Civil Engineering with Electrical/Mechanical works executed in any one year (year means Financial year) during **the last five years** (updated to the price level of the Financial year in which bids are received at a rate of 10% per year) taking into account the completed as well as works in progress.

**N** = Number of years prescribed for completion of the Project/Works, **excluding monsoon period** for which these bids are being invited. (E.g. 7 months = 7/12 year) For every intervening monsoon 0.33 shall be added to N.

**B** = Value of existing commitments (only allotted works) on the last date of submission of bids as per bidding document and on-going works to be completed during the period of completion of the Project/Works for which these bids are being invited.

However, the combined Bid Capacity can be considered of the above-mentioned entities **including** of the bidder and OEM.

Note: The statement showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be attached along with certificates duly signed by the Engineer-in Charge, not below the rank of an Executive Engineer or equivalent.

**Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:**

- made misleading or false representation in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Record for poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history( circular u/no. MGC/F/6565 dtd 25.09.2018), or financial failures etc.
- **The bidder should have bid capacity equal to or more than the tender estimated cost of Rs. 519,14,25,756.45/- (Excluding GST)**

**D. Joint venture (JV) is not allowed for this tender**

**E. 1) Equipment Capabilities as required for this work**

**For New and Original Works (i.e. Construction of high-rise building):**

The bidder should, undertake their own studies and **furnish with their bid**, a detailed construction planning and methodology supported with assessment study of requirements of equipment/plants & machineries to allow the employer to review their proposal. The bidder will ensure his commitment to make the arrangements of the required equipment on the day of commencement or with respect to the progress of the work in phases, as per the instructions of site in charge on an undertaking on Rs.500 stamp paper to be submitted along with the Bid in Packet B. However, this condition in no way shall dilute the respective condition in Registration Rules of BMC.

**Note: Bidders shall submit the undertaking for equipment capability and other undertakings as such on a single Rs. 500/- stamp paper.**

**F. PQC for Electrical and Mechanical Works**

**Mechanical & Electrical Works:**

**Eligibility criteria for specialized Mechanical & Electrical Works:**

If specialized jobs are to be executed by the prime bidder in-house, then the bidder has to submit documents for having fulfilled the technical capacity criteria. In case, specialized jobs are to be executed through nominated Sub-contractor fulfilling technical capacity criteria then, the prime bidder should submit the credentials of nominated sub-contractors for specialized work (Electrical work, Firefighting work), along with mandatory enclosures as mentioned below. The Memorandum of Undertaking (MoU) on Rs.500/- Stamp Paper with the nominated sub- contractor shall be submitted for each specialized job (Electrical work, Firefighting work, HVAC, Housekeeping) separately by prime bidder along with the bid in Packet B. It will be binding on the contractor to get the individual M&E work executed through such approved nominated Sub-contractor (with MOU) only. All MOU with specialized subcontractor to be submitted on Rs. 500 stamp paper and should be binding to the effect that bidder cannot change sub-contractor without consent of BMC. To change in appointed sub-contractor bidder shall have to refer conditions mentioned in the section of special directions to bidders, clause no. 52 "Special instructions for appointment of sub-contractor for M&E works, firefighting works. With regard to experience of Specialized agency submitted by the bidder for M&E Work, Firefighting and Fire Alarm System works, HVAC, Housekeeping in Eligibility Criteria, change in agency will be allowed during the execution stage subject to written permission being obtained for the Department for the same.

**Technical Capacity**

**a) For Electrical Work:-**

- 1) Tenderer/Nominated Sub Contractor of electrical shall have registered with the MCGM in



Class “A” as per new registration rule 2016. Tenderer/Nominated Sub Contractor of electrical works shall have valid PWD's electrical contractors license and his own office setup in Mumbai/Navi Mumbai/Thane area.

2) Registered electrical contractors of Railways / CIDCO / Central Public Works Dept./ Maharashtra State Public Works Department whose office is in Mumbai/Navi Mumbai/Thane area having class equivalent to Class “A” of BMC as per new registration rules ‘2016’ are also eligible to quote for the tender subject to the condition that the contractor who are not registered with BMC shall apply for registration within three months’ time period in similar category in BMC from the award of contract, otherwise their EMD and ASD will be forfeited and the award of contract will be treated as cancelled. The contractor shall have valid PWD's electrical contractor’s license. and his own office setup in Mumbai/Navi Mumbai/Thane area.

*(Supporting documents and certificates shall be uploaded by main contractor.)*

The contractor(s) or Specialized agencies of electrical work in their own name should have satisfactorily executed the work of similar nature in MCGM /Semi Govt. /Govt. & Public Sector Organizations during **last seven (7) years** ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a nominated sub-Contractor, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied).

a) **Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

b) **Two similar completed works or currently executing two similar works of similar nature admeasuring not less than 18900 sq. mtr (30% of constructed area).**

**OR**

c) **One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

*(Supporting documents and certificates shall be uploaded by main contractor.)*

**Similar Experience:**

Similar work shall mean, Work of Supply, installation, testing & commissioning of Electrical systems.

**b) Fire Fighting & Fire Alarm System.**

Firms dealing in the line of installations of Fire Fighting and fire detection / suppression systems enlisted with Directorate of Maharashtra fire services as eligible (as on the date of invitation on tender) licensing agency for SITC of Fire Fighting and fire detection / suppression systems having their office at Mumbai/Navi Mumbai/ Thane area.

*(Supporting documents and certificates shall be uploaded by main contractor.)*

The contractor(s) or Specialized agencies of fire-fighting work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area.

a) **Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

b) **Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

c) **One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

### **Similar Experience:**

**Similar work shall mean, Work of Supply, installation, testing & commissioning of Fire Fighting and fire detection/ suppression systems.**

All MOU with specialized subcontractor (Electrical & Fire-Fighting Works) for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.

#### **C.HVAC Works**

Firms dealing in the line of installations of HVAC work enlisted with BMC as eligible (as on the date of invitation on tender) licensing agency for SITC of HVAC works having their office at Mumbai/Navi Mumbai/ Thane area.

(Supporting documents and certificates shall be uploaded by main contractor.)

The contractor(s) or Specialized agencies of HVAC work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area

**Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

**Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

**One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

### **Similar Experience:**

**Similar work shall mean, Work of Supply, installation, testing & commissioning of HVAC systems.**

All MOU with specialized subcontractor (HVAC Works) for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.

#### **D.Housekeeping Works**

Firms dealing in the line of installations of Housekeeping work enlisted with BMC as eligible (as on the date of invitation on tender) Housekeeping Agency having their office at Mumbai/Navi Mumbai/ Thane area.

(Supporting documents and certificates shall be uploaded by main contractor.)

The contractor(s) or Specialized agencies of Housekeeping work in their own name should have satisfactorily executed the work of similar nature in BMC /Semi Govt. /Govt. & Public Sector Organizations Sector & Private Sector during last seven (7) years ending last day of month previous to the one in which bids are invited as a prime Contractor (or as a Specialized agencies, where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied) and his own office setup in Mumbai/Navi Mumbai/Thane Area

**Three similar completed works or currently executing three similar works of similar nature admeasuring not less than 15750 sq. mtr (25% of constructed area).**

**OR**

**Two similar completed works or currently executing two similar works of similar nature admeasuring not less than-18900 sq. mtr (30% of constructed area).**

**OR**

**One similar completed works or currently executing one similar works of similar nature admeasuring not less than 25200 sq. mtr (40% of constructed area).**

### **Similar Experience:**

**Similar work shall mean Housekeeping and Maintenance Works for Projects of area mentioned above.**

All MOU with specialized Housekeeping Agencies for all above works to be on Rs. 500 stamp paper and should be binding to the effect that bidder can change sub-contractor with prior consent of BMC subject to above qualification.

### G. Technical Personnel

The contractor and/or its managerial staff should have qualification/experience appropriate to the function they fulfill. The minimum standard shall be increased by asking that at least one number or more of the contractor or its managerial staff have acquired qualifications or work experience to the needs of the contract. The minimum standard may also state that the person or persons responsible for managing the works must have a minimum of nos of years' experience working on similar nature of projects. For Fixing Requirement of Technical Staff as required for this work: -

#### A) Technical Staff Proposed for this work: - (Civil, Electrical, Mechanical & BMS Work)

Cost of Work (Rs. In Crore)	Requirement of Technical Staff(Major+Minor Component)		Minimum Experience(years)	Designation
	Qualification	Number		
More than100	i) Graduate Engineer (Major Component)	1	20	Project Manager in Major Discipline of Engineering
	ii) Graduate Engineer	2+1	12	Deputy Project Manager in Major Discipline of Engineering i.e. 2Civil + 1 M&E
	iii) Graduate Engineer or Diploma Engineer	4 2	5 10	Project/Site Engineer, 2Civil + 4 M&E
	iv) Graduate Engineer	1+1	8	Quality Engineer (1 Civil + 1 M&E)
	v) Diploma Engineer	1	8	Surveyor
	vi) Graduate Engineer	1+1	6	Project Planning /Billing Engineer (1 Civil + 1 M&E)
More than50 up to 100	i) Graduate Engineer	1	20	Project Manager
	ii) Graduate Engineer	1+1	12	Deputy Project Manager
	iii) Graduate Engineer or Diploma Engineer	2+1	5 or 10	Project/Site Engineer
	iv) Graduate Engineer	1	8	Quality Engineer
	v) Diploma Engineer	1	8	Surveyor
	vi) Graduate Engineer	1+1	6	Project Planning /Billing Engineer
More than20 up to 50	i) Graduate Engineer	1	20	Project Manager
	ii) Graduate Engineer or Diploma Engineer	1+1	5 or 10	Project/Site Engineer
	iii) Graduate Engineer	1	8	Quality Engineer
	iv) Diploma Engineer	1	8	Surveyor
	v) Graduate Engineer	1+1	6	Project Planning /Billing Engineer

#### B) Staff required for Parking System works: -

Requirement of Technical Staff(Major + Minor Component)		Minimum Experience (years)	Designation
Qualification	Number		
i) Graduate Engineer	1	20	Project Manager
ii) Graduate Engineer or Diploma Engineer	2+1	5	Project Site Engineer Mechanical+ Electrical + Instrumentation
iii) Graduate Engineer	1	8	Quality Engineer
iv) Diploma Engineer	1	8	Surveyor

C) Staff Required for Operation & Maintenance of Parking Systems

Cost of work (Rs. In Crore)	Requirement of Technical Staff		Minimum Experience (years)	Designation
	Qualification	Nos. (minimum)		
Irrespective of Cost	i) Graduate Engineer or Diploma Engineer	1	20	Safety Engineer
	ii) Technician	1+1	10	Mechanical
	iii) Technician	1+1	10	Electrical
	iv) Operator	4 + 4 (24 x 7)	10	Experience in parking operations
	v) Housekeeping Staff			
	Supervisor	1	10	Housekeeping experience
	Staff	14	5	Housekeeping experience
	Besides above enough Supervisors and labour shall be provided			

**Notes- 1** “Cost of work”, in table above, shall mean the agreement amount of the work.

2. Rate of recovery in case of non-compliance of the clause be stipulated at following rates:-

Sr. No	Qualification	Experience(years)	Rate of Recovery
1	Project Manager with degree	20	Rs.60000/-p.m.
2	Deputy Project Manager withdegree	12	Rs.40000/-p.m.
3	Project/Site Engineer (Degree / Diploma)	5 or 10 Respectively	Rs.25000/-p.m.
3	Quality Graduate Engineer	8	Rs.25000/-p.m.
4	Surveyor	8	Rs.15000/-p.m.
5	Project Planning/ BillingEngineer	6	Rs.20000/-p.m.

*3.Nothing extra need to be added while preparing market rate justified amount of the work if stipulation is made as per above recommended scale of technical staff.*

*4.Requirement of technical staff and their experience can be varied depending upon cost and complexity of the work by competent authority i.e. Chief Engineer with recorded reasons.*

*5. The failure in providing experienced technical and /professional ability personnel and even ignoring the instruction of the Engineer-in-charge shall be linked to penalization. Such disobeying attitude of the contractor shall also be reported to Vigilance/Registration & Monitoring department.*

*6. The site engineer must have BMC supervision license and copy of valid license shall be submitted in the office of Dyc.(B.C.) city before commencement of work.*

## **H. TIME PERIOD OF THE PROJECT :**

Entire project should be completed and delivered within **6 months for approvals and transit lab shifting+ 36 months project time period** of time from the commencement date of contract (Including Monsoon) excluding time delay not attributable to successful bidder. The time period required for obtaining different permission from different Govt. Agencies shall be excluded while calculating 36 months' time period which is to be considered as 6 months.

The time allowed for carrying out the work as entered in the Tender shall be strictly observed by the Contractor and shall be reckoned from the date on which the Letter of Acceptance is given to the Contractor. The work shall throughout the stipulated period of the Contract be proceeded with all due diligence as time being deemed to be the essence of the contract on the part of the Contractor. On failing to do so, the Contractor shall pay as compensation an amount which shall be governed as per Clause - 8(e) of Standard General Conditions of Contract.

The Contractor should complete the work as per phase given below:

¼ of the work in	..	¼ of the time
½ of the work in	..	½ of the time
¾ of the work in	..	¾ of the time
Full of the work in	..	Full of the time

Full work will be completed in 6 + 36 months including monsoon.

The programme for completion of work shall be a part of the Contract Document in the form of Bar Chart / GANTT Chart. The Contractor is supposed to carry out the work and keep the progress as per Bar Chart/GANTT Chart. The Contractor shall complete the work as per the Schedule given in the Contract and the programme submitted by the Contractor.

In case the contractor fails to achieve the desired progress as per time schedule for any reason whatsoever and fails to rectify the lapses and show positive progress, BMC shall be entitled to levy deterrent penalty.

### **I. Contract Execution**

All required documents for execution of the contract shall be submitted within 30 days from the date of issue of letter of acceptance. If the documents are not submitted within the stipulated time a penalty of Rs 5000/- per day will be applicable to the contractor. All contract documents need to be duly affixed with stamp duty properly signed along with evidence/proof of payment of security/contract deposit/ within 30 days from the date of letter of acceptance received by him

- J.** If the amount of the Contract Deposit to be paid above is not paid within 30 days from the date of issue of Letter of Acceptance, the Tender / Contractor already accepted shall be considered as cancelled and legal steps shall be taken against the contractor for recovery of the amounts.
- K.** The amount of Security Deposit retained by the BMC shall be released after expiry of period up to which the contractor has agreed to maintain the work in good order is over. In the event of the contractor failing or neglecting to complete the rectification work within the period up to which the contractor has agreed to maintain the work in good order, the amount of security deposit retained by BMC shall be adjusted towards the excess cost incurred by the Department on rectification work.

**L. Action when whole of security deposit is forfeited:**

In any case in which under any Clause of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of this security deposit whether paid in one sum or deducted by instalments or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause, the Engineer on behalf of the Municipal Commissioner shall have power to adopt any of the following process, as he may deem best suited to the interest of BMC.-

- (a) To rescind the contract (for which recession notice in writing to the contractor under the head of Executive Engineer shall be conclusive evidence) and in that case, the security deposit of the contract shall stand forfeited and be absolutely at the disposal of BMC.
- (b) To carry out the work or any part of the work departmentally debiting the contractor with the cost of the work, expenditure incurred on tools and plant, and charges on additional supervisory staff including the cost of work-charged establishment employed for getting the un-executed part of the work completed and crediting him with the value of the work done departmentally in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to the costs and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the contractor.
- (c) To order that the work of the contractor be measured up and to take such part thereof as shall be un-executed out of his hands, and to give it to another contractor to complete, in which case all expenses incurred on advertisement for fixing a new contracting agency, additional supervisory staff including the cost of work charged establishment and the cost of the work executed by the new contract agency will be debited to the contractor and the value of the work done or executed through the new contractor shall be credited to the contractor in all respects and in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to all the cost of the work and other expenses incurred as aforesaid for or in getting the un-executed work done by the new contractor and as to the value of the work so done shall be final and conclusive against the contractor.
- (d) In case the contract shall be rescinded under Clause (a) above, the contractor shall not be entitled to recover or be paid any sum for any work therefor actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be paid the amount so certified. In the event of either of the courses referred to in Clause (b) or (c) being adopted and the cost of the work executed departmentally or through a new contractor and other allied expenses exceeding the value of such work credited to the contractor's amount of excess shall be deducted from any money due to the contractor, by BMC under the contract or otherwise, howsoever, or from his security deposit or the sale proceeds thereof provided, however, the contractor shall have no claim against BMC even if the certified value of the work done departmentally or through a new contractor exceeds the certified cost of such work and allied expenses, provided always that whichever of the three courses mentioned in clauses (a), (b) or (c) is adopted by the Executive Engineer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered in to any engagements or made any advance on account of or with a view to the execution of the work or the performance of the contract.
- (e) BMC shall reserve the right to foreclose the project work at any stage for whatsoever circumstances without giving any reason. The contractor shall be paid for his work done subjected to applicable conditions.

**M. Contract may be rescinded and security deposit forfeited for bribing a public officer or if contractor becomes insolvent**

If the contractor assigns or sublets his contracts or attempt so to do, or become insolvent or commence any proceeding to get himself adjudicated and insolvent or make any composition with his creditors, or attempt so to do or if bribe, gratuity, gift, loan, perquisite, reward or advantage, pecuniary or otherwise, shall either directly or indirectly be given promised or

offered by the contractor or any of his servants or agents through any public officer, or person in the employ of BMC/Govt. in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract the Engineer In-charge may thereupon, by notice in writing rescind the contract and the Security Deposit of the Contractor shall thereupon stand forfeited and be absolutely at the disposal of BMC and the same consequences shall ensue as if the contract had been rescinded under above clause J hereof; and in addition the contractor shall not be entitled to recover or be paid for any work therefore actually performed under the contract.

### **N. Project Management Consultant :**

BMC has appointed Project Management Consultant M/s Master & Associates for validation and bill certification, site records, Proof checking, Construction supervision, Quality Assurance, Quality control and Quality audit including Architectural services for construction of dwelling units for project known as **Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

The successful Bidder /Contractor shall carry out the project work in coordination with PMC and BMC staff. In case of any conflict /interpretation etc between PMC & contractor the decision of Director E&SP shall be final and binding in this regard.

#### Role of Architect & Project Management Consultant

1.The Consultants shall exercise power and authority as well as perform duty, all the duties, liabilities, functions and obligations as the Engineer's representative as indicated in the contract.

2.The Consultants shall prepare review, audit and ensure systematic and timely preparation and supply of design documents, working drawings, estimates, if any, and schedules from the contractors as per contractor's conditions with BMC. He shall maintain these records and present such documents to the BMC as required by them for approval. PMC shall be commissioning and proof consultant for structural design for onward vetting by VJTI/IIT.

3. The Consultants shall be expected to suggest modifications wherever considered necessary to improve the performance of the project components with particular attention to:-

- a. Durability
- b. Water tightness of roofs, walls and sanitary blocks.
- c. Ease of construction at various stages
- d. Strength and Stability of the structure
- e. and performance of the services.

If out these suggestions any extra cost is involved he shall obtain prior approval of BMC, before enforcing the same on the contractor.

4. For the purpose of review and audit, the consultant shall employ suitably qualified and experienced engineers at his own cost.

5. The contractor is to obtain approvals, N.O.C.s etc. from local authorities. However, the consultant shall supplement the action of seeking approvals, N.O.C.s from local authorities. For this, no extra payment will be made to P.M.C. and all documentation, drawings, technical information, follow up and coordination work will be done by PMC in conjunction with the bidder. However, it is responsibility of bidder for obtaining approvals timely.

#### Project Management Consultants Services

The project management consultant will perform the following services in each of the following services under this agreement in each of the phases:-



## Pre-Tender Activities

1. Architect and PMC have prepared all scope drawings for the project and drawings and details upto submission stage for Building Proposal and CFO.

2. Assisting BMC to finalize the selection of Contractor and also attending prebid conferences for selection of Contractors.

3. It shall be the duty and responsibility of the Consultants to advise the BMC regarding acceptance or rejection of the tenders received. The BMC will give the most careful consideration to the advice and recommendations of the Consultants, but it shall have absolute right to accept or reject any or all tenders without assigning any reason whatsoever and the decision of the BMC shall be final and binding on all the parties.

4. Scheduling: The Consultant will Develop a Project Schedule that coordinates and integrates the work of the Contractor's team and BMC activities with design, detailed estimates and construction schedule. Update the Project Schedule incorporating a detailed schedule for all activities of the Project including realistic activity sequences and durations, allocation of labour and materials, processing of working drawing shop drawings and samples, and delivery of products requiring long lead-time procurement, including the BMC occupancy requirements showing portions of the Project having occupancy priority.

5. Project Budget: Prepare a Project Budget as soon as major project requirements have been identified, and update periodically for the BMC approval. Advise BMC if it appears that the Project Budget will not be met and make recommendations for corrective action.

## **Post Tender Construction Activities of Consultant**

1. The consultants will be required during the construction phase to provide the field supervision and sufficient technical assistant (staff) for check on quality control of the work at site. For this purpose, the consultants shall have to post their Engineer-in-Charge at the site of work and provide the agreed necessary and adequate technical staff for supervision and exercising adequate and constant day-to-day technical supervision over the construction including giving layout, its checking requirements of materials and their procurement in time, conforming to approved specifications and accepted standards. Submission of weekly or fortnightly progress report as per the directions of the BMC, submitting recommendations on extra items including maintaining necessary site records containing data in support of the same, carrying out field tests on materials, structures, etc. and maintaining adequate records thereof and certifying the bills for quality control for payment to the contractor's quantity and including recommendation of extension of time, extra item variation statements, quality control check for final bills etc. in the forms prescribed by BMC.
2. The scope under this phase of the assignment shall include, inter alia, the following :
  - i. Complete day to day supervision of contracted buildings infrastructural and land development works for individual schemes ensuring quality control in accordance with tendered stipulations, specifications, drawings and site conditions. The quality control will be exercised at all stages of construction, viz. approval of materials, usage thereof in proper proportions and workmanship at all stages of execution of individual items of work and ensuring proper functioning of various components of works of building and services and infrastructure. The sample for field test will be taken by PMC in the presence of the contractor and to be got tested in the reputed laboratory. The testing charges will be borne by the contractor.
  - ii. Ensure proper establishment of field laboratories by Contractors to conduct laboratory tests on materials for construction such as cement, steel, bricks, etc. Essential gauges, instruments etc., should be got calibrated periodically. The Consultant shall maintain necessary site records and obtain data in support of the same. They shall carry out field and laboratory tests on materials of construction as well as partially or completely erected structures etc. and maintain adequate records thereof. The P.M.C. should analyse, interpret and assume full responsibility with

- records to the conformity of the test results with relevant I.S. provisions.
- iii. Suggesting modifications, if any, due to site conditions and advising regarding cost variations, on account of extra items and excesses.
  - iv. Ensure close coordination with the Architect and Structural, Mechanical and Electrical Engineers of the Contractor regarding details, clarifications and modifications in details, if any, as also for regular and timely flow of details and instructions
  - v. Verification of Contractor's periodic or stagewise bills for the work done and material advance, recording joint measurements of work wherever necessary and certification of the work to be paid for. The certification of all the bills shall be done by an authorized Chief Engineer or Senior Engineer of the Consultants.
  - vi. Monitoring progress by using modern methods of control such as Computerised PERT/CPM, submission of progress reports of work executed monthly. Both financial and physical progress reports with reference to prefixed targets will be prepared. Constant review of progress within present time and cost parameters, will have to be done. Consultants will have to suggest improvements from time to time.
  - vii. Complete administration and management of contract till expiry of the defects liability period, and payment of final dues to the contractors.
  - viii. Coordination with other contracting agencies and the agencies like Adani Electricity/BEST/Tata, Civil Aviation etc. which are expected to be working in the same area. Consultants shall ensure that the contractor obtains approvals from such local authorities to the work.
  - ix. Obtaining from the contractors and certifying 'As-built' drawings of buildings including drawings showing foundation details and strata and the net work of services and two sets on reproduce-able paper will be made available.
  - x. Obtain from the contractor properly documented 'Maintenance Manual' for the buildings and all the services, internal and connected to the project works.
  - xi. Verifications of work on completion and issue of completion certificate in coordination with Contractor's Architect and furnish the same to the BMC/Local Competent Authority.
  - xii. Verification by taking and recording joint measurements of the final bill to be submitted by the contractors, preparation and finalization of final bills, as per the terms and conditions of Contract Agreement and Certificate through Contractor's Architects for release of final payment by BMC.
  - xiii. Advising BMC with regard to extra items claim/disputes, if any and work in hand with the legal department of BMC legal consultants till the cases are settled. At the end of virtual completion of works, all relevant records shall be handed over to BMC.
  - xiv. Rendering generally as such consultants, all technical services as may in any way relate to or arise out of the construction of the said work as have been entrusted to the consultants by the BMC.
  - xv. Generally rendering to the BMC every assistance, guidance or advice on any matter concerning the technical aspect of the project.
  - xvi. The consultant shall collect and deliver to the BMC any specific written warrantee or guarantees given by others, including all required trade contractor's guarantees and warrantees.
  - xvii. To work as conciliator in the event of any dispute arising between the parties before the matter goes to legal forum.
  - xviii. To prepare numbering plan and handover document as per the rules of BMC for the constructed building under the Project.

- xix. Preparation and submission of quarterly progress report and interim completion report.
- xx. Pursue the local authorities such as BEST, H.E., SWD, S.O. etc. for handing over infrastructure to be taken over by BMC.

**O.** It will be entirely responsibility of the contractor to provide and install secure barricades on work site, wholly at his cost. The barricading shall be provided as per specifications and as per site requirements and the circular issued u/no. MGC/F/6342 dated 05.05.2018 shall be applicable. BMC will not make any payments towards barricading; contractor shall quote accordingly.

All the excavated material belongs to the Brihanmumbai Municipal Corporation and therefore shall be the property of BMC. The excavated material shall be removed from site and dump to suitable dumping ground at the risk and cost of the contractors. The payment of transportation charges shall not be paid by the BMC. The bidder must consider all the cost above and must quote accordingly

**P. Categories and classes available for Civil Contractors.**

A. New registration. (2016)

Minimum Financial requirements for Civil Engineering Discipline (Rs.In Lakh)

Class	Amounts upto which work can be taken up	Minimum Solvency	Average turnover of work done during last 3 years	Estimated cost of work in hand during current year
I(A)	Without Limit	150	300	450
I(B)	2500			
I(C)	1500			
II	750	75	200	300
III	300	30	90	150
IV	150	15	60	80
IV (A)	90	9	40	60
V	50	5	25	30
V (A)	30	3	15	10
VI	15	2	7.5	10
VII	7	1	1.5	3
VIII	3	0.5	1	1.5
IX	2	0.25	0.5	1

**B. Minimum Financial requirements for M&E (Rs in Lakh)**

Sr No.	Class	Amount upto which works can be taken up	Minimum Solvency	Work completed in last 3 years	Average turnover of work done during last 3 years	Estimated cost of work in hand during current year
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>1</b>	<b>A</b>	<b>Without Limit</b>	<b>8</b>	<b>60</b>	<b>20</b>	<b>40</b>
<b>2</b>	<b>B</b>	<b>25</b>	<b>4</b>	<b>30</b>	<b>10</b>	<b>30</b>
<b>3</b>	<b>B-1</b>	<b>15</b>	<b>3</b>	<b>18</b>	<b>6</b>	<b>16</b>
<b>4</b>	<b>C</b>	<b>10</b>	<b>3</b>	<b>18</b>	<b>6</b>	<b>15</b>
<b>5</b>	<b>D</b>	<b>7.5</b>	<b>1.5</b>	<b>9</b>	<b>3</b>	<b>8</b>
<b>6</b>	<b>E</b>	<b>2</b>	<b>0.5</b>	<b>3</b>	<b>1</b>	<b>1.75</b>

- **Submission of Tenders on e-Procurement System of Government of Maharashtra (Mahatenders)(<http://mahatenders.gov.in>)**

Applicant will upload Packet A documents in cover 1 “Fee”

**PACKET – A**

The Packet ‘A’ shall contain scanned certified copies of the following documents

Scrutiny of this packet will be done strictly with reference to only the scanned copies of Documents uploaded online in packet ‘A’

- a) Valid Registration Certificate.
- b) Valid Bank Solvency Certificate of Minimum Solvency amount as governed by Registration Rules in force for respective Class of Contractor for Civil and M&E works (Rs. 1,50,00,000)
- c) A document in support of Registration under CGST, SGST and IGST Registration Certificate in Maharashtra /India. Those not registered in Maharashtra shall submit an undertaking to the effect that if they are successful tenderer, they shall submit CGST, SGST and IGST Registration Certificate in Maharashtra within 15 days of issue of work order, failing which payment for the work executed will not be released.
- d) Certified copies of valid 'PAN' documents and photographs of the individuals, owners, Karta of Hindu Undivided Family, firms, private limited companies, registered co-operative societies, partners of partnership firms and at least two Directors, if number of Directors are more than two in case of Private Limited Companies, as the case may be. However, in case of Public Limited companies, Semi Government Undertakings, Government Undertakings, no 'PAN' documents will be insisted.
- e) Latest Partnership Deed in case of Partnership firm duly registered with Chief Accountant (Treasury) of BMC and registration certificate with registrar of companies in case of Private Ltd/Public Ltd/Semi Govt. & Govt. undertakings.
- f) Signed copy of minutes of pre-bid meeting or the addendum / corrigendum, if any.
- g) Tenderer should download from the tender document ‘Form of Tender’ & ‘Appendix I’, fill in the requisite details, sign wherever necessary, scan the same document, upload & submit bidder qualification as per proforma attached.
- h) The tenderer shall pay the EMD/Bid Security through payment gateways before submission of Bid and shall upload the screenshot of receipt of payment in Packet ‘A’ instead of paying the EMD at any of the CFC centers in BMC Ward Offices. Bidder will deposit 100% EMD amounting to 1% contract cost through online payment gateway of [www.mahatender.gov.in](http://www.mahatender.gov.in)
- i) The bidders shall categorically provide their Email-ID in packet ‘A’.
- j) Scan copy of Details of online payment of EMD shall be uploaded.

**NOTE:**

- The bidder shall submit necessary documents / registration certificates as per mandatory applicable requirement.
- If the tenderer(s) withdraw tender offer during the tender validity period, his entire E.M.D shall be forfeited.
- If it is found that the tenderer has not submitted required documents in Packet “A” then, the shortfalls will be communicated to the tenderer through e-mail only and compliance required to be made within a time period of **three working days** otherwise they will be treated as Non-Responsive

## **JOINT VENTURE IS NOT ALLOWED FOR THIS TENDER**

### **NOTE:**

- The bidder shall submit necessary documents / registration certificates as per mandatory applicable requirement.
- If the tenderer(s) withdraw tender offer during the tender validity period, his entire E.M.D shall be forfeited.
- If it is found that the tenderer has not submitted required documents in Packet “A” then, the shortfalls will be communicated to the tenderer through e-mail only and compliance required to be made within a time period of **three working days** otherwise they will be treated as Non Responsive.

-

Applicant will upload Packet B related Documents in cover 2 “PQC”.

**PACKET – B**

**The Packet ‘B’ shall contain scanned certified copies of the following documents (For individual bidders) -**

- a) The bidder shall deliver a detailed presentation of the construction methodology/technology giving all the relevant details.
- b) The list of similar type of works in the role of (i) Bidder and OEM or (ii) Bidder who is registered under Class I(A) with B.M.C. in their own name or in technical association Civil (that is through MOA and registered / notarized undertaking) and OEM, as stated in para ‘A’ of Post qualification successfully completed during the last seven years in prescribed proforma, in the role of prime contractor or as a nominated sub-contractor where the subcontract had involved similar nature of work as described in the scope of works in this bid document, provided further that all other qualification criteria are satisfied. Information furnished in the prescribed proforma (Proforma – I & III) shall be supported by the certificate duly self-attested. Documents stating that it has successfully completed during the last Seven years at least one contract of similar works as stated in para ‘A’ of Post qualification. Similar works experience can be considered of (i) bidder and OEM and OEM Company must have minimum five years’ experience of Operation and Maintenance (O&M), information furnished in prescribed (Proforma-III).

Note: -OEM (Original Equipment Manufacturer) should have satisfactorily executed a minimum of aggregate 1000 car parking spaces involving Shuttle & Robo Car Parking Systems subject to at least one project of minimum 450 car spaces in BMC/SemiGovt. /Govt., Public Sector Organizations, and Private Sector Organizations during the last five (5) years in India, ending on the last day of the month prior to the one in which bids are invited. This can be as a prime contractor or as a nominated subcontractor for the OEM work. If the bidder is a Civil Contractor (Class 1(A)) without experience in Supply, Installation, Testing, and Commissioning (SITC), they must submit a registered / Notarized undertaking along with Memorandum of Understanding (MOU) with an Original Equipment Manufacturer (OEM). The OEM should have successfully executed and completed Supply, Installation, Testing, and Commissioning (SITC) as mentioned herein above, as well as Operation and Maintenance (O&M), for a minimum of 450 car spaces under automatic multilevel electromechanical car parking systems (Shuttle and Robo-Parker systems) in India over the last five years, ending on the last day of the month prior to the one in which bids are invited. And Registered/Notarized MOA with such OEM is to be submitted along with the bid. At least one work out of above shall be for Government/ Semi. Govt./ Corporation /Govt. Institution/ PSU.

OEM shall submit conformity examination certificate from competent certifying body that the systems provided are consistent with DIN/EN14010/2003 and AI 2009-2012 and registered undertaking for Rs. 500 to that effect shall be submitted.

- c) Annual financial turnover for **preceding three financial years as certified by Chartered Accountant** preceding the Financial Year in which bids are invited. **Copies of Applicants duly audited balance sheet and profit and loss account for the preceding three financial years preceding the Financial Year in which bids are invited.** (Proforma – II) At least three in last 5 years starting 2019-2020 to 2023-2024. However, The Combined turnover can be considered of (i) The bidder and OEM or (ii) Turnover to be at least 30% of the cost of the work in the last 3 financial years.
- d) Documents stating that, it has access to or has available liquid assets, unencumbered assets, lines of credit and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements for the subject contract in the event of stoppage, start-up, or other delay in payment, of the minimum 15% of the cost of the work tendered for, net of the tenderer's commitment of other contracts (Certificate from Bankers / C.A./Financial Institution shall be accepted as a evidence). However, The Combined liquid assets can be considered of The bidder and OEM
- e) The bidder shall give undertaking on Rs 500/-stamp paper that it is his/their sole responsibility to arrange the required machineries either owned/on lease or hire basis, at site before start of the work

The bidder shall take due cognizance of guidelines issued under CA/F/Project/28 dtd. 28.03.2023

- f) **New and Original Works:** The bidder should, undertake their own studies and **furnish with their bid**, a detailed construction planning and methodology supported with assessment study of requirements of equipment/plants & machineries to allow the employer to review their proposal. The bidder shall ensure his commitment to make the arrangements of the required equipment on the day of commencement or with respect to the progress of the work in phases, as per the instructions of site in charge on an undertaking on Rs.500 stamp paper to be submitted along with the Bid in Packet B. However, this condition in no way shall dilute the respective condition in Registration Rules of BMC.
- i) Successful completion of at least one contract of size stated in prequalification criteriaduring last seven financial years (Performa-III).
- ii) Information on provision of suitably qualified personnel capabilities (Performa-IV).
- iii) Equipment ownership list of owned equipment/machines (Performa-VA).
- iv) List of owned machinery or have assured access through, hire, lease, purchase agreement or other commercial means. (Performa-VB)
- v) Details of works in hand (Proforma VI-A & VI-B) (original), along with copies of workorders & attested copies of percentage of works completed or part thereof.
- g) Statement showing assessed available Bid Capacity. Combined Bid Capacity can be considered of (i) The bidder and OEM.
- i) The undertaking of Rs.500/- stamp paper as per the proforma annexed in 'Annexure B & C' and submit 'Annexure B & C' on separate stamp paper of Rs. 500/-
- ii) Registered/Notarized MOU with specialized electrical contractor (All MOUs on Rs. 500 stamp paper). Municipal Registered Electrical Contractors in Class A as per new registration rule 2016. The contractors who are not registered with BMC will have to submit the undertaking stating that he will apply for registering their firm within 3 months' time period from the date of issue of work order. The contractor shall have valid PWD electrical contractor license and his own office setup in Mumbai/Navi Mumbai/Thane area.
- iii) Registered/Notarized MOU with specialized firefighting contractor (All MOUs on Rs. 500 stamp paper) along with following clauses: - a) The contractor/sub-contractor shall submit the valid fire contractor Registration certificate of Government of Maharashtra Directorate of Maharashtra Fire Service. B) The contractor shall have his own office setup in Mumbai/Navi Mumbai/Thane. The contractor shall have valid PWD electrical contractor license and his own office setup in Mumbai/Navi Mumbai/Thane area.
- iv) Registered/Notarized MOU with specialized HVAC contractor (All MOUs on Rs. 500 stamp paper) along with following clauses: - a) The contractor/sub-contractor shall submit the valid HVAC Registration certificate e. B) The contractor shall have his own office setup in Mumbai/Navi Mumbai/Thane. The contractor shall have his own office setup in Mumbai/Navi Mumbai/Thane area.
- v) Registered/Notarized MOU with specialized Housekeeping Agency (All MOUs on Rs. 500 stamp paper) along with following clauses: - The contractor shall have his own office setup in Mumbai/Navi Mumbai/Thane. The contractor shall have his own office setup in Mumbai/Navi Mumbai/Thane area.
- vi) Registered/Notarized MOU (All MOUs on Rs. 500 stamp paper) with OEM by the bidder and OEM.
- vii) The undertaking on RS 500/- stamp paper from OEM guaranteeing MCGM for supply of spares during 20 years maintenance period at free of cost.
- viii) Experience to be submitted of car parking system (Shuttle and Robo parker system) of OEM as per (Proforma- I) & (Proforma-III) with nos of car parking spaces.
- ix) Bidder shall submit schematic drawing of the Multilevel Car parking system with the bid for evaluation of the bid.
- x) Undertaking in Packet B to obtain all approvals/demarcation/NOC/Permits etc. required for implementing the project from Government/Semi government/ Service Provider/BMC

etc. in timely manner. The cost of the same shall be included in the tender bid by the bidder. Documentation for all approvals will be prepared by PMC in conjunction with the Bidder and submitted after BMC approval at each state. Scrutiny Fee/Premium etc. for BMC department, will be borne by the bidder and will be reimbursed on case to case basis by BMC. Scrutiny fees, deposits and premium payable to agencies other than BMC will be borne by the bidder and will not be reimbursed by BMC. For example, Building Proposal, CFO, SWD, HE, SO charges will be reimbursed but charges of outside agencies like BEST/Adani/Tata Power etc. will not be reimbursed

- xi) Bidder shall make detailed presentation of the construction methodology/technology giving all relevant details
- xii) The bidder shall disclose the litigation history in Packet B under the head Details of litigation History (circular u/no. MGC/F/6565 dtd. 25.09.2018).

If there is no litigation history, the bidder shall specially mention that there is no litigation history against him as the per the clause of litigation history, in case there is litigation history, Litigation history must cover – Any action of blacklisting, debarring, barring, banning, suspension, deregistration and cheating with BMC, state Govt, Central Govt. Or any authority under state or Central Govt/ Govt organization initiated against the company, firm, directors, partners or authorized signatory shall be disclosed for last 5 years from the date of submission of bid. Also, bidder must disclose the litigation history for last 5 years from the date of submission of bid about any action like show cause issued, blacklisting, debarring, barring, banning, suspension, deregistration and cheating with BMC and BMC is party in the litigation against the company, firm, directors, partners or authorized signatory for carrying out any work for BMC by any authority by BMC and the orders passed by the competent authority or by any court where BMC is a party. While taking decision on litigation history, the concerned Chief Engineer or DMC or Director as may be the case, should consider the details submitted by bidder and take decision based on the gravity of the litigation and the adverse effect of the act of company, firm, directors, partners or authorized signatory on the BMC works which can be spoiled the quality, output, delivery of any goods or any work execution and within the time frame.

**"Details of Litigation History". (MGC/F/6565 dt. 25.09.2018)**

If there is no Litigation History, the bidder shall specifically mention that there is no Litigation History against him as per the clause of Litigation History. In case there is Litigation History, Litigation History must cover-

Any action of blacklisting, debarring, banning, suspension, deregistration and cheating with BMC, State Govt., Central Govt. or any authority under State or Central Govt./Govt. organization initiated against the company, firm, directors, partners or authorized signatory shall be disclosed for last 5 years from the date of submission of bid. Also, bidder must disclose the litigation history for last 5 years from the date of submission of bid about any action like show cause issued, blacklisting, debarring, banning, suspension, deregistration and cheating with BMC and BMC is party in the litigation against the company, firm, directors, partners or authorized signatory for carrying out any work for BMC by any authority of BMC and the orders passed by the competent authority or by any Court where BMC is a party. While taking decision on litigation history, the concerned Chief Engineer or D.M.C. or Director, as may be the case, should consider the details submitted by bidder and take decision based on the gravity of the litigation and the adverse effect of the act of company, firm, directors, partners or authorized signatory on the BMC works which can spoil the quality, output, delivery of any goods or any work execution and within the time frame.

The bidder shall disclose the litigation history in Packet B under the head “Details of litigation history.”

**Note: Bidders shall submit the undertaking for equipment capability and other undertakings as such on a single Rs.500/- stamp paper.**

The bidder shall disclose the litigation history in Packet ‘B’ under the head “Details of Litigation History.”



**xiii)** The tenderers shall upload work plan as per the following outline:

1. GANTT chart/ PERT/ CPM chart showing the completion of work within prescribed time period, considering major activities.
2. Organizational set up envisaged by the contractors.
3. Plant & equipment proposed to be deployed for this work.
4. Site Offices and Laboratories proposed to be set up.
5. A note on how the whole work will be carried out (work plan including methodology).
6. Quality management plan.
7. All the activities included in the Scope of Work shall be covered in the work plan  
7 a) Circular u/no. DMC/CPD/3217 dated 2/03/2019 regarding grievance redressal.
8. Signed copies of corrigendum/Addendum if any
9. Information of Litigation History (Proforma-VIII) in which tenderer is involved.  
Proformas below:-

Other Party (ies)	Employer	Cause of dispute	Amount involved	Remarks showing Present Status
1	2	3	4	5

10. The successful bidder shall submit an undertaking on Rs.500/- stamp paper mention that the work will be completed within in stipulated time period as mentioned in the tender. In case of not completing the work within the stipulated time period penalty will be recovered as per tender condition under circular no AMC/ES/2700 dtd 27.05.2019.
11. Technical person experience should be in Packet B in the format submitted on personnel Proforma-IV of this Tender.(uploaded in clarification on Specifications, utility planning and electrical items and specifications Sr. No. 8 dated 30.08.2022)

**Note:**

**i.**The Electrical / Mechanical work shall be got carried out by the civil contractors through the contractors registered with BMC. in Electrical Category. Information about the registered contractors shall be obtained from the office of the Ch.E. (M&E)/ E.E. (Monitoring & Registration Cell). Attested scanned copy of the valid registration certificate in Electrical Category shall be uploaded with the tender along with the undertaking from the registered Electrical Contractor stating his willingness to carry out the tender work.

**ii.** The successful bidder shall submit valid registration certificate under E.S.I.C., Act 1948, if the tenderer has more than 10 employees /persons on his establishment (in case of production by use of energy) and 20 employees/persons on his establishment (in case of production without use of energy) to BMC as and when demanded. In case of less employees/persons mentioned above then the successful bidder has to submit an undertaking to that effect on Rs. 500/- stamp paper as per circular u/no. CA/FRD/I/65 of 30.03.2013.

**iii.** The successful bidder shall submit valid registration certificate under E.P.F. & M.P., Act 1952, if tenderer has more than 20 employees/persons on his establishment, to BMC as and when demanded. In case if the successful bidder has less employees/persons mentioned above then the

successful bidder has to submit an undertaking to that effect on Rs. 500/- stamp paper as per circular u/no. CA/FRD/I/44 of 04.01.2013.

**Note:**

- If it is found that the tenderer has not submitted required documents in Packet “B” then, the shortfalls will be communicated to the tenderer through e-mail only and compliance required to be made within a time period of three working days otherwise they will be treated as non-responsive.
- BMC reserves the right to reject any bid whose plan and area calculation is not maximizing the FSI consumption as per prevailing norms.
- Utilization of full plot potential is the essence of the tender and the final construction shall be carried out with full FSI potential estimate without any variance to tender rates quoted in spite of the modifications/variance.

Applicant will quote financial bid in Packet C.

**PACKET – C**

- a. The bidder shall submit bid based on the estimated cost. The rates quoted shall be inclusive of all rates and taxes.

**Note: In case of rebate/premium of 15% and above as quoted by the tenderer, the rate analysis of major items shall be submitted by L1 and L2 bidder after demand notification by e-mail to bidders by concerned Dy. Ch. Eng.**

**Format for rate analysis is attached (Annexure E)**

### BID SECURITY OR EMD

- The Bidder shall furnish, as part of the Bid, Bid Security/EMD, in the amount specified in the Bid Data Sheet. This bid security shall be in favor of the authority mentioned in the Bid Data Sheet and shall be valid till the validity of the bid.
  - The Bidder will deposit 100% EMD amounting to 1% of contract cost through online payment gateway of [www.mahatender.gov.in](http://www.mahatender.gov.in)
  - Any bid not accompanied by an acceptable Bid Security and not secured as indicated in sub-clause mentioned above, shall be rejected by the Employer as non-responsive.
  - The Bid Security of the successful Bidder will be discharged when the Bidder has received the LOA. Security deposit/Performance Guarantee to be paid by the bidder on handover of site or commencement of work whichever is earlier.
  - The Bid Security/ EMD of L-3 and downward bidders shall be refunded immediately after opening of financial bid but the EMD/ASD submitted by the L-2 bidder will be returned after obtaining undertaking from the L-2 bidder.
  - In case, the successful bidder becomes non-responsive or successful bidder withdraws the bid or is unwilling to extend the bid validity period, in such circumstances, if L-2 bidder is agreeable to extend bid validity period and ready to deposit the requisite amount of bid security/EMD and ASD to the department within the stipulated time period i.e.15 days, the department will process further as per normal procedure. (Please refer circular no. CA (F) / Project / 32 dt. 26.10.2020).
  - The Bid Security may be forfeited:
    - a) If the Bidder withdraws the Bid after bid opening (opening of technical qualification part of the bid during the period of Bid validity;
    - b) In the case of a successful Bidder, if the Bidder fails within the specified time limit to:
      - i. sign the Agreement; and/or
      - ii. Furnish the required Security Deposits.
1. The cases wherein if the shortfalls are not complied by a contractor, will be informed to Registration and Monitoring Cell. Such non-submission of documents will be considered as 'Intentional Avoidance' and if three or more cases in 12 months are reported, shall be viewed seriously and disciplinary action against the defaulters such as banning/de-registration, etc. shall be taken by the registration cell with due approval of the concerned AMC.
  2. No rejections and forfeiture shall be done in case of curable defects. For non-curable defects the 10% of EMD shall be forfeited and bid will be liable for rejection.

### **FORFEITURE OF EMD FOR BEING NON-RESPONSIVE**

1. The practice of forfeiting 10% of EMD on non-compliance of the shortfalls is continued. However, no rejections and forfeiture shall be done in case of curable defects. For non-curable defects the 10% of EMD shall be forfeited and bid will be liable for rejection. Bidder will deposit 100% EMD amounting to 1% of contract cost through online payment gateway of [www.mahatender.gov.in](http://www.mahatender.gov.in)
2. The forfeiture of EMD in the cases wherein if these submissions are not followed by a contractor, shall be informed by the user department to Registration and Monitoring Cell so as to make a data base of such defaults of the contractors.
3. In case of non-submission of documents be considered as 'Intentional Avoidance' and if three or more cases in 12 months are reported, it shall be viewed seriously and disciplinary action against the defaulters which includes demotion, suspension, etc. shall be taken by Registration cell as governed by relative provision in Registration Rules of BMC and Standard General Conditions of Contract.
4. Incentive and penalty Please refer the GCC condition no. 84 of this Tender.

**Note:**

**i) Curable Defect shall mean shortfalls in submission such as:**

**a. Non-submission of following documents,**

- i. Valid Registration Certificate- The contractors who are not registered With BMC will have to apply for registering their firm within three Months time period from the award of contract, otherwise the bid security will be forfeited.**
- ii. Valid Bank Solvency**
- iii. GST Registration certificate**
- iv. Certified Copies of PAN documents and photographs of individuals, owners, etc**
- v. Partnership Deed and any other documents**
- vi. Undertakings as mentioned in the tender document.**

**ii) Non-curable Defect shall mean**

- a. In-adequate submission of EMD/ASD amount,**
- b. In-adequacy of technical and financial capacity with respect to Eligibility criteria as stipulated in the tender.**
- c. Wrong calculation of Bid Capacity,**
- d. No proper submission of experience certificates and other documents (including MOU as per tender condition and as per circular Ch.E./BM/019919/II/07.01.2019)**

**BID VALIDITY**

- **Bids shall remain valid for a period of not less than one eighty (180) days after the deadline date for bid submission specified in Bid Data Sheet. A bid valid for a shorter period shall be rejected by the Employer as non-responsive.**
- In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request without forfeiting his Bid Security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his bid security for a period of the extension.

**DEFECT LIABILITY PERIOD**

- The Contractor is expected to carry out the construction work in Workmen like manner so as to meet the requirement and specification for the project. It is expected that the Workmanship and materials will be reasonably fit for the purpose for which they are required.
- Defects or defective work is where standard and quality of workmanship and materials as specified in the contract is deficient. Defect is defined as a failure of the completed project to satisfy the express or implied quality or quantity obligations of the construction contract. Defective construction works are as the works which fail short of complying with the express descriptions or requirements of the contract, especially any drawings or specifications with any implied terms and conditions as to its quality, workmanship, durability, aesthetic, performance or design. Defects in construction projects are attributable to various reasons.
- Some of the defects are structural defects results in cracks or collapse of faulty defective plumbing, inadequate or faulty drainage system, inadequate or faulty ventilation, cooling or heating systems, inadequate fire systems etc. The defects could be various on accounts of different reasons for variety of the projects.
- The Engineering In charge/Project Officer shall issue the practical completion certificate for

the project. During the Defect Liability Period which commences on completion of the work, the Engineering In charge shall inform or the contractor is expected to be informed of any defective works by the Employer's representative of the defects and make good at contractor's cost with an intention of giving opportunity to the contractor of making good the defects appeared during that period. It is the contractor's obligation under the contract to rectify the defects that appear during Defect Liability Period and the contractor shall within a reasonable time after receipt of such instructions comply with the same at his own cost. The Engineering In charge/Project Officer shall issue a certificate to that effect and completion of making good defects shall be deemed for all the purpose of this contract to have taken place on the day named in such defect liability certificate.

- If defective work or workmanship or design have been knowingly covered-up or concealed so as to constitute fraud, commencement of the Defect Liability Period may be delayed. The decided period may be delayed until **discover** actually occurs or at least the defect could have been discovered with reasonable diligence, whichever is earlier.
- The DLP shall be as below: **Dy.C.E.(B.C.) City**

Type of works	DLP
General works/Infrastructure/Facade Works	3 years
Structural works	5 years
Waterproofing works	5 years
Lift/Fire Fighting/ M&E Works (except consumable items)	3 years
Shuttle and Robo Parker System	5 years

#### Definition of works listed under DLP

1. **General works:** It shall include works of masonry, plaster, Flooring, Dado, Painting, Door & windows, **facade** and any other work which is excluded in the scope of structural work and waterproofing works.
2. **Structural works:** It shall include all RCC works, Structural Steel Works, etc.
3. **Waterproofing works:** It shall include waterproofing treatment to terrace, wet area, lift pit, etc. Wet areas like bath and WC, lift pit, chajja, Kitchen sink, Underground tank, OHT, pump room etc. where waterproofing treatment is done/applied.
4. **Infrastructure Works:** It shall include cement concrete road/mastic works, asphalt work, paver work and storm water drainage.
  - Also, in case of defect, the Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at. The Defects Liability Period shall be extended for as long as Defects remain to be corrected. Every time notice of Defect/Defects is given, the Contractor shall correct the notified Defect/Defects within the duration of time specified by the Engineer's notice. The Engineer may issue notice to the Contractor to carry out removal of defects or deficiencies, if any, noticed in his inspection, or brought to his notice. The Contractor shall remove the defects and deficiencies within the period specified in the notice and submit to the Engineer a compliance report.
  - It is the Completion Stage when the contractor has completed all of the works and fixed all of the defects that were on the list of issue by Engineer-in-charge. When this happens, the engineer must issue a 'Certificate of Completion'. On the issue of 'Certificate of Completion', the 'Defect Liability Period' starts. The contractor also must issue a 'Certificate statement' as an acknowledgment to the engineer not later than 14 days after the 'Certificate of Completion' has been issued. During the 'Defect Liability Period', the contractor has to obey all written instructions from the engineer to carry out repairs and fix any defects which appear in the Permanent Works. If the contractor does not, due to his own faults finish the repair works or fix the defects by the end of 'Defect Liability Period', the 'Defect Liability Period' will continue until all works instructed by engineer is done.

## **SECURITY DEPOSIT AND PERFORMANCE GUARANTEE**

### **A. Security Deposit**

The security deposit shall mean and comprise of

- I) Contract Deposit and
- II) Retention Money.

I) **Contract Deposit** –The successful tenderer, hereinafter referred to as the contractor, shall pay an amount equal to Two (2) percent of the contract sum shall be paid within thirty days from the date of issue of letter of acceptance or on handover of vacant site/plot or commencement of work at site whichever is later in the form of D.D. issued by a Bank acceptable to the Corporation.

II) **Retention Money** –The contractor shall pay the retention money an amount equal to 5 % (percent) of the Contract Sum which will be recovered from the contractors every bill i.e. interim / running / final bill of the site.

(i) One half (50%) of the Retention Money shall be released within 30 days of issue of ‘Certificate of Completion’ with respect to the Whole of the Works of the respective building. In the event the Engineer issues a Taking-over Certificate for a section or part of the Permanent Works, only such proposition thereof as the Engineer determines (having regard to the relative value of such section or part of the Works) shall be considered by the Engineer for payment to the Contractor.

(ii) The balance retention money shall be released within 30 days after completion of 3rd year of DLP provided that the Engineer is satisfied that there is no demand outstanding against the Contractor. In the event of different Defects Liability Periods have been specified or become applicable to different sections or parts of the Permanent Works, the said balance Retention moneys for specific work will be released within 30 days on expiration of the latest of such Defect Liability Periods.

III) **ASD- ASD shall be applicable as per S.B.D.**

### **B. Performance Guarantee**

The successful tender, here after referred to as the contractor shall pay in the form of “Performance Guarantee” at different rates for different slabs as stated below:

Performance guarantee shall be 1% of contract sum.

**Note: Contract sum shall mean amount after application of rebate/premium as quoted by the contractor with contingencies only and excluding price variation.**

The PG shall be paid in one of the following forms.

- I) Cash (In case guarantee amount is less than Rs.10,000/-)
- II) Demand Draft (~~In case guarantee amount is less than Rs.1,00,000/-~~)
- III) Government securities
- IV) Fixed Deposit Receipts (FDR) of a Schedule Bank.
- V) An electronically issued irrevocable bank guarantee bond of any Schedule bank or if in the prescribed form given in Annexure.

Performance Guarantee is applicable over and above the clause of Security Deposit. Performance Guarantee will have to be paid & shall be valid till the defect liability period or finalization of final bill whichever is later.

This deposit will be allowed in the form of I to IV as mentioned above and shall be paid on possession of site or commencement of work at site whichever is earlier.

**Note:** Following exceptions shall be adopted for 'Demolition Tenders':

- Irrespective of the offer (Rebate/ at par/ premium), ASD shall be differed and only PG of 10% of contract sum be taken from the successful bidder on award of contract only.
- BMC departments shall ensure to incorporate specific condition regarding above in bid document and e-tender notice.

**Note:** The bidder as well as OEM has to submit the Performance Guarantee (PG) of Rs. 25 Lacs Each for successful Operation and Maintenance Period of 5 Years and Technical Support and Spare part guarantee of system for period of 20 years after record date of completion of Parking System. Same shall be paid within 15 days (Total Rs. 50 lacs) from the date of issue of Letter of Acceptance:

- If the P.G. to be paid above is not paid within 15 days from the date of issue of Letter of Acceptance, the Tender/Contractor already accepted shall be considered as cancelled and legal steps be taken against the contractor for recovery of the amount.
- In the event of the contractor failing or neglecting to complete the rectification work within the period up to which the contractor has agreed to maintain the work in good order, the amount to be adjusted against the Bank Guarantee towards the cost incurred by the Department on rectification work and Further Necessary action as deem fit will be taken.

## **C. Refund of Security Deposit**

### **I. Refund of Contract Deposit**

The Contract Deposit shall be released within 30 days after completion of 3rd year of DLP(in case of 3 years DLP) and after issue of 'Defect Liability Certificate' (in case of 1 or 2 or 3 years DLP) subject to no recoveries are pending against the said work, provided that the Engineer is satisfied that there is no demand outstanding against the Contractor.

### **II. Refund of Retention Money**

One-half (50%) of the Retention Money shall be released within 30 days of issue of 'Certificate of Completion' with respect to the whole of the Works. In the event the Engineer issues a Taking-over Certificate for a section or part of the Permanent Works, only such proposition thereof as the Engineer determines (having regard to the relative value of such section or part of the Works) shall be considered by the Engineer for payment to the Contractor.

The balance Retention Money shall be released within 30 days after completion of 3rd year of DLP (in case of 3 years DLP for this tender) and after issue of 'Defect Liability Certificate' (in case of 1 or 2 or 3 years DLP) provided that the Engineer is satisfied that there is no demand outstanding against the Contractor.

Payment of the above mentioned 50% is exclusive of the amounts to be withheld as stated in and that amount shall be paid as per condition stated therein.

### **III. Refund of Performance Guarantee**

The Deposit on account of performance guarantee shall be released within 30 days of completion of Defects Liability Certificate subject finalization of final bill whichever is

later and no recoveries are pending against the said work, provided that the Engineer is satisfied that there is no demand outstanding against the Contractor.

❖ **Summary of time of Refund of deposit is tabulated as follows:**

**a) Time of Refund for works having 3 years DLP: -**

<b>Deposits refunded after completion of work</b>	<b>After Completion of DLP (3years)</b>
<b>50% of RM</b>	<b>CD+50% of RM+PG</b>

**b) Refunds: - Time of refund for works having 5 years DLP.**

Time of refund of Performance Guarantee.

DLP	Percentage refund	Cumulative refund in percentage
After 3 <sup>rd</sup> year of completion	70%	70%
After 5 <sup>th</sup> year	30%	100% + PG

\*Note:

a. It shall be clearly mentioned that the BG shall be applicable for individual work/contract and clubbing of various contracts of the said contractor will not be allowed. In case of obtaining Bank Guarantee, it is necessary to mention that the same shall be valid further 6 months from the completion of defect liability period/warranty period.

b. It shall be the responsibility of the bidder to keep the submitted B.G. "VALID" for the stipulated time period in the tender & in case of its expiry it will attract penalization.

c. Bank Guarantee should be issued by way of General Undertaking and Guarantee issued on behalf of the Contractor by any of the Nationalized or Scheduled banks or branches of foreign banks operating under Reserve Bank of India regulations located in Mumbai up to Virar & Kalyan. List of approved Banks is appended at the end of Instructions to Bidders (ITB). The Bank Guarantee issued by branches of approved Banks beyond Kalyan and Virar can be accepted only if the said Bank Guarantee is countersigned by the Manager of a Regional Branch of the same bank within the Mumbai City Limit categorically endorsing thereon that the said Bank Guarantee is binding on the endorsing Branch of the Bank or the Bank itself within Mumbai Limits and is liable to be enforced against the said Branch of the Bank or the bank itself in case of default by the Contractors furnishing the Bank Guarantee. The Bank Guarantee shall be renewed as and when required and/or directed from time to time until the Contractor has executed and completed the works and remedied any defects therein.

**Defect Liability Period and Release of Retention Money/P.G.**

1.Civil/Electrical/HVAC Firefighting/BMS Work/Interior Works:-

a. General Works except RCC and waterproofing. Estimated value 55% of 401,51,74,200/- i.e.Rs.220,83,45,811/- 3 years

b. RCC and Waterproofing Works- 45% of 4,01,51,74,200 i.e. Rs. 180,68,28,390/-

2. Installation & Commissioning of robotic parking system and stack parking- Rs. 100,90,00,000/- 5 years

3. Operation and Maintenance of parking system and Housekeeping- Rs. 7,50,00,000/- 5 years

4. Security, housekeeping and Maintenance- Rs. 9,22,51,533/- 3 years



**D. Legal + Stationary Charges: (As per applicable circular)**

Successful tender shall pay the Legal Charges +Stationary charges as per Circular no. 010539dated: 28.03.2023 GST will be applicable as per circular no. 26206 dt. 31.08.2023.

अनु. क्र	कंत्राट किंमत	एकत्रितरित्या आकारावयाचे सुधारीत विधी व लेखन साहित्य आकार दि. 01.09.2023 पासून दि. 31.03.2024 पर्यंत
1	रु.. 50,000/-	निरंक
2	रु. 50,001 ते रु. 1,00,00,000	कंत्राट किंमतीच्या 0.10% दराने (अशी येणारी रक्कम पुढील शंभराच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर ( किमान रु. 1000/- अधिक वस्तू व सेवाकर आणि कमाल रु. 10000/- अधिक वस्तू व सेवाकर )
3	रु. 1,00,00,001 ते रु. 10,00,00,000/-	रु. 1,00,00,000/- पर्यंतच्या कंत्राट किंमतीसाठी रु.10,000/- अधिक रु. 1,00,00,000/- पेक्षा जास्त रक्कमेवर 0.05% दराने (अशी येणारी रक्कम पुढील शंभराच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर
4	रु. 10,00,00,001 ते पुढील कंत्राट किंमतीसाठी	रु. 10,00,00,000/- पर्यंतच्या कंत्राट किंमतीसाठी रु.55,000/- अधिक रु. 10,00,00,000/- पेक्षा जास्त रक्कमेवर 0.01% दराने (अशी येणारी रक्कम पुढील शंभराच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर

The tenderers are requested to note that stationary charges as given in the table above will be recovered from the successful tenderer for supply of requisite prescribed forms for preparing certificate bills in respect of the work.

**E. Stamp Duty: (As per circular No. Ch.Eng./BM/17800/II dated 07.01.2016)**

It shall be incumbent on the successful tenderer to pay stamp duty on the contract.

- As per the provision made in Article 63, Schedule I of Bombay Stamp Act 1958, stamp duty is payable for “works contract” that is to say, a contract for works and labour or services involving transfer of property in goods (whether as goods or in some other form) in its execution and includes a sub-contract, as under:
- For stamp duty in B.G. 0.50% on original B.G as well as 0.50% on extended B.G. refer Letter of Stamp Duty Collector u/no. अंमल/काय्यालय/८९६/२०१६ दि. २३.०२.२०१६
- The successful bidder shall enter into a contract agreement with BMC. within 30 days from the date of issue of Work Order and the same should be adjudicated for payment of Stamp Duty by the successful bidder.
- Further shortfall if any, in amount of stamp duty paid as against prescribed amount for the documents executed in Mumbai City & Mumbai Suburban District be recovered from the concerned work contractors and to deposit the deficit or unpaid Stamp Duty and penalty by two separate Demand Draft or Pay Order in favour of “Superintendent of Stamp, Mumbai” within 15 days from intimation thereof.
- All legal charges and incidental expenses in this respect shall be borne and paid by the successful tenderer.

## IMPORTANT DIRECTIONS

1. All the information uploaded shall be supported by the corroborative documents in absence of which the information uploaded will be considered as baseless and not accepted for qualification criteria. All the documents shall be uploaded with proper pagination. The page No. shall be properly mentioned in the relevant places.

The information shall be uploaded in the sequence as asked for with proper indexing etc. The Bidder shall be fully responsible for the correctness of the information uploaded by him.

2. Applicants/Bidders shall refer e-Procurement System of Government of Maharashtra (Mahatenders) (<http://mahatenders.gov.in>)

Any queries or request for additional information concerning this TENDER shall be submitted by e-mail to [dycebccity.ce@mcgm.gov.in](mailto:dycebccity.ce@mcgm.gov.in) and [eebccity01.ce@mcgm.gov.in](mailto:eebccity01.ce@mcgm.gov.in). The subject shall clearly bear the following identification/ title: **Queries/ Request for Additional Information: Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.** Any changes in mail ID will be intimated on the portal.

3. In case of **Equal Percentage** of lowest bidders (L1), the allotment of work shall be done by giving 48 hrs(2 working days) from the day of opening of packet C **on same BID-Document number for re-quoting** and such development needs to be done in Maha Tender system. **Till such development is made; 'Sealed Bids' shall be called from the bidders quoting the same rates i.e. L1.**

In case of equal percentage of lowest bidders is obtained even after re-quoting, then the successful bidder will be decided by lottery system by concerned Chief Engineer / CE. The bidder shall need to submit the additional ASD if applicable within 7 days after receipt of notification issued by concerned Chief Engineer / CE.

Also, the Performance Guarantee shall be paid in 15 days after receipt of Letter of Acceptance.

4. All excavated and surplus material will be disposed by nearby transportation at the cost of the contractor by adhering to all rules and regulations. No additional payment will be done to the contractor.

5. It will be entirely responsibility of the contractor to provide and install secure barricades on work site; wholly at his cost. The Barricading shall be provided as per specification and as per site requirements &

the circular issued u/no MGC/F/6342 dated 05.05.2018 shall be applicable. BMC will not make any payment towards barricading, contractor shall quote accordingly

6. The labour welfare cess as applicable as per the Govt. Regulation u/no. SCA/2009/ Case No.

108/

Labour 7A/Mantralaya/Mumbai 400031 dated 17/6/2010 shall be recovered from Contractors

bill

7. The successful bidder shall obtain all the NOC/Approval from BMC

Dept./State/Central Govt. within 180 days after issue of LOA and before execution of work.

8. Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and subsoil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidder shall be deemed to have

full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

9. That all the relevant conditions of the Standard General Conditions of Contract 2016 for construction works of BMC which is in force shall be applicable for the work.

10. OEM from those countries having common border with India is not allowed to participate in bidding process.

11. Bidder shall ensure that price fluctuation due to foreign exchange rate variation shall be to his account and no claims for foreign exchange variation will be entertained by BMC.

**12. Payments, Tax and Claims:**

**12.a) Provisional sum and Advances:**

1. 'Provisional sum' means a sum included in the contract and so designated in the Bill of Quantities for the execution of work or supply of goods, materials or services or for contingencies, which sum may be used, in whole or in part, or not at all, at the direction and discretion of the Engineer. The contract price shall include only such amounts in respect of the work, supply or service to which such provisional sum relate as the Engineer shall approve or determine in accordance with this clause.
2. In respect of every provisional sum the Engineer shall have power to order to execute the work, including goods, materials or services to be supplied by the contractor. The contract price shall include the value of such work executed or such goods, materials or services supplied determined in accordance with Sub Clause 10 b.

The contractor shall produce all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of provisional sums.

The Corporation will make advance to the contractor for the works in two installments.

The first installment shall be equal to 5% of the contract price. The payment of the first installment of loan be due after (i) execution of the form of agreement by the parties thereto. (ii) payment of Security Deposit by the Contractor and (iii) Submitting the Bank Guarantee by the Contractor from a Bank specified in the tender for an amount equal to 7% (with includes 2% extra for the interest charges) of the Contract price. The first installment of advance loan shall be paid to the Contractor within 28 days after fulfilling all the above requirements under sub items (i) to (iii).

Payment of second installment of the advance mobilization loan upto 5 (five) percentage of the Contract price will be due within a period of 28 days from completion preliminary site establishment works such as construction of access roads to site, Engineer's office, Contractor's site office, Stores, Workshop sheds, etc. to the satisfaction of the Engineer.

After certification by the Engineer that the preliminary works are completed satisfactorily, the second installment will be released after the Contractor submits the Bank Guarantee from a Bank acceptable to the Corporation for an amount equal to 7% (which includes 2% extra for interest charges) of the Contract price.

Bank Guarantee shall be submitted in the approved prescribed form. The Bank Guarantee/s for the Advance Mobilization Loan should be valid till the full recovery advance is made.

The Contractor shall use the advance payment only towards expenses for materials, preliminary site establishments works, and construction equipment and to meet expenses required specifically to carry out the works.

The above advance shall bear simple interest at 12% per annum. The interest on the amounts paid as advance is chargeable from the date the amount is paid.

**SECTION 7**  
**SCOPE OF WORK**

## SCOPE OF WORK

### Name of work-

**Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

The Scope of the work is as follows:

Construction of Multistory building with 1 level of basement + Ground Floor+ 13 floors Multilevel Electromechanical (Shuttle & Robo Parker System Floors P1 to P13 ) + 14<sup>th</sup> to 17<sup>th</sup> floors material testing labs and Vigilance Department Offices, 18<sup>th</sup> to 19<sup>th</sup> floors Road Department offices and office areas from 20<sup>th</sup> to 29<sup>th</sup> floors. The concerned plot on CS 1629 (Pt) has a stringent consideration for proposal of development of Material Testing Laboratory for an area of 5179.80 sqm under reservation RE 4.4 (Other Institute).

The ownership of the entire plot vests with BMC. The scope of the work involves relocating existing material testing facilities to an existing Ground + 1 structure situated on the same plot after refurbishment of the said existing structure. It also involves relocating of two existing sheds on the premises and construction of Ground + 2 floor storage facility and provision of four fully furnished containers for asphalt laboratory. The said refurbishment activity will require to be carried out at the time of commencement of project within the 6-month time period of obtaining statutory approvals. The development area is calculated by utilizing 4.0 FSI + 35% Fungible aggregating 5.4 FSI on 5179.80 sqm plot area.

		<b>PART I- BUILDING - Cost includes Civil, Electrical, Plumbing, Firefighting, Fire Detection, Lifts, Lighting, Video Surveillance, Access Control, Data, UPS, Server, Furniture, Accessories and Security System.</b>	<b>CONSTRUCTED AREA SQM</b>
	<b>A</b>	<b>TESTING LABS AND OFFICES</b>	
1	Ground Floor	Testing Lab with Heavy Equipment and Common Facilities	2089.94
2	14th floor	Concrete Testing Office (including Atrium)	2110.50
3	15th floor	Piping Testing Lab and Vigilance Office Civil	2002.14
4	16th floor	M&E Testing Lab and Vigilance Office (M&E)	2002.14
5	17th floor	Façade Testing, Wind Tunnel and Fire Testing and new product testing and new Vigilance Office	2002.14
6	18th floor	Road Department Office 1	2002.14
7	19th floor	Road Department Office 2	2002.14
	<b>B</b>		
8	20th Floor	Office Area including atrium (without furniture)	2110.5
9	21st to 29th floor	Office Area 2002.14 x 9 (without furniture)	18019.26
	<b>C</b>	<b>BASEMENTS AND PODIUM</b>	
10	Basement 1 and Access Ramp	Two Wheeler and Four Wheeler Parking (2 Stack Parking)	2777.1
11	Podium P1 to P13	Four Wheeler Robotic Parking 1917.73 x13	24930.49
12	General Areas	Security Rooms, Staircase Rooms, Lift Machine Rooms, Substation, Effluent Treatment Plant, Lift Machine Room and Overhead Tanks	953.4
		<b>TOTAL</b>	<b>63001.89</b>

# SCOPE OF WORK (PLANNING & DESIGN)

## Section - I

The scope of work has been elaborated here broadly but this shall be read with details given elsewhere in this document and drawings attached herewith.

### 1.1 Scope of Architectural Work:

1.1.1 The contractor shall carry out total station survey of proposed space of building inclusive of multilevel car parking and prepare layout plan. Contractor shall prepare and submit other conceptual, architectural drawings to accommodate required number of cars and detailed plans based on user requirements. Layout plan and other conceptual, architectural drawings shall be submitted within 15 days after stipulated date of commencement for further approval from local body.

1.1.1A **Soil Investigation: The participant Bidder may carry out the soil Investigation report at their own cost to understand the type of foundation & cost of excavation before bidding process, after taking prior permission from BMC and share the results to BMC. Sample soil investigation as carried out by consultants is attached to the tender.**

1.1.2 Schematic planning and designing of electro mechanical parking system like type of parking system to be installed, number of levels used and other associated components shall be done and submitted to the Engineer-in-Charge for approval. All components required to complete the car parking system like foundation, pit, steel structure, electrical installation, fire-fighting system, Fire Alarm System, power supply, canopy over the system, façade, façade lighting, flooring, approach from existing internal road to parking system, etc shall also be planned & designed and submitted to Engineer-in-Charge for approval.

1.1.3 Design, Fabrication, Construction, Installation and Commissioning of multilevel shuttle and robo parking system facilities complete in all respect for 13 levels, one basement with stack parking and Ground + 16 floors of laboratory and office building inclusive of Civil work, electrical, lifts, plumbing, firefighting, fire detection, public address, security, access control, building management system, HVAC, interior furnishing, façade, landscape, exterior development, transit facilities, compound wall including approval from local body and other statutory authorities.

1.1.4.a) The work involves **Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

The scope of work Include designing of foundation, civil structure for erection of electro mechanical parking system (Shuttle and Robo Parker System Type), all electrical & mechanical, firefighting and fire alarm services etc. This shall be carried out as per relevant CPWD specifications, NBC 2016, BIS codes, if not covered in Indian codes then other international codes with up to date corrections / amendments / errata and good engineering practices. The bidder shall obtain necessary permissions/NOC/ Approval from other department of BMC & State/Central Government before execution of work.

b) The scope of work also involves the following: -

(i) Demolition of existing MTL building as is basis and removal of all usable material and forwarding to BMC store. All debris to be removed from the premises and disposed of in sites as prescribed by BMC solid waste management authority.

(ii) Construction of Transit Facilities

a) Material testing laboratory in existing G+1 structure.

b) Shifting of material shed & pipe testing shed with required foundation and civil work.

c) Providing four containers fully furnish and air condition for Asphalt plant office.

d) G+2 structure construction for storage.

The successful bidder has to take review of structural stability of exiting building for temporary shed and audit the same and take any requisite measures for structural stability at his cost.

The transit accommodation shall be developed to the requirement of the user and maintained till handover of the project and shifting of the transit facility to the main building. The existing structure after shifting may be

dismantled if required and debris disposed of by the bidder after returning salvageable items to the BMC.

**1.2 Multilevel Parking System design and Construction:**

**1.2.1 The Successful Bidder shall organize presentation of structural design and parking system design to BMC within 30 days after award of work before taking up the actual design work. A kick off meeting shall be organized by Successful Bidder for the same.**

(a) Automatic shuttle and Robo parker type multilevel mechanical car parking system to be designed and constructed are as below:

Name of Tender work and Location	Total Nos of ECS
<p><b>Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower &amp; (iii) Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years.</b></p>	<p>450 Car parking spaces (Shuttle and Robo) + 98 Stack Parkings</p>

(b) Multilevel parking facility shall be integrated in building space. It shall be design as Elevated multilevel parking, testing lab and office building as per design requirement. Bidders shall design the same as per requirement.

(c) Foundation and Civil Construction:

1. RCC Foundation & Structural work: The RCC foundation shall be laid as per design submitted by registered R.C.C Consultant (Checked by the Proof Consultant/PMC and vetted by VJTI/IIT and approval of Engineer-in Charge

1.2.2 Design calculations along with drawings shall be submitted by Successful Bidder for due vetting by the Proof Consultant appointed by BMC (PMC). The structural consultant of the Successful Bidder shall extend full support in getting the design proof checked/vetted by IIT/VJTI or any other Successful Bidder appointed by BMC.

1.2.3 The fees / charges of proof checking/vetting of designs etc. shall be paid by Successful Bidder.

1.2.4 The Successful Bidder has the obligation to make as many changes /modification(s) as required in Architectural drawings on instructions of BMC/Approving Authorities.

1.2.5 The Successful Bidder shall provide the structural stability certificate to BMC. However, the checking and vetting of design/drawings shall not absolve the Successful Bidder from the responsibilities of any failure in the structural design during construction as well as during the specified life period of the structures

The Successful Bidder shall submit all the submittals like designs, Good for Construction (GFC) drawings, documents, reports, schedules etc. in minimum six number of hard and six number of soft (CD/DVD) copies to BMC.

1.2.7 Successful Bidder shall carry out soil investigation at his own cost and submit report to BMC and also carry out the Geo-Technical investigation at his own cost as per relevant IS code.

1.2.8 Successful Bidder shall get topographic survey done for their use in planning and designing of the campus. The Successful Bidder shall collect data/information, which may be needed for completing the job.

1.2.9 Design and Drawings prepared by the Successful Bidder shall be the property of BMC and Successful Bidder cannot issue the same to any other person / organization or use for any other project.

1.2.10 BMC will not be responsible for any lapse/s and /or losses, if so occurs, due to absence of any data /knowledge. The information and site data given in the drawings or mentioned in this tender document are furnished for general information and guidance only and BMC does not take responsibility for their accuracy.

**1.3 Diversion of Services:**

All works pertaining to diversion of services including rerouting (for maintaining services to nearby areas throughout project), routine testing, installation etc., embracing in one or more than one places shall be subject to examination and prior approval to each stage thereof by the Engineer-in charge or concerned

department as would be notified by the Engineer-in charge or his accredited representative when such stage is ready. In default of such notice, the Engineer-in-Charge shall be entitled to appraise the quantity and extent thereof and the decision of Engineer-in-Charge or his accredited representative in this regard shall be final and binding.

1.3.1 The Successful Bidder will not have any claim in case of any delay in removal of trees or shifting, raising, removing of telegraph, telephone or electric lines (overhead or underground), water and sewer lines and other structures etc, if any, which may come in the way of the work. However, suitable extension of time will be granted to cover such delays.

#### **1.4 Water and Electricity Arrangement:**

1.4.1 Arrangement of water for drinking purpose and for construction work is also to be made by the Successful Bidder at his own cost and nothing will be paid on this account. The Successful Bidder shall get the water tested with regard to its suitability and conforming to the relevant IS Code. The Successful Bidder shall obtain written approval from the Engineer in-Charge before he proceeds by using the same for execution of work.

1.4.2 Successful Bidder shall make his own arrangement for obtaining electric connection (s) and make necessary payment directly to the department concerned. BMC will however make all reasonable recommendations to the authority concerned in this regard.

#### **1.5 Excavation and Disposal off Excavated Earth**

1.5.1 The Successful Bidder shall deposit royalty, any other duty / taxes, fees and obtain necessary permit for excavation from concerned local/statutory authority required if any. The quoted rates shall be inclusive of all such payments to be made, if any. No Extra claim on this behalf will be granted by BMC.

1.5.2 The excavated surplus earth other than the quantities of earth required for back fillings will be the property of Successful Bidder. Successful Bidder shall dispose of this excavated earth as per the rules and laws applicable in State of Maharashtra at the locations arranged by him at his own cost. The rates quoted by the Successful Bidder deemed to be included of all the costs to be incurred in loading, unloading, carriage of earth outside the Campus at any distance and all other activities required to dispose-of the excavated earth. Fine, penalty, if any, imposed for violation of rules and laws shall be payable by Successful Bidder. No extra payment, whatsoever, on this account shall be payable to Successful Bidder.

#### **1.6 Tree Transplantation/Felling Permission**

The Structure shall be designed without disturbing the existing trees **however cutting of trees/ transplantation of trees/** pruning of branches shall be done in consultation with H.A of Concerned Ward office and according to their policy.

#### **1.7 Adherence to Approved plans:**

The Successful Bidder shall adhere to the building / layout plan which has been approved by various Authorities and plan & design the parking system accordingly.

#### **1.8 Other Conditions**

1.8.1 The Successful Bidder shall not store/ dump construction material or debris on the Metalled road.

1.8.2 The Successful Bidder shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic /inconvenience to the pedestrians/public in general. It should be ensured by the Successful Bidder that no accidents occur because of such permissible storage.

1.8.3 The Successful Bidder shall provide mask to every worker on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.

1.8.4 The Successful Bidder shall compulsorily use wet jet in grinding and stone cutting.

1.8.5 The Successful Bidder shall comply with all the preventive and protective environmental steps as stated in the MoEF guidelines, 2010.

1.8.6 The Successful Bidder shall ensure that all DG set comply emission norms notified by MoEF.

1.8.7 The Successful Bidder shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 Kmph. Speed bumps shall be used to ensure speed reduction. In case where reductions speed cannot effectively reduce fugitive dust, the Successful Bidder shall divert traffic to nearby paved areas.

1.8.8 The Successful Bidder shall ensure that the construction material in storage or transit is covered by tarpaulin. The Successful Bidder shall take all other precaution to ensure that no dust particles are permitted to pollute air quality because of such storage/transportation.

1.8.9 The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects

1.8.10 As per EIA Notification of 2006, sufficient green belt around the building shall be provided. Such green belts shall be in existence prior to applying for occupancy certificate and handing it over.



1.8.11 Any violation of orders of MoEF including guidelines of State Government SPCB or any officer of any department shall lead to stoppage of work for which Successful Bidder shall be responsible and no hindrance shall be accounted in this regard.

1.9 Prevention of Nuisance and Pollution

1.9.1 The Successful Bidder shall take all necessary precautions/temporary measures to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties and any pollution. He shall make good at his own cost and to the satisfaction of the Engineer-in-charge, any damage to roads, paths, underground/overhead services, drainage works or public or private property whatsoever caused by the execution of the work or by traffic brought thereon by the Successful Bidder.

1.9.2 Existing drains, pipes, cables, overhead wires, sewer lines, water lines and Similar services encountered in the course of the execution of the work shall be protected/ maintained against the damage by the Successful Bidder. The Successful Bidder shall identify all underground / overhead services and take necessary measures to protect the services before starting any excavation / activity. All temporary supports and other measures required to protect and maintain the services during construction period as per direction of Engineer-in-charge, shall be deemed to be included in the quoted rate / amount of the Successful Bidder and nothing extra shall be paid on this account. For any permanent shifting BMC shall arrange to shift the services as and when required. Work will be executed as per BMC specification with no extra cost to BMC. The decision of the Engineer-in-Charge in this regard shall be final and binding.

1.9.3 The site shall be kept clean of all debris, rubbish and dirt & surplus/waste material all the time. It also includes maintenance, cleaning & de-silting the pipe lines laid by the Successful Bidder for all internal services etc. executed by the Successful Bidder to the entire satisfaction of the Engineer-in-charge during the construction/maintenance periods. Cleaning and de-silting will also be done by the Successful Bidder before handing over the completed structures to BMC. All machines, equipment and labour for this purpose will be arranged by Successful Bidder at no extra cost to BMC.

1.10 Security of the Site

1.10.1 The Successful Bidder shall be wholly responsible for security of site and works and keeping unauthorized persons off the Site till the handover of the site. Authorized persons shall be limited to the Employees of the Successful Bidder

1.10.2 Lighting: The contractor shall provide sufficient lighting at project site. The type of lighting fixture being provided should of the type suitable to illuminate the locations effectively for waking. Lighting fixture and their installations shall be done considering all safety precautions against electric shock. The contractor shall ensure that luminaries should always be so placed that no person is required to work in their own shadow and that the local light for one person is not a source of glare for the others. Strongly made clamps should be available for attaching luminaries to poles and other convenient supports.

1.10.3 Luminaries shall be robust, resistant to corrosion and rain proof especially at the point of the cable entry. The contractor shall take every effort to illuminate the work site as per the direction of Engineer-in-charge.

1.11 Traffic Management

The basic objective of the following guidelines is to lay down procedures to be adopted by contractor to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.

1.11.2 All construction workers should be provided with high visibility jackets with reflective tapes as most of construction activities shall be done within right-of way of the roads. The conspicuousness of workmen at all times shall be increased so as to protect them from speeding vehicular traffic.

1.11.3 The Successful Bidder shall provide safety helmet, safety shoe and high Visibility clothing for all employee including workmen, traffic marshal and other employees who are engaged for any work under this contract.

1.11.4 Wherever operations undertaken are likely to interface with public traffic, specific traffic management plans shall be drawn up and implemented by the Successful Bidder in consultation with the prior approval of local police authorities, and /or the concerned metropolitan/civil authorities as the case may be.

1.11.5 The guiding principles to be adopted for safety in construction zone are to warn the road user clearly and sufficiently in advance, provide safe and clearly marked lanes for guiding road users and marked buffer and work zones. The Successful Bidder shall provide adequate measures that control driver behaviour through construction zones.

1.11.6 The primary traffic control devices used in work zones shall include signs, delineators, Barricades, cones, pylons, pavement markings and flashing lights, deployment of sufficient number of Marshalls on diversion roads.

1.11.7 Warning signs in the traffic control zone shall be utilized to warn the drivers of specific hazards that may be encountered.

1.11.8 The contractor shall place detour signage at strategic locations and install warning signs. In order to

minimize disruption of access to residences and business, the contractor shall maintain at least one entrance to a property where multiple entrances exist.

1.11.9 Materials hanging over/ protruded from the chassis / body of any vehicle especially during material handling shall be indicated by red indicator (red light/flag) to indicate the caution to the road users.

#### **1.12 Various Ancillary Provisions at Site**

1.12.1 Traffic cones of 500mm, 750mm and 1000mm height and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally having retro-reflectories red and white band shall be used wherever required.

1.12.2 Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers

#### **1.13 Incidental Works**

For execution of any items of work where incidental works such as bailing out water, shoring etc. are actually required but not specifically stated in the scope of item and/ or tender document, it is to be understood that the contract amount quoted by the Successful Bidder shall cover such charges also and nothing extra on account of such incidental charges, if any, shall be paid.

#### **1.14 Successful Bidder's care of the Works**

1.14.1 The Successful Bidder shall bear full risk in and take full responsibility for the care of the works and materials, goods and equipment for incorporation therein from the commencement date until the Completion Certificate is issued, except and to the extent that any loss of or damage to the same shall arise out of any default or neglect of the Employer.

The Successful Bidder shall throughout the execution of the Works including the carrying out of any testing, commissioning (including Integrated Testing and Commissioning), or remedying of any defect.

1.14.3 Take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Goods, Successful Bidder's Equipment, Temporary Works, operations on Site and methods of manufacture, installation, construction and transportation;

1.14.4 Have full regard for the safety of all persons on or in the vicinity of the Site (including without limitation persons to whom access to the Site has been allowed by the Successful Bidder), comply with all relevant safety regulations, including provision of safety gear, and insofar as the Successful Bidder is in occupation or otherwise is using areas of the site, keep the site and the works (so far as the same are not completed and occupied by the Employer) in an orderly state appropriate to the avoidance of injury to all persons and shall keep the Employer indemnified against all injuries to such persons.

1.14.5 Provide and maintain all lights, guards, fences and warning signs and watchman when and where necessary or required by the Engineer-in-Charge or by laws for the protection of the Works and for the safety and convenience of the public and all persons on or in the vicinity of the Site; and

1.14.6 Where any work would otherwise be carried out in darkness, ensure that all parts of the Site where work is being carried out are so lighted as to ensure the safety of all persons on or in the vicinity of the Site and of such work.

1.14.7 Successful Bidder is required to take note of all the necessary provisions in Employer's Safety, Health and Environment Manual (SHE Manual) and the Successful Bidder's price shall be inclusive of all the necessary costs to meet the prescribed safety standards. In the case, the Successful Bidder fails in the above, the Employer may provide the necessary arrangements and recover the costs from the Successful Bidder.

#### **1.15 House-Keeping**

1.15.1 Housekeeping is the act of keeping the working environment cleared of all unnecessary waste, thereby providing a first-line of defence against accidents and injuries. General House-keeping shall be carried out by the Successful Bidder and ensured at all times at Work Site, Construction Depot, Fabrication Yard, Workshop, Batching Plant, Labour Camp, Stores, Offices and toilets/urinals etc. The Successful Bidder shall be responsible to provide segregated containers for disposal of debris at required places and regular cleaning of the same.

1.15.2 All stairways, passageways and gangways shall be maintained without any blockages or obstructions. All emergency exits passageways, exits fire doors, break-glass alarm points, fire-fighting equipment, first aid stations, and other emergency stations shall be kept clean, un-obstructed and in good working order.

1.15.3 All surplus earth and debris shall be removed/ disposed-off from the working areas immediately. The tires of the trucks leaving the site shall be cleaned with water, wherever the possibility of spillage on carriageways meant for regular road traffic exists.

1.15.4 No parking of trucks/trolleys, cranes and trailers etc. shall be allowed on roads, which may obstruct the traffic movement. The Successful Bidder shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The Successful Bidder shall have to ensure proper brooming, washing of roads and footpaths, at all the time, throughout the entire stretch till the currency of the contract including disposal of swept trash without any extra cost. Water logging or bentonite spillage on roads shall not be allowed.

- 1.15.6 Proper and safe stacking of material are of paramount importance at fabrication stores, stores and such locations where material would be unloaded for future use. The storage area shall be well laid out with easy access and material stored / stacked in an orderly and safe manner.
- 1.16.7 Flammable chemicals, compressed gas cylinders etc. shall be safely stored. Unused/surplus cables, steel items and steel scrap lying scattered at different places within the working areas shall be removed to marked locations(s). All wooden scrap, empty wooden cable drums and other combustible packing materials, shall be removed from the site. Lumber with protruding nails shall be bent/ removed and properly stacked.
- 1.15.8 The compliance of above provisions are deemed to be included in the quoted amount of the Successful Bidder and no claim / payment whatsoever shall be entertained on this account.
- 1.16 Unforeseeable Difficulties**  
Except as otherwise specifically stated elsewhere in the Contract:
- 1.16.1 The Successful Bidder shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Works;
- 1.16.2 By signing the Contract, the Successful Bidder accepts total responsibility for having foreseen all difficulties and costs of successfully completing the Works; and
- 1.16.3 The Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs.
- 1.16.4 BMC shall not provide any material either on chargeable or on free issue basis to the Successful Bidder for execution of the project.

## **SECTION-II**

### **GENERAL CONDITIONS FOR PLANNING & DESIGN**

- 1.1 The bidder should engage a Firms / Consultant (whether titled as an Architectural firm or Engineering firm) which shall provide consultancy services in project, detailed designing of multilevel car parking, detailed architectural drawings, detailed structural analysis, designing and detailing of all services, their drawings & approval etc. Such Consultant shall prepare and supply all the coordinated Good for construction drawings in coordination with PMC and get them duly proof checked and approved. The Consultant shall be associated till completion of the project and obtained the completion certificate from the concerned local body.
- 2.1 **Brief Scope Of Work:**

- **Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**
- Location: BMC Material Testing Laboratory at plot bearing CTS No. 1629 (pt), G/S Ward, Lower Parel
- Minimum Number of Car parking Spaces :450 Car parking spaces + 98 nos stack parkings.

**Civil Work:**

- Soil Investigation: Participant Bidders may carry out soil investigation at his own cost after taking Approval from BMC and share result to BMC before pre-bid meeting .and same will be displayed on web portal and SAP system by BMC. Permission will be granted to only one bidder in first come first basis.
- Construction of Multistory building with 1 level of basement + Ground Floor+ 13 floors Multilevel Electromechanical (Shuttle & Robo Parker System Floors P1 to P13) + 14th to 17<sup>th</sup> floors material testing lab and vigilance dept offices, 18<sup>th</sup> to 19<sup>th</sup> floors Road Department Office and 20th to 29th floor offices. The concerned plot on CS 1629 (Pt) has a stringent consideration for proposal of development of Material Testing Laboratory for an area of 5179.80 sqm under reservation RE 4.4 (Other Institute).
- The ownership of the entire plot vests with BMC. The scope of the work involves relocating

existing material testing facilities to an existing Ground + 1 structure situated on the same plot after refurbishment of the said existing structure. It also involves relocating of two existing sheds on the premises and construction of Ground + 2 floor storage facility and provision of four fully furnished containers for asphalt laboratory. Above said activities will require to be carried out at the time of commencement of project within the 6-month time period of obtaining statutory approvals. Transit plant and details in attached in tender drawing. The development area is calculated by utilizing 4.0 FSI + 35% Fungible aggregating 5.4 FSI on 5179.80 sqm plot area.

- Entry and Exit points at Ground level.
- Provision for Parking office, Panel room, Gents/Ladies toilet, Drivers waiting area, Ticket Collection area etc to be provided at the Ground floor.
- The Excavation for underground parking system shall be protected either by Shoring pile with required Rock anchoring as directed by the Engineer In charge at no extra cost.
- Raft/Pile Foundation shall be provided as per the design approved by the RCC designer and consultant registered with BMC.
- As the Work is of Turnkey basis the entire design of the structures shall be vetted by IIT, VTJI or SPCE prior to commencement of work.
- All the approvals required for Construction of total project from various authorities either BMC or outside BMC shall be obtained by the bidder within 180 days from the date of issue of Letter of Acceptance (LOA).
- Any premium or Fees payable for obtaining any approval shall be paid by the bidder initially and thereafter shall be reimbursed by BMC on production official receipts.
- Form finish RCC work.
- Only Ready-Mix Concrete to be used. Minimum Grade to be **M40 for RCC and M15 for PCC works.**
- Reinforcement Steel (CRS/HCRM) to be of TATA, SAIL, RINL, Jindal/ BMC approved list & shall be of Fe-500 D grade
- Rubble Soling and Anti termite Treatment.
- Waterproofing with 5 Years Guarantee.
- IPS Flooring
- **Fire proof and Epoxy painting of all Floors for entire tender work. ( As per CFO requirements ./ NBC)**
- Matt Finish Granite flooring at all Floors for all lobbies and staircases (Min. 20mm Thk. Single piece) all others area to be provided full body verified tiles.
- Polished Granite window sills to be provided at all floors.
- Plumbing, Firefighting and Electrical system as per system requirement
- HVAC, BMS, Security, Fire Detection, Public Address and Interior Decoration of premises.
- Adequate External and Façade lighting
- Digital Display as directed by BMC for available parking slots.
- DG backup with UPS of required capacity for uninterrupted operation of parking system, common

lighting, elevators and emergency services.

- There should be independent Entry and Exit for every elevator.
- Boom Barriers to be provided at Entry and Exit.
- Rain Water Harvesting System (RWH)
- Garbage Disposal System
- Submersible pump as per requirement to be provided in basement sump.
- All exposed structural steel members shall be coated with anti-corrosive paint and 2 hr fire protection

treatment.

- **The scope of shifting of any underground utility encountered during excavation shall be carried out by appointed contractor with all due permission from various departments at his risk and cost. No additional payment made for the same.**

**Electro Mechanical parking System:**

- Shuttle and Robo Parker System.
- List of Make **WOHR, KLAUS, SOTEFIN or equivalent complying to** European, American and **Asian** norms of OEM.
- OEM from those countries having common border with India is not allowed to participate in bidding process
- Retrieval time not more than 150 Seconds
- No. of Elevator, Min. 8 Nos.
- No. of Robo Parker, Min. 8 Nos.
- No. of Shuttle, Min. 8 Nos.
- Throughput 160 Cars per Hour for the entire system.
- Minimum weight of the car 2500 Kgs.
- Maximum height -2.5 Mtrs per Car.
- System to be designed for **not less than 75% redundancy**.
- Use of PLC, Laser guided movement & VDF controlled technology.
- The entire system is fully automated and can be operated without any human intervention using smart card and all latest IOT based application and Apps. This needs to be integrated with controlled and command system of BMC as well as App. of Mumbai Traffic police.
- As per new directives of CFO, no electrical charging points are allowed in parking. Also parking policy to be programmed to allow electric vehicles only in basement stack parking and not unmanned robotic parking areas.
- The design life of the system shall be Minimum 20 Years. The material to be use in the system shall be confirming to the best standard and respective country from where the company originates.
- Comprehensive technical support and availability of spares shall be 20 Years.
- Operation and maintenance of Parking System by deploying man power for the period shall be 5 Years from record date of completion.

**Note:**

All the works contained in the scope of work shall be carried out strictly as per the relevant specifications applicable as attached OR referred to in this e- tender document OR as directed by The Engineer.

- The Contractors shall execute the work even on Saturdays, Sundays & Holidays without any break in the continuity of work. The Contractor shall arrange exclusive labourer force /machinery /supervisors/project engineer for this purpose along with resources. The total working days shall, however be counted as per the Contract period mentioned in this Tender Document & as per G.C.C.2016. Failure of the Contractor to observe the continuity of work will be viewed seriously & heavy penalty will be imposed for the default.
  - The necessary permissions required from Traffic police department shall be obtained by the contractors (The necessary correspondence will be made by the Office of Dy.Ch.E (Traffic) if required).Work shall be carried out with the intimation to Traffic Police wherever required.
  - All safety precautions shall be taken by the contractor during execution of work. In case of any accident/mishap contractor solely shall be responsible for the same.
- 
- Applicable schedules- BMC's Unified schedule of rates-2023.
  - Operation and maintenance of Parking System by deploying man power for the period shall be 5 Years from record date of completion.

### **SCOPE OF M&E WORKS:**

11.1. The scope of M&E works includes M&E Services along with Market Services to be planned & executed as per the guidelines of latest NBC 2016 (With All Amendments up to Date of completion of Project), BMC Specifications, IS Code, ASHRAE, NEC 2023 etc. amended up to date. Planning/Design, Supply, Installation, Testing and commissioning of utilities and all services including handing over the following M&E installation:

- (i) Substation consisting of RMUs, HT Panels, HT Cables, Ester Oil Type Transformers, LT Panels including APFC Panels, Active Harmonic Filters etc.
- (ii) Diesel based Generator Sets including Generator Sync. Panels, AMF Panels, Smoke Exhaust Pipes with supporting structure, Day Fuel tanks, underground fuel storage tanks, etc.
- (iii) UPS System with VRLA batteries for all areas (along with Battery monitoring system), including Market buildings, ELV Services, Emergency Lighting & UPS Power Load and other critical Requirements
- (iv) LT cabling works.
- (v) Fire-fighting (wet riser with sprinklers) system for complete building.
- (vi) Fire Alarm System with smoke detection &, Public Address (PA) System.
- (vii) Boom Barriers.
- (viii) Internal Electrical Installations
- (ix) Audio-Video System
- (x) CCTV System for Building including Lift, common areas, entrance, basement etc.
- (xi) Lifts for passengers & goods transport
- (xii) Pressurized Mechanical Ventilation System for basements floors, staircase shafts, Lift Shafts, Lift Lobbies etc. where required as per NBC 2016 (With All Amendments up to Date of completion of Project) and local bylaws.
- (xiii) Earthing System including lightning protection system.
- (xiv) Street Lightings including landscape lighting
- (xv) Lighting Automation system, occupancy sensors, etc.
- (xvi) Sewerage Treatment Plant (STP) based on MBBR Technology & ETP
- (xvii) Water Supply Pumps for UG sumps (in Basement)
- (xviii) Grid Connected Solar Power generation plant at terrace as per EIA norms.
- (xix) IP Based EPABX, LAN & Networking System for the building
- (xx) Fire rates access doors/shutters for service areas/electrical shaft/DB, etc. as per NBC/Fire

safety norms/local byelaws

(xxi) Provision for Data Cabling, TV CABLING & HDMI points to be kept for all cabins, conference/ meeting rooms/ offices

(xxii) The distribution panel should comprise of 3 parallel paths for Essential, Non Essential & UPS power supply.

(xxiii) Internal & External LED lighting with automation to be provided and complete design of fixtures shall be approved based on the dialux report submitted by the OEM of Fittings.

(xxiv) Rooftop Solar System

Above services are further described as below:

**Electrical system:** This is specialized work which should be got executed through specialized agency selected through the qualifying criteria laid down in the tender for nominated specialized agency. All HT/LT work should be executed based on the scope envisaged in the tender documents as per relevant IS and through approved vendors. The agency shall be duly registered with BMC in M&E category Class A.

**LV Works:** This is again a very specialized work which includes the work of CCTV, PA system, Internet and Telephone networking, access control etc. should be executed through nominated specialized agencies. Contractor should obtain approval of work procedure & methodology by Consultant/ Engineer-in-Charge. The specialized agency to be appointed shall be duly registered with BMC and should conform to the qualifying criteria enumerated in the tender. The agency should be responsible for the design and should submit its shop drawings and get the approval through PMC Consultant / Engineer in charge of BMC.

**HVAC Works:** This is being a highly specialized work need to follow relevant international and ASHRAE standards for designing of the systems. This work should be got executed through specialized agency duly registered contractor with BMC / Govt./Semi Govt./Public Sector undertaking and should conform to the qualifying criteria enumerated in the tender. The agency should be responsible for the design and should submit its shop drawings and get the approval through PMC/HVAC Consultant/Engineer-in-Charge of BMC.

**Fire Fighting Works:** This is again a highly specialized work. This work should be got executed through specialized agency. The contractor/ specialized agency should obtain approval of work procedure & methodology by Architect consultant /Structural Engineer/ Engineer-in-Charge and duly registered with BMC. The agency should carry out the fire fighting works as per CFO's NOC & Tariff Advisory Committee recommendations/NBC norms. The agency should get final NOC from CFO. The agency shall be approved agency and shall have registration of Directorate of Maharashtra Fire Services to execute the work.

**Elevators/Escalators Systems:** All elevators and its scope envisaged in the tender should be got executed through reputed elevator company duly approved by PMC/Engineer-in-Charge from the approved makes mentioned in the USOR 2023. The agency shall submit the shop drawings for approval and other requirements necessary for the operation of lifts. The nominated approved specialized agency should be responsible in seeking license from P.W.D. for installation permission & operating the lifts.

## **INSTALLATIONS OF CCTV AT SITE DURING CONSTRUCTION**

12.1 Contractor has to install the adequate Nos of CCTV cameras at site during execution in order to provide feed of the various construction activities to be accessible by senior officers of BMC.

12.2. The Contractor shall hand over the assets after completion of work with as built drawings, services route plans, Maintenance manuals, Warrantees / Guarantees or any other document required by the Engineer-in-charge for maintaining these establishments. Scope of work also includes operation of buildings and all services constructed under this contract of all civil, electrical, and mechanical services executed through this contract for a period of Three years, commencing immediately after record of completion for construction work.

12.3. Taking all precautionary & safety measures to safeguard against any accidents for the contractor's employees, labour and staff of BMC by providing all necessary safety equipment, helmets etc. at work site.

**Notes:**

1. The successful bidder /contractor shall execute the project in coordination with PMC and BMC in all respect and handover the possession after obtaining the Occupation certificate of the project in turnkey basis to BMC in stipulated time period.
2. Plans shown in tender are subject to minor changes as per site conditions and bidders design and planning by following prevailing norms. Payment to the successful bidder will be as per rates quoted by bidder for entire constructed area as stated in the payment schedule in this tender. The bidder will not be entitled to have any claim whatsoever. Full utilization of the plot potential is the intention of the tender. Plot potential of entire plot may be considered for full utilization of plot potential.
3. The successful bidder /contractor shall make inventory of the existing structures and debris etc. on site and demolish the same after the structure is vacated by concerned department of BMC & further debris removal has to be done by the bidder.
4. All the works contained in the scope of work shall be carried out strictly as per relevant specifications applicable as attached or referred to, in this tender document.
5. The above is general description of the scope of work and actual work mentioned above shall be as directed by the Engineer-in-charge.
6. The existing open plot will be handed over by BMC on a as is where is basis after issuing the LOA., in phase wise manner or at once as the case may be after completing alternate arrangements for existing facilities. The site will be handed over to bidder accordingly.
7. Development of onsite infrastructure shall be the responsibility of the bidder as per the prevailing norms viz roads, street light, storm water drain, water mains network, sewage network, landscape /RG, Telecom network, substation, Security monitoring with camera networking, firefighting, fire detection, HVAC, interior furnishing, Public Address etc, The cost of the same shall be included in the tender bid by the bidder and the payment will be done as per measurement stated in the payment schedule in this tender document.
8. The bidder shall consider all expenses along with construction i.e that plumbing, electrical, mechanical, firefighting, fire detection, lifts etc work required in the project while quoting including temporary construction lift for building during construction phase.
9. The successful Bidder /contractor shall liaison and obtain all approvals/ demarcation/NOC/Permits required for implementing the project from including



Building Proposal, H.E. NOC, CFO NOC, MOEF NOC, Tree NOC, Electrical NOC, Civil Aviation NOC, Horticultural Department Approval, PCO, SWD, SP, SO, CRZ, SOLAR, Gas Pipeline, Traffic, Metro, Monorail etc as and when suggested by PMC, Municipal Architect/BMC and required for implementing the project from government /Semi government /Service Provider /BMC etc. in timely. The cost of the same shall be included in the tender bid by the bidder. Documentation for all approvals will be prepared by PMC in conjunction with the Bidder and submitted after BMC approval at each state. Scrutiny Fee/Premium etc. for BMC department, will be borne by the bidder and will be reimbursed on case to case basis by BMC. Scrutiny fees, deposits and premium payable to agencies other than BMC will be borne by the bidder and will not be reimbursed by BMC. For example, Building Proposal, CFO, SWD, HE, SO charges will be reimbursed but charges of outside agencies like BEST/Adani/Tata Power etc. will not be reimbursed. **The contractor will not claim any compensation for delay, if any, due to obtaining various NOCs and contractor shall submit notarized undertaking to that effect.**

10. A joint site visit of the prospective bidder shall be organized by PMC if necessary.
11. In the event of 2 or more qualified bidders, quotes for the same rates, the award of the work will be decided by lottery system. Decision of Municipal Commissioner shall be final and binding.
12. Concrete grade minimum M-40 to be used for RCC work in all buildings to be constructed. And M-15 for PCC works.
13. The scope of work may be changed depending upon the requirement of BMC and as per existing site condition and decision of Engineer In-charge shall be final and binding after issuing of work order of proposed work.
14. The successful bidder should provide 2 nos. Air-conditioned sedan with chauffeur to Municipal Corporation staff for day-to-day site inspection during the entire duration of work.
15. The successful bidder should provide necessary barricades for plot as well as building under construction for safety as directed by engineer in charge.
16. Successful bidder should provide firefighting system as per remarks of C.F.O. as per DCPR 2034.
17. During DLP period mentioned in the tender the concerned contractor/bidder should provide agency for annual maintenance for plumbing, common electrification, lift maintenance, attending leakages, water pump etc. DLP for Lift/Fire Fighting/ M&E Works/HVAC works as stated in tender (consumables are not included in DLP).
18. Sewerage treatment plant should be provided by bidder as per DCPR-2034 provision, if required.
19. Structural design prepared by Bidder in coordination with PMC will be vetted by IIT/VJTI at the risk and cost of successful bidder. Project Management Consultant (PMC) M/s Master & Associates are already appointed for the project for day to day supervision and will provide services as per BMC terms of appointment. Detailed scope of work is attached in tender document.

20. The various test to be conducted for the material design, structural design, will be as per the prevailing guidelines of BMC at the cost of successful bidder.
21. The successful bidder should strictly follow all safety measures during executions of works and as directed by the expert committee.
22. Successful bidder should follow/premium/ first class specification for different item as available on BMC portal, IS Codes, Available standards.
23. Items to be operated in this tender having minimum Specification is given in the tender.
24. All items to be operated will be of minimum Class I(Premium) specification available as given above or available in USOR-2023. If item is not available in USOR-2023, then same should be taken from Schedule rate prevailing in schedule to be used by State PWD/CPWD/ Railway/MES of Class I(Premium) material and specification after due approval by competent authority of BMC.
25. The successful bidder should remove the C&D waste material as per conditions mentioned in circular attached.
26. The successful bidder should provide Ambient Air Monitoring Control System on each construction site with electronic display.
27. All expenses for power, water and drainage connections will be borne by the bidder.
28. Design and construction to be strictly in accordance with provision of DCPR 2034 Building Regulations BMC
29. FSI Consideration is 4.0 with 35% additional fungible FSI totaling 5.4 for the plot area under consideration of 5179.80 sqm. Adjoining BMC plot area if unutilized may also be considered for full utilization of plot potential.

**30. Methodology/Technology for proposed project: -**

The construction methodology/ technology should be RCC construction only however the prospective bidder shall have to comply with following points:

- a) In case required the bidder shall have to arrange site visit of the BMC committee at his cost. The decision of BMC authority in this regard shall be final and binding. The bidder shall have to submit all the approvals certificates from the relevant appropriate authorities with respect to proposed methodology/
  - b) The bidder shall submit all the construction methodology.
  - c) The bidder should submit its bid as per the specification mentioned in tender.
  - d) Building constructed should have life more than or at least equal to regular RCC buildings i.e. 50 years.
31. Mechanical and Electrical Items: - Work to include items listed in the tender and requirements of electrical supply authorities, electrical inspector and CFO for complete solution as under: -
  - a) Internal electrification, lighting and power wiring of offices/labs, passages, common areas, lobbies, refuge area, parking, terrace, lift machine room, stilt, staircase cabins and all areas of construction inclusive of distribution board, switchgear and cabling.
  - b) Lift work as per approved plans.
  - c) Water pumping systems with electrical panels, level controllers and metering arrangement.
  - d) Electrical meters and supply authority work completion and connectivity.
  - e) Telecommunication and cable TV connectivity to offices and common areas as required.
  - f) Earthing, streetlighting, gate lighting
    - g) CCTV for common areas of building including DVR and 30 days recording history.
    - h) Fire detection and PA system as per CFO guidelines and tender specifications.
    - i) Firefighting system as per CFO guidelines and tender specifications
    - j) DG system as specified with UPS.
    - k) Safety signage and fire extinguishers.
  - l) Solar external lights and rooftop solar system for common area lighting.
  - m) HVAC and interior decoration for entire laboratory and office premises. No furniture for floors 20 to 29
  - n) Successful Bidder shall be required to make all facilities for ladies staff at site with separate toilet, changing room, isolated cabin and creche (babysitting) with qualified staff with requisite facilities.

**SECTION-8**  
**BILL OF QUANTITIES**

**Name of work-**

**Subject :- Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

Sr. No.	Description of Work	Rate/sq.m. in Rs. (Including all taxes)
01	<p><b>Quoted Price (Part A + Part B + Part C1 + Part C2 of financial bid)</b></p> <p><b>PART A:</b> - Including Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (pt) of Lower Division at S.K. Ahire Marg in G/S Ward inclusive of planning, design, construction of facility with transit accommodation, civil, HVAC, electrical, firefighting, fire detection, BMS and interior decoration works inclusive of equipment foundations- <b>Rs. 401,51,74,200/- (Excluding GST)</b></p> <p><b>PART B:</b> - Planning, designing, construction and commissioning of underground and elevated Multilevel Electro Mechanical Car Parking System (Shuttle and Robo Parker System) including comprehensive technical support and guarantee for parts availability for 20 years free of cost for 450 parking systems and 98 nos stack parkings. -<b>Rs. 100,90,00,000/- (Excluding GST)</b></p> <p><b>PART C1:</b> - Operation, Maintenance and Housekeeping for 5 years of parking system by engaging manpower- <b>Rs. 7,50,00,000/- (Excluding GST)</b></p> <p><b>PART C2:</b> - Security, Housekeeping, Landscaping, M&amp;E and Lift Maintenance for 3 years- <b>Rs. 9,22,51,556.45/- (Excluding GST)</b></p> <p><b>TOTAL (A+B+C1+C2)</b> <b>Rs. 519,14,25,756.45/- (Excluding GST)</b></p>	Excluding GST

		<b>PART I- BUILDING - Cost includes Civil, Electrical, Plumbing, Firefighting, Fire Detection, Lifts, Lighting, Video Surveillance, Access Control, Data, UPS, Server, Furniture, Accessories and Security System.</b>	<b>CONSTRUCTED AREA SQM</b>
	<b>A</b>	<b>TESTING LABS AND OFFICES</b>	
1	Ground Floor	Testing Lab with Heavy Equipment and Common Facilities	2089.94
2	14th floor	Concrete Testing Office (including Atrium)	2110.50
3	15th floor	Piping Testing Lab and Vigilance Office Civil	2002.14
4	16th floor	M&E Testing Lab and Vigilance Office (M&E)	2002.14
5	17th floor	Façade Testing, Wind Tunnel and Fire Testing and new product testing and new Vigilance Office	2002.14
6	18th floor	Road Department Office 1	2002.14
7	19th floor	Road Department Office 2	2002.14
	<b>B</b>		
8	20th Floor	Office Area including atrium (without furniture)	2110.5
9	21st to 29th floor	Office Area 2002.14 x 9 (without furniture)	18019.26
	<b>C</b>	<b>BASEMENTS AND PODIUM</b>	
10	Basement 1 and Access Ramp	Two Wheeler and Four Wheeler Parking (2 Stack Parking)	2777.1
11	Podium P1 to P13	Four Wheeler Robotic Parking 1917.73 x13	24930.49
12	General Areas	Security Rooms, Staircase Rooms, Lift Machine Rooms, Substation, Effluent Treatment Plant, Lift Machine Room and Overhead Tanks	953.4
		<b>TOTAL</b>	<b>63001.89</b>

**SECTION 9**  
**SPECIAL DIRECTIONS TO THE BIDDER**

## SPECIAL DIRECTIONS TO THE BIDDER

- 1) The contractor should provide barricading to work site in conformity with the fencing item no- R3-CS-RM-71 of USOR 2023 (Building) as directed by engineer for which no payment will be made. No extra payment shall be made for Shoring and Strutting, backing coat plaster for dado, dewatering.
- 2) Barricading shall be provided free of cost as per circular vide u/no. MGC/F/6342 dtd. 05.05.2018 and as per Annexure I, II and III of standard drawings and specifications with slogans and department wise colour codes.
- 3) No separate payment will be made for dewatering the water seeping in the trenches and foundation pits opened while executing excavation and other foundation works.
- 4) No extra payment will be made for Shuttering, Shoring, Strutting etc.**
- 5) The Extra/Excess work if any shall be carried out by the successful bidder in the same rate/percentage quoted by him, (i.e. if 'rebate is quoted then at rebated rate' and 'if premium is quoted then at par'.) Policy for extra/excess shall be as per circular no. CA/F/Projects31 Dated 26/10/2020.
- 6) Necessary charges such as royalty charges etc. for excavated materials shall be borne by successful contractor by obtaining all necessary permissions from concern government authorities.
- 7) Brihanmumbai Municipal Corporation Mumbai do not have site available for disposal of Debris / Demolition material / Excavated earth. The Contractor shall dispose these materials properly at his own risk & cost as directed by BMC. The contractor shall obtain NOC from SWM department of BMC for debris management plan, final compliance NOC from SWM department after completion of construction, regarding requisite B. G. to be deposited to SWM department, if any.
- 8) Successful bidder shall submit the structural stability certificate issued by registered structural engineer after completion of building to be verified by structural consultant appointed by PMC. The successful bidder shall appoint qualified structural consultant having registration with BMC for designing, certifying executed work and issuing structural stability certificate after completion of building.
- 9) Chapter XXI-Miscellaneous, section 171(1) of GST Act, 2017 governs the "Anti Profiteering Measure' (APM) As per the provision of this section, any reduction in rate of tax on any supply of goods or services or the benefit of input tax credit shall be passed on to the recipient by way of commensurate reduction in prices' Accordingly, the contractor should pass on the complete benefit accruing to him on account of reduced rate or additional inputtax credit, to BMC. Further, all the provisions of GST Act will be applicable to the tender
- 10) The bidder shall take due cognizance of guidelines issued u/no. CA/F/Project/28 Dated 28.03.2023.
- 11) The bidder / contractor has to procure concrete from BMC approved RMC plants, so as to have uninterrupted concrete supply for carrying out the construction activities.
- 12) Labour Cess will be applicable as per prevailing norms and rules / as per circular under no. CA/FRT/12 Dated 21/06/2012 and shall be borne by successful bidder / contractor.
- 13) Tree Cutting -: on a written directive from BMC, the bidder contractor shall make all arrangements including inspections, obtaining permissions from the local bodies for cutting of the trees and / or transplanting the trees to a predetermined approved location, making pits, providing manure / fertilizers / pesticides, watering till the desired period, all as per the requirements and directions of the concerned governing bodies and BMC, the bidder / contractor shall take all due care in terms of environmental rules and regulations as per the best prevalent practices.

- 14) The Bidder/Contractor having visited the site is understood to have fully understood the scope of works. The Bidder/Contractor has to take maximum care in handling all the utilities (both over-ground and under-ground) that are existing on the site. The Bidder/contractor shall be totally responsible at his own cost and risk for the disposal and /or safe-keeping of the materials so removed, all as per the instructions of BMC.
- 15) Environment, Health and Safety (EHS): The Bidder/Contractor shall adhere strictly to all the norms of the EHS rules and regulations as per the best construction practices. Each and every new worker/officer coming to site shall be properly inducted. The EHS at site is of prime importance and the Bidder/Contractor shall endeavour to maintain the highest standards of environment, health and safety at all times for the entire duration of the project.
- 16) The water supply to the user department shall not be disturbed during execution of the work. Contractor shall make alternate arrangement for providing equivalent capacity tank to store water supply at their own cost.
- 17) Contractor will have to make own arrangement for getting the electrical supply / temporary electric meter on site for fabrication and allied works at their own cost.
- 18) Plumbing and sanitary works will have to be carried out through licensed plumber. All plumbing lines will be provided 50 mm away from wall with spaces as directed. The horizontal and vertical lines should be in line & level. The bidder has to appoint licensed plumber for the project.
- 19) After completion of the proposed work, the contractor will have to hand over the site neat and clean condition for which no extra payment will be made.
- 20) The noise level shall be maintained within the permissible limit in Silence Zone area during the construction activities by the Contractors as per the notification dated 14/02/2000 issued by the Ministry of Environment and Forests and as per BMC circular under no. CE/PD/7788/I dt. 05/11/2008.
- 21) The serviceable material other than the items considered for rebate shall be handed over in the custody of A.E.(Maint) M/E Ward by taking & maintaining the proper inventories of the serviceable materials.
- 22) The contractor shall carry out periodic medical checkup of employees / workers / Labours working under him.
- 23) Unless and until entire building is handed over to the user department the responsibility of security and maintenance lies with the contractor and contractor shall provide his own security and no theft complaints shall be entertained by BMC and no separate watch and ward will be paid for this.
- 24) The Three years maintenance of M&E works (Except consumable items which will have 1 year DLP) M&E services lies with the contractor, who has carried out the work. The contractor shall maintain entire building in functioning state for the period of Three years. Maintenance period shall start from the completion/commissioning & handing over the project whichever is later. Successful tenderer shall submit a free maintenance guarantee on Rs. 500/- stamp paper for above works including any manufacturing defects / faulty workmanship.
- 25) Bidder to note that recent Government notification regarding Latent Defect Liability u.no. TPB4317/123/CR-32/2017/UD-11 dtd 07/03/2018 is applicable.
- 26) The tenderer should submit indemnity bond on stamp paper of Rs.500/-indemnify BMC. and its officers against any mishap during the progress of work as well as during the defect liability period.
- 27) Prospected Bidder will obtain required NOC's and completion remarks in Coordination with BMC.



- 28) M&E INSPECTION: Contractor shall arrange visit for factory inspection of the equipment of various services i.e. DG Set, Electrical Panels, Fire Panel, STP, Lifts, CCTV etc. whenever necessary for required no. of persons as specified by Engineer in charge (min. 2 staff) at that time at any location within or outside India with no extra cost with prior permission of Competent authority.
- 29) All the items of the plant/machinery and accessories, fabricated/bought as per specifications and drawings shall be of approved class and are liable for inspection and testing before dispatch. Contractors shall arrange all necessary tests (Routine as well as functional) in the presence of the PMC/Engineer In charge at manufacturer's premises or at site in accordance with the appropriate standards. No material shall be dispatched without the consent of the PMC/Engineer In charge .

All the charges towards stage / final inspection until dispatch clearance is given shall be borne by the contractors including to and fro travel, inland transport, lodging and boarding, etc. with no extra cost with prior permission of competent authority. Total cost offered for the tender should be inclusive of the same.

- 30) If for following reasons, the BMC.
- a. Finds that Engineer of contractor has committed serious misconduct or has been charged with having committed a criminal action, or
  - b. Has reasonable cause to be dissatisfied with the performance of Engineer of contractor , then the Contractor shall, at the Client's written request specifying the grounds therefore, provide as a replacement of a person with qualifications and experience acceptable to the Client.

The removal and/or replacement under (a) & (b) above shall have no cost implications on BMC and the Contractor shall be solely responsible.

- 31) The rates of testing fees of building material at Municipal Testing Laboratory shall be paid as per schedule in force as mentioned in BMC's circular u/no.Ch.Eng./Vig/4150/B dtd 16-03-2020.
- 32) Circular regarding new clause of internal "GRIEVANCE REDRESSAL MECHANISAM" u/no-DMC/CPD/3217 dated 02.03.2019, ChE(V)/436/B dated 18.05.2023 shall be applicable for this work.
- 33) Circular u/no. CA(F)/Project/42 dated 09.02.2021 regarding ASD is applicable to this tender or as per prevailing rules and regulations applicable.
- 34) Circular of Government of India u/no. F.No.6/18/2019-PPD dated 23.07.2020 regarding restrictions on public procurement from bidders of certain countries.
- 35) All concealed pipes to be pressure tested by contractors in presence of PMC/BMC Engineers.
- 36) Typical shop drawings to be prepared for approval of PMC/BMC for all major activities prior to commencement of work.
- 37) Contractor's to take abundant measures to provide impervious concrete at first place, however if porousness is observed the same shall be sealed with injection grouting so as to provide complete water tightens.
- 38) The contractor's to de-water the tanks tested as per time scheduled of works, and can dispose the water at his discretion or as directed by Engineer in-charge.
- 39) The contractors should have in house capability of designing scaffolding/ enabling work or should entrust this assignment through M.O.U. to consultant
- 40) Additional cubes shall be casted & tested especially for ensuring adequate strength before de-shuttering as per requirement of site and instruction of site in charge.

- 41) The specifications for finishing / architectural / civil items shall be approved by PMC/ M.A. before using on site and shall be in accordance with note of M.A. u/no. Ch.E/MA/2638/Idt. 16.01.2023
- 42) The nos. of trees cutting, transportation & new plantation is tentative, which may vary as per the actual Tree NOC. The new trees shall be planted on subject plot as per norms of Tree Authority. In case, it is not possible to plant the total trees on subject plot, the balance trees shall be planted on plot/site as identified by BMC and all trees shall be maintained as per terms and conditions stipulated in Tree NOC.
- 43) If it is found that firms as described below have tendered separately under different names for the same contract, all such tender(s) shall stand rejected and tender deposit of each such firm / establishment shall be forfeited. In addition, such firm / establishment shall be liable for further penal action including blacklisting at the discretion of the Municipal Commissioner.
  - a) If it is found that closely related persons have submitted separate tenders / quotations under different names of firm / establishment but with common address for establishments / firms and/ or if such establishments / firms though they have different addresses are managed or governed by the same person / persons jointly or separately, such tenders shall be liable for action including similar action against the firm / establishment concerned
  - b) If after award of contract it is found that the accepted tender violated any of the clauses, the contract shall be liable for cancellation at any time during its currency in addition to penal action against the contractor as well as related firm / establishments.
  - c) The amount quoted shall include provision of all necessary labour & material, plant, equipment, scaffolding and centering as per requirement of the item to be executed completely in all respect as per direction of engineer in charge.
- 44) If any Co-ordination required for site demarcation, it shall be the sole responsibility of Contractor.
- 45) It is mandatory for the contractors to open a Bank Account in any of the banks approved by BMC for easy and quick payments. All payments under the contract will be made only on this Bank Account through Electronic Clearing System/ RTGS/ NEFT/ CBS.
- 46) Contractor shall mark Town Hall Datum level on site. No extra payment will be made towards the same.
- 47) Before commencing execution of work, contractor should ensure at his cost against any damage, loss or injury that may occur to any property including any of their personal and employee of Municipal Corporation by arising of contract. All insurances to be effected by the successful tenderer shall be taken up with the Director of Insurance, Maharashtra State only.
- 48) The arbitration dispute, if any, shall be dealt as per the procedure mentioned in circular u/no. MGC/F/8659 dt. 07.09.2019.
- 49) The successful bidder shall arrange visit to factory/ actual installation of electro mechanical parking systems in India/ Foreign Country for municipal staff and PMC at his cost after LOA before installation and finalization of parking systems.
- 50) A mobilization advances of 10% of contract cost against a Bank Guarantee (BG) will be paid to the successful bidder as per conditions of this tender outlined previously.
- 51) The general conditions clause of maximum price variation with upper limit of 10% is applicable

52) Tenderer shall quote inclusive of all taxes other than GST (excluding GST), levies, duties, cess etc. as applicable at the time of bid submission. GST as applicable shall be paid separately on submission of bills/invoice. Input tax credit of GST as available with the bidder will not be claimed separately by BMC. However, when quoting rates, benefit of input tax credit/exemption shall be passed on to BMC by way of equivalent reduction in quoted price.

**SECTION 10**  
**SPECIAL CONDITIONS OF CONTRACT**

## 1. Special Conditions of contract

1. Any addition / alteration / omission required for any work shall be carried out only after obtaining prior approval of the Engineer in writing, in any case no post facto approval will be given.
2. In the event of dispute between parties, the dispute would be subjected to the jurisdiction of Court in Mumbai.
3. The tenderer shall invariably submit this tender notice form together with the specifications, schedule of quantities and rates duly filled in and signed. Any irregularities in this respect shall cause rejection of the quotation.
4. Brihanmumbai Municipal Corporation Mumbai do not have site available for disposal of Debris / Demolition material / Excavated earth. The Contractor shall dispose these materials properly at his own risk & cost as directed by BMC. The contractor shall obtain NOC from SWM department of BMC for debris management plan, final compliance NOC from SWM dept after completion of construction, regarding requisite B.G to be deposited to the SWM dept, if any.
5. The guidelines are issued by BMC vide **circulars u/no. DMC/SWM/67 dtd 06.04.2018, ChE/DP/674/Gen dtd.06.04.2018, ChE/DP/2373/Gen dtd.25.04.2018 for construction debris management**

Guidelines as per above stated Circulars:

- a) The successful bidder shall deposit Bank Guarantee of requisite amount with user/ execution/SWM department as per the policy circular dtd.06.04.2018 and 25.04.2018 in view of Hon'ble Supreme Court's order dtd.15.03.2018 in regards to disposal or construction debris and SWM generated by Construction activity.
- b) The successful bidder shall obtain S.W.M. N.O.C. before start of the work. For this, the circular regarding C & D waste at designated unloading site and procedure to be followed for designated unloading site uploaded on [www.mcgm.gov.in](http://www.mcgm.gov.in) website shall be scrupulously followed.
- c) The successful bidder shall make provision of adequate safe guards in consultation with SWM department for preventing dispersal of particles through air and the construction debris generated shall be deposited in specific sites inspected and approved by BMC.
- d) The successful bidder shall comply all the conditions and directions specify in the Hon'ble Supreme Court's order i.e. as per S.L.P(CIVIL) no D23708/2017 dtd.15.03.2018 in the case of dumping ground and shall be comply with before starting demolition of structure & / or starting any excavation work / construction work.
- e) The successful bidder shall handle and transport all the construction and demolition waste to the designated unloading site as per the N.O.C. issued by E.E.(S.W.M.).
- f) The successful bidder shall maintain the record of C & D waste generated, transported and unloaded at designated unloading site on the construction site and shall submit this report monthly on AutoDCR system along with unloading challans or receipts (Annexure-A).
- g) Any breach of condition regarding debris disposal will entitle the cancellation of the work order and the work will be stopped immediately.
- h) The successful bidder shall revalidate S.W.M. N.O.C. and bank guarantee from time to time.
- i) The successful bidder shall make all the available records to the monitoring committee for the inspection. In this regard it is to mention that, the requirement of the C & D waste management are monitored along with the compliance in the requisite format of S.W.M in order to notice the breach if any.

- j) The successful bidder shall note that in the event for any reason whatsoever, the consent given by the disposal site owner/authority is revoke and /or in the event the time limit during which the disposal site was available has expired, the relevant construction activity will be stopped after issuance of a Show-Cause Notice and till such that revised S.W.M. N.O.C. is issued by E.E.(S.W.M.). U.no/ **Dy.Ch.E./SWM/3957/Op/ dtd.28.09.2018 for 'Implementation of the Construction and Demolition Waste Management rules, 2016' will be applicable for the work.**

6. Material

- (a) All material required for the work can be stacked near the site of work in such manner so asnot to cause any inconvenience to the pedestrian and vehicular traffic. If no space is available on site then tenderer shall make his own arrangement for stacking of material etc. No extra payment will be made on this account.
- (b) The surpluses excavated material from the site shall be removed free of cost within 24 hrsas directed. The necessary tipping charges at the dumping ground, as applicable shall be borne by the contactor.
- (c) The royalty charges in respect of excavated material shall be paid by the contractors to the collector as and when asked for.
- (d) The contractor should note that during the execution of the work, debris etc dumped on the public streets /places will have to be removed immediately after completion of the work as per direction of the Engineer, failing which the same will be got removed at their risk and cost.

7. Removal of Excavated material

**A.** All the excavated material belongs to the Brihanmumbai Municipal Corporation and therefore shall be the property of the Brihanmumbai Municipal Corporation. It will be mandatory on the part of contractor to use this material in the execution of works under contract if the quality of material available is as per the specification and rest of quality wise on utilised material shall be removed as directed by Engineer.

**B.** Royalty Payment on excavated material as per Statutory requirement:

The contractor shall pay necessary royalties and submit documentary evidences of such payments to the Engineer for his information and records. If and when royalties become payable to the Government Authority on excavated material as per Statutory requirements, the payment shall be made by the contractor. No reimbursement will be made to c/s by BMC.

8. The tenderer shall furnish the names & qualifications of the staff who will be deputed onthis work and the names of other officers with their telephone Nos. with whom BMC Engineer may require to get in touch with. The site engineer must have BMC Supervisor License and the copy of license shall be submitted in DyCE(BC)City office before commencing the work.
9. Rates of respective items shall be inclusive of all the payments to be made towards Royalty for excavation etc. & no separate payment or reimbursement of payment made towards royalty shall be made & Contractors shall obtain necessary permissions from the Collector Office for the same.
10. The Municipal Commissioner does not bind himself to accept the lowest or any tender.
11. The tenderer shall submit online bid in three packet system i.e. packet –A, B & C
12. The tenderer shall indemnify and keep indemnified the BMC against all damages or compensation payable by law in respect or in consequence, if any, accident or injury to any workman or any other person, woman in employment of the contractor or any other sub-contractor against all claims.

13. Income-Tax Clearance Certificate in original shall be submitted as and when demanded.
14. The percentage quoted shall include the cost of any unforeseen item, connected with the work in question, required for the proper execution and completion of work in all respect. The tenderer will not be reimbursed any taxes/ charges/ octroi/ cess etc. which is in force or in force in future.
15. Tenderer / contractor shall note that quality of material and workmanship shall be first class.
16. The materials used shall confirm to the related ISI specifications as well as BMC specified specification wherever applicable. Directives of Engineer concerned will be binding.
17. General notes in the Unified Schedule of Rate 2023, can be downloaded from <http://portal.mcgm.gov.in> under the Tender Tab.
18. The tenderer / contractor will have to make good, without any extra payment, any damage or loss to the Municipal property/private property while executing the work and need to quote accordingly.
19. General Conditions of Contract for civil works w.e.f. 1.4.2016 and electrical / mechanical asamended upto date shall be applicable to this work unless the same are contradictory to any of the conditions stated in the 'special directions/instructions' to tenderers.
20. The tenderer shall not withdraw the offer until notice of non-acceptance is communicated tohim or 180 DAYS after the date of tender, whichever is earlier.
21. The sequence of work shall be as approved and directed by PMC/Engineer-in-charge before starting the work; the contractor shall submit his program of carrying out the work in the form of bar chart / PERT chart for approval of PMC/Engineer In Charge.
22. Maximum care should be taken to the satisfaction of the PMC/Engineer InCharge to provide and maintain adequate protection to all electrical and mechanical installations. No extra payment will be made on this account under any circumstances.
23. Contractor will have to make their own arrangement for getting the electric supply on site for fabrication and allied works including installation of temporary meter at their own cost.
24. The contractor shall intimate the concerned authorities before starting the work and execute the work priority fixed by the PMC/Engineer In Charge. The inventory of serviceable and unserviceable material must be taken jointly with PMC/Engineer-in-charge before starting of work.
25. Wherever and whenever necessary as directed by PMC/Engineer-in-charge, the un-serviceable materials will have to be removed from the site within the time period as directed. The serviceable material recovered should be deposited to AE(Maint)/ user department.
26. The Corporation will not be responsible for any delay that may be caused due to unforeseen circumstances and no compensation on this account will be paid.
27. Materials brought on the site or debris will not be allowed to be stacked in passages, in the car park area, on road. It shall be stacked as per directions of site in charge.
28. The tenderer / contractor will have to make adequate shielding arrangement by putting necessary hoardings, screen or gunny bags, etc. so as to avoid any accident or nuisance to the occupants during the work without any extra payment. Barricading to be done on all sides to avoid nuisance for a height as per directions of engineer in charge.
29. Plumbing and sanitary works will have to be carried out through licensed plumber. All plumbing lines will be provided 2" away from wall with spaces as directed. The horizontal and vertical lines should be in line & level. Contractor to obtain all necessary permission, remarks, completion from concern department of M.C.G.M. (i.e. 'P' form, Drainage

Approval / Completion, Water main connection, Dry fittings & street connection, Road work permission / N.O.C. etc.) as required for plumbing, sanitary, drainage & water supply work.

30. Notwithstanding the source, the sand shall be washed using electrically operated sand washing machine, before use. The use of CRF can be granted as per Circular No. CE/PD/26286 /I of 11.02.11
31. Municipal Architect/City Engineer reserves the right to delete any item, alter / reduce the scope of the work, no extra claim in this respect will be allowed.
32. In case of any discrepancy between the plans and B.O.Q items, items to be operated shall be decided by the PMC/ Engineer In Charge and the same shall be binding on the contractors without paying any extra cost.
33. While carrying out any works, contractor shall take adequate care / safety measures to prevent any accident.
34. For transport of materials, contractors will have to provide mechanical lift or pulley at their own cost. No extra payment will be made for this arrangement.
35. The contractors shall take photographs of the work site before commencing, during execution and after completion of work, as directed. The contractor shall take photographs of site as and when directed by PMC/Engineer In Charge. The Photographs should be so arranged in the Register that original site position and finished site position of the same location should be vis-à-vis. No extra payment will be made for this arrangement. The register should be duly signed by Engineer-in-charge and contractor fortnightly.
36. The contractor shall have to arrange to carry out the work during night time also as per urgency of the work, at no extra cost with prior permission in writing from competent authority.
37. After completion of the proposed work, the tenderer/ contractor will have to hand over the site in neat and clean condition for which no extra payment will be made.
38. On receipt of the work order the contractor will have to erect ready-made site Chowky and Godown in the form of porta cabin/container cabin. The porta cabin (3nos)/ container shall be preferably of dimensions 12.20 m x 2.50 m with two doors and proper ventilation with A.C. It should have toilet facility. The chowky shall be equipped with minimum 2 PC, 2 laptops printer, internet, fax and all Basic Minimum facilities including projector with screen, first aid, safety arrangement with separate facilities for dining, conference room for 12 persons and separate pantry . The contractor has to provide for site office as per requirement either on his/ her owned place or rented/ leased place. No separate payment will be made for providing the chowky and ancillary items. No permission and space for site chowky will be given / provided on Municipal road/ footpath. The contractor has to make their own arrangement on hire/ lease for site office.
39. The successful Tenderer shall get himself registered as BMC's vendor by paying necessary Fees to BMC by following due Procedure.
40. The noise level shall be maintained within the permissible limit in Silence Zone area during the construction activities by the Contractors as per the notification dated 14-02-2000 issued by the Ministry of Environment and Forests. It is mandatory for the contractor to maintain the Noise level during the construction activity within the permissible limits as prescribed by BMC as per circular under no. CE/PD/7788/I dt. 05/11/2008.
41. The centering shall be insisted only in double stage self-supporting steel scaffolding and M.S pipe adjustable props for which no extra payment will be made.

42. The contractors shall provide proper safety gears to their staff, labours. Failure to provide safety gears as per above clause a penalty of Rs.1000/- per labour per day shall be imposed. The contractor will be fully responsible towards the safety of staff and labours for the entire Contract period. Also, the display of cautionary/danger boards shall be placed at all required locations as directed by engineer in charge at contractor's own cost.
43. Boards of size 4'0" x 3'0" showing all the necessary details should be displayed at site before commencement of work at contractor's own cost. For non-compliance of this condition, penalty of Rs.1000/- per day per site will be imposed on the contractors.
44. Reinforcement bars shall be purchased from BMC approved manufacturers (TATA, SAIL /JINDAL ) or their authorized dealers. The steel bars shall be embossed with manufacturer's name. Original manufacturer's test certificate shall be insisted for reinforcement bars. Test certificate in photocopy or other form will not be accepted. PMC/Engineer In charge decision regarding make of the steel will be final and binding on the contractors.
45. Tenderers are requested to take cognizance of the child labour act and to take precaution not to deploy child laborer on the work. If child laborer's are found deployed on the work, a penalty of Rs.5,000/- on the spot will be imposed on the defaulting contractors and further action as deemed fit will be taken. The contractor shall comply with all industrial & labour rules & regulations, which are in force from time to time. The CONTRACTOR has to follow strictly the government labour acts, which are in force at present & at all future times & all necessary arrangements for labour will have to be made by the CONTRACTOR.
46. The work will be treated as completed only after cleaning the site in all respect after completion of the work to the satisfaction of PMC/Engineer In charge.
47. On Completion of the work, the contractors shall furnish free of cost 12 sets of final completion drawings in AutoCAD along with the soft copy in CD, showing all the details checked and signed by the Contractor/PMC/Engineer In Charge within 2 months of completion of works. The payment of final bill shall be made to the contractors after receipt of above sets after and other formalities . In case the contractors fail to submit the completion drawings, the same shall be got done through outside agency and cost of the same shall be recovered from the contractor along with the penalty of Rs. 5,000/- per drawing (applicable for only identified works.)
48. The contractor shall implement anti-malarial measures for each site during execution of works, in case of failure to implement above measures a penalty of Rs.5000/- per day shall be imposed.
49. The anti-termite treatment before starting of work and after completion of work shall be carried out through reputed Pest Control companies with valid license such as PCI as per specification of USOR 2023.
50. The tenderers should note that the work shall be carried out preferably during day time i.e. from 10.00 am to 05.00 pm only. However in case of emergency, work can be continued during night hours/ Sunday/ holidays after taking permission from competent authority.
51. Even though the Contractor takes all the precautionary measures and by chance any workman is injured or dies, the Contractor will be responsible for settlement of disputes and claims of damages by the workman or his legal heirs.
52. Circular U/No. MGC/F/6342, dt 05.05.2018 in respect of revised guidelines about installation of barricades on work site of BMC will remain effective for this tender.
53. In case of any discrepancy, the PMC/Engineer In Charge decision shall be final and binding on the contractors.
54. Rates of items, involving compliance stated in permissions obtained from solid waste management department, conditions of Environmental Clearances from Ministry of



Environment and Forest New Delhi and Precautions to be taken as per requirement of Environment Management plan, shall be inclusive of all such mitigation measures specified in the N.O.C. and no extra shall be payable on this account.

55. The rates quoted in the tender shall include all charges for clearing of site before commencement as well as after scaffolding, watching and lighting by night as well as day including Sundays and Holidays, temporary plumbing and electric supply, protection of the public and safety of adjacent roads, walls, houses, buildings and all other erections, matters or things and the Contractor shall take down and remove any or all such scaffolding, staging, as occasion shall require or when ordered so to do, and fully reinstate and make good all matters and things disturbed during the execution of work and to the satisfaction of the PMC/Engineer In charge. The rates quoted shall be deemed to be for the finished work to be measured at site. The rates shall also be firm and shall not be subject to exchange variation, labour conditions, freights or any conditions whatsoever unless otherwise mentioned elsewhere in the Tender documents. Tenderers must include in their rates, Insurance against Fire, Theft, damages by Oriental Insurance Company or any other Government Insurance Company for the period of 5 years from the date of commencement and other levy levied by the Central Government or any State Government or any local authority, if applicable and prevalent during the entire contract period. No claim in respect of sales tax, excise duty, octroi or other taxes, duties or levies whether existing or levied in future shall be entertained by the Employer, unless otherwise mentioned elsewhere in the tender document.
56. Variations in the quantum mentioned in the tender documents can be to any extent (increased or decreased) this clause shall prevail over Clause No. 10 of GCC and escalation in the rates shall not be permitted on this account.
57. The Contractor shall in connection with the works provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or required by authority for the protection of the works or for the safety and convenience of the public or others. The security & safe keeping of the contractor's material, equipment, tools, etc. shall be the sole responsibility of the contractor.
58. The Contractor shall indemnify and keep indemnified the Employer against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction of the works and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.
59. All statutory requirements, Factories Act, ESIC, Workmen Compensation, Bonus Act, Provident Fund & Gratuity Act, Industrial Dispute Act, etc., wherever applicable and where contributions / compensation / payments are to be made the same shall be borne by the contractor either during the term of contract or after.
60. All necessary tests for verification of quality of material used for the work; as may be deemed fit shall be carried out by the contractor at his cost. No separate payments will be made on this account.
61. The serviceable materials obtained from existing structures, such as wooden doors & aluminium windows, M.S. Grills, gates etc. shall be removed from site as directed by PMC/Engineer In charge by taking & maintaining proper inventories of serviceable materials with them.
62. The tenderer shall note that during construction and up till handing over of the entire building contractor should provide their own security force from registered / licensed security agencies. The contractor shall be solely responsible for security of entire building for which no extra payment will be made. No complaints will be entertained afterward for stealing of any articles / appliances.
63. Tenderer(s) should note that if any deposits are required to be paid to Government Agency/Authorities etc, for obtaining any permission from them, an amount equivalent to the said deposit shall be withheld from the contractors bill, till the contractors fulfill all

the conditions laid down by Government Agency/Authorities and obtain certificate to that effect from them and the tenderers shall take cognizance of the same, before quoting for the tender.

64. The successful tenderers shall have to bear the testing charges for the tests carried out by the Municipal Material Testing Laboratory or any other approved testing laboratory as directed by the PMC/Engineer In charge as per the schedule of fees in force in respect of the various tests carried out by the Municipal Laboratory. The tenderers shall take this into account while quoting their rates. No extra payment on account of this will be made to the contractors.
65. The contractor shall not provide/install site chowky, labourer's hut, godown etc on roads, carriageway/footpath. Any chowky/labourer's hut /site godowns found on footpath/carriageway without a permission from M.C.G.M or any competent authority shall be fined Rs.1,000/-a day for first month and Rs.10,000/-a day thereafter.
66. All circulars published by BMC from time to time will be applicable to the Contractor.
67. a) The Engineer not below the rank of Assistant Engineer is entitled to impose a penalty of Rs.2500/- per day/lapse, in accordance to the gravity of default communicated in writing. Penalty amount will be recovered from contractors running bill. This penalty is over and above Penalty mentioned under G.C.C. If it is observed that, the contractor carrying out the work fails to comply with the instructions given by the City engineer/ Director(E.S.&P) / A.M.C./M.C. twice during execution of work , the work will be terminated and will be carried out at the risk and cost of the contractor and penal action will be taken against them. This decision will not be arbitral at all. The above mentioned condition will be in addition to the relevant condition in the General Condition of contract regarding cancellation of contract in full or partly final decision of disputes, difference of claims raised by the contractor or relating to any matter out of contract.

67.b) Other penalties: -

A. In addition to any penal action under the General Conditions of Individual contracts, a registered contractor will be liable under the registration Rule to one or more of the following penalties:

(A) Warning / Fine

A contractor will be liable to a warning and /or penalty for

- a) Non-compliance of any provision of the rules.
- b) Failure to comply with any clause or direction under these rules or comply with any conditions of e - Tenders / contracts.
- c) Inadequate progress / performance under the contract.

For the first default of any type mentioned above a warning will be issued. For each subsequent default of the types in (a) & (b) above the minimum penalty will be fine of Rs. 2,500/- while that for a default of the type (c) the minimum penalty will be Rs. 5,000/- for contracts of upto Rs. 25 Lakhs and Rs. 10,000/- for contracts of above Rs. 25 lakhs. Higher Amount of penalty may be levied by the competent authority for reasons to be recorded.

d) Demotion

A contractor will be liable to be demoted to a lower class of registration on any of the following grounds:

- a. Specific failure or default in execution of individual works in respect of physical progress for quality of such works.
- b. Deterioration in financial or technical ability /capacity

- c. Repeated failure to fill in e - Tender documents fully and correctly or delay in execution of formal contract documents.
68. The successful tenderer should provide sufficient number of security guards on site for 24 x 7 till the completion of work without any charges & remuneration.
69. Patent Rights and Royalties – The Contractor shall save harmless and indemnify the Employer from and against all claims and proceedings for or on account of infringement of any Patent rights, design trademark or name of other protected rights in respect of any Plant or Materials and from and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.
70. All the items which require fixtures, traps, pipes, fittings etc. to make the item functional (e.g. water closet, health faucet, wash basin, urinal, drainage), are inclusive of all such fittings. No extra will be paid for any unforeseen items required for making item functional in any form. The contractor shall quote accordingly in such cases.
71. Municipal charges required for service connections are to be borne by contractor.
72. The terms “out of”, “about” and “upto” each imply the maximum size.
73. The term “providing” means procuring all material as necessary to complete the item into for the purpose intended.
74. The term “fixing” means the carrying out of appropriate skilled labour including using necessary equipment and tools for the completion of the item into to serve the purpose intended.
75. The contractor has to exercise due care and caution while working on each item to ensure that other areas in the vicinity are not spoiled, defaced, broken, damaged etc. and if so affected, the contractor shall have to rectify the damage etc and make good the affected portion at his own cost and within the time frame set for the execution of the work.
76. It will be binding on contractor to pay all the necessary charges as per prevailing policy of M.C.G.M apart from the charges as stated in the Tender.
77. The contractor shall maintain the following registers during execution of work.

#### **List of Registers**

Register Code	Name of Register
1	Instruction Register
2	Daily Progress Register
3	Cement Variation Register
4	Cement Register
5	Material Testing Result File
6	Photograph File
7	Penalty Register
8	Correspondence File
9	File Containing Drawings

10	Inventory Register
11	Steel Register
12	RMC/Concrete Register
13	Cube Test Register
14	Contractor's Site Staff Attendance Register
15	Mix design file
16	Excavation register
17	Removal Challans and Register (if dumped at Municipal Dumping Ground/ if paid separately)
18	Pour Card Register
19	Register for inspection during DLP
20	Any Other Registers Required As Per Description Of Items For Any Activity/Material/Quantity For Which Payment is Made Or As Instructed By Engineer In charge.
21	Ponding Register
22	Pile Boring Register/Pile Liner Register
23	Material Received Register

Contractor shall visit the site & shall quote accordingly considering the site condition.

78. The PMC/Engineer In Charge will have the option to have any of the materials tested to find out whether they are in accordance with the specifications and the Contractor will bear all the expenses for such testing. All bills, vouchers and test certificates which in the opinion of the Engineer in charge, their suitability shall be produced for his inspection when required.
79. The interpretation & decision given by PMC / Engineer in charge shall be final & binding to contractor for any discrepancies in drawings, description of items of work in BOQ & specification.
80. Plumbing and sanitary works will have to be carried out through licensed plumber. All plumbing lines will be provided 2" away from wall with spaces as directed. The horizontal and vertical lines should be in line & level. Contractor to obtain all necessary permission remarks, completion from concern department of M.C.G.M. (i.e. 'P' form, Drainage Approval / Completion, Water main connection, Dry fittings & street connection, Road work permission / N.O.C. etc.) as required for plumbing, sanitary, drainage & water supply work.
- The work of providing and fixing in position UPVC/SWR,GI pipe of given diameter in any position as per specification shall be carried out in such way that pipe and wall surface will be separated by clamp of at least 100mm depth to avoid direct contact of pipe with wall surface. No extra payment will be made to the contractor in this respect.
81. Various guidelines/directives vide relevant circulars below issued by BMC as mentioned shall be applicable
- A. DMC/Infra/3732 dt. 13.02.2021 (modified PQC guidelines)
  - B. MGC/F/8659 dt. 07.09.2019 regarding Arbitration clause
  - C. CA/FRT/12 dt. 21.06.2012 regarding Building Construction and other work Cess
  - D. AMC/ES/2700 dt 27.05.2019 undertaking regarding work to be completed within stipulated time period
  - E. CA(F)/Project/42 dt. 09.02.2021 regarding ASD

82. As regards to Clause no. 74 of General Conditions of this tender bid, the same shall be read with circular vide no. MGC/F/8659 dtd 07.09.2019.

• **TESTING OF MATERIAL** –

1. The charges for testing of construction materials shall be as per the rates in force at the time of testing of materials/asphalt mixes and the testing charges shall be borne by the contractor.
  - a) All requests for testing of samples must be made in writing to in duplicate specifying there in the following information (separate memo should be sent for concrete, steel, soil, asphaltic mixes) etc.
  - b) Name of the Work, Work Code No. if any.
  - c) Type of material and tests desired (i.e. grade of cement, date of consignment)
  - d) Identification mark on the sample should be mentioned on the forwarding memo (in case of concrete beams and cubes identification marks, grade of concrete, date of casting, specimen No. should be engraved on concrete. If these details are marked by paint, samples will not be accepted. In case of reinforcement bars, details shall be displayed on label pasted on bars and label must be signed by the officer who has taken the samples.)
  - e) Name and full postal address of the officer to whom the results must be sent.
  - f) Samples for tensile testing of reinforcing bars shall be straight for entire length without bends. The ends of the bars shall be hacksaw cut and not chisel cut. One sample of each diameter bar shall be sent for first test and for retest, two bars shall be sent. The length of the bars shall be 50 cm. for all diameters. Test Certificates (Chemical/Physical tests from manufacturers) will be submitted along with each Lot of Steel.
  - g) Samples that are sent for testing for natural moisture content, shall be forwarded in wax coated packing or sealed airtight bags.
  - h) Undisturbed samples sent in sampling tube shall be wax coated on both open ends.
83. It shall be sole responsibility of the contractor to carry out the total station survey of building premises included in the tender work.
84. The photographs of work sites & works as and when directed by PMC/ Engineer In Charge are to be taken. A new Digital Camera of Min 10 Mega Pixels shall be provided in the site office for the said purpose. The Photographs should be arranged in the Register showing original site position and finished site position of the same location. The register should be duly signed by site-in charge/PMC and contractor fortnightly.
85. Quantities of all items considered (i.e. anticipated) in the B.O.Q. may not be required to be executed depending upon the site conditions. The tenderer shall not be entitled for any compensation on this account. Before starting the work, contractor shall consult with the Site Engineer and shall take actual measurements on the site for procurement of material.
86. The contractor shall procure requisite material required for the work from manufacturers with I.S.I. certificates and according to M.C.G.M. specifications/approved list wherever applicable.
87. RMC to be provided for list of approved BMC agency which are having current validity.
88. While executing the work, the bidder has to protect the trees as per Urban Trees and Paving Guidelines, copy of which is available with the office of Ch.E. (Rds. & Tr.).

89. For all cement concrete works covered under scope of this tender, only ready mix concrete shall be used except nominal mixes wherever specified. On site mixing of concrete (Instead of ready mix concrete) maybe allowed only in cases when the total quantity of RCC/CC does not exceed 5 cum on that particular day with the approval of Engineer Incharge.) However, in such cases the concrete shall be as per mix design and machine mixed. The decision of PMC/Engineer Incharge shall be binding on the contractor. Testing as per IS Code is required.
90. The contractor will be directed by the PMC/ Engineer In Charge to execute the additional emergency work of excavation, any damaged existing water mains, construction of drainage/ electrical or any other service Chambers, & other related works. The quantum of the work of any item may get reduced or increased to any extent. However, the payment of the work shall be made as per terms and conditions of contract.
91. If concrete is not to be used as structural concrete nominal mix of equivalent strength may be made on site by permission of engineer, not below the Engineer Incharge. However, rebate of Rs 100 per cum shall be taken for non using the ready mix concrete. However, in such cases, the concrete shall be machine mixed.
92. The tenderer shall note that the tie bars if required to be provided by drilling holes to the existing cement concrete as directed the said work shall be done as directed by the PMCE/Engineer In charge without any extra/additional cost to BMC.
93. After completion of work, contractor has to submit detailed plans showing location of work carried out with three reference point and also of any underground services laid.
94. IDLE CHARGES: No idle charges will be entertained on any of the grounds
95. The successful bidder shall submit the details of technical staff appointed for the specialized jobs like Electrical Works, Firefighting works. (Of which MOU is already submitted in Packet B) within 1 month after issue of LOA or start of particular work.
96. Vide MGC/1102 dtd 25.10.2023 and enforcing MPCB from time to time, grievances regarding Air pollution mitigation shall be followed by the contractor on site.

**SECTION 11**  
**GENERAL CONDITIONS OF CONTRACT**

# 1. Definitions and Interpretations

## 1.a) Definitions:

- The “Employer” shall mean the Municipal Corporation for Greater Mumbai / Municipal Commissioner for Greater Mumbai, for the time being holding the said office and also his successors and shall also include all “Additional Municipal Commissioners, Director (Engineering Services & Projects)” and the Deputy Municipal Commissioner, to whom the powers of Municipal Commissioner, have been deputed under Section 56 and 56B of the Mumbai Municipal Corporation Act.
- **Contract:** The “Contract” shall mean the tender and acceptance thereof and the formal agreement if any, executed between the Contractor, Commissioner and the Corporation together with the documents referred to therein including these conditions and appendices and any special conditions, the specifications, designs, drawings, price schedules, bills of quantities and schedule of rates. All these documents taken together shall be deemed to form one Contract and shall be complementary to one another.
- **Contractor:** The “Contractor” shall mean the individual or firm or company whether incorporated or not, whose tender has been accepted by the employer and the legal successor of the individual or firm or company, but not (except with the consent of the Employer) any assignee of such person.
- **Bidder:** The Bidder shall mean a person or corporate body who has desired to submit Bid to carry out the Works, including routine maintenance till the tender process is concluded.
- **Arbitrator:** “**Arbitrator**” means the person or persons appointed by agreement between the **Employer** and the **Contractor** to make a decision on or to settle any dispute or difference between the **Employer** and the **Contractor** referred to him or her by the parties pursuant to General Conditions of Contract amended up to date.
- **Contract Sum:** “Contract Sum” means the sum named in the letter of acceptance including Physical contingencies subject to such addition thereto or deduction there-from as may be made under the provisions hereinafter contained.

**Note :** The contract sum shall include the following –

- In the case of percentage rate contracts, the estimated value of works as mentioned in the tender adjusted by the Contractor’s percentage.



- In the case of item rate contracts, the cost of the work arrived at after finalisation of the quantities shown in schedule of items / quantities by the item rates quoted by the tenderers for various items and summation of the extended cost of each item.
  - In case of lumpsum contract, the sum for which tender is accepted.
  - Special discount / rebate / trade discount offered by the tenderer if any and accepted by the Corporation.
  - Additions or deletions that are accepted after opening of the tenders.
  - **Contract Cost:** “Contract Cost” means the Contract Sum plus Price Variation. This cost shall be included in the letter of acceptance.
- A. Engineer:** The “Engineer” shall mean the City Engineer / the Hydraulic Engineer / the Chief Engineer / the Special Engineer, appointed for the time being or any other officer or officers of the Municipal Corporation who may be authorized by the commissioner to carry out the functions of the City Engineer / the Hydraulic Engineer / the Chief Engineer / the Special Engineer or any other competent person appointed by the employer and notified in writing to the Contractor to act in replacement of the Engineer from time to time.
- B. Engineer’s Representative:** “Engineer’s Representative” shall mean the Assistant Engineer, Sub. Engineer/Jr. Engineer in direct charge of the works and shall include Sub Eng./ Jr. Eng of Civil section/ Mechanical section/ Electrical section appointed by MCGM. from time to time by the Sub Clause 2a.
- C. Excepted Risks:** “Excepted risks” are risks due to riots (otherwise than among Contractors’ employees) and civil commotion (in so far as both these are uninsurable), war (whether declared or not), invasion, act of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military or usurped power, any act of government, damage from aircraft, acts of god, such as earthquake, lightning and unprecedented floods and other causes over which the Contractor has no control and accepted as such by the Commissioner or causes solely due to use or occupation by the Municipal Corporation of the works in respect of which a certificate of completion has been issued or a cause solely due to faulty municipal design of work.
- D. Corporation:** The “Corporation” or the “Municipal Corporation” shall mean the Municipal Corporation of Greater Mumbai, constituted under the M.M.C. Act 1888 as amended up to date.

- E. Annexure:** The “Annexure” referred to in these conditions shall mean the relevant annexure appended to the tender papers issued by the Municipal Corporation.
- F. Site:** The “Site” shall mean the land and other places including water bodies more specifically mentioned in the special conditions of the tender, on, under in or through which the permanent works or temporary works are to be executed and any other lands and places provided by the Municipal Corporation for working space or any other purpose as may be specifically designated in the contract as forming part of the site.
- G. Urgent Works:** “Urgent works” shall mean any urgent measures which in the opinion of the Engineer become necessary during the progress of the work to obviate any risk of accident or failure or which become necessary for security.
- H. Works:** The “Works” shall mean the Permanent Works and the Temporary Works or either of them as appropriate to be executed in accordance with the contract or part(s) thereof, as the case may be and shall include all extra or additional, altered or substituted works as required for performance of the contract as found necessary as per suggestion of the Engineer.
- I. Temporary Works:** “Temporary Works” shall mean all Temporary Works of every kind required in or about execution, completion or maintenance of the work also Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.
- J. Permanent Works :** “Permanent Works” means the permanent works to be executed (Including Plant) and installation of machineries in accordance with the Contract at specified required site and location.
- K. Contractor’s Equipment:** Contractor’s Equipment means all appliances and things of whatsoever nature required for the execution and completions of the Works and the remedying of any defects therein, but does not include plant material or other things intended to form or forming part of the Permanent Works.
- L. Drawings:** Drawings means all the drawings, calculations and technical information of a like nature provided by the Engineer to the Contractor under the Contract and all drawings, calculations, samples, patterns, models, operation & maintenance manual and other technical information of like nature submitted by the Contractor and approved by the Engineer.

- M. Approved:** “Approved” shall mean approved in writing including subsequent confirmation of previous verbal approval and “approval” shall mean approval in writing including as aforesaid.
- N. Specification:** “Specification” means the specification referred to in the tender and any modification thereof or addition or deduction thereto as may from time to time be furnished or approved in writing by the Engineer.
- O. Tender:** “Tender” means the Contractor’s priced offer to the Employer for the execution and completion of the Works and the remedying of any defects therein in accordance with the provision of the Contract, as accepted by the Letter of Acceptance.
- P. Letter of Acceptance:** “Letter of Acceptance” means the formal acceptance by the Employer of the tender, for the particular specified work or job.
- Q. Commencement Date:** “Commencement Date” means the date upon which the Contractor receives the notice to commence, issued by the Engineer pursuant to Clause 8d.
- R. Time for Completion:** “Time for Completion” means the time for completing the execution of and passing the Tests on Completion of the Works or any Section or part thereof as stated in the Contract (or as extended under Section 8) calculated from the Commencement Date.
- S. Taking over Certificate:** “**Certificate of Taking-Over/ Take-over Certificate**” shall mean the certificate issued by the **Employer** after completion of Works in all respects.
- T. Defect Liability Period:** “**Defect Liability Period**” means the period of validity of the warranties given by the **Contractor** commencing from the date of ‘**certificate of taking over**’ of the Works or a part thereof, during which the **Contractor** is responsible for defects with respect to the Works (or the relevant part thereof).
- U. Plant:** “Plant” means machinery, apparatus, and the like intended to form or forming part of the all types of permanent works.
- V. Section:** “Section” means a part of work specially identified in the contract as a section.
- W. Cost:** “Cost” means all expenditure properly incurred or to be incurred whether on or off the site including overheads and other charges properly allocable thereto but does not include any allowance for profit.
- X. Day:** “Day” means Calendar day

- Y. Month:** “Month” means Calendar month of the Gregorian calendar.
- Z. GCC:** GCC means General Conditions of Contract.
- AA. Foreign Currency:** “Foreign Currency” means currency of a country other than that in which the works are to be located, approved by Govt of INDIA/Reserve Bank of INDIA.
- BB. Writing:** Writing means any hand written, type-written, or printed communication including telex and facsimile transmission ,electronic and digital media.
- CC. Country:** Country means the country in which the Site is located
- DD. Variation:** Variation means a change to the:-
- i) Specification and /or Drawings (if any) which is instructed by the Employer.
  - ii) Scope in the Contract which is instructed by the Employer.
  - iii) Price in the Contract which is instructed by the Employer.
- EE. Force Majeure:** Force Majeure means an exceptional event or circumstance: which is beyond a Party's control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.
- FF. Law:** Law means law that is in force in India
- GG. Performance Security/ Performance Guarantee:** It is the security in the form of a deposit to be provided by the contractor to the Engineer for his proper performance of the contract within the specified period.
- HH. Communication:** Wherever provision is made for the giving or issue of any notice, instruction, or other communication by any person, unless otherwise specified such communication shall be written in the English language and shall not be unreasonably withheld or delayed.
- OO)Tests on Compliance:** “Tests on Compliance” means the tests specified in the Contract or otherwise agreed by the Engineer and the Contractor which are to be made by the Contractor before the works or any section or part thereof are taken over by the employer.
- PP)Extra items:** ‘Extra’ means additional or substituted items of work activity not included in the ‘Bill of Quantities and Rates’, however such items are in the prevailing ‘Unified Schedule of Rates’ for MCGM.

QQ) **Excess/Savings:** Increase or decrease in “Bill of Quantities” of the bidding documents shall be termed as “Excess” or “Savings” correspondingly

RR) **Extra item:** This shall mean additional or substituted items of work activity not included in the “Bill of Quantities and Rates”, however such item of work are in the prevailing “Unified Schedule of Rates” of MCGM.

SS) **FAIR item:** This shall mean additional or substituted items of work activity not included in the “Bill of Quantities and Rates”, and even not existing in the “Unified Schedule of Rates” of MCGM at the time of tender.

TT) **Unforeseen works:** Unforeseen works shall mean the works of bursting / leakages of water pipelines, settlement of sewage lines / manholes, settlement of storm water drains in city areas

UU) **Subcontractor:** Any person named in the contract as Subcontractor for part of the Works or any person to whom a part of the Works has been subcontracted with the consent of the Engineer and the legal successors in the title to such person, but not any assignee of such person.

VV) **Bill of Quantities:** It means the priced and completed bill of quantities forming part of the tender.

#### **1.b) Headings & Marginal Notes to Conditions:**

Headings and marginal notes to these conditions shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

#### **1.c) Singular & Plural :**

Where the context so require, words importing the singular shall also mean the plural and vice versa.

#### **1.d) Gender :**

Words importing in the masculine gender shall also include the feminine gender.

## **2. Engineer and Engineer’s Representative**

### **2.a) Engineers Duty & Authority:**

- i. The Engineer shall carry out the Duties specified in the Contract
- ii. The Engineer may exercise the authority specified in or necessarily to be implied from the Contract, provided, however, that if the Engineer is required under the terms of the appointment by the Employer, to obtain the specific approval from the Employer before exercising any such authority, particulars of such requirements shall be set out in Special conditions of Contract. Provided further that any requisite approval shall be deemed to have been given by the Employer for any such authority exercised by the Engineer.

- iii. Except as expressly stated in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract.
- iv. The Engineer may from time to time in writing delegate to the Engineer's representative any of the powers or authorities vested in the Engineer and shall furnish to the Contractor a copy of all such written delegations of powers and authorities. Any written instruction or approvals given by the Engineer's Representative to the contractor with the terms of such delegation (but not otherwise) shall be binding on the Contractor as if given by the Engineer.
- v. The Engineer's representative shall be appointed by and be responsible to the Engineer and shall carry out the duties and exercise such authority as may be designated to him by the Engineer under the clause 2.a.(iv).
- vi. The Engineer may from time to time delegate to the Engineer's representative. The duties and authorities vested in the Engineer and he may at any time revoke such delegation. Any such delegation or revocation shall be in writing and shall not take effect until a copy thereof has been delivered to the Employer and Contractor.

## **2.b) Duties & Powers of the Engineer's Representative:**

- i. The duties of the representative of the Engineer are to check, watch and supervise the work and to test and examine any material to be used or workmanship employed in connection with the works. He shall have no authority to relieve the Contractor of any of his duties or obligations under the contract nor to except as expressly provided here under or elsewhere in the contract to order any work involving delay or any extra payment by the Municipal Corporation nor to make any variation of or in the works without written approval, consent or orders/direction of Engineer.
- ii. Communications given by the Engineer's Representative to the Contractor in accordance with any delegations shall have the same effect and shall be binding on the contractor as though it had been given by the Engineer, Provided that :
  - a. Failure of the representative of the Engineer to disapprove any work or material shall not prejudice the power of the Engineer thereafter to disapprove such work or material and to order the pulling down, removal or breaking up thereof.
  - b. If the Contractor questions any communication of the Engineer's Representative he may refer to the matter to the Engineer who shall confirm, revise or vary the contents of such communications.

## **2. c) Engineer's Decision:**

The whole of the work shall be under the direction of the Engineer, whose decision shall be final, conclusive and binding on all parties to the contract, on all questions relating to the construction and meaning of plans, working drawings, sections, and specification connected with the work.

## **2.d) Work to be in accordance with Contract:**

Unless it is legally or physically impossible, the Contractor shall execute and complete the Works and remedy any defects therein in strict accordance with the Contract to the satisfaction of the Engineer.

## **3. Assignment and Sub-Contracting**

### **3.a) Assignment:**

The Contractor shall not assign transfer or attempt to assign, transfer the Contract or any part thereof, or any benefit or interest therein or there under otherwise than by a charge in favor of the Contractor's bankers of any Money due or to become due under this contract, without the prior written approval of the Commissioner.

### **3.b) Sub-letting:**

- Unless specifically mentioned in the contract subletting will not be allowed. Subletting, where otherwise provided by the contract shall not be more than 25% of the contract price.
- Subletting of contract will be allowed only after appointment of contractor and before starting the execution of the work.
- The permitted subletting of work by the Contractor shall not establish any contractual relationship between the sub-contractor and the MCGM and shall not relieve the Contractor of any responsibility under the Contract.

### **3.c) Nominated Sub-Contractors:**

All specialist, merchants, tradesmen and others executing any work or supplying any goods, materials, plant or services for which provisional, sums are included in the contract, who may have been or be nominated or selected by the employer or the engineer, and all persons to whom by virtue of the provision of the contract the contractor is required to subcontract shall, in the execution of such work or the supply of such goods, materials, plant or services be deemed to be subcontractor to the contractor and are referred to in this contract as "nominated Subcontractors".

The Contractor shall not be required by the Employer or the engineer, or be deemed to be under any obligation, to employ any nominated Subcontractor against whom the Contractor may raise reasonable objection, or who declines to enter into a subcontract with contractor containing provision:

- i. That in respect of the work, goods, materials, Plant or services the subject of subcontract, the nominated Subcontractor will undertake towards the Contractor such obligation and liabilities as will enable the contractor to discharge his own obligation and liabilities towards the Employer under the terms of the contract and will save harmless and indemnify the Contractor from and against the same and form all claims ,proceeding damages, costs, charges, and expenses whatsoever arising out of or in connection there with or arising out of or in connection with any failure to perform such obligations or to fulfill such liabilities and (ii)
  - ii. That the nominated subcontractor will save harmless and indemnify the contractor from and against any negligence by the nominated subcontractor, his agents, workmen and servants and from and against any misuse by him or them of any Contractor's Equipment or Temporary Works provided by the Contractor for the purposes of the Contract and from all claims as aforesaid.
- Design requirements to be Expressly stated:

If in connection with any Provisional Sum the services to be provided include any, matter design or specification of any part of the Permanent Works or of any plant to be incorporated

therein, such requirement shall be expressly stated in the Contract and shall be included in any nominated Subcontract. The nominated Subcontract shall specify the nominated Subcontractor providing such services will save harmless and indemnify the contractor from and against the same and from all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of or in connection with any failure to perform such obligations or to fulfill such liabilities.

**B) Payments to Nominated Sub-Contractors;**

For all work executed or goods, materials plant or services supplied by any nominated Subcontractor, The Contractor shall be entitled to:

- a. The actual price paid or due to be paid by the contractor, on the instruction or engineer, and in accordance with the subcontract.
- b. In respect of labor supplied by the Contractor, the sum, if any, entered in the Bill of Quantities or, if instructed by the Engineer pursuant to clause on Use of Provisional Sums as may be determined in accordance with Clause of Valuation of variation.

In respect of all other charges and profit, a sum being a percentage rate of the actual paid or due to be paid as per clause 10 (b) calculated, where provision has been made in the bill of Quantities for a rate to be set against the relevant Provisional Sum, at the rate inserted by the contractor against that item or, where no such provision has been made, at the rate inserted by Contractor in the Appendix to Tender and repeated where provision for such is made special item provide in the Bill of Quantities for such purpose.

**C) Certification of payments to nominated sub-contractors:**

Before issuing any certificate under Section 12 which includes any payment in respect of work done or goods, material, plant or services supplied by any nominated sub-contractor, the Engineer shall be entitled to demand from the Contractor reasonable proof that all payments, less retentions, Included in previous certificates in respect of the work or good materials, Plant or services of such nominated Sub-Contractor have been paid or discharged by the Contractor. If the Contractor fails to supply such proof then, unless the Contractor:

- a) satisfies the Engineer in writing that he has reasonable cause for withholding or refuse to make such payments and
- b) Produces to the Engineer reasonable proof that he has so informed such nominated Subcontractor in writing,

The Employer shall be entitled to pay to such nominated Subcontractor direct, upon certificate of Engineer, all payments, less retentions, provided for in the nominated Subcontract, which the Contractor has failed to make to such nominated Subcontractor and to deduct by way of set-off the amount so paid by the Employer from any sums due or to become due from the Employer to the Contractor.

Provided that, where the Engineer has certified and the Employer has paid direct as aforesaid ,the Engineer shall, in issuing any further certificate in favor of the Contractor, deduct from the amount thereof the amount so paid, direct as aforesaid, but shall not withhold or delay issue of the certificate itself when due to be issued under the terms of contract

**3.d) JOINT VENTURE (JV) FIRMS- Joint Venture is not allowed for this tender.**



## **4. Contract Documents**

### **4.a) Language/s:**

The language of the Contract shall be English and all correspondence, drawings etc. shall conform to the English language.

### **4.b) Contract Documents:**

The documents forming the contract are to be taken as mutually explanatory of one another. Unless otherwise provided in the contract, the priority of the documents forming the contract shall be, as follows:

- 1) Contract Agreement (if completed)
- 2) The letter of Acceptance
- 3) The Bid:
- 4) Addendum to Bid; if any
- 5) Conditions of contract-Part-II: Conditions of Particular Application.
- 6) Conditions of Contract-Part I :General Condition
- 7) The priced bill of Quantities:
- 8) The Specification:
- 9) Detailed Engineering Drawings
- 10) GCC
- 11) All correspondence documents between bidder and MCGM.

### **4.c) Custody of Drawings:**

- i. Custody of drawings:** The Drawings shall remain in the sole custody of Engineer, but two copies thereof, shall be furnished to the Contractor free of charge. The Contractor shall provide and made at his own expense any further copies required by him and the Engineer for the bonafide cause. At the completion of the Contract, the Contractor shall return to the Engineer all drawings provided under the Contract.
- ii. One copy of drawing to be kept on site:** One copy of the drawings, furnished to the Contractors as aforesaid, shall be kept by the Contractor on the site and the same shall at all reasonable times be available for inspection and use by the Engineer and the Engineer's Representative and by any other persons authorized by the Engineer in writing.
- iii. Disruption of Progress:** The Contractor shall give written notice to the Engineer whenever planning or progress of the works is likely to be delayed or disrupted unless any further drawings or order, including a direction, instruction or approval, is issued by the Engineer within reasonable time. The notice shall include details of the drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.
- iv. Delays and Cost of delay of drawings:** If by reason of any failure or inability of the

Engineer to issue within a time reasonable in all the circumstances any drawing or order requested by the Contractor in accordance with the sub-clause(iii) of this condition the Contractor suffers delay and / or incurs cost then the Engineer shall take such delay into account in determining any extension of time to which the Contractor is entitled under sub-clause (d) of Clause 8 hereof and the Contractor shall be paid the amount of such cost as shall be reasonable.

- v. Failure to submit Drawings by Contractor:** If the failure or the inability of the Engineer to issue any drawings or instructions is caused in whole or in part by the failure of the Contractor to submit specification or drawings or other documents which is required to submit under the contract, the Engineer shall take such failure by the contractor into account when making his determination in accordance with condition 4c(iv)hereof.
  
- vi. Copyright:** The copyright of all drawings and other documents provided by the Contractor under the Contract shall remain vested in the Contractor or his sub-contractors as the case may be the Employer shall have a license to use such drawings and other documents in connection with the design, construction, operation and maintenance of the Works. At any time the Employer shall have further license without additional payment to the Contractor to use any such drawings or documents for the purpose of making any improvement of the works or enlargement or duplication of any part thereof, provided that such improvement, enlargement or duplication by itself or in conjunction with any other improvements, enlargements or duplications already made in accordance with the further license does not result in the duplication of the whole of the works.

#### **4.d) Engineer to have power to issue further drawings or instructions:**

The Engineer shall have the power and authority from time to time and at all times to make and issue such further drawings and to give such further instructions and directions as may appear to him necessary or proper for the guidance of the contractor and the good and sufficient execution of the works according to terms of the specifications and Contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectually as though the same had accompanied or had been mentioned or referred to in the specification, and the Engineer may also alter or vary the levels or position of nature of works contemplated by the specifications, or may order any of the works contemplated thereby to be omitted, with or without the substitution of any other works in lieu thereof, or may order any work or any portion of work executed or partially executed, to be removed, changed or altered, added if needful, may order that other works shall be substituted instead thereof and difference of expense occasioned by any such diminution or alteration so ordered and directed shall be added to or deducted from the amount of this Contract, as provided under condition no.10(a) hereinafter.

No work which radically changes the original nature of the Contract shall be ordered by the Engineer and in the event of any deviation being ordered which in the opinion of the Contractor changes the original

nature of Contract he shall nevertheless carry it out and disagreement as to the nature of the work and the rate to be paid therefore shall be resolved in accordance with condition no.13d.

The time for completion of the Works, shall be in even of any deviations resulting in additional cost over the contract price being ordered, be extended or reduced reasonably by the Engineer. The Engineer's decision in this case shall be final.

#### **4.e Discrepancies in drawings or specifications:**

The drawings and specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small scale drawings and figured dimensions in preference to scale and special conditions in preference to general conditions. The preference of documents will be as per condition 4(b). Should any discrepancies, however, appear, or should any misunderstanding arise as to the meaning and import of the said specifications or drawings, or as to the dimensions or the quality of the materials or the due and proper execution of the Works, or as to the measurement or quality and valuation of the Works, or as to the measurement or quality and valuation of the Works execution under this Contract, or as extra thereupon the same shall be explained by the Engineer, and his explanation shall, subject to the final decision of the Commissioner in case a reference be made to him under condition no.13(d) be binding upon the Contractor and Contractor shall execute the Works according to such explanation (subject to aforesaid) and shall also do all such Works and required things as may be necessary for the proper completion of Works as implied by the drawings and specifications, even though such Works and things are not specifically shown and described in the said drawings and specifications.

Provided always that if in the opinion of the Engineer compliance with any such instructions shall involve the Contractor in any expenses which by reason of any such ambiguity or discrepancy, the Contractor did not and had reasons not to anticipate the extra charges if any shall be paid in accordance with conditions 10(a).

The time for completion of the Works, shall be in even of any deviations resulting in additional cost over the contract price being ordered, be extended or reduced reasonably by the Engineer. The Engineer's decision in this case shall be final.

#### **4f. Official Secrecy:**

The Contractor shall of all the persons employed in any works in connection with the contract that the India Official Secrets Act 1923 (XIX of 1923) applies to them and will continue to apply even after execution of the said works and they will not disclose any information regarding this contract to any third party. The contractor shall also bring into notice that, any information found to be leaked out or disclosed the concern person as well as the Contractor will be liable for penal action; further the Corporation will be at liberty to terminate the contract without notice.

#### **4g. Subsequent Legislation :**

If on the day of submission of bids for the contract, there occur changes to any National or State statute, Ordinance, decree or other law or any regulation or By-laws or any local or other duly constituted authority or the introduction of any such National or State Statute, Ordinance, decree or by which causes additional or reduced cost to the Contractor, other than under Clause 10 in the execution of contract, such additional or reduced cost shall, after due consultation with the Contractor, be determined by the concerned Engineering Department of MCGM and shall be added to or deducted from the Contract Price with prior approval of competent authority and the concerned Engineering

Department shall notify the Contractor accordingly with a copy to the Employer. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same shall already taken into account in the indexing of any inputs to the Price Adjustment Formulae in accordance with the provisions of Clause 10 b.

MCGM reserve the right to take decision in respect of addition/reduction of cost in contract.

#### **4h) Contract Execution**

All required documents for execution of the contract shall be submitted within 30 days from the date of issue of letter of acceptance. If the documents are not submitted within the stipulated time a penalty of Rs 5000/- per day will be applicable to the contractor. All contract documents need to be duly affixed with stamp duty properly signed along with evidence/proof of payment of security/contract deposit/ within 30 days from the date of issue of letter of acceptance.

Obligation of MCGM

- i. The concerned department shall submit the contract which is verified by Accounts department, to Municipal Secretary Office for common seal in 45 days from the receipt of those papers in the office
- ii. Municipal Secretary office will complete the process of affixing common seal in next 30 days.
- iii. If the contractor has complied with all the contractual obligations and the contract verified by the accounts department and forwarded to Municipal Secretary office for affixing common seal. It shall be treated as deem executed after 30 days of submission and no payment shall be withheld for want of contractual obligations.

#### **4i) No Claim To Any Payment Or Compensation Or Alteration In Or Restriction Of Work**

- (a) If at any time after the execution of contract documents, the Engineer shall for any reason whatsoever, desires that the whole or any part of the works specified in the Tender should be suspended for any period or that the whole or part of the work should not be carried out, at all, he shall give to the Contractor a Notice in writing of such desire and upon the receipt of such notice, the Contractor shall forthwith suspend or stop the work wholly or in part as required after having due regard to the appropriate stage at which the work should be stopped or suspended so as not to cause any damage or injury the work already done or endanger the safety thereof, provided that the decision of the Engineer as to the stage at which the work or any part of it could be or could have been safely stopped or suspended shall be final and conclusive against the contractor.

The Contractor shall have no claim to any payment or compensation whatsoever by reason of or in pursuance of any notice as aforesaid, on account of any suspension, stoppage or curtailment except to the extent specified hereinafter.

- (b) Where the total suspension of Work Order as aforesaid continued for a continuous period exceeding 90 days the contractor shall be at liberty to withdraw from the contractual obligations under the contract so far as it pertains to the unexecuted part of the work by giving 10 days prior notice in writing to the Engineer within 30 days of the expiry of the said period of 90 days, of such intention and requiring the Engineering to record the final measurement of the work already done and to pay final bill. Upon giving such Notice, the Contractor shall be deem to have been discharged from his obligations to complete the remaining unexecuted

work under his contract. On receipt of such notice the Engineer shall proceed to complete the measurement and make such payment as may be finally due to the contractor within a period of 90 days from the receipt of such Notice in respect of the work already done by the contractor. Such payment shall not in any manner prejudice the right of the contractor to any further compensation under the remaining provisions of this clause.

- (c) Where the Engineer required to Contractor to suspend the work for a period in excess of 30 days at any time or 60 days in the aggregate, the Contractor shall be entitled to apply to the Engineer within 30 days of the resumption of the work after such suspension for payment of compensation to the extent of pecuniary loss suffered by him in respect of working machinery remained ideal on the site of on the account of his having an to pay the salary of wages and labour engaged by him during the said period of suspension provided always that the contractor shall not be entitled to any claim in respect of any such working machinery, salary or wages for the first 30 days whether consecutive or in the aggregate or such suspension or in respect of any such suspension whatsoever occasion by unsatisfactory work or any other default on his part, the decision of the Engineer in this regard shall be final and conclusive against the contractor.

#### **4j. The limit for unforeseen claims**

Under no circumstances whatever the contractor shall be entitled to any compensation from MCGM on any account unless the contractor shall have submitted a claim in writing to the Eng-in-change within 1 month of the case of such claim occurring.

## **5. General Obligations of Contractor**

### **5.a) Inspection of site and sufficiency of tender:**

- The Contractor shall inspect and examine the site and its surrounding and shall satisfy himself before submitting his tender as to the nature of the ground and subsoil (so far as is practicable), the form and nature of the site, the quantities and nature of the work and materials necessary for the completion of the works and means of access to the site, the accommodation he may require and in general shall himself obtain all necessary information as to risk, contingencies and other circumstances which may influence or affect his tender. He shall also take into consideration the hydrological and climatic conditions.
- The Employer shall make available to the Contractor data on hydrological and sub-surface conditions as obtained by or on his behalf from investigations relevant to the works but the Contractor shall be responsible for his own interpretation thereof. The contractor shall engage his investigating agency with prior approval of the Engineer from the approved list of such agencies by MCGM or Govt at his cost initially before commencing actual work and which shall be reimbursed immediately subject to satisfaction of the Engineer for faithful compliance and submission of required data regarding such investigation within specified time.
- The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the schedule of works / items / quantities, or in Bill of Quantities, which rates and prices shall, except as otherwise provided cover all his obligations under the Contract and all matters and things necessary for proper completion and maintenance of the works. No extra charges consequent on any misunderstanding.
- **Not Foreseeable Physical Obstructions or Conditions** : If, however, during the execution of the Works the Contractor encounters physical obstructions or physical conditions, other than climatic conditions on the Site, which obstructions or conditions were, in his opinion, not foreseeable by an experienced contractor, the Contractor shall forthwith give notice thereof to the Engineer. On receipt of such notice, the Engineer shall, if in his opinion such obstructions or conditions could not have been reasonably foreseen by an experienced contractor, after due consultation with the Contractor, determine:
  - any extension of time to which the Contractor is entitled under Clause 8 (f) and
  - The amount of any costs which may have been incurred by the Contractor by reason of such obstructions or conditions having been encountered, which shall be added to the Contract Price.

and shall notify the Contractor accordingly. Such determination shall take account of any instruction which the Engineer may issue to the Contractor in connection therewith, and any proper and reasonable measures acceptable to the Engineer which the Contractor may take in the absence of specific instructions from the Engineer. However such costings shall be got approved by the competent authority as governed vide rules prevailing with authority.

#### **5. b) Office for the Engineer (Works costing upto Rs.50 Lakhs)**

The Contractor shall at his own cost and to satisfaction of the Engineer provide a small temporary office, at the work-site which will include tables, chairs and lockers for keeping the records. He shall also make necessary arrangements for drinking water, telephone with a pre-requisite of e-governance and electronic communication. These offices are not to be allowed on public roads without the written instruction of the Engineer. These offices should be preferably located within 50 to 500 m of the worksite. In case the office is more than 500m away from the worksite, the contractor is to provide conveyance for Municipal Staff.

#### **5. c) Office for the Engineer (Works costing above Rs.50 lakhs)**

The Contractor shall at his own cost and to satisfaction of the Engineer provide a temporary office at the work-site which will include tables, chairs and lockers for keeping the records. He shall also make

necessary arrangements for drinking water, latrines, with doors, windows, locks, bolts and fastenings sufficient for security for the Engineer, and his subordinates, as close to the works from time to time in progress as can be conveniently arranged, and shall at his own cost furnish the office with such chairs, tables, lockers, locks and fastenings as may be required by the Engineer, and no expense of any kind in connection with the erection or upkeep of the offices or fittings shall be borne by the Corporation, but all such work shall be carried out by the Contractor and the expenses thereof defrayed by him. The Contractor shall also make water connections and fit up stand pipe with a bib tap at each office. The latrines and the water connections shall be subject to all the conditions herein elsewhere laid down for temporary water connection and latrines generally with all requisite equipments for e-governance and electronic and digital communication. These offices are not to be allowed on public roads without the written instruction of the Engineer. These offices should be preferably located within 50 to 500 m of the worksite. In case the office is more than 500m away from the worksite, the contractor is to provide conveyance. Also, for staff working beyond working hours the contractor has to provide conveyance.

**Permission for provision and removal of office on completion of work:** The tenderer shall obtain permission for provision of site office, cement go-down, store, etc. on payment of necessary cost implication. The cement go-down, Watchman cabins, etc. shall be provided as directed and shall be removed by the Tenderers on completion of the work at their cost. It is binding on the Tenderer to fulfill requirements of Environmental Authorities. The location of such office shall be finalized and got approved from the Engineer before erection/commencement work.

**5. d) Contractor's office near works:** The Contractor shall have an office near the works at which notice from the Commissioner or the Engineer may be served and shall, between the hours of sunrise and sunset on all working days, have a clerk or some other authorized person always present at such office upon whom such notices may be served and service of any notices left with such clerk or other authorized person or at such office shall be deemed good service upon the Contractor and such offices shall have pre-requisite facilities for e-governance.

#### **5.e) Works to be carried out:**

The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plant, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the schedule of works / items / quantities, and the Bills of Quantities shall, unless otherwise stated, be held to include waste on materials, carriage and cartage, carrying in, return or empties, hoisting, setting, fitting and fixing in position and all other labour necessary in and for the full and entire execution and completion as aforesaid in accordance with good practice and recognized principles.

#### **5 f) Security Deposit:**

The security deposit shall mean and comprising of I) Contract Deposit and II) Retention Money.

**5.f.i) Contract Deposit** – The successful tenderer, hereinafter referred to as the contractor, shall pay an amount equal to Two (2) percent of the contract sum shall be paid within thirty days from the date of issue of letter of acceptance or on handover of vacant site/plot or commencement of work at site whichever is later in the form of D.D.

**5.f.ii) Retention Money – (Modified from Standard General Conditions)**The contractor shall pay the retention money an amount equal to 5 % (percent) of the Contract Sum which will be recovered from the contractors every bill i.e. interim / running / final bill of the site.

**5.f.iii) Additional Security Deposit**

The additional security deposit will be applicable when a rebate of more than of 12 % at the rate of with no maximum limit. The ASD is calculated as follows:

Additional security deposit = (X) x office estimated cost, Where X=percentage rebate quoted above 12%

The ASD shall be paid online in the ASD tab for bidders in e-tendering system before submission of the bid.

#### **5.f.iv) Performance Guarantee**

The successful tender, here after referred to as the contractor shall pay in the form of “Performance Guarantee” at 10% of Contract Sum.

**Note:** Contract sum shall mean amount after application of rebate/premium as quoted by the contractor with contingencies only and excluding price variation.

The PG shall be paid in one the following forms.

- I) Cash (In case guarantee amount is less than Rs.10,000/-
- II) Demand Draft (In case guarantee amount is less than Rs.1,00,000/-)
- III) Government securities
- IV) Fixed Deposit Receipts (FDR) of a Schedule Bank.
- V) An electronically issued irrevocable bank guarantee bond of any Schedule bank or f in the prescribed form given in Annexure.

Performance Guarantee is applicable over and above the clause of Security Deposit. Performance Guarantee will have to be paid & shall be valid till the defect liability period or finalization of final bill whichever is later.

This deposit will be allowed in the form of I to V as mentioned above and shall be paid within 15 days after issue of Letter of Acceptance.

**Note:** Following exceptions shall be adopted for ‘Demolition Tenders’:

- Irrespective of the offer (Rebate/ at par/ premium), ASD shall be differed and only PG of 10% of contract sum be taken from the successful bidder on award of contract only.
- MCGM departments shall ensure to incorporate specific condition regarding above in bid document and e-tender notice.

#### **5.f.v) Refund of Security Deposit**

##### **I. Refund of Contract Deposit**

The Contract Deposit shall be released within 30 days after completion of 3rd year of DLP (in case of 3 years DLP) and after issue of ‘Defect Liability Certificate’ (in case of 1 or 2 or 3 years DLP) subject to no recoveries are pending against the said work, provided that the Engineer is satisfied that there is no demand outstanding against the Contractor.

##### **II. Refund of Retention Money**

One half (50%) of the Retention Money shall be released within 30 days of issue of ‘Certificate of Completion’ with respect to the Whole of the Works of the respective building. In the event the Engineer issues a Taking-over Certificate for a section or part of the Permanent Works, only such proposition thereof as the Engineer determines (having regard to the relative value of such section or part of the Works) shall be considered by the Engineer for payment to the Contractor.



The balance retention money shall be released within 30 days after completion of 3rd year of DLP provided that the Engineer is satisfied that there is no demand outstanding against the Contractor. In the event of different Defects Liability Periods have been specified or become applicable to different sections or parts of the Permanent Works, the said balance Retention moneys for specific work will be released within 30 days on expiration of the latest of such Defect Liability Periods.

Permanent Works, the said moneys will be released within 30 days on expiration of the latest of such Defects Liability Periods.

Payment of the above mentioned 50% is exclusive of the amounts to be withheld as stated in and that amount shall be paid as per condition stated therein.

### III. Refund of Additional Security Deposit

The additional security deposit shall be released within 30 days of issue of 'Certificate of Completion' with respect to the whole of the Works. In the event the Engineer issues a Taking-over Certificate for a section or part of the Permanent Works, only such proposition thereof as the Engineer determines (having regard to the relative value of such section or part of the Works) shall be considered by the Engineer for payment to the Contractor.

### IV. Refund of Performance Guarantee (Tender clause modified from General Conditions of Contract and the same will prevail over General Conditions of Contract)

The Deposit on account of performance guarantee shall be released within 30 days of completion of Defects Liability Certificate subject finalization of final bill whichever is later and no recoveries are pending against the said work, provided that the Engineer is satisfied that there is no demand outstanding against the Contractor. Summary of time of Refund of deposit is tabulated as follows:

#### a) Time of Refund for works having 3 years DLP

Deposits refunded after completion	After 3 yrs of DLP	After Completion of DLP
ASD + 50% of RM	CD+50% of RM+PG	Additional P.G. for O & M works Bidder 25 Lakh + OEM 25 Lakh

**5.f.vi.) Cost of Securities:** The cost of complying with the requirements of clause 5f(i), 5f(ii) and 5f(iii) and 5f(iv) shall be borne by the Contractor.

#### 5.(f)(vii) Action when whole of security deposit is forfeited:

In any case in which under any Clause of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of this security deposit whether paid in one sum or deducted by instalments or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause, the Engineer on behalf of the Municipal Commissioner shall have power to adopt any of the following process, as he may deem best suited to the interest of MCGM

- To rescind the contract (for which recession notice in writing to the contractor under the head of Executive Engineer shall be conclusive evidence) and in that case, the security deposit of the

contract shall stand forfeited and be absolutely at the disposal of MCGM.

- To carry out the work or any part of the work departmentally debiting the contractor with the cost of the work, expenditure incurred on tools and plant, and charges on additional supervisory staff including the cost of work-charged establishment employed for getting the un- executed part of the work completed and crediting him with the value of the work done departmentally in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to the costs and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the contractor.
- To order that the work of the contractor be measured up and to take such part thereof as shall be un-executed out of his hands, and to give it to another contractor to complete, in which case all expenses incurred on advertisement for fixing a new contracting agency, additional supervisory staff including the cost of work charged establishment and the cost of the work executed by the new contract agency will be debited to the contractor and the value of the work done or executed through the new contractor shall be credited to the contractor in all respects and in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to all the cost of the work and other expenses incurred as aforesaid for or in getting the un-executed work done by the new contractor and as to the value of the work so done shall be final and conclusive against the contractor.

In case the contract shall be rescinded under Clause (a) above, the contractor shall not be entitled to recover or be paid any sum for any work therefor actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be paid the amount so certified. In the event of either of the courses referred to in Clause (b) or (c) being adopted and the cost of the work executed departmentally or through a new contractor and other allied expenses exceeding the value of such work credited to the contractors amount of excess shall be deducted from any money due to the contractor, by MCGM under the contract or otherwise, howsoever, or from his security deposit or the sale

proceeds thereof provided, however, the contractor shall have no claim against MCGM even if the certified value of the work done departmentally or through a new contractor exceeds the certified cost of such work and allied expenses, provided always that whichever of the three courses mentioned in clauses (a), (b) or (c) is adopted by the Executive Engineer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchase or procured any materials or entered in to any engagements or made any advance on account of or with a view to the execution of the work or the performance of the contract.

#### **5.f.(viii) Contract may be rescinded and security deposit forfeited for bribing a public officer or if contractor becomes insolvent**

If the contractor assigns or sublets his contracts or attempt so to do, or become insolvent or commence any proceeding to get himself adjudicated and insolvent or make any composition with his creditors, or attempt so to do or if bribe, gratuity, gift, loan, perquisite, reward or advantage, pecuniary or otherwise, shall either directly or indirectly be given promised or offered by the contractor or any of his servants or agents through any public officer, or person in the employ of MCGM/Govt. in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract the Engineer In- charge may thereupon, by notice in writing rescind the contract and the Security Deposit of the Contractor shall thereupon stand forfeited and be absolutely at the disposal of MCGM and the same consequences shall ensure as if the contract had been rescinded under above clause **5.f.(vii)** hereof; and in addition the contractor shall not be entitled to recover or be paid for any

work therefore actually performed under the contract.

### **5.f.(ix) For The Unsatisfactory Progress Of Any Particular Portion Of The Work:**

If the progress of any particular portion of the work is unsatisfactory, the Executive Engineer shall notwithstanding that the general progress of the work is in accordance with the conditions mentioned in the *appropriate clause* be entitled to take action for forfeiture of security deposit after giving the contractor 10 days notice in writing. The contractor will have no claim for compensation, for any loss sustained by him owing to such action.

### **5.g) Levels:**

All levels referred to in connection with these works are based on the plane known as the Mumbai Town Hall Datum (T.H.D).

### **5.h) Use of Municipal Land:**

i. The Contractor shall not be permitted to enter on (other than for inspection purposes) or take possession of site until instructed to do so by the Engineer in writing. The portion of the site to be occupied by the Contractor shall be defined and / or marked on the site plan, failing which these shall be indicated by the Engineer and the Contractor shall on no account be allowed to extend his operations beyond these areas. The Contractor will be allowed to use such land, free of charge, for the purpose of sheds, offices thereon for themselves and for the Engineer and his subordinates and shall remove the same from the ground on the completion of the works, or when required to do so, by the Engineer after receiving 7 days' notice. He shall make good any damage which may have been done and restore to good condition anything which may have been disturbed during the period of his occupation. The contractor shall be allowed to use the land for labour employed on the job for emergency situation

He shall not use or allow to be used any such ground, sheds or offices, or any portion of the site of the works, for any other purpose than the carrying out of works under this Contract. In the event of there being on plot or ground or insufficiency of ground belonging to the Corporation available for the above purpose, the Contractor shall provide other such ground at his own cost. The Contractor shall in any case pay all taxes which may have to be paid in respect of all ground, sheds or offices used as above, and all the license fees, etc. that may be used as above, and all the license fees, etc. that may be demanded for the storage or otherwise of the various articles as per rules in force. The Contractor shall provide, if necessary or if required on the site all temporary accesses thereto and shall later, adopt and maintain the same as required from time to time and shall take up and clear them away as and when no longer required and make good all damage done to the site.

ii) Save in so far as the Contract may prescribe:

(a) The extent of portions of the site of which the Contractor is to be given possession from time to time.

(b) The order in which such portions shall be made available to the Contractor.

(c) And, subject to any requirement in the contract as to the order in which the Works shall be executed, the Employer will, with the Engineer's notice to commence the Works, give to the Contractor possession of so much of the site and

(d) Such access as, in accordance with the Contract, is to be provided by the Employer as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the program referred to in Clause 8h if any, and otherwise in accordance with such reasonable proposals as the Contractor shall, by notice to the Engineer make. The Employer will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works with due dispatch

in accordance with such program or proposals, as the case may be.

iii) **Failure to give possession:** If the Contractor suffers delay and / or incurs costs from failure on the part of the Employer to give possession in accordance with the terms of Sub Clause 5h, the Engineer shall determine :

(a) any extension of time to which the Contractor is entitled under Clause 8d and

(b) The amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly.

5.i) **Water Supply for Municipal Work.:**

Water made available to the Contractor from either nearest municipal main or other municipal source of lakes or wells shall be charged to the contractors as per prevailing water charges.

The Contractor will have to make his own arrangements to get at his cost necessary water connection from the Municipal mains, if available. It is, however, agreed that if in the opinion of the Hydraulic Engineer, water is used improperly or wasted, the Hydraulic Engineer may cause the un-metered supply of water to be discontinued and the water will be supplied to the Contractor through a metered connection. He will be charged at the prevailing rates for the quantity of water which in the opinion of the Hydraulic Engineer, has been used in excess of a reasonable quantity required to be used on that work.

The Contractors will be charged for all the cost connected with taking any connections with the mains that may be required for the purpose of the work, and for afterwards cutting off such connections, besides the usual Municipal charges for the use of the meters, if any, fixed by the water department in case of improper use or wastage of water. In the event of the meter getting damaged, or found to be out of order, inaccurate or tampered with, the excess quantity of water chargeable due to misuse will be assessed on the discharging capacity of the water connection.

In case the Contractor finds the water supply to be inadequate for the construction of the work, the balance quantity of water shall be procured by the contractor and the cost of procuring, pumping and conveyance of the balance quantity of water shall be entirely borne by the contractor.

In case municipal water mains are not available nearby, contractors attention is invited to Clause 5 given here before. In such cases, the contractor shall have to make his own arrangements for procuring, pumping and conveyance of water at his cost.

The Contractor may be allowed to use water from the Municipal hydrants subject to such terms and conditions as shall be laid down by the Hydraulic Engineer. The payment for use of water from municipal hydrants shall be entirely borne by the Contractors.

The Engineer may, however, allow use of water from other sources, viz. lakes, wells, etc. for construction purposes only in consultation with the Hydraulic Engineer provided such permission is requested sufficiently in advance. In all these cases the Contractor shall have to make his own arrangements for pumping and conveyance of water. The payment for use of water from such sources shall also be entirely borne by the Contractor.

### **5j.Pumping out Water.:**

The Contractor will be required to provide and work at his own cost all pumps, engines and machinery requisite to keep the trenches for the sewer, drains or foundations and all other excavations clear of water, whether subsoil water, storm waste or leakage from tanks, wells, drains, sewers, water mains, tide water etc. so that there may be no accumulation of such water and no setting out may be done, no masonry may be laid, no concrete deposited, no joints made and no measurements taken in water. The pumping shall be continued so long after the execution of any portion of the Work as the Engineer may consider necessary for the work to set. For the purpose of keeping the excavations as dry as possible the work would, if necessary be divided into sections or separate portions as per best engineering practices and temporary dams will have to be put up by the Contractor, sumps for the suction pipes to work in, will have to be excavated by the Contractor at such distances apart and to such depths as the as per best engineering practices. When the work progresses other sumps must, from time to time, be

excavated by the Contractor, disused sumps being filled up by him with dry rubble carefully hand packed to the satisfaction of the Engineer. The Contractor will not be paid extra for any temporary dams or sumps or their removal or refilling nor will such works be taken into measurement in any way, unless otherwise provided.

The Contractor shall not allow any accumulation of water either from the Discharge of his dewatering pumps or his water connections on site of his work. The Contractor shall make proper provision for leading the pumped discharge to the nearest water entrance, storm water drain, manholes, or water course by means of a wooden or G.I. channel or hose pipe. Under no circumstances the discharge will be allowed to flow, along a paved surface. If an accumulation is unavoidable, it shall be treated with insecticides to the satisfaction of the Engineer. In case of failure to do this on the part of Contractor such accumulation shall be treated by the Municipal Corporation at the risk and cost of the Contractor.

The contractors should note that under no circumstances any payment for pumping out water finding its way into trenches, hill cutting, excavated pits, works site etc. from whatever sources will be permissible unless otherwise specifically in the tender.

### **5k.Contractors' staff:**

The Contractor shall employ in and about the execution of works only such persons as are skilled and are experienced in their several trades and the Engineer shall be at liberty to object to and require the Contractor to remove from the works any person, employed by the Contractor in or about the execution of the works, who in the opinion of the Engineer misconducts himself or is incompetent or negligent in the proper performance of his duties and such person shall not be again employed upon the works without permission of the Engineer.

### **5l.Contractors' Supervision:**

The Contractor shall himself supervise the execution of works or shall appoint qualified personnel with prior approval by the Engineer to act in his stead. If, in the opinion of the Engineer the Contractor has himself not sufficient knowledge and experience to be capable of receiving instructions or cannot give his full attention to the works, the Contractor shall at his own expense, employ as his accredited agent an Engineer or a suitably qualified and experienced person approved by the Engineer. The name of the agent so appointed, along with the qualifications, experience and address shall be communicated to the Engineer. The agent shall be a responsible person adequately authorized by the Contractor to take decision on site and to spend money if required for procuring material and labour etc. to carry out emergency works in the interest of the contract Work, if so required by the Engineer. Orders given to Contractor's agent shall be considered to have the same force as if these had been given to the Contractor himself. If the Contractor fails to appoint a suitable agent as directed by the Engineer, the Engineer shall have full powers to suspend the execution of the works until such date as a suitable agent is appointed and the Contractor shall be held responsible for the delay so caused to the works. If approval of the representative is withdrawn by the Engineer, the contractor shall, as soon as practicable, having regard to the requirement of replacing him as hereinafter mentioned. He, after receiving notice of such withdrawal, remove the representative from the Works and shall not thereafter employ him again on Works in any capacity and shall replace him by another representative approved by the Engineer.

### **5m.Setting out the works:**

The Engineer shall supply dimensioned drawings, level and other information necessary to enable the Contractor to set out the works. The Contractor shall provide all setting out apparatus at his own cost, such as leveling instruments in good working condition and appliances, all pegs, ranging rods, long measuring rods, marked meters, and decimeters and each meter and decimeter numbered, posts and sight-rails, boning rods, moulds, templates, etc. together with any reasonable number of laborers that may be required and set out the work and be responsible for the accuracy of the same in relation to original points, lines and levels of reference given by the Engineer in writing. The Contractor shall amend at his own cost and to the satisfaction of the Engineer any error found at any stage which may arise through inaccurate setting out unless such error is based on incorrect data furnished in writing by the Engineer, in which case the cost of rectification shall be borne by the Municipal Corporation. The Contractor shall protect and preserve all bench marks used in setting out the works till the end of Defects Liability period unless the Engineer directs its early removal. The Contractor should also keep leveling instrument in good working condition throughout the period of construction work on site.

### **5n.Precautions for works in thorough-fares:**

a) While the execution of any work is in progress in any street or thoroughfare the Contractor at his own cost shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare, and for any drainage, water supply, or means of lighting or any other utility service which may be interrupted by reason of execution of the work. Whenever it may be necessary to stop the traffic in any street or thoroughfare permission must first be obtained from the Engineer and the Contractor shall then put up such barriers and adopt such other measures or take precautions as may be necessary or as the Engineer may direct for regulation of traffic. The work shall in such cases be executed night and day or for as long a period as practicable if so ordered by the Engineer, and with such speed and vigour as he may require, so that the traffic may be impeded for as short a time as possible. The Contractor shall remove the barriers as soon as the necessity for them has ceased. Care shall be taken by the Contractor to cause the least possible obstruction to traffic during the progress of the work.

b) The contractor shall use every reasonable means to prevent any of the roads or bridges communicating with or on the routes from the site from being damaged or injured by any traffic of the contractor or any of his subcontractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from moving of materials, Plant, Contractor's equipment or Temporary works from and to the site shall be limited, as far as reasonably possible and so that no unnecessary damage or injury may be occasioned to such roads and bridges.

Save in so far as the Contract otherwise provides, the Contractor shall be responsible for and shall pay the cost of strengthening any bridges or altering or improving any road communicating with or on the routes to the site to facilitate the movement of Contractors equipment or Temporary Works and the Contractor shall indemnify and keep indemnified the Employer against all claims for damage to any such road or bridge caused by such movement; including

such claims as may be made directly against the employer, and shall negotiate and pay all claims arising safely out of such damage.

If it is found necessary for the Contractor to move one or more loads of heavy constructional equipment, materials or pre-constructed units or parts of units of work over roads, highways, bridges on which such oversized and overweight items are not normally allowed to be moved, the Contractor shall obtain prior permission from the concerned authorities. Payments for complying with the requirements, if any, for protection of or strengthening of the roads, highways or bridges shall be included in his contract price.

Where the nature of Works is such as to require the use by the Contractor of waterborne transport the forgoing provisions of this Clause shall be construed as though “road included a lock, dock, sea wall or other structure related to waterway and “vehicle” included craft and shall have effect accordingly. Any non-compliance to these precautions will attract penalties as per condition 14 (a).

### **5o.Maintenance of underground utility services:**

All the underground utility services such as water pipes, gas pipes, drains, sewers, cables, etc. which may be met up in or about any excavation, shall if the Engineer deem it practicable, be properly maintained and protected by the Contractor himself or through other agency by means of shoring, strutting, planking over, padding or otherwise as directed by the Engineer during the progress of the work without claiming any extra charges. Any damage to these underground utility services shall be immediately remedied by the Contractor or by other agency at its own cost, failing which the Engineer may with or without notice adopt such measures as he may deem necessary at the risk and cost of the Contractor.

If on the other hand, the Engineer considers it impracticable for the Contractor to maintain any such underground utility services and that the exigencies of the work necessitate, the breaking down, removal or diversion of the said utility services, the cost of such breaking down, removal or diversion including that of rebuilding, replacing, diverting and reinstating of any such utility services shall be paid to the Contractor if done by him. However, the cost of providing pumps, chutes or other appliances as the Engineer may direct for the raising or temporary passage of the water or sewage and the cost of pumping out or removing as often as the Engineer may direct, any water or sewage which may escape from any such underground utility services, shall be borne by the Contractor.

### **5p.Fencing, watching and lighting:**

The Contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or as required by the Engineer for the protection of the safety and convenience of those employed on the works or the public. In the event of failure on the part of the Contractor, the Engineer may with or without notice to the Contractor put up a fence or improve a fence already put up or provide and / or improve the lighting or adopt such other measures as he may deem necessary, and all the cost of such procedures as may be adopted by the Engineer shall be borne by the Contractor. In addition the Engineer may impose such fines or penalty as the Engineer may deem reasonable, under Clause 14a.



**5q. Treasure Trove Fossils etc:**

All fossils, coins, articles of value or antiquity and structural and other remains things of geological or archaeological interest discovered in or upon the site shall be absolute property of the Municipal Corporation and the Contractor shall duly preserve them and shall take precautions to prevent his workmen or any other person from removing or damaging any such articles or thing and shall immediately upon discovery thereof and before removal acquaint the Engineer with such discovery and shall from time to time deliver the same to such person or persons as the Engineer may from time to time appoint to receive the same at the expense of the Corporation.

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archeological interest discovered in the Site shall, as between the Employer and the Contractor, be deemed to be absolute property of the Employer. The Contractor, shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall, immediately upon discovery thereof and before removal, acquaint the Engineer of such discovery and carry out the Engineer's instruction for dealing with the same. If by any reason of such instructions, the Contractor suffer delay and/or incurs costs then the Engineer shall, after due consultation with the Employer, determine:

- (a) any extension of time to which the Contractor is entitled under clause 8(d), and
- (b) the amount of such costs, which shall be added to the Contract Price, and shall notify the contractor accordingly, with a copy to Employer.

Materials of any kind obtained from excavation of the site shall remain the property of the Municipal Corporation and shall be disposed off as the Engineer may direct.

**5r. Protection of trees:**

Trees designated by the Engineer shall be protected from damage during the course of the work and earth level within one meter of each such tree shall not be changed. Where necessary, such trees shall be protected by temporary fencing. All such cost shall be borne by the Contractor.

**5s. Contractor to preserve peace:**

The Contractor shall at all times during the progress of the work take all requisite precaution and use his best endeavors for preventing any riotous or unlawful behavior by or amongst the workers and other employed on the works and for the preservation of peace and protection of the inhabitants and security of property in the neighborhood of the works. He shall also pay the charges of such special police (if any) as the Engineer may deem necessary.

**5t. Sanitation:**

The Contractor shall, at his own cost, make all necessary provisions for health and safety of his work-people. He shall, when required by the Engineer, provide proper latrines and urinals to the satisfaction of the Engineer in such numbers and in such localities as he may require, and shall take all steps necessary to compel his work-people to resort to such latrines and urinals, and shall dismiss from his employ and remove from the works any one detected obeying the calls of nature in any place, other than the conveniences allotted for such purposes. The said latrines shall be under the superintendence and orders of the Engineer or his subordinates, and shall be served with Municipal Halalkhore service. The Contractor shall, on no account, allow any huts to be erected on Municipal property unless otherwise permitted by the Engineer in writing, to be inhabited after sunset by anyone except the watchmen required for the Works, and none of his employees, except such watchmen as aforesaid, shall sleep at night on any part of the Works. In case of any offence committed by any of the staff/workers or employees of the Contractor against any of the provisions of this condition the Contractor shall be liable to a penalty not

exceeding Rupees Ten thousand per day for every such offense and the same shall be charged to the amount of the Contractor.

If the works are situated outside the limits of Greater Mumbai, rules and regulations of the local authority shall be made applicable to the Contractors and all the cost and any local taxes thereof shall be borne by the Contractor.

**5. Safety Provisions:**

The Contractor shall at his own expense arrange for the safety provisions indicated in Annexure 'C' or as required by the Engineer, in respect of all labour directly or indirectly employed for performance of the Works and shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid, the Engineer shall be entitled to do so and recover the costs thereof from the Contractor.

**5.v) Provision of first aid.:**

The Contractor shall at his own cost provide and maintain at the site of works a standard first aid box as directed and approved by the Engineer for the use of his own as well as the Municipal Staff on site.

**5.w) Apprentices :**

The Contractor shall during the term of this agreement maintain as a part of his organization a system of apprenticeship for training craftsmen, as may be approved by the Engineer. Failure on the part of the Contractor to observe the stipulations of this condition shall be deemed to be a failure to employ a sufficient number of proper and efficient workmen within the meaning of Clause 2b and all the rights and remedies of the Commissioner therein provided including the power to determine the Contract shall be applicable in such case. The Contractor shall duly comply with provisions of the Apprentice Act (1961); failure or neglect to which he shall be subject to all liabilities and penalties provided by the said Act and Rules

**5.x) Storage of Explosives:**

The Contractor shall obtain the previous permission of the competent authority such as the Chief of Fire Services for the site, manner and method of storing explosives near the site of work. All handling of explosives, including storage, transport shall be carried out under the rules approved by The Petroleum and Explosives Safety Organization (PESO) formerly Department of Explosives, Nagpur.

**5.y) Contractor's other liabilities & Insurance:**

From commencement to completion of the works, the Contractor shall take full responsibility for the care thereof and for taking precautions to prevent loss or damage and to minimize the loss or damage to the greatest extent possible and shall be liable for any damage or loss that may happen to the works or any part thereof and all Municipal Tools and Plants from any cause whatsoever (Save and except Expected Risks) and shall at his own cost repair and make good the same so that at completion, the works and all Municipal Tools and Plants shall be in good order and condition and in conformity in every respect with the requirements of the Contract and instructions of the Engineer.

In the event of any loss or damage to the works or any part thereof or to any Tool and Plant or to any material or article at the site from any of the Expected Risks of the following provisions shall have effect.

- a. The Contractor shall as may be directed in writing by the Engineer, remove from the site any debris and so much of the works as shall have been damaged, taking to the Municipal Stores such Municipal Tools & Plants articles and / or materials as may be directed.

- b. The Contractor shall, as may be directed in writing by the Engineer, proceed with the erection and completion of the works in accordance with the provisions and conditions of the Contract.
- c. There will be added to the Contract price the net amount due, ascertained in the same manner as per deviations, or as prescribed for payment, in respect of the re-execution of the works lost or damaged, the replacement of any Tools and Plants and of any materials and articles lost or damaged but not incorporated in the Works on the day when the loss or damage occurred and removal, by the Contractor as provided above of Municipal Tools and Plants, articles and / or materials to the municipal stores and of the debris and damaged works referred to therein.

Before commencing execution of the work, the Contractors shall without in any way limiting his obligations and responsibilities under this condition, insure against any damage loss or injury which may occur to any property (Private, Government and / or Municipal) or to any person (including any employee of the Municipal Corporation) by or arising out of the contract.

“All insurances to be affected by the Contractors and / or his sub-contractors shall be taken out with Directorate of Insurance, Maharashtra State only”. In case, however, a particular aspect is not covered under the policy to be obtained from the Directorate of Insurance, Maharashtra State, the Contractor will be allowed to have such insurance from other insurance company with the prior permission of the Commissioner.

If required by the Engineer, the Contractor shall, without limiting the obligations and responsibilities under this condition insure that work (from commencement to completion) the Municipal Tools and Plants hired by the Contractor and all materials at site at their full value against the risk of loss or damage from whatever cause arising, other than that of the Excepted Risks. The said insurance shall be in the joint names of the Commissioner and the Contractor, and the Contractor shall deposit with the Commissioner the said policy or policies along with the receipts for premium of such insurance from time to time. All moneys payable by the insurers under such policy or policies shall be recovered by the Municipal Corporation and shall be paid to the Contractor in installments by the Commissioner for the purpose of rebuilding or replacement or repair of the works and or goods destroyed or damaged as the case may be.

If the Contractor has a blanket insurance policy for all his works and the policy covers all the items to be insured under this condition, the said policy shall be assigned by the Contractor, in favor of the Municipal Corporation; provided, however, if any amount is payable under the policy by the insurers in respect of Works other than the works under this Contract the same maybe recovered by the Contractor directly from the insurers.

PROVIDED always that the Contractor shall not be entitled to payment under the above provisions in respect of so much loss or damage as have been occasioned by any failure on his part to perform his obligations under the Contract or not taking precautions to prevent loss or damage or minimize the amount of such loss or damage.

Where a Municipal Building part thereof is rented by the contractor or is allowed to be used by him he shall insure the entire building if the building or any part thereof is used by him for the purpose of storing or using materials of combustible nature as to which the decision of the Engineer shall be final and binding.

The Contractor shall indemnify and keep indemnified the Municipal Corporation against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of the work and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

PROVIDED always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or to the Municipal Corporation against any compensation or damage caused by the

#### Expected Risks.

The Contractor shall at all times indemnify the Municipal Corporation against all claims, damages or compensation under the provisions of Payment of Wages Act, 1936, Minimum Wages Act 1948, Employers Liability Act, 1938, the Workmen's Compensation Act, 1923, Industrial Dispute Act 1947, Indian Factories Act 1948 and Maternity Benefit Act 1961 or any modifications thereof and rules made there under from time to time or as a consequence or any accident or injury to any workman or other persons in or about the works, whether in the employment of the Contractor or not, save and except where such accident or injury have resulted from any act of the Municipal Corporation, their agents or servants and also against all cost, charges and expenses of any suit, action or proceedings arising out of such accident or injury and against all sum or sums which may with the consent of the Contractor be paid to compromise or compound any such claim without limiting his obligations and liabilities as above provided. The Contractor shall insure against all claims damages or compensation payable under the various acts mentioned above or any modifications thereof or any other law relating thereto. Third party policy should be valid till the end of contractual obligation of contractor for reasons attributable to the scope of work of contractor.

The aforesaid insurance policies shall provide that they shall not be canceled till the Commissioner has agreed to their cancellations.

The Contractor shall prove to the Commissioner from time to time that he has taken out all the insurance policies referred to above and has paid the necessary premium for keeping the policies alive till the expiry of the Defects Liability Period after completion of work for a period not exceeding 12 months as per directives of Directorate of Insurance, Maharashtra State.

The Contractor shall ensure that similar insurance policies are taken out by his sub-Contractors (if any) and shall be responsible for any claims or losses to the Municipal Corporation resulting from their failure to obtain adequate insurance protection in connection thereof. The Contractor shall produce or cause to be produced by his Sub-Contractor (if any) as the case may be, the relevant policy or policies and premium receipts as and when required by the Commissioner.

If the Contractor and / or his sub-Contractors (if any) shall fail to effect and keep in force the insurance referred above for any other insurance which he / they may require to effect under the terms of Contract then and in any such case the Commissioner may without being bound to effect and keep in force any such insurance and pay premium or premium as may be necessary for that purpose and from time to time deduct the amount so paid by the Municipal Corporation plus 20 percent of premium or permit amount as service charges from any money due or which may become due to the Contractor or recover the same as debt from the Contractor. All insurances to be effected by the contractor and / or his sub-contractor shall be taken out only with the insurance Company or companies approved by the Municipal Commissioner.

The Contractors shall conform in all respects, including, by the giving of all notices and the paying with all the fees, with the provision of:

- (a) Any National or State Statute, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted authority in relation to the execution and completion of the Works and the remedying of any defects therein, and
- (b) The rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works, and the Contractor shall keep the Employer indemnified against all penalties and liability of every kind for breach of such provision. Provided always that the employer shall be responsible for obtaining any planning, zoning or other similar permission required for the Works to proceed and shall indemnify the Contractor.

**5.2) Changes in constitution:** Where the contractor is a partnership firm, the prior approval in writing of the Commissioner shall be obtained before any change is made in the constitution of the firm.

Where the contractor is an individual or Hindu Undivided Family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership form would have the right to carry out the work hereby undertaken by the Contractor. If prior approval as aforesaid is not obtained the contract shall be deemed to have been assigned in contravention of the condition no.13 g hereof and the same action may be taken and the same consequences shall ensure as provided for in the said condition.

**5.aa) Facilities to the other Contractors :**

The contractor shall, in accordance with the requirements of the Engineer, afford all reasonable facilities to other Contractors engaged contemporaneously on separate Contracts in connection with the Works and for departmental labour and labour of any other properly authorized authority or statutory body which may be employed at the Site on execution of any work not included in the Contract or of any Contract which the Municipal Corporation may enter into in connection with or ancillary to the Works.

**5.ab) Patent, Right and Royalties:**

The contractor shall save harmless and indemnify the Corporation from and against all claims and proceedings for or on account of infringement of any Patent rights, design trademark or name of other protected rights in respect of any constructional plant, machine work, or material used for or in connection with the Works or any of them and from and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. Except where otherwise specified, the contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the works or any of them.

**5.ac) Production of Vouchers:**

The Contractor shall, produce all quotations, invoices vouchers and accounts or receipt etc. to prove that the materials supplied by him are in conformity with the specifications laid down in the Contract and the same are brought to the site and utilized on the said works.

**5.ad) Employment of local personnel:**

The contractor is encouraged to the extent practicable and reasonable to employ staff and labour with appropriate qualifications from locally or within India available man power.

**5.ae) Personnel:**

The Contractor shall employ the key personnel named in the schedule of key personnel (annexure E) or other personnel approved by the Engineer to carry out the functions. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities and relevant experience are substantially equal to or better than those of the personnel listed in the schedule.

**5. af) Contractor to keep site clear / Clearance of site after completion of works**

i) Upon the issue of any Taking over certificate the Contractor shall clear away and remove from that part of the site to which such Taking-over Certificate relates all contractor's equipment, surplus materials, rubbish and temporary works of every kind, and leave such part of the site and works clean and in a workman like condition to the satisfaction of the Engineer. If the contractor does not clear the site within 15 days all material will be confiscated and no compensation shall be paid and the site will be cleared at risk and cost of the Contractor. A penalty of minimum Rs5000/ per day per site on part thereof shall be levied on the contractor till the requirements of this clause are complied with satisfaction of the Engineer.

ii) Contractor shall ensure that all vehicles leaving the site shall be cleared adequately to avoid spreading of dirt, dust and mud in the surrounding premises. Also, no material carried in the vehicle shall be

allowed to spill material over the sides on the roads, pavement, etc. Any non-compliance will attract penalty as per condition number 14a.

#### **5. ag) Clearance of site after completion of works**

i) Upon the issue of any Taking over certificate the Contractor shall clear away and remove from that part of the site to which such Taking-over Certificate relates all contractor's equipment, surplus materials, rubbish and temporary works of every kind, and leave such part of the site and works clean and in a workman like condition to the satisfaction of the Engineer. If the contractor does not clear the site within 15 days all material will be confiscated and no compensation shall be paid and the site will be cleared at risk and cost of the Contractor.

#### **6. Labour:**

##### **6.a) Employment of labour:**

i) The Contractor shall employ the labour in sufficient numbers to maintain the required rate of progress and of quality to ensure workmanship, of the degree specified in the Contract and to the satisfaction of the Engineer. The Contractor shall not employ in connection with the Work any child who has not completed his 15<sup>th</sup> year of age. He shall also not employ an adolescent who has not completed his 18<sup>th</sup> year unless he is certified fit for work as an adult as prescribed under clause (b) of sub-section (2) of section 69 of the Factories Act, 1948.

The Contractor shall also see that all the provisions regarding employment of yond persons covered by the Employment of Children Act, 1933 and the Factories Act, 1948 as amended from time to time shall be fully complied with. The Contractor shall also see that the provisions set for under the Minimum Wages Act and contract regulation and abolition Act, 1970 with the Maharashtra Contract Labour (Regulation and Abolition) Rules 1971 as amended from time to time are fully complied with by him and shall maintain necessary registers and records for payment of wages, overtime, etc. made to his workmen as required by the Conciliation Officer (Central), Ministry of Labour, Government of India, or such other authorized person appointed by the Central or State Government.

The Contractor shall make his own arrangement for the engagement of all labour local or otherwise.

The Contractor shall be encouraged to employ, to the extent practicable and reasonable, staff and labour from sources within India.

The Contractor shall indemnify the Municipal Corporation or any agent, servant or employee of Municipal Corporation for any lapses on the part of contractor on account of non-compliance of above referred acts.

ii) Supply of Water : The Contractor shall having regard to local conditions, provide on the site, to the satisfaction of the Engineer's representative, an adequate supply of drinking and other water for the use of Contractor's staff and work people.

iii) Alcoholic Liquor or drugs: The Contractor shall not otherwise than in accordance with statutes, ordinances and Government regulation or orders for the time being in force, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importations, sale, gift, barter or disposal of his sub-contractor, agents or employees.

i) Arms and Ammunitions: The Contractor shall not give, barter or otherwise dispose off to any person or persons, any arms or ammunitions of any kind or permit or suffer the same as aforesaid.

ii) Festivals and Religious Custom. The Contractor shall in all dealings with labour in his employment have due regard to all recognized festivals, days of rest and customs religious or other customs.

iii) Epidemics In the event of any out-break of illness of an epidemic nature the contractor shall comply with and carry out such regulations, orders and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.

iv) Disorderly conducts etc: The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his employees and for the preparation of peace and protection of persons and property in the neighborhood of the works against the same.

v) Observance by Sub-contractors The Contractor shall be responsible for observance by his sub-contractors of the foregoing provisions.

vi) Return of Labour etc: The Contractor shall, if required by the Engineer, deliver this to the Engineer's Representative, or office, a return in detail in such form and at such intervals as Engineer may prescribe showing supervisory staff and the number of the several class of labour from time to time employed by the Contractor on the Site and such information respecting constructional plant as the Engineer's representative may require.

vii) Safety Engineer The Contractor shall have on his staff at the Site an officer whose sole task shall be to deal with matters regarding the safety and protection against accidents of all staff, labour and Contractor's Equipment. This officer shall be qualified for this work and shall have the authority to issue instructions and shall take protective measures to prevent accidents.

viii) Burial or Cremation of the Dead The Contractor shall make all necessary arrangements for the transport, to any place as required for burial or cremation, of any of his expatriate employees or members of their families who may die in India. The Contractor shall also be responsible to the extent required by the local regulations, for making any arrangements with regard to burial or cremation of any of his local employed who may die while engaged upon the Works.

ix) Work Permits for Foreign Personnel The Government of India maintains a system of strict regulations concerning the employment and residence of foreign personnel in India.

x) Measures Against Insect and Pest Nuisance As soon as practicable after receipt of the Letter of Acceptance, the Contractor shall ascertain the current requirements of the regulations from the authorities concerned and shall ensure that such requirements are complied with in all respects.

iv) Repatriation of Labour The Contractor shall be responsible for the timely acquisition and subsequent maintenance of the necessary permits for all of his employees who are required to work and/or reside in India at any time during the course of the Contract. The Contractor shall further ensure that all Sub-Contractors employed by him comply with the forgoing requirements in respect of their employees

#### **6.b) Compliance with Labour Regulation:**

During compliance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of State or Central Government or local authority and any other law (including rules), regulations, bye laws that may be issued under any labour law in future either by the Stage or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below. The provisions quoted are only indicative. The contractor should refer the latest labour regulations bye-laws etc. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. The Employer is caused to pay or reimburse, such amounts

as may be necessary to cause of observe, or for non-observance of the provisions stipulated in the notifications including amendments if any, on the part of the contractor, the Engineer / Employer shall also have right to recover from the contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the contractor and the sub-contractor in no case shall be treated as the employees of the Employer at any point of time.

**SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE  
TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER  
CONSTRUCTION WORK.**

- Workman Compensation Act, 1923:  
The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- Payment of Gratuity Act, 1972:  
Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The act is applicable to all establishments employing 10 or more employees.
- Employees PF and Miscellaneous Provision Act, 1952:  
The Act provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are –
  - Pension or family pension on retirement or death as the case may be.
  - Deposit linked insurance on the death in harness of the worker.
  - Payment of PF accumulation on retirement / death, etc.
- Maternity Benefit Act, 1951:  
Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- Contract labour (Regulation and Abolition) Act, 1970:  
The Act provides for certain welfare measures to be provided by the contractor to contract labour and in case the contractor fails to provide, the same are required to be provided by the Principal Employers by law. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishment or contractor of principle employer if they employ 20 or more contract labour.
- Minimum Wages Act, 1948:  
The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the act if the employment is a scheduled employment  
Construction of buildings, roads, runways are scheduled employments.



- **Payment of Wages Act, 1936:**  
It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- **Equal Remuneration Act, 1979:**  
The Act provides for payment of equal wages for work of equal nature to Male & Female workers and not for making discrimination against Female employees in the matters of transfers, training and promotions, etc.
- **Payment of Bonus Act, 1965:**  
The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 200% of wages to employees drawing Rs.35,000/- p.m. or less. The bonus to be paid to or employees getting Rs.2,500/- p.m. above upto 3,500/- p.m. shall be worked out by taking wages as Rs.2,500/- p.m. only. The act does not apply to certain establishments. The newly set up establishments are exempted or five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of the Act.
- **Industrial Disputes Act, 1947:**  
The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- **Industrial Employment (Standing Orders) Act, 1946:**  
It is applicable to all establishments employing 1000 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the employer or matters provided in the Act and get the same certified by the designated Authority.
- **Trade Unions Act, 1926:**  
The Act lays down the procedure for registration of trade unions of workmen and employers. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- **Child labour (prohibition and regulation) Act, 1986:**  
The Act prohibits employment of children below 14 years of age in certain occupation and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labour is prohibited in Building and Construction Industry.
- **Inter-State migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979:**  
The Act is applicable to an establishment which employees 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.

- The Building & other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996.

All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under this Act. All such establishments are required to pay cess at rate not exceeding 2% of the cost of construction as may be notified by the government. The employer of the establishment is required to provide safety measures at the Building or Construction work and other welfare measures, such as, Canteens, First-Aid facilities, ambulance, housing accommodation for workers near the workplace etc. The employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

- The Factories Act, 1948:

The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

xvii) E.S.I.C. Act, 1948

The tenderer shall have valid registration certificate under E.S.I.C Act 1948, if the tenderer/bidder has less than 10(ten) or more than 20(twenty) Employee/persons on his establishment and work is carried out with the help of energy. This shall be submitted on undertaking on stamp paper of Rs.100/-.

### **6.c) Regulation Employment Welfare:**

The Contractor, which expression shall include sub-contractor or any such person or group of persons representing the contractor who are and, required to handle iron and steel materials shall register themselves as employer with the Mumbai Iron and Steel Labour Board and shall completely fulfill all the obligatory provisions of the Maharashtra Mathadi, Hamal and other Manual Workers (Regulation of Employment Welfare Act, 1969) and the Mumbai Iron and Steel Unprotected Workers (Regulation of Employment and Welfare Scheme, 1970). The consequences of failure of compliance of any of these provisions will entirely be the liability and responsibility of the Contractor.

## **7. Materials, Plant and Workmanship**

**7.a) Plant and Equipment:**

The Contractor shall arrange at his own expense all tools, plant and equipment required for execution of Works. If required by the Contractor and if available the Municipal Corporation may supply such of the tools, plant and equipment as are available, to the Contractor at the rates and terms to be specified by the Engineer. No tools, plant and equipment once brought to the work site shall be removed without the written permission or order of the Engineer, until he has certified the completion of the work.

If any Tools, Plants and equipment brought on site, are in the opinion of the Engineer inefficient, bad or of inferior quality or are unsuited for the Works then such tools, plant and equipment shall not be used on the Works but shall be removed by the Contractor at his own expense within twenty four hours after the service of a written order or notice from the Engineer to that effect and fresh tools, plant and equipment be substituted in lieu of that ordered to be removed by the Engineer. The Employer will use his best endeavors in assisting the Contractor, where required, in obtaining clearance through the Customs of Contractor's equipment, material and other things required for the Works but shall not be liable to the Contractor for any loss resulting from clearance being delayed or refused.

**7.b) Use of Specification B.I.S.:**

In case where no particular specification is given for any article to be used under the contract, the relevant specification, where on B.I.S. exists, of the Bureau of Indian Standards. ( BIS 1200) shall apply.

The contractor shall execute the whole and every part of the work the most substantial and workman like manner and both has regards material and every other respect in strict accordance with specifications. The contractor shall also confirm exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Engineer In- charge and lodged in his office and to which the contractor shall be entitled to have access for the purpose of inspection at such office, or on the site or work during office hours. The contractor shall be entitled to receive three sets of contract drawings and working drawings as well as one certified copy of the accepted tender along with the work order free of cost.

**7.c) Work to be open to Inspection and Contractor or Responsible agent to be present:**

All works under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the Eng-in-charge and his subordinates and the contractor shall at all times during the usual working hours, at all other times, during the usual working hours and at all other times at which reasonable notice of the intention of the Eng-in-charge and his subordinates to visit the works shall have been given to the contractor, either himself be present to receive orders and instruction or have responsible agent duly accredited in writing present for that purpose. Order given to the contractors' duly authorized agent shall be considered to have the same force and effect as if they had been given to the contractor himself.

The Engineer and any person authorized by him shall at all reasonable times have access to the site and to all workshops and places where materials or plant are being manufactured. Fabricated or prepared for the works and the contractor shall afford every facility for and every assistance in obtaining the right to such access.

The Engineer shall be entitled, during manufacture, fabrication or preparation to inspect and test the material and plan to be supplied under the contract. If materials or plant are being manufactured, fabricated or prepared in workshops or places other than those of contractor, the contractor shall obtain permission for the Engineer to carry out such inspection and testing in those workshop or places. Such inspection or testing shall not release the Contractor from any obligation under the contract.

All works embracing more than one process shall be subject to examination and approval at each stage thereof and the contractor shall give due notice to the Engineer or his authorized representative when each stage is ready. In default of such notice, the Engineer shall be entitled to appraise the quality and extent thereof.

No work shall be covered up or put out of view without the approval of the Engineer or his authorized representative and the contractor shall afford full opportunity for examination and measurement of any work which is about to be covered up or out of view and for examination of foundation before permanent work is placed thereon.

The Contractor shall give due notice to the Engineer or his authorized representative whenever any such work or foundation is ready for examination and the Engineer or his representative shall without unreasonable delay, unless he consider it necessary and informs the contractor, in writing accordingly, attend for the purpose of examining and measuring such work or examining such foundations. In the event of the failure of the contractor to give such notice he shall, if required by the Engineer, uncover such work at the Contractor's expense.

The contractor shall agree with the Engineer on the time and place for the inspection or testing of any materials of plans as provided in the contract. The Engineer shall give the contractor reasonable advance notice of his intention to carry out the inspection or to attend the tests. If the Engineer, or his duly authorized representative, does not attend on the date agreed, the contractor may, unless otherwise instructed by the Engineer, proceed with the tests, which shall be deemed to have been made in the presence of the Engineer. The contractor shall forthwith forward to the Engineer duly certified copies of the test readings. If the Engineer has not attended the tests, he shall accept the said readings as correct.

If at the time and place agreed the materials or plant are not ready for inspection or testing or if, as a result of the inspection or testing referred to in this Clause, the Engineer determines that the materials or plant are defective or otherwise and not in accordance with the contract, he may reject the materials or plant and shall notify the Contractor thereof immediately. The notice shall state the Engineer's objections with reasons. The contractor shall then make good the defect or ensure that rejected materials or Plant comply with the contract. If the Engineer so requests, the tests of rejected materials or plant shall be made or repeated under the same terms and conditions. All costs incurred by the Employer by the repetition of the tests shall after due consultation with the Employer be determined by the Engineer and shall be recoverable from the contractor by the Employer and

maybe deducted from any sums due or to become due to the contractor and the Engineer shall notify the contractor accordingly.

The Engineer shall have authority to issue instructions from time to time for (a) the removal from the site within such time or times as may be specified in the instruction of any materials or plant which is the opinion of the Engineer, are not in accordance with the contract. (b) the substitution of proper and suitable materials or plant and (c) the removal and proper re-execution notwithstanding any previous test thereof or interim payment therefore of any work which in respect of :

- i) materials plant or workmanship or
- ii) design by the contractor or for which he is responsible, is not, in the opinion of the Engineer, in accordance with the contract.

In case of default on the part of the contractor in carrying out such instruction within the time specified therein or, if non, within a reasonable time, the Employer shall be entitled to employ and a other persons to carry out the same and all costs consequent thereon or incidental shall, after due consultation with the Employer, be determined by the Engineer and shall be recoverable from the contractor by the Employer from any monies due or to become due to the contractor and the Engineer shall notify the contractor accordingly.

Departmental officers concerned with the works shall have powers to any time to inspect examine any part of the works and the contractor shall give such facilities as may be required for such inspection and examination.

The Engineer may delegate inspection and testing of materials or plant to an independent inspector. For this purpose such independent inspector shall be considered as an assistant of the Engineer. Notice of such appointment (not being less than 14 days) shall be given by the Engineer to the Contractor.

**7.d) Uncovering and making good:**

The Contractor shall uncover any part of the works and / or make opening in or through the same as the Engineer may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the Engineer, if any such part has been covered up or put out of view after being approved by the Engineer and is subsequently found on uncovering to be executed in accordance with the contract, the expenses of uncovering and / or

making openings in or through, reinstating and making good the same shall be borne by the Corporation except in cases where uncovering etc is ordered by the Engineer as a reasonable consequence of previously detected defective work or its symptoms suggesting a failure to comply with the contract. In any other case all such expenses shall be borne by the Contractor.

**7.d..i) Notice To Be Given Before Work Is Covered Up**

The contractor shall give not less than ten days' notice in writing to the Eng-In-Charge or his subordinate in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimension thereof taken before the same is so covered up or placed beyond the reach of measurements and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Eng-In-Charge or his subordinate in charge of the work, and if any work shall be covered up or placed beyond the reach of measurement, without such notice having been given or consent obtained the same shall be uncovered at the contractor's expenses, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed

**7.e) Materials:**

- Material to be provided by the Contractor:

All materials to be provided by the Contractor shall be in conformity with the specifications laid down in the contract and the Contractor shall, furnish proof to the satisfaction of the Engineer that the materials so comply. Contractor shall produce proof viz. challans, bills, vouchers, etc. so as to ensure that the material was brought on site and quantities used as per the norms, specifications, etc.

The Contractor shall, at his own expense and without delay, supply to the Engineer samples of materials proposed to be used in the Works. The Engineer shall within seven days of supply of samples or within such further period as he may require and intimated to the contractor in writing, inform the contractor whether the samples are approved by him or not. If the samples are not approved the contractor shall forthwith arrange to supply to the Engineer for approval fresh samples complying with the specifications laid down in the contract.

The Engineer shall have full powers to require removal of any or all of the materials brought to site by the Contractor which are not in accordance with the contract specifications or which does not conform in character or quality to the samples approved by him. In case of default on the part of the Contractor in removing the rejected materials, the Engineer shall be at liberty to have them removed by other means. The Engineer shall have full powers to procure other proper materials to be substituted for rejected materials and in the event of the Contractor refusing to comply, he may cause the same to be supplied by other means. All costs, which may attend upon such removal and / or substitution shall be borne by the Contractor.

Subject as hereinafter provided in Clause 3(a), all charges on account of Octroi, terminal or sales tax and other duties on material obtained for the works from any source shall be borne by the Contractor.

The Engineer shall be entitled to have tests carried out as specified in the contract for any materials supplied by the Contractor other than those for which as stated above, satisfactory proof has already been produced, at the cost of the contractor and the contractor shall provide at his expense all facilities which the Engineer may require for the purpose.

If no tests are specified in the contract, and such tests are required by the Engineer the contractor shall provide all facilities required for the purpose and charges for these tests shall be borne by the contractor. In case of third party audit, the cost implication has to be borne by the contractor.

The cost of the materials consumed in test shall be borne by the contractor in all cases except when otherwise provided. If the materials used on works are found to be sub- standard in the test, then the same will be removed by the contractor and replaced by good materials at his cost.

**7.f) Stock of Materials required:**

The Contractor shall at his own expense provide and furnish himself with sheds and yards in such situations and in such numbers as, in the opinion of the Engineer are requisite for carrying out the Works under this contract, and the Contractor shall keep at each of the sheds and yards a sufficient quantity of materials in stock so as not to delay the carrying out of works with due expedition and the Engineer and his subordinates shall have free access to the said sheds or yards at any time for the purpose of inspecting the stock of materials so kept in hand any material or article, which the Engineer may object to, shall not be brought upon or used in the work but shall be forthwith removed from the sheds or yards by the contractor at his own cost. The contractor will however be allowed to use for the above purpose the completed portion of the buildings if available.

**7.g) Photographs of the works:**

No photographs of the work or any part there of or equipment employed thereon shall be taken or permitted by the contractor to be taken by any of his employees or any employees of his sub-contractor without the prior approval of the Engineer in writing and no such photographs shall be published or otherwise circulated without the approval of the Engineer in writing.

## **8. Suspension, Commencement and delays**

### **8.a) Suspension of work:**

- The contractor shall, on receipt of the order in writing of the Engineer, suspend the progress of the Works or any part thereof for such time and in such manner as the Engineer may consider necessary for any of the following reasons: -
  - On account of continued non-compliance of the instructions of the Engineer or any other default on the part of the contractor, or
  - For proper execution of the works or part thereof for reasons other than the default of the contractor, or
  - For safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer.

- If the suspension is ordered for reasons (i) and (iii) in sub-para (a) above, the contractor shall be entitled to an extension of time equal to the period of every such suspension plus a reasonable time as decided by the Engineer.

If the suspension is ordered for reasons of (i) in sub-para (a) above, the Engineer shall have powers to suspend the payment under the contract. Such suspension of payment may be continued until default shall have been rectified.

### **8.b) Rate of progress:**

If for any reason, which does not entitle the Contractor to an extension of time, the rate of progress of the Works or any Section is at any time, in the opinion of the Engineer, shall so notify the Contractor who shall thereupon take such steps as are necessary, subject to the consent of the Engineer, to expedite progress so as to comply with the Time for completion. The Contractor shall not be entitled to any additional payment for taking such steps. If, as a result of any notice given by the Engineer under this Clause, the Contractor considers that it is necessary to do any work at night or on locally recognized days of rest, he shall be entitled to seek the consent of the Engineer so to do. Provided that if any steps, taken by the Contractor in meeting his obligations under this Clause, involve the employer in additional supervision costs, such costs, shall, after due consultation with the Employer, be determined by the Engineer and shall be recoverable from the Contractor by the Employer, and maybe deducted by the Employer from any monies due or to become due to the Contractor and the Engineer shall notify the Contractors accordingly.

### **8.c) Restriction on Working Hours:**

- i. No work shall be done between sunset and sunrise or on Sunday or Municipal holidays and except with the special sanction of the Engineer in writing previously obtained and the withholding of such sanctions shall be no ground of complaint on the part of the contractor or cause for compensation to him, or excuse for not completing the work within the contract period. The period within which the work has to be carried out and completed has been fixed in terms of this clause with the provision that the total number of hours of work permissible shall not exceed 48 hours in a week and in no case more than 8 hours on any working day, the actual time within which the said hours shall be worked being subject to mutual



arrangements with the Contractor at the commencement of the works or from time to time as may be required and provided that all works shall be stopped for rest and meals for one hour at about mid-day exclusive of the permissible hours aforesaid for the works.

Though sanction may be accorded to the Contractor to work on days and at times otherwise normally non-permissible under this Contract, the Contractor shall be required to bear the cost for such supervision as in the opinion of the Engineer may be necessary at these times. Also he has to obtain the necessary permission from police for working at night times and otherwise normally non-permissible times.

It should be distinctly understood that the granting of permission to work extra hours or to work on Sundays and holidays will be entirely at the discretion of the Engineer and cannot be claimed by the Contractor as a matter of right.

- i. If on the other hand the Engineer requires that the work shall be proceeded with on days and at times otherwise normally non-permissible under this contract the contractor shall proceed with the work but he will not be required in such cases to bear the cost of the Municipal establishment employed at the time.

The contractor at all times during the continuance of this contract shall in all his dealings with local labour for the time being employed on the works contemplated by this contract have due regard to all local festivals and religious or other customs and all disputes, matters and questions arising between the contractor and any of his agent on the one hand and any local labour on the other hand with respect to any matter or thing in any way connected with this contract shall be decided by the commissioner whose decision shall be final and binding on all parties.

**8.d) Commencement Time and Extension for Delay:**

The time allowed for execution for the works as specified in the contract documents shall be the essence of the contract. The execution of the works shall commence from the date specified by the Engineer in writing. If the contractor fails or neglects to commence the execution of the Works as aforesaid, the Municipal Corporation shall without prejudice to any other right or remedy will be at liberty to forfeit the security deposit absolutely.

i) Work during Monsoon: In any case where the time prescribed for completion of any work is exclusive of monsoon period. No new trench work should be started after 15<sup>th</sup> May and existing trenches are required to be reinstated by 31<sup>st</sup> May every year. The site shall be cleared in all respect including removal of surplus material on or before 10<sup>th</sup> June of every year. The monsoon period shall be deemed to be from 10<sup>th</sup> June to 30<sup>th</sup> September of the calendar year. However, if the contractor is permitted by the Engineer to work during any monsoon period, all such period shall be taken into account for the calculating the contract period on pro-rata F basis as under –

$$\text{Effective cost of work done} \quad \text{No. of days of days} = \quad \text{during monsoonx}$$

$$\text{contract period} \text{—————}$$

Total cost of contract works

In the event of the contractor failing to comply with this condition, he shall be liable to pay as compensation as stated in condition no.8e.

ii)Extension of time for Completion: In the event of –

- force majeure such as acts of God, acts of public enemy, acts of Government, floods, epidemics, etc., or
- abnormally bad weather, or
- serious loss of damage by fire, or
  - civil commotion, local combination of workmen, strike or lockout of any of the traders employed on the work, or
  - delay on the part of other Contractors or tradesmen engaged by the Employer in executing Works not forming part of the Contract, or
- the ordered variations namely the amount or nature of extra or additional work
  - reasons stated in Adverse Physical Obstructions or Conditions, Delay and Disruption to Progress, or

any other cause which, in the absolute discretion of the Engineer is beyond the Contractor's control..

Being such as fairly to entitle the Contractor to an extension of the time for completion of the works, or any section or part thereof, the Engineer shall, determine the amount of such extension and shall notify the Contractor accordingly.

ii. Contractor to provide notification and detailed particulars: Provided that the Engineer is not bound to make any determination unless the contractor has –

a. Within 28 days after such event has first arisen notified the Engineer.

b. within 28 days, or such other reasonable time as may be agreed by the Engineer, after such notification submitted to the Engineer detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time

iii. Interim determination of extension:-Provided also that where an event has a continuing effect such that it is not practicable for the contractor to submit detailed particulars within the period of 28 days referred to in sub clause 8(d), he shall nevertheless be entitled to an extension of time provided that he has submitted to the Engineer interim particulars at intervals of not more than 28 days and final particulars within 28 days of the end of the effects resulting from the event. On receipt of such interim particulars, the Engineer shall, without undue delay, make an interim determination of extension of time and, on receipt of the final particulars, the Engineer shall review all the circumstances and shall determine an overall extension of time in regard to the event. In both the cases the Engineer shall make his determination after due consultation with the Employer and the Contractor and shall notify the Contractor of the determination, with a copy to the Employer. No final review shall result in decrease of any extension of time already determined by the Engineer.

### **8.e) Compensation for delay:**

If the Contractor fails to complete the works and clear the site on or before the Contract or extended date(s) / period(s) of completion, he shall, without prejudice to any other right or remedy of Municipal Corporation on account of such breach, pay as agreed compensation, amount calculated as stipulated below (or such smaller amount as may be fixed by the Engineer) on the contract value of the whole work or on the contract value of the time or group of items of work for which separate period of completion are given in the contract and of which completion is delayed for every week that the whole of the work of item or group of items of work concerned remains uncompleted, even though the contract as a whole be completed by the contract or the extended date of completion. For this purpose the term 'Contract Value' shall be the value of the work at Contract Rates as ordered including the value of all deviations ordered.

- Completion period for (originally stipulated or as extended) not exceeding 6 months : **to the extent of maximum 1 percent per week.**
- Completion period for (originally stipulated or as extended) exceeding 6 months and not exceeding 2 years: **to the extent of maximum ½ percent per week.**
- Completion period for (originally stipulated or as extended) exceeding 2 years : **to the extent of maximum ¼ percent per week.**

When the delay is not a full week or in multiple of a week but involves a fraction of a week the compensation payable for that fraction shall be proportional to the number of days involved.

Provided always that the total amount of compensation for delay to be paid this condition shall not exceed the undernoted percentage of the Contract Value of the item or group of items of work for which a separate period of completion is given.

- i. Completion period (as originally stipulated or as extended) not exceeding 6 months:  
10 percent.
- ii. Completion period (as originally stipulated or as extended) exceeding 6 months and not exceeding 2 years : 7½ percent.
- iii. Completion period (as originally stipulated or as extended) exceeding 2 years : 5 percent.

The amount of compensation may be adjusted set off against any sum payable to the contractor under this or any other contract with the Municipal Corporation.

### **8.f) Action And Compensation Payable In Case Of Bad Work And Not Done As Per Specifications**

All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in-charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Vigilance Department of the MCGM or any organization engaged by the MCGM for Quality Assurance and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

If it shall appear to the Engineer-in-charge or his authorized subordinates in-charge of the work or to the officer of Vigilance Department, that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of any inferior description, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall, on demand in writing which shall be made within twelve months of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 8.e of the contract (for Compensation for delay) for this default. In such case the Engineer-in Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the Engineer in charge may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

If the penalisation amount exceeds maximum limit with respect to Clause 8.e of Standard General Conditions of Contract, then a show cause notice shall necessarily be issued to the contract as to why the contract should not be terminated. The contractor will be liable for being banned/ deregistered from business dealings with MCGM. This shall be governed by relative provision in Registration Rules of MCGM and Cl.no.15 of Standard General Conditions of Contract.

**8.g) Completion Certificate:**

1)As soon as work is completed, the Contractor shall give notice of such completion to the Engineer and within 28 (Twenty-eight) days of receipt of such notice the Engineer shall inspect the Works and shall furnish the Contractor with a certificate of completion indicating (a) the date of completion, (b) the defects to be rectified by the Contractor, and / or (c) items for which payment shall be made at reduced rates.

When separate period of completion have been specified for items or groups of times, the Engineer shall issue separate completion certificates for such items or group of items. No certificate of completion shall be issued, nor the works be considered to be complete till the Contractor shall have removed from the premises on which the Works has been executed, all scaffolding, sheds and surplus materials, except such as required for rectification of defects, rubbish and all huts and sanitary arrangements required for his workers on the site in connection with the execution of Works as shall have been erected by the Contractor or the workmen and cleaned all dirt from all parts of building(s) in , upon or about which the Work has been executed or of which he may have had possession for the purpose of execution thereof and cleaned floors, gutters and drains, eased doors and sashes, oiled and fastenings, labeled the keys clearly and handed them over to the Engineer or his representative and made the whole premises fit for immediate occupation or use to the satisfaction of the Engineer. If the Contractor shall fail to comply with any of the requirements of this condition as aforesaid, on or before the date of completion of works, the Engineer may at the expense of the contractor fulfill such requirements and dispose of all the surplus materials and rubbish etc. as he thinks fit and the contractor shall

have no claims in respect of any such material except for any sum actually realized by the sale thereof less the cost of fulfilling the requirements and any other amount that may be due from the contractor. If the expense of fulfilling such requirement is more than the amount realized on such disposal as aforesaid, the contractor shall forthwith on demand pay such excess.

The contractor's notice of completion as aforesaid shall have to be accompanied with one set of tracings of final completion drawings of RTF and six bound sets of copies of as built drawings wherever applicable and as directed by the Engineer, failing which the notice shall be deemed to have not been issued at all.

1.If at any time before completion of the entire work, items or group of items for which separate periods of completion have been specified, have been completed, the Engineer with the consent of the contractor takes possession of any part or parts of the same (any such part or parts being hereinafter in this condition referred to as 'the relevant part') then notwithstanding anything expressed or implied elsewhere in this contract.

a. Within 28 days (twenty-eight days) of date of completion of such items or group of items or possession of the relevant part the Engineer shall issue a completion certificate for the relevant part provided the contractor fulfills his obligation for the relevant part as in sub-para (1) above.

b. The defects liability period in respect of such items and relevant part shall be deemed to have commenced from the certified date of completion of such items or relevant part as the case may be.

c. For the purpose of ascertaining compensation for delay under condition 8e in respect of any period during which the works are not completed the relevant part shall be deemed to form a separate item or group, with date of completion as given in the contract or as extended under condition 8d and actual date of completion as certified by the Engineer under this condition.

2.If any part of the work shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed under the contract, the Engineer may issue a certificate of completion in respect of that part of the works before completion of the whole works and upon the issue of such certificates, the contractors shall be deemed to have undertaken to complete any outstanding works in that part of the works during the period of maintenance.

**8.h) Works where PERT chart is required along with Tender:**

The contractor shall along with the tender documents submit a network based on principles of PERT / CPM wherever applicable. Milestones and pre-requisites should also be highlighted along with broad estimates for major resources like cement, steel drawings etc. The Contractors must also specify the minimum resources he will exclusively use for this project. This will include all equipment and all category of labour.

**8.i) Network Schedule & Monthly Progress Reports:**

On award of the contract, the Contractor shall submit the time schedule for the Works in the form of PERT Networks or Bar-chart wherever applicable. The Engineer may approve the Schedule as submitted or suggest modifications as he thinks necessary. The Contractor shall modify the chart accordingly and obtain Engineer's approval.

The schedules shall be prepared in direct relations to the time stated in the contract documents for completion of items or groups of items of work and or the contract as a whole. It shall indicate the dates of commencement and completion of various activities of the work and may be amended

as necessary by agreement between the Engineer and the Contractor.

The interim payment (running bill) payable under contract condition 12 (b) shall be paid only after the network is finally approved by the Engineer.

After the issue of the letter of commencement the Contractor shall finalize the network to the satisfaction of the Engineer. This network should be detailed with a fixed project start and finish dates and should contain no activities with duration greater than 28 days. Milestones would be so determined that at least 10 percent of the events are milestones and no two milestones are more than 3 months apart.

The finalized network may be amended from time to time, if felt necessary by the Contractor, with the approval of the Engineer. A fixed sum shall be held in abeyance at the time of the next interim payment for non-attainment of each milestone in the network and shall be released only on completion of the work after deducting the compensation for delay if there is contractor's fault as per provision in condition 8 and penalty covered under Clause 14a. The fixed sum shall be

Rs.10,000/- for all contracts over Rs.25 lakhs and upto the value of Rs.100 lakhs. Rs.20,000/- for all contracts over Rs.1 crore and upto the value of Rs.5 crores.

Rs.35,000/- for all contracts over Rs.5 crores and upto the value of Rs.10 crores. Rs.50,000/- for all contracts over Rs.10 crores.

If the attainment of the milestones is delayed for reason not attributable to the contractors no moneys will be held in abeyance.

The Contractors will be required to submit the monthly progress reports in the given 'Monthly Report Format' as per Annexure 'D' by the 2<sup>nd</sup> day of the following month to the Engineer with a copy to the Project Planning and Control Cell. Failure on the part of the Contractor to submit monthly report in time will attract action as per Clause 14a.

#### **8 j) Management Meetings**

Either the Engineer or the contractor may require the other to attend Management meeting. The business of a management meeting shall be to review the plans for remaining works.

Engineers shall record the business of management meetings and is to provide copies of his record to those attending the meetings. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meetings or after the management meetings and stated in writing to all who attend the meetings.

#### **8 k) Contractors remain liable to pay compensation :**

In any case in which any of the powers conferred upon the Engineer In-charge by the **relevant clauses** in documents that form a part of contract as exercised or is exercisable in the event of any future case of default by the Contractor, he is declared liable to pay compensation amounting to the whole of his security deposit. The liability of the Contractor for past and future compensation shall remain unaffected.

In the event of the Executive Engineer taking action against these **relevant clauses**, he may, if he so desires, take possession of all or any tools and plant, materials and stores in or upon the work of site thereof or belonging to the Contractor or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates, or in the case of contract rates not being

applicable at current market rates to be certified by the Executive Engineer, may after giving notice in writing to the Contractor or his staff of the work or other authorized agent require him to remove such tools and plants, materials or stores from the premises within a time to be specified in such notice and in the event of the Contractor failing to comply with any such requisition, the Executive Engineer may remove them at the contractors expense of sell them by auction or private sell on account of the Contractor at his risk in all respects and certificate of the Executive Engineer as to the expense of any such removal and the amount of the proceeds an expense of any such sell be final and conclusive against the Contractor.

**8(l) Extension Of Time In Contracts :**

Subject to any requirement in the contract as to completion of any portions or portions of the works before completion of the whole, the contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses:

**a) Extension attributable to MCGM**

**(i) Extension Due To Modification:** If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise and in any case should not be less than 30 days before the expiry of the date fixed for completion of the works.

**(ii) Extension For Delay Due To MCGM:** In the event of any failure or delay by the MCGM to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the MCGM due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor to damages or compensation therefore, but in any such case, the MCGM may grant such extension(s) of the completion date as may be considered reasonable.

**Note: For extension of time period as governed in (i) and (ii) above, any modifications in design/drawings, specifications, quantities shall be needed to be justified with recorded reasons with approval of Ch.Eng. for not anticipating the same while preparing estimates and draft tender.**

**(b) Extension Of Time For Delay Due To Contractor :** The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed no later than the date(s) / the programme for completion of work as specified in the contract. If the contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in above as (a.i) and (a.ii), the MCGM may, if satisfied that the works can be completed by the contractor within reasonable short time thereafter, allow the contractor for further extension of time as the Engineer may decide. On such extension the MCGM will be entitled without prejudice to any other right and remedy available on that behalf, to recover the compensation as governed by Clause 8(e) of GCC.

For the purpose of this Clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued.

Further, competent authority while granting extension to the currency of contract under Clause (b) of as

above may also consider levy of penalty, as deemed fit based on the merit of the case. Also, the reasons for granting extension shall be properly documented.

## **9. Defects Liability**

### **9.a) Defect Liability period:**

The Contractor is expected to carry out the construction work in Workmen like manner so as to meet the requirement and specification for the project. It is expected that the Workmanship and materials will be reasonably fit for the purpose for which they are required.

Defects or defective work is where standard and quality of workmanship and materials as specified in the contract is deficient. Defect is defined as a failure of the completed project to satisfy the expressed or implied quality or quantity obligations of the construction contract. Defective construction works are as the works which fail short of complying with the express descriptions or requirements of the contract, especially any drawings or specifications with any implied terms and conditions as to its quality, workmanship, durability, aesthetic, performance or design. Defects in construction projects are attributable to various reasons.

Some of the defects are structural defects resulting in cracks or collapse of faulty defective plumbing, inadequate or faulty drainage system, inadequate or faulty ventilation, cooling or heating systems, inadequate fire systems etc. The defects could be various on accounts of different reasons for variety of the projects.

The Engineering In charge/Project Officer shall issue the practical completion certificate for the project. During the Defect Liability Period which commences on completion of the work, the Engineering In charge shall inform or the contractor is expected to be informed of any defective works by the Employer’s representative of the defects and make good at contractor’s cost with an intention of giving opportunity to the contractor of making good the defects appeared during that period. It is the contractor’s obligation under the contract to rectify the defects that appear during Defect Liability Period and the contractor shall within a reasonable time after receipt of such instructions comply with the same at his own cost. The Engineering In charge/Project Officer shall issue a certificate to that effect and completion of making good defects shall be deemed for all the purpose of this contract to have taken place on the day named in such defect liability certificate.

If defective work or workmanship or design have been knowingly covered-up or conceived so as to constitute fraud, commencement of the Defect Liability Period may be delayed. The decided period may be delayed until discover actually occurs on at least the defect could have been discovered with reasonable diligence, whichever is earlier.

It is proposed to have DLP as below:

<b>Dept</b>	<b>Type of works</b>	<b>DLP</b>
<b>Roads Bridge</b> /	For cement concrete road/ Mastic works	5 years
	Asphalt work	3 years
	Paver Block	3 years



	Structural work	5 years
	General works	5 years
<b>BM/SIC/HIC</b>	General works	3 years
	Structural works	5 years
	Waterproofing works	5 years
<b>Ward Works</b>	All ward level works	2 years
<b>Other Works</b>	Pot holes and pre-monsoon bad patch repair work	1 year
<b>For other departments</b>	HE, WSP, SP, SWD, Garden	3 years

- **The above is illustrative. In case of any type of work not covered in above or any change in DLP, the concerned Ch.Eng. shall stipulate DLP with approval of concerned DMC/AMC.**
- **In case of composite works i.e. having combinations of construction activities of different disciplines, the DLPs shall be approved by AMC.**

Also, in case of defect, the Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at. The Defects Liability Period shall be extended for as long as Defects remain to be corrected. Every time notice of Defect/Defects is given, the Contractor shall correct the notified Defect/Defects within the duration of time specified by the Engineer's notice. The Engineer may issue notice to the Contractor to carry out removal of defects or deficiencies, if any, noticed in his inspection, or brought to his notice. The Contractor shall remove the defects and deficiencies within the period specified in the notice and submit to the Engineer a compliance report.

It is the Completion Stage when the contractor has completed all of the works and fixed all of the defects that were on the list of issue by Engineer-in-charge. When this happens, the engineer must issue a 'Certificate of Completion'. On the issue of 'Certificate of Completion', the 'Defect Liability Period' starts. The contractor also

must issue a 'Certificate statement' as an acknowledgment to the engineer not later than 14 days after the 'Certificate of Completion' has been issued. During the 'Defect Liability Period', the contractor has to obey all written instructions from the engineer to carry out repairs and fix any defects which appear in the Permanent Works. If the contractor does not, due to his own faults finish the repair works or fix the defects by the end of 'Defect Liability Period', the 'Defect Liability Period' will continue until all works instructed by engineer is done.

Unfulfilled Obligations: Notwithstanding the issue of the Defects Liability Certificate the Contractor and the Employer shall remain liable for the fulfillment of any obligation incurred under the provisions of the contract prior to the issue of the defect's liability certificate is issued and, for the purposes of determining the nature and extent of any such obligation, the contract shall be deemed to remain in force between the parties to the contract.

**9.a) Liability for defects or imperfections and rectifications thereof:**

If it shall appear to the Engineer or to his representative at any time during construction or reconstruction or during the defects, liability period, that any work has been executed with unsound, imperfect or unskillful workmanship or that any material or article provided by the Contractor for execution of thereof the work is unsound or of a quality inferior to that contracted for, or otherwise, not in accordance with the contract, or that any defect, imperfections or other faults have appeared in the Work arising out of defective or improper materials or workmanship, the Contractor shall, upon receipt of notice in writing in that behalf from the Engineer forthwith rectify or remove or reconstruct the work so specified in whole or part, as the case may require or, as the case may be and / or remove the materials, or articles so specified and provide other proper and suitable materials or articles at his own expense notwithstanding that the same may have been inadvertently passed, certified and paid for, and in the event of his failing to do so within the period to be specified by the Engineer in his notice aforesaid the Engineer may rectify or remove and re-execute the Work and / or remove and replace with others the materials or articles complained of, as the case may be, by other means at the risk and cost of the Contractor.

In case of repairs and maintenance work, splashes and droppings from whitewashing, painting etc. shall be removed and surfaces cleaned simultaneously with completion of these items of work in individual rooms, quarters or premises etc. where the work in the contract. In case the Contractor fails to comply with requirement of this condition, the Engineer shall have the right to get the work done by the other means at the risk and cost of the Contractor.

The Engineer shall give three days' notice in writing to the Contractor before taking such action.

The Engineer reserves the right to decide the rates and prices of the works as executed by other means at the risk and cost of the Contractor.

The cost and expenses thereby incurred including supervision charges specified in the Annexure 'A' on the works and also such penalty as the Engineer may impose for such wrongful conduct of the Contractor (which penalty, the Engineer shall be competent to impose and against the imposition of which or the amount thereof by the Engineer an appeal shall lie only to the Commissioner within seven days of the order in that behalf of the Engineer and the decisions of the Commissioner shall be final and binding upon the Contractor) may be deducted from any money due or to become due to the Contractor, under this or any other contract between the Contractor and the Municipal Corporation.

**9.b) Liability for damages and risks:**

A) The Contractor shall be responsible for all risks to the work and shall make good at his own cost, all

loss or damage, whether to the works themselves or to any other Municipal property, or to the lives, persons, or property of others, from whatsoever cause, arising out of, or in connection with the works, either during their progress or during the defects liability period, after completion of work for a period of not exceeding 12 months as per directives of Director of Insurance, Maharashtra State and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the Commissioner or the Corporation shall be called upon to make good any such costs loss or damages, or to pay compensation (including that payable under the provision of Workmen's Compensation Act) to any person or persons sustaining damage as aforesaid by reason of any act or of any negligence or omissions on the part of the contractor, the amount, which the Commissioner may pay in respect thereof and the amount of any costs or charges (including law costs and charges) in connection with legal proceedings which he may incur in reference thereto, shall be charged to the contractor. The Commissioner shall have full power and right at his own discretion to pay or to defend or compromise any claim which may be made against the Corporation for damage or in case of threatened legal proceedings, or in anticipation of legal proceedings being instituted, consequent on the action or default of the contractor, to take such steps as he may consider necessary or desirable to ward off or mitigate the effect of such proceedings charging to the contractor, as aforesaid, any sum or sums of money which he may pay and any expenses, whether for reinstatement or otherwise which he may incur and the propriety of any payment, defense or compromise, or of the incurrence of any such expense shall not be called in question by the contractor.

The contractor shall be held responsible for any obligations, damages and fines etc. arising out of or in connection with the works either during their progress or during the defects liability period after completion of work for a period of not exceeding 12 months as per directives of Director of Insurance, Maharashtra State and shall indemnify the Municipal Corporation or the Commissioner against them and make good any such damages, fines and dues arising out of non-compliance of any regulation under the Minimum Wages Act by the contractor which may devolve on the Corporation or the Commissioner.

The Contractor shall take out a policy as per the provisions of the Workmen's Compensation Act for the purpose of ensuring compensation to the workers engaged by them.

**B) Extension of Defects Liability:**

The provisions of this Clause shall apply to all replacements or renewal of Works carried out by the Contractor to remedy defects and damages as if the replacements and renewals had been taken over on the date they were completed.

The Defects Liability Period for the Works shall be extended by a period equal to the period during which the Works cannot be used by reason of a defect or damage. If only part of the Works is affected, the Defects Liability Period shall be extended only for that part, however, the retention money/security deposit/performance guarantee will be refunded only after completion of Defect Liability/warranty period of total work. In neither case shall the Defects Liability Period extend beyond 2 years from the date of taking over.

When progress in respect of the Works has been suspended under Clause 5 (u), the Contractor's obligations under this Clause shall not apply to any defects occurring more than 3 years after the Time for Completion established on the date of the Letter of Acceptance.

**A) Inspection Consequent to Renewals/Replacement;** If the replacement or renewals are of such a character as may affect the efficiency of the Works or any portion thereof, the Engineer may, within one month of

such replacement or renewals, give to the Contractor notice in writing, requiring that such replacement or renewals be offered for inspection in which case such inspection shall be carried out by the Engineer in receipt of a 21 days notice from the Contractor, in writing.

These Conditions shall apply to, all the replacements and renewals and to all inspections occasioned thereby and carried out by the Contractor pursuant to this Clause.

B) Access to the Contractor during Defects Liability Period: Until the expiration of Defects Liability Period of the Works, the Contractor shall have access, at all reasonable working hours, at his own risk and expense, for himself or for his duly authorised representatives whose names shall have previously been communicated, in writing, to the Engineer, to all parts of the Works for the purpose of inspecting the working thereof and to records of the working and performance thereof for the purpose of inspecting the same and taking notes there from subject to the Engineer's approval, which shall not be unreasonably withheld. The Contractor may, at his own risk and expense, make any test, which he considers desirable, in consultation with the Engineer and the Employer.

C) Liability of Contractor for damages done in or outside work area :

Compensation for all damages done intentionally or unintentionally by contractor's labour whether in or beyond the limits of MCGM property including any damage caused by spreading the fire shall be estimated by the Engineer In-charge or such other officer as he may appoint and the estimate of the Engineer in-charge to the decision of the Dy. Chief Engineer on appeal shall be final and the contractor shall be bound to pay the amount of the assessed compensation on demand failing which the same will be recovered from the Contractor as damages or deducted by the Engineer In-charge from any sums that may be due or become due from MCGM to contractor under this Contract or otherwise. Contractor shall bear the expenses of defending any action or other legal proceedings that may be brought to prevent the spread of fire and he shall pay any damages and costs that may be awarded by the Court in consequence.

#### **9 d) Contractor to search.**

The Contractor shall, if required by the Engineer in writing, search under the direction of the Engineer for the cause of any defect, imperfection or fault appearing during the progress of the Work or in the period of maintenance. Unless such defect, imperfection or fault shall be one for which the Contractor is liable under the contract, the cost of the Work carried out by the Contractor in searching as aforesaid shall be borne by the Corporation. If such defect, imperfection or fault shall be one for which Contractor is liable as aforesaid, the cost of the work carried out in searching as aforesaid shall be borne by the Contractor and he shall in such case repair, rectify and make good such defect, imperfection or fault, at his own expense in accordance with the provisions of condition no.9 b. and 9 c hereof.

### **10. Variation:**

#### **10.A) Rates for Extra/Excess: Price Variation shall be applicable for this contract without any cap (Modified from Standard General Conditions)**

i. For Excess / Savings

- Increase or decrease in "Bill of Quantities" of the bidding documents shall be termed as "Excess" or "Savings" correspondingly.

- The contractors shall be entitled to the payment of Additional Quantities required for the completion of activity and works, if the activity increases or decreases within the permissible limit of 20 %.

The maximum savings in individual item upto 20 % shall be permissible.

- Approval Process

Sr no.	Excess	Approving authority
1.	Upto 5 %.	Director (E S & P) / DMC.
2.	Beyond 5 % up to 15 %.	AMC.
3.	Beyond 15 %.	Hon. M.C

- In case, the projection of the “Excess” quantity goes beyond 20 % of the “Bill of Quantities” of the bidding document to complete the work activity and beyond the “Contract Cost”, then all such cases shall be placed before AMC / Hon. M.C for administrative sanction before execution of “Excess” quantity.

In all such cases the following exercise shall be worked out (i)Feasibility of

foreclosing the work,

(ii)If, foreclosure is not possible the H.O.D shall justify and record the reasons in writing.

- For Underground Works

Underground works shall mean the works of foundation of buildings and other structures, works in sewerage projects, storm water drain, water supply projects and Hydraulic Engineer.

- The contractors shall be entitled to the payment of Additional Quantities required for the completion of activity and works, if the activity increases or decreases within the permissible limit of 25 %.

The maximum savings in individual item up to 20 % shall be permissible.

- Approval Process

Sr no.	Excess	Approving authority
1.	Up to 5 %.	Director (E S & P) / DMC.
2.	Beyond 5 % up to 20 %.	AMC.
3.	Beyond 20 %.	Hon. M.C

- For Unforeseen Works

Unforeseen works shall mean the works of bursting / leakages of water pipelines, settlement of sewage lines / manholes, settlement of storm water drains in city areas. The contractors shall be entitled to the payment of Additional Quantities required for the completion of activity and works, if the activity increases or decreases within the permissible limit of 35 %.

The maximum savings in individual item up to 30 % shall be permissible.

- Approval Process

Sr no.	Excess	Approving authority
1.	Up to 10 %.	Director (E S & P) / DMC.
2.	Beyond 10 % up to 25 %.	AMC.

3.	Beyond 25 %.	Hon. M.C
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- In no case, accrued savings beyond 30 % of all individual items of the “Bill of Quantities” of the bidding document shall be allowed to meet the cost of Extra / Excess / Fair items without altering / modifying or damaging the scope of work and without balancing the phase works.

ii. For Extra Items

This shall mean additional or substituted items of work activity not included in the “Bill of Quantities and Rates”, however such item of work are in the prevailing “Unified Schedule of Rates” of MCGM.

- The total cost of extra items shall be permissible up to 5% of the “Contract Cost”.
- These extra items shall be paid as per the rates of prevailing “Unified Schedule of Rates” of MCGM at the time of tender at rebate quoted by the contractor on contract amount or at par in case of premium quoted by the contractor on contract amount.

iii. For Fair Items

This shall mean additional or substituted items of work activity not included in the “Bill of Quantities and Rates”, and even not existing in the “Unified Schedule of Rates” of MCGM at the time of tender.

- The total cost of fair items including extra items shall be permissible up to 5 % of the “Contract Cost”.
- These fair items shall be got approved by the committee framed. The engineer in charge shall work out these fair items at fair and reasonable market rates on the basis of material, labour and operations of construction equipment required to execute the item and allowing 15 % to cover profits and overhead charges on the same lines of rate analysis prepared for the items that are in “Unified Schedule of Rates” of MCGM.

In all cases covered above in respect of A, B and C, the proposals shall be routed through C.A (Finance) / C.A (WSSD).

**10.b) Reimbursement refund on variation of price of labour and materials:**

The Contractor shall be reimbursed or shall refund to the Corporation as the case may be the variation in the value of the work carried out from time to time, depending on whether the prices of material and labour as a whole rise or fall, and the method adopted for such computations shall be as given below, it being clearly understood that the contractor shall have no claim for being reimbursed on the ground that the price of a particular material or group of materials have risen beyond the limits of the presumptions made in the following paras, however, no price variations shall be made applicable for contracts upto 12 months:

A) Controlled materials: Price variations shall be permitted in respect of these materials the price level of which is controlled by the Government or its agency. The rate ruling on the date of submission of the tender shall be considered as the basic price of such material for adjustment. Any variation in this rate shall be considered for reimbursement to the contractor or refund to be claimed from the contractor as the case may be. The contractor shall, for the purpose of adjustment submit in original the relevant documents from the suppliers.

B) Labour and other materials: For the purpose of this contract and for allowing reimbursement of refund on account of variation of prices of (i) labour, and (ii) materials other than materials mentioned in 10a above, computation will be based on the formula enunciated below which is based on the presumptions that :

i) The general price level of labour, rises or falls in proportion to the rise or fall of consumer price index number 9 (general) for working class in Mumbai.

The general price level of materials rises or falls in proportion to rise or fall of whole-sale price index as published by ‘Economic Adviser to Govt. of India’.

ii) And that the component of labour is to the extent of 30 percent of 88 percent and the component of materials is to the extent of 70 percent of 88 percent of the value of the work carried out. The remaining 12 percent being the presumptive profit of the contractor.

a) Formula for Labour component:

$$VL = (0.88 R) \times \frac{30}{100} \times \frac{(I - IO)}{IO}$$

b) Formula for Material component :

$$VM = (0.88 R \times \frac{70}{100} - C) \times \frac{(W - WO)}{WO}$$

Where –



VL = Amount of price variation to be reimbursed or claimed as refund on account of general rise or fall of index referred to above.

I = Consumer Price Index number of working class for Mumbai (declared by the Commissioner of Labour and Director of Employment, Mumbai) applicable to the period under reference (base year ending 2004-05 as 100 i.e. new series of indices).

IO = Consumer price index number for working class for Mumbai (declared by the Commissioner of labour and Director of Employment, Mumbai) prevailing, on the day of 28 days prior to the date of submission of the tender.

VM = The amount of price variation to be reimbursed or claimed as refund on account of general rise or fall of wholesale price index for period under reference.

W = Average wholesale price index as published by Economic Adviser to Govt. of India applicable to the period under reference.

WO = Wholesale price index as stated above prevailing on the day of 28 days prior to the date of submission of the tender.

R = Total value of the work done during the period under reference as recorded in the Measurement Book excluding water charges and sewerage charges but including cost of excess in respect of item upto 50 percent as stated in Sub Clause 10 (a)A and cost of extra items and provisional items of work where the rate is based on Sub Clause 10 (a)B (i)&(ii).

C = Total value of Controlled materials used for the works as recorded in Measurement Book and paid for at original basic rate plus the value of materials used .

i) The quantity of the Controlled material adopted in working out the value of 'C' shall be inclusive of permitted wastages as / if mentioned in specifications.

ii) The basic rate for the supply of controlled material shall be inclusive of all the components of cost of materials excluding transport charges incurred for bringing the material from place of delivery to the site.

Computations based on the above formula will be made for the period of each bill separately and reimbursement will be made to (when the result is plus) and refund will claimed from (when the result is minus) the contractor's next bill. The above formulae will be replaced by the formulae in Annexure-I as and when mentioned in special conditions of contract

The operative period of the contract for application of price variation shall mean the period commencing from the date of commencement of work mentioned in the work order and ending on the date when time allowed for the work order and ending on the date when time allowed for the work specified in the contract for work expires, taking into consideration, the extension of time, if any, for completion of the work granted by Engineer under the relevant clause of the conditions of contract in cases other than those where such extension is necessitated on account of default of the contractor.

The decision of the Engineer as regards the operative period of the contract shall be final and binding on the contractors.

iii) Where there is no supply of controlled items to contractor the component 'C' shall be taken as zero.

C) Adjustment after completion: If the Contractor fails to complete the works within the time for completion prescribed under Clause 8(d), adjustment of prices thereafter until the date of completion of the works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices whichever is more favorable to the employer, provided that if an extension of time is granted pursuant to condition 8 (d), the above provision shall apply only to adjustments made after the expiry of such extension of time.

D) Price variation will be calculated similarly and separately for extra items and / or excess quantities and provisional sums calculated under Sub Clause 10 (b)A (i)&(ii) and Sub Clause 10

(c) B(ii) based on the above formula/formulae in Annexure-I as and when mentioned in Special conditions of contract; IO and WO being the indices applicable to the date on which the rates under Sub Clause 10 (a)A (i)&(ii) and Sub Clause 10 (a) B(iii) are fixed. No price variation shall be admissible for FAIR items created during execution.

E) Maximum Price Variation shall be as follows:

Time Period of Project	Maximum limit of Price Variation
Up to 12 months	No Variation Allowed
Above 12 months to 24 Months	5%
Above 24 months	10%

**\*Approval of AMC/MC shall be obtained before invitation of tender in case of any changes in above.**

Price Variation during Extended Period of Contract :

(i) Extension Due To Modification & Extension for delay due to MCGM :

The price variation for the period of extension granted shall be limited to the amount payable as per the Indices in case the indices increases or decreases, above/below the

indices applicable, to the last month of the original or extended period

vide clause 8(1)(a)(i) and (ii) of standard GCC

(ii) Extension Of Time For Delay Due To Contractor:

(a) The price variation for the period of extension granted shall be limited to the amount payable as per the Indices in case the indices increase, above the indices applicable, to the last month of the original completion period or the extended period vide above clause.8(1)(b) of standard GCC. **However, the price variation shall not be paid in any case for the extended period on account of delay due to contractor.**

(b) The price variation shall be limited to the amount payable as per the indices, in case the indices decrease or fall below the indices applicable, to the last month of original / extended period of completion period vide above clause 8(1)(b) of standard GCC, then lower indices shall be adopted.

(iii) Extension of Time For Delay due to reasons not attributable to MCGM and Contractor (Reference Cl.8(d) of Standard GCC):

The price variation for the period of extension granted shall be limited to the amount payable as per the Indices in case the indices increases or decreases, above/below the indices applicable, to the last month of the original period. Also, the reasons for granting extension shall be properly documented.

**Note:** Price Variation shall be applicable for this contract without any cap.

## **11. Measurements:**

### **11.a) Records and Measurement:**

The Engineer shall except as otherwise stated ascertain and determine by measurement the value in accordance with the Contract of work done in accordance therewith.

All items having a financial value shall be entered in measurement book, level book etc. as prescribed by the Municipal Corporation so that a complete record is obtained of all the Works performed under the Contract.

Measurements shall be taken jointly by the Engineer or his authorized representative and by the Contractor or his authorized representative. Before taking measurements of any work the Engineer or the person deputed by him for the purpose shall give a reasonable notice to the Contractor. If the Contractor fails to attend or send an authorized representative for measurement after such a notice or fails to countersign or the objection within a week from the date of measurement, then in any such event measurements taken by the Engineer or by the person deputed by him shall be taken to be correct measurements of the works and shall be binding on the Contractor.

The Contractor shall, without any extra charge, provide assistance with every appliance and other things necessary for measurements.

Measurements shall be signed and dated by both parties each day (of taking measurement) on the site on completion of measurement.

### **11.b) Method of Measurement:**

Except where any general or detailed description of the work in bills of quantities or schedule of works / items / quantities expressly shown to the contrary, bills of quantities shall be deemed to have been prepared and measurements shall be taken in accordance with the procedure set forth in the schedule of rates / specifications notwithstanding any provision in the relevant standard Method of Measurement or any general or local custom. In the case of items which are not covered by the schedule of rates / specifications, measurement shall be taken in accordance with the relevant Standard Method of Measurement issued by Bureau of Indian Standards.( BIS 1200)

## **12. Payments, Tax and Claims:**

### **12 a. Provisional sum and Advances:**

1. Provisional sum' means a sum included in the contract and so designated in the Bill of Quantities for the execution of work or supply of goods, materials or services or for contingencies, which sum may be used, in whole or in part, or not at all, at the direction and discretion of the Engineer. The contract price shall include only such amounts in respect of the work, supply or service to which such provisional sum relate as the Engineer shall approve or determine in accordance with this clause.

2. In respect of every provisional sum the Engineer shall have power to order to execute the work, including goods, materials or services to be supplied by the contractor. The contract price shall include the value of such work executed or such goods, materials or services supplied determined in accordance with Sub Clause 10 b.

The contractor shall produce all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of provisional sums.

The Corporation will make advance to the contractor for the works in two installments.

The first installment shall be equal to 5% of the contract price. The payment of the first installment of loan be due after (i) execution of the form of agreement by the parties thereto. (ii) payment of Security Deposit by the Contractor and (iii) Submitting the Bank Guarantee by the Contractor from a Bank specified in the tender for an amount equal to 7% (with includes 2% extra for the interest charges) of the Contract price. The first installment of advance loan shall be paid to the Contractor within 28 days after fulfilling all the above requirements under sub items (i) to (iii).

Payment of second installment of the advance mobilization loan upto 5 (five) percentage of the Contract price will be due within a period of 28 days from completion preliminary site establishment works such as construction of access roads to site, Engineer's office, Contractor's site office, Stores, Workshop sheds, etc. to the satisfaction of the Engineer.

After certification by the Engineer that the preliminary works are completed satisfactorily, the second installment will be released after the Contractor submits the Bank Guarantee from a Bank acceptable to the Corporation for an amount equal to 7% (which includes 2% extra for interest charges) of the Contract price.

Bank Guarantee shall be submitted in the approved prescribed form. The Bank Guarantee/s for the Advance Mobilization Loan should be valid till the full recovery advance is made.

The Contractor shall use the advance payment only towards expenses for materials, preliminary site establishments works, and construction equipment and to meet expenses required specifically to carry out the works.

The above advance shall bear simple interest at 12% per annum. The interest on the amounts paid as advance is chargeable from the date the amount is paid.

Provided that the Engineer shall, however, have the right to reject any such material or to disallow the use of any such materials and Construction Equipment, for which advance is paid but are later found to be defective and to order their removal. In case of such rejection, disapproval, or order for removal all loss resulting there from shall be borne by the Contractor; it being the intention of such advance that any such advance as aforesaid shall be treated only as advance on general account and that any such materials and Construction Equipment shall continue to be subject to all the provisions of the contract.

### **RECOVERY OF ADVANCE :**

Recovery of advance mobilization loan; The advance mobilization loan together with simple interest at 7 percent shall be repaid from the Contractor's monthly statements. The recovery of advance mobilization loan shall commence after 2 months from initial commencement. The recovery shall be made together with the interest payable up to that date, until such time, the loan together with interest shall be completely repaid by the time 80 percent of value of the Works are completed or before completion/foreclosure of the Contract.

On recovery of advance mobilization loan and interest thereon, the Bank Guarantees of equivalent amount will be returned to the Contractor on his formal request, provided that such a request shall not be at intervals less than three months and the Engineer is satisfied that the Contractor is performing satisfactorily and diligently. Recovery of all advances shall commence after 2 months from commencement.

### **12b. Interim Payment :**

Interim bills shall be submitted by the Contractor from time to time (but at an interval of not less than one month) for the works executed. The Engineer shall arrange to have the bills verified by taking or causing to be taken, where necessary, the requisite measurement of work.

Payment on account for amount admissible shall be made on the Engineer certifying the sum to which the Contractor is considered entitled by way of interim payment for all the work executed, after deducting there from the amount already paid, the security deposit / retention money and such other amounts as may be deductible or recoverable in terms of the contract.

On request, the contractor will be paid upto 75 percent of the value of the work carried out as an adhoc payment in the first week of next month after deducting there from recoveries on account of advances, interest, retention money, income tax etc. The balance payment due will be paid thereafter.

No interim payment will be admitted until such time the Contractor have fully complied with the requirement of the Condition no.8 (h) and 8 (i) concerning submission and approval of Network Schedule for the works, as detailed in Condition 8 (i). A fixed sum shall be held in abeyance at the time of next interim payment for non-attainment of each milestone in the network and shall be released only on attainment of the said milestone.

An interim certificate given relating to work done or material delivered may be modified or corrected by a subsequent interim certificate or by the final certificate. No certificate of the Engineer supporting an interim payment shall of itself be conclusive evidence that any work or materials to which it relates is / are in accordance with the contract.

### **12c.Payment on intermediate certificate to be regarded as advances :**

No payment shall be made for any work estimated to cost less than Rupees One Thousand till after the whole of work shall have been completed and the certificate of completion given. But in the case of works estimated to cost more than Rs. One Thousand, the contractor shall on submitting a monthly bill therefor be entitled to receive payment proportionate to the part of the work than approved and passed by the Engineer In-charge, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor. All such intermediate payments shall be regarded as payments by way of advance against the final payments only and not as payments for work actual done and completed and shall not preclude the Engineer In-charge from requiring any bad, unsound, imperfect or unskillful work to be removed or taken away and reconstructed or re-erected nor shall any such payment be considered as an admission of the due performance of the contract or any part thereof in any respect or the offering of any claim not shall it conclude, determine or effect in any other way, the powers of the Engineer In-charge as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary or effect the contract. The final bill shall be submitted by the Contractor within one month of the date fixed for the completion of the work otherwise the Engineer In-charge's certificate of the measurements and of the total amount payable for the work shall be final and binding on all parties.

### **12d.No interest for delayed payments due to disputes, etc:**

It is agreed that the Municipal Corporation of Greater Bombay or its Engineer or Officer shall not be liable to pay any interest or damage with respect of any moneys or balance which may be in its or its Engineer's or officer's hands owing to any dispute or difference or claim or misunderstanding between the Municipal Corporation of Greater Bombay or its Engineer or Officer on the one hand and the contractor on the other, or with respect to any delay on the part of the Municipal Corporation of Greater Bombay or its Engineer or Officers in making periodical or final payments or in any other respect whatever.

It is distinctly understood and agreed between the parties hereto that payment for work already executed by the Contractor is not a condition precedent under this contract for the execution of the remaining work.

### **12e.Receipts to be signed in firm's name by any one of the partners:**

Every receipt for money which may become payable or for any security which may become transferable to the Contractor under these present shall, if signed in the partnership name by any one of the partners, be a good and sufficient discharge to the Commissioner and Municipal Corporation in respect of the money or security purporting to be acknowledged thereby, and in the event of death of any of the partners during the pendency of this contract, it is hereby expressly agreed that every receipt by any one of the surviving partners shall, if so signed as aforesaid, be good and sufficient discharge as aforesaid provided that nothing in this clause contained shall be deemed to prejudice or effect any claim which the Commissioner or the Corporation may hereafter have against the legal representatives of any partners so dying or in respect of any breach of any of the conditions thereof, provided also that nothing in this clause contained shall be deemed prejudicial or affect the respective rights or obligations of the

Contractors and of the legal representatives of any deceased Contractors interest.

### **12f.Overpayment and underpayment:**

Whenever any claim for the payment of a sum to the Municipal Corporation rises out of or under this contract against the Contractor the same may be deducted by the Municipal Corporation from any sum then due or which at any time thereafter may become due to the Contractor under this contract and failing that under any contract with the Municipal Corporation or from any other sum due to the Contractor from the Municipal Corporation (which may be available with the Municipal Corporation) or from his security deposit / retention money, or he shall pay the claim on demand.

The Municipal Corporation reserves the right to carry out post payment audit and technical examination of the final bill including all supporting voucher, abstracts etc. The Municipal Corporation further reserves the right to enforce recovery of any over payment when detected.

If as a result of such audit and technical examination any overpayment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the Contract, it shall be recovered by the Municipal Corporations from the Contractor by any or all of the methods prescribed above or if underpayment is discovered the amount shall be duly paid to the Contractor by the Municipal Corporation.

Provided that the aforesaid right of the Municipal Corporation to adjust overpayment against amount due to the Contractor under any other contract with Municipal Corporation shall not extend beyond the period of five years from the date of payment of the final bill or in case the final bill is a 'Minus' bill, from the date of the amount payable by the Contractor under the 'Minus' bill is communicated to the Contractor. However, to adjust overpayment/recovery from the contractor MCGM reserves the rights to recover these payments at any point of time against any other contract with Municipal Corporation and shall not be limited to any prescribed time limits

Any amount due to the Contractor under this contract for underpayment may be adjusted against any amount then due or which may at any time thereafter become due before payment is to the Contractor, from him to Municipal Corporation on any other contract or account whatsoever.

### **12g.Payment of final bill:**

Final joint measurement alongwith the representatives of the contractor should be taken recorded and signed by the Contractors. Contractors should submit the final bill within 1 month of physical completion of the work.

If the contractor fails to submit the final bill within 1 month, the MCGM staff will prepare the final bill based on the joint measurement within next 3 months.

Engineer's decision shall be final in respect of claims for defect and pending claims against contractors.

No further claims should be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payment of those items of the bills in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by the Commissioner shall be made within a reasonable period as may be necessary for the purpose of verification etc.

After payment of the final bill as aforesaid has been made, the contractor may, if he so desires, reconsider his position in respect of a disputed portion of the final bills and if he fails to do so within 84 days, his disputed claim shall be dealt with as provided in the contract.

A percentage of the retention money, over and above the actual retention money as indicated below shall be held back from payments till the finalization of final bill to be submitted as per above and will be paid within 30 days of acceptance of the final bill.

Sr .n o.	Amount of Contract Cost	Minimum Payable Amount in final bill
1	Upto Rs.5 Crs.	Rs.10 Lacs or final bill whichever is more
2	Upto Rs.25 Crs.	Rs.1 Crore or final bill amount whichever is more
3	Upto Rs. 50 Crs.	Rs.2 Crores or final bill amount whichever is more
4	Upto Rs.100 Crs.	Rs.4 Crore or final bill amount whichever is more
5	More than Rs.100 Crs..	Rs.7 Crore or final bill amount whichever is more

The contractor have to submit the bill for the work carried out within 15 days from the date of completion of the work to the respective executing department. If the contractor fails to submit their bills to concerned executing department, penalty or action as shown below will be taken for each delayed bill:-

After 15 days from the date of completion/running bill upto certain date, upto	Equal to 5% of bill amount
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next 15 days i.e. upto 30 days	
Next 15 days upto 45 days from the date of completion/running bill upto specified date	Equal to 10% of bill amount
If not submitted witin 45 days from the date of completion/ R.A. bill	Bill will not be admitted for payment.

### **12.a) Income-Tax:**

The Contractor shall pay Indian Income-Tax on all payments made to him under the Contract, other than reimbursements made to him by the Corporation to cover payment by Contractor of minor custom duties, etc. or any other payment which the contractor may make on the Corporation's behalf. Under the provisions of Sec. 194-c of the Indian Income Tax Act, the Corporation is required to deduct Tax with surcharge, if applicable, at source at prevailing rates from the gross amount of each bill submitted. Any expatriate site staff or staff not normally residents of India, employed by the Contractor shall pay personal Income Tax on all money earned and paid in India. The contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.

### **12.b) Currency of Payment:**

The Tenderer shall indicate the tender prices in Indian Rupees.

### **12.c) Taxation Payments of Bills and other claims:**

Regarding taxation the prices quoted by the Contractor shall include all customs duties, import duties, excise duties, business taxes, income and other taxes that may be levied in accordance to the laws and



regulation in force as of the date 28 days prior to dead line for submission of tenders on the Contractor's Equipment materials and supplies (Permanent, temporary and consumables) to be used on or furnished under the contract and on the services to be performed under the contract. Nothing in the contract shall relieve the contractor from his responsibility to pay any tax that may be levied in the Employer's country on profits made by him in respect of the contract.

The contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.

All charges on account of Octroi, terminal or Sales Tax and other duties on material obtained for the works from any source including the tax applicable as per Maharashtra Sales Tax Act on the transfer of property in the goods involved in the execution of works contract (re-enacted) Act, 1991 etc. shall be borne by the Contractor.

Except as otherwise specifically provided in the contract, the contractor shall be liable and responsible for the payment, of all taxes, such as excise duty, custom duty, sales tax, Value Added Tax including the purchase tax, consignment tax, work contract tax, service tax, entry tax or any other similar tax in the state concerned, turnover tax, toll tax, octroi charges, royalty, labour cess, levy and other tax(es) or duty(ies) which may be specified by local/state/ central government from time to time on all material articles which may be used for this work. The rates quoted by him in the tender in bill of quantities shall be inclusive of all taxes, duties, levies etc. Under the provisions of the Maharashtra Sales Tax Act, the Employer is required to deduct "Work Contract Tax" at source at the rates prevailing at the time of payments.

The payment of bills and other claims arising out of the contract will be made by RTGS/NEFT/CBS/ECS/Cheque in the name of Contractors payable to the account and Name of Bank informed by the successful contractors. Successful Tenderers, therefore, have to furnish the information as regards, the Name and complete address of their Bank, its branch and their Bank Account no. etc. They will also have to submit fresh information when there is any change in this regard.

### **12.K) Submissions of final completion drawings:**

On completion of the work, the contractors shall furnish wherever applicable free of cost 1 set of R.T.F of final completion drawings and 6 bound sets of copies of drawings, showing all the details checked and signed by the Engineer within one month of completion of works. The payment of final bill shall be made to the contractors after receipt of above sets. In case the contractor fails to submit the completion drawings, compensation at the rate of Rs.5000/- per drawing or minimum Rs 50,000 whichever is more shall be recovered from the final bills.

## **13. Settlement of Disputes:**

### **13.a) Termination of contract for death:**

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the legal representative of the individual Contractor or the proprietor of the proprietary concern and in case of partnership, the surviving partners, are capable of carrying out and completing the contract, the Commissioner shall be entitled to cancel the contract as to its uncompleted part without the Corporation being in any way liable to payment of any compensation to the estate of the deceased Contractor and or to the surviving partners of the Contractor's firm on account of the cancellation of the contract. The decision of the Commissioner that the legal representative of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the contract shall be final and binding on the parties. In the event of such cancellation the Commissioner shall not hold estate of the deceased Contractor and or surviving partners of the Contractor's firm liable in damages for not completing the contract.

### **13.b) Urgent Works:**

If any Urgent Work (in respect whereof the decision of the Engineer shall be final and binding) becomes necessary and the Contractor is unable or unwilling at once to carry it out, the Engineer may be his own or other work people, carry it out as he may consider necessary. If the urgent work shall be such as the Contractor is liable under the contract to carry out at his expense all expense incurred on it by the Municipal Corporation shall be recoverable from the Contractor and be adjusted or set off against any sum payable to him.

### **13.c) Foreclosure of contract in full or in Part:**

If at any time after acceptance of the tender the Commissioner shall decide to abandon or reduce the scope of the works or any part of the works to be carried out, he shall inform the Contractor in writing to that effect and the Contractor shall have no claim to any payment or compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The Contractor shall be paid at the contract rates full amount of works executed at site, and in addition reasonable amount as certified by the Engineer for the value of such Material (which material thereupon become the property of the Corporation) and also such further allowances as the Engineer may think reasonable and fair in respect of (a) any expenditure incurred by the contractor towards preliminary works etc. and (b) other reasonable and proper engagement the contractor may have entered into for carrying out the work, (c) such compensation as considered equitable under the circumstances.

### **13d. Settlement of Disputes:**

If any dispute or differences of any kind whatsoever other than those in respect of which, the decision of any person is, by the Contract, expressed to be final and binding) shall arise between the Employer and the Contractor or the Engineer and the Contractor in connection with carrying out of the Works (Whether during the progress of the Works or after their completion and whether before or after the termination, abandonment or breach of the Contract) it, the aggrieved party may refer such dispute

within a period of 7 days to the concerned Addl. Municipal Commissioner who shall constitute a committee comprising of three officers i.e. concerned Deputy Municipal Commissioner or Director (ES&P), Chief Engineer other than the Engineer of the Contract and concerned Chief Accountant. The Committee shall give decision in writing within 60 days.

Appeal on the Order of the Committee may be referred to the Municipal Commissioner within 7 days. Thereafter the Municipal Commissioner shall constitute a Committee comprising of three Addl. Municipal Commissioners including Addl. Municipal Commissioner in charge of Finance Department. The Municipal Commissioner within a period of 90 days after being requested to do so shall give written notice of committee's decision to the Contractor. Save as herein provided such decision in respect of every matter so referred shall be final and binding upon both parties until the completion of the works, and shall forthwith be given effect to by the Contractor who shall proceed with the works with due diligence, whether he requires arbitration as hereinafter provided or not. If the Commissioner has given written notice of the decision to the Contractor and no Claim to arbitration has been communicated within a period of 90 days from receipt of such notice the said decision shall remain final and binding upon the Contractor.

### **13e. Arbitration and Jurisdiction:**

If the Commissioner shall fail to give notice of the decision as aforesaid within a period of 90 days after being requested as aforesaid, or if the Contractor be dissatisfied with any such decision, then and in any such case the Contractor may within 90 days after receiving notice of such decision or within 90 days after the expirations of the first named period of 90 days (as the case may be) require that the matter or matters in dispute be referred to arbitration as hereinafter provided. All disputes or differences in respect of which the decision (if any) of the Commissioner has not become final and binding as aforesaid shall be finally settled by arbitration as follows:

Arbitration shall be effected by a single arbitrator agreed upon the parties. The arbitration shall be conducted in accordance with the provisions of the Arbitration Act, 1996 or any statutory modifications thereof, and shall be held at such place and time within the limits of Brihan Mumbai as the arbitrator may determine. The decision of the arbitrator shall be final and binding upon the parties hereto and the expense of the arbitration shall be paid as may be determined by the arbitrator. Performance under the Contract shall, if reasonably be possible, continued during the arbitration proceedings and payment due to the Contractor by the Employer shall not be withheld unless they are the subject matter of arbitration proceedings. The said arbitrator shall have full power to open up, review and revise any decision, opinion, direction, certification or valuation of the Commissioner and neither party shall be limited in the proceedings before such arbitrator to the evidence or arguments put before the Commissioner for the purpose of obtaining his said decision. No decision given by the Commissioner in accordance with the foregoing provisions shall disqualify him from being called as a witness and giving evidence before the arbitrator on any matters whatsoever relevant to the disputes or difference referred to the arbitrator as aforesaid.

All awards shall be in writing and for claims equivalent to 5,00,000 or more such awards shall state reasons for amounts awarded. The expenditure of arbitration shall be paid as may be determined by arbitrator.

In case of any claim, dispute or difference arising in respect of a contract, the cause of action thereof shall be deemed to have arisen in Mumbai and all legal proceedings in respect of any claim, dispute or difference shall be instituted in a competent court in the City of Mumbai only

### **13f. Details to be Confidential:**

The Contractor shall treat the details of the Contract as private and confidential, save in so far as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the previous consent in writing of the Employer or the Engineer. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the contract the same shall be referred to the Employer whose determination shall be final.

### **13g.Cancellation of contract in full or in part:**

If the Contractor:

- At any time makes default in proceeding with the work with due diligence and continues to do so after notice in writing of fourteen days from the Engineer, or
- Commits default in complying with any of the terms and conditions of contract and does not remedy it within fourteen days after a notice in writing is given to him in that behalf by the Engineer, or
- Fails to complete the Works or items with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer, or
- Shall offer or give or agree to give to any person in Municipal Corporation's Service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for the Municipal Corporation, or
- Shall obtain a contract with the Municipal Corporation as a result of ring tendering or other non-bonafide methods of competitive tendering or
- Being an individual or a firm, any partner thereof, shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than voluntary liquidation for the purpose of amalgamation or reconstruction) under any insolvency act for the time effects or force or make any conveyance of assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for his creditors, or
- Being a company, shall pass a resolution or the court shall make an order for the liquidation of his affairs, or a receiver or a manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or a Manager, or
- Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days, or
- Assigns, transfers, sublets (engagement of labour on a piece work basis or labour with materials not to be incorporated in the work, shall not be deemed to be sub-letting) or attempts to assign, transfer or sublet the entire works or any portion thereof without the prior written approval of the Commissioner, the Commissioner may, without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to the Municipal Corporation by written notice cancel the contract as a whole or only such items of work in default from the contract.

The Commissioner shall on such cancellation have powers to -

- take possession of site and any materials, constructional plant, implements stores, etc. thereon and / or
- Carry out the incomplete work by any means at the risk and cost of the Contractor.

On cancellation of the contract in full or in part the Engineer shall determine what amount, if any, is recoverable from the Contractor for completion of works or part of the works or in case the works or

part of works is completed, the loss or damage suffered by the Municipal

Corporation, in determining the amount, credit shall be given to the Contractor for the value of the work executed by him upto the time of cancellation, the value of the Contractor's material taken over and incorporated in the work, and use of construction equipment belonging to the Contractor.

Any excess expenditure incurred or to be incurred by the Municipal Corporation in completing the works or part of the works or excess loss or damages suffered or may be suffered by the Municipal Corporation as aforesaid after allowing such credit shall be recovered from any money due to the Contractor on any account and if such moneys are not sufficient the Contractor shall be called upon in writing to pay the same within thirty days. If the Contractor fails to pay required sum within the aforesaid period of 28 days, the Engineer shall have right to sell any or all of the Contractor's unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the contract, and if thereafter there be any balance outstanding from the Contractor, it shall be recovered in accordance with provision of the contract.

Any sums in excess of the amounts due to the Municipal Corporation and unsold materials constructional plant, etc. shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by the Municipal Corporation of the works or part of the works is less than the amount of which the Contractor would have been paid had he completed the works or part of the works, benefit shall not accrue to the Contractor.

Without prejudice to the generally of the foregoing, the amount deposited by the Contractor as security deposit shall be absolutely aforesaid to the Corporation for such failure, or breach or determination of contract.

### **13 h) Frauds and Corrupt Practices:**

The Contractor and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the execution of the works until the settlement of final bill. Notwithstanding anything to the contrary contained herein, the Employer may terminate a Contractor without being liable in any manner whatsoever to the Contractor if it determines that the Contractor has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice or undesirable practice during the works execution.

Without prejudice to the rights of the Employer under Clause 13 (h) hereinabove, if a Contractor is found by the Employer to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice or undesirable practice during the execution of Works, such Contractor shall not be eligible to participate in any tender or RFQ issued by the Employer during a period of 10 (ten) years from the date such Contractor is found by the Employer to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice or undesirable practice, as the case may be.

- **corrupt practice**” means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Works (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any representative of the Employer who is or has been

associated in any manner, directly or indirectly, with the Works or before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Employer, shall be deemed to constitute influencing the actions of a person connected with the Works.

- “**fraudulent practice**” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Works ;
- “**coercive practice**” means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Works.

## 14. Notices

### 14 a) Instructions and notices:

Subject as otherwise provided in this contract all notice to be given on behalf of the Municipal Corporation and all other actions to be taken on its behalf may be given or taken by the Engineer or any officer for the time being entrusted with the functions, duties and powers of the Engineer.

All instructions notices and communications etc. under the contract shall be given in writing and if sent by registered post to the last known place or abode or business of the Contractor shall be deemed to have been served on the date when in the ordinary course of post these would have been served on or delivered to him.

The Contractor or his agent shall be in attendance at the site(s) during all working hours and shall supervise the execution of the works with such additional assistance in each trade as the Engineer may consider necessary. Orders given to the Contractor’s agent shall be considered to have the same force as if they had been given to the Contractor himself.

The Engineer shall communicate or confirm his instruction to the Contractor in respect of the execution of work in a ‘Works site order Book’ maintained in the office of the Engineer and the Contractor or his authorized representative shall confirm receipt of such instructions by signing the relevant entries in this book. If required by the Contractor he shall be furnished a certified true copy of such instruction(s).

If the Contractor fails to comply with the instruction(s) of the Engineer, the Engineer may impose the penalty of Rs.5000/- (Rupees Five Thousand) or equivalent cost for re-doing the faulty work, whichever is more, for each of such defaults. This penalty will not prejudice the right of the Municipal Commissioner or the Engineer to claim compensation.

## **14.b) Notices to Local Bodies :**

The Contractor shall comply with and give all displays required under any Governmental authority, instrument, rule or order made under any Act of Parliament, State Laws or any regulation or Bye-laws of any local authority or public utility concern relating to works. He shall before making any variation from the contract drawings necessitated by such compliance give to the Engineer a notice given reasons for the proposed variations and obtain the Engineer's instructions thereon. The Contractor shall pay and indemnify the Municipal Corporation against any liability in respect of any fees or charges payable under Act of Parliament, State Laws or any Governmental Instrument, Rule or Order and any Regulations or Bye-laws of any local authority or public utility concern in respect of the works.

## **15 PENAL ACTION**

### **PENALTIES**

In addition to any penal action under general conditions of individual contracts, a contractor/s may be liable under these Rules to one or more of the following penalties:

- a. Warning (7.1.1)
- b. Fine (7.1.1)
- c. Demotion (7.1.2)
- d. Banning / De-registration (7.1.3.)
- e. Suspension of Registration pending inquiry (7.1.4)
- f. Debarring (7.1.5)

### **WARNING / FINE**

A contractor/s will be liable to a warning and / or fine for -

- a. Non-compliance of any provision of these rules,
- b. Failure to comply with any clause or direction under these Rules or failure to comply with any condition of tenders / contracts and
- c. Inadequate progress / performance under a contract.

For the first default of any type mentioned above, a warning letter/notice will be issued. For each subsequent default of the types in (a), (b) & (c) above, the minimum penalty will be imposed to the contractor as per the penalties mentioned in the contract document under general condition of contract or special condition of contract. Higher amount of fine may be levied by the competent authority i.e. defined under Engineer of the Project, for the reasons to be recorded.

### **15.1.2 DEMOTION**

A contractor/s is liable to be demoted to any of the lower classes of registration on one or more of the following grounds -

- a. Specific failure or default in execution of individual works, in respect of physical progress or quality in such works,
- b. Deterioration in financial or technical ability / capacity and
- c. Repeated failure to properly fill in tender document/s, fully and correctly or delay in execution of formal contract documents

Note: Demotion from the lowest class of registration will amount to banning/de-registration of registration for the period specified. In such cases, the registration of the contractor/s will stand restored after the period of demotion/banning/de-registration.

### **15.1.3 BANNING - DE-REGISTRATION**

Banning / Deregistration will be for a specific period or permanent banning / Deregistration.

A contractor/s is liable to be Banned / De-registered on one or more of the following grounds: -

- a) If security considerations including question of loyalty to the MCGM so warrant,
- b) If the proprietor of the firm, its employee, partner or representative is convicted by a court of law following of investigation or under normal process of law for offences involving moral turpitude in relation to business dealings viz. Conviction by court of law,
- c) If there is strong justification for believing that the proprietor or employee, or representative of the firm has been guilty of malpractices such as bribery, corruption, fraud substitution of tenders, interpolation, misrepresentation, evasion or habitual default in payment of any tax levied by law,
- d) If the firm continuously refuses to return MCGM or State Govt. dues without showing adequate cause, and MCGM is satisfied that this is not due to a reasonable dispute which would attract proceedings in arbitration or court of law,
- e) If the firm employs a MCGM or State Govt. servant, dismissed/removed on account of corruption, or employs a non-official convicted for an offence involving corruption or abetment of such an offence, in a position where he could corrupt Govt. Servants,
- f) Persistent and intentional violation of important conditions of contract. Not attaining required quality of work and non-execution of works as per terms and conditions of contract. Constant non-achievement of milestone on insufficient and imaginary grounds and non-adherence to quality specifications despite being pointed out,
- g) An attempt to cheat MCGM , an attempt to secure a contract through unfair means or bringing to bear outside influence, an attempt to secure unauthorized copies of Municipal records and documents in relation to any tender / contract or any other official matter, an attempt to tamper with Municipal record and documents, threatening, misbehaving with or physical attack on any Municipal employee/ Officer,
- h) An attempt to instigate or collude with other contractor/s with a view to securing undue advantage,
- i) Any of the grounds mentioned in clause Demotion, if it is deemed serious enough

### **15.1.4 SUSPENSION OF REGISTRATION PENDING INQUIRY**

Whenever any Show Cause Notice is issued to the contractor/s calling for the explanation on the alleged lapses by him, the registration of contractor/s may be banned / suspended up to the arrival of final outcome of the said Show cause notice, depending on the seriousness of the reasons for which show cause notice is issued. Show cause notice shall be issued by the officer not below the rank of Executive Engineer in charge of the concerned work / project of MCGM. Director (E. S. & P.) or concerned Deputy Municipal Commissioner is the competent authority to ban / suspend the registration pending inquiry in such cases. Circular of Banning / suspension of registration till further orders shall be circulated to all departments of MCGM by Head of the executing department i.e. Chief Engineer of concerned department / Assistant Commissioner of the concerned Ward.

The registration of the contractor/s will be restored depending on the final outcome of the process of the said Show Cause Notice and circular to that effect shall be issued by concerned Head of the Department



### **15.1.5 DEBARRING**

Debarring is the penal action to be initiated against the Contractors who are carrying out works for M.C.G.M. and are not registered with M.C.G.M. All other criteria and procedure of penal action (i.e. observed for suspension, banning, demotion, deregistration) will remain similar as mentioned in penal action clause 7.

### **AUTHORITY**

- 15.2.1** On the basis of reports received, concerned Chief Engineer (including City / Hydraulic Engineer) in case of central agencies and Assistant Commissioner in case of Ward Offices of MCGM will be competent, either suo-motu or, to issue warning and/or impose fine and order of demotion to contractor/s. The power to issue warning or impose any fine can also be exercised by the Executive Engineer concerned in-charge of construction in accordance with General Contract Condition specified in tender.
- 15.2.2** On the basis of report/s received from concerned Chief Engineer or Assistant Commissioner, the Director (E.S. & P.) or concerned Deputy Municipal Commissioner will be competent, either suo-motu, or to impose any of the penalties mentioned in clause 7.1 on the contractor/s.
- 15.2.3** On the basis of report/s, the Municipal Commissioner or any of the Additional Municipal Commissioners will be competent, either suo-motu, or to impose any of the penalties mentioned in clause 7.1 on the contractor/s.

### **PROCESS**

- 15.3.1** Before initiating action for demotion / banning / suspension / de-registration, the competent authority not below the rank of Executive Engineer in charge of the concerned work/project of MCGM, shall issue a Show Cause Notice to the contractor/s, as to why penal action should not be taken against the said contractor/s. The notice period shall not be less than 15 days and shall be counted from the date of receipt of the notice by the contractor/s and can be extended, for adequate reasons (to be recorded), by the officer who issued the said notice, up to a period of 30 days (including the initial period).
- 15.3.2** If the contractor/s fails to give satisfactory clarification within the period stipulated in the show cause notice (or, the extended period, if any), the concerned Chief Engineer / Assistant Commissioner shall either take a final decision regarding the demotion with specific time period or permanently or make detailed report with recommendations for suspension / banning / de-registration to the Director (E. S. & P.) or concerned Deputy Municipal Commissioner / Additional Municipal Commissioner / Municipal Commissioner. Before issuing a final order regarding demotion, the Chief Engineer / Assistant Commissioner shall give personal hearing to contractor/s or his/their authorized representative on his request in writing, along with his/their letter of clarification.
- 15.3.3** The competent authority i.e. Dir. (E. S. & P.) / concerned Deputy Municipal Commissioner / A.M.C. / Municipal Commissioner, shall give personal hearing to contractor/s or his/their authorized representative on his request in writing along with his/their letter of clarification, before taking final decision on banning / de-registration of the contractor/s with specific time period or permanently.
- 15.3.4** As far as practicable, the competent authority i.e. Chief Engineer / Assistant Commissioner of that concerned department or Dir. (E.S. & P.) / concerned Deputy Municipal Commissioner / A.M.C. / Municipal Commissioner, shall take final decision regarding demotion / banning / de-registration within 15 days of completion of hearing of the contractor/s.
- 15.3.5** Any order of penalty passed by the competent authority i.e. Chief Engineer / Assistant Commissioner of that concerned department or Dir. (E. S. & P.) / concerned Deputy Municipal Commissioner / A.M.C. / Municipal Commissioner, under these Rules shall state the facts of the case and record the reasons for the order. In case of, suspension / banning and de-registration, the order shall also specify the name(s) of the proprietor / partner(s) / directors / power of attorney

holder of the contractor/s firm/ partnership / company as well as the period of demotion / suspension / banning / de-registration in his/their order, and shall intimate the contractor/s accordingly. A circular to that effect shall be issued to all departments of MCGM by the executing department who has initiated the action.

- 15.3.6** The decision regarding demotion / banning / de-registration shall be communicated to contractor/s immediately with directions to submit the original registration certificate to the Monitoring & Registration Cell within 15 days from the date of receipt of the order regarding demotion / banning / de-registration, for taking necessary endorsement on the same. If any contractor/s does not comply with this requirement within the period of 15 days mentioned above, He / they shall be deemed to have been de-registered automatically at the expiry of the above mentioned period, even if the penalty imposed was demotion/banning/suspension for a specific period.

### **APPEALATE AUTHORITIES FOR PENAL ACTION**

- a. In case of Demotion Director(E.S. & P.) or concerned Deputy Municipal Commissioner is the authority and,
- b. In case of banning/de-registration Additional Municipal Commissioner / Municipal Commissioner are the final authorities

### **REVOCAION OF ORDER / RESTORATION OF REGISTRATION**

The Suspended / Banned / Demoted / contractor/s shall be restored to the Original Class under which contractor/s was originally registered or as per the sanction of the competent authority subject to following;

- a. An order for suspension/banning/demotion/deregistration passed for a certain specified period shall be deemed to have been automatically revoked on the expiry of that specified period and it will not be necessary to issue a specific formal order of revocation, except that an order of suspension/banning/demotion/ deregistration passed on account of doubtful loyalty or security consideration shall continue to remain in force until it is specifically revoked.

OR

- b. An order of suspension/banning/demotion/deregistration for reasons mentioned at aforesaid para may be revoked if, in respect of the same facts, the accused has been wholly exonerated by a court of law.

Circular regarding restoration shall be circulated to all departments of MCGM by Head of the executing department i.e. Chief Engineer of concerned department / Assistant Commissioner of the concerned Ward.

### **REVIEW**

The appellate Authorities may, on representation or appeals from the firms or even otherwise review suspension/banning/demotion/deregistration orders.

### **EFFECT OF BANNING / SUSPENSION / DE-REGISTRATION**

- 15.7.1 Once the order of banning / suspension / deregistration is issued, he will not be allowed to participate in any future tender process and if the contractor has already participated in tender process the bid shall be terminated at the instant stage. In case the order of banning/ suspension / deregistration is issued after the proposal is tabled before Standing Committee, the banning / suspension / deregistration order should be communicated to the Standing Committee by making a statement and the DL to MS will be withdrawn.

No contract of any kind whatsoever shall be placed with a banned / suspended / deregistered firm, including its allied firms by all Departments/offices of the MCGM after the issue of a banning order. Contracts concluded before the issue of the banning / suspension / deregistration order shall, however, not be affected by the banning / suspension / deregistration order. **Contracts concluded shall mean the date of**

## **issuance of 'Letter of Acceptance'.**

Even after banning / suspension / deregistration, the agency will be allowed to complete his other on-going works, unless otherwise rescinded by competent authority on grounds of breach of conditions of contract.

- 15.7.2 If registered contractor/s (a firm partnership or company) is de-registered/banned/ suspended, then any other registered contractor/s (a firm, partnership or company), with any partner or power of attorney holder who is also a partner or power of attorney holder of such partner or power of attorney holder of the de-registered/banned/ suspended contractor/s, shall also stand automatically de-registered/banned/ suspended,
- 15.7.3 Demotion / Banning / Suspension / Deregistration order passed in respect of a firm shall be extended to all its allied firms (see definition for details)
- ~~15.7.4 Proprietor / Partner/s / Director/s / Power of Attorney Holder/s of banned/suspended / deregistered firm shall not be allowed in Joint Ventures.~~
- 15.7.5 Demotion shall be restricted to one class immediately below the existing class of registration. Demotion from the lowest class of registration will amount to suspension of registration for the period specified
- 15.7.6 The Demotion / Banning / De-registration shall apply permanently or for the period specified in the order of Demotion / Banning / De-registration as per the sanction of competent authority i.e. Chief Engineer of that concerned department/ or Dir. (E.S. & P.) / concerned D.M.C. / A.M.C. / Municipal Commissioner, obtained by the executing department/s initiating the action.
- 15.7.7 De-registered/banned/suspended contractor/s, registered with MCGM in any class shall not be entitled to be issued any tender document/s or quotation/s for any MCGM works in any class during the period of De-registration/Banning/suspension. Further for bids in process, the contractor/s will not be considered for award of works /Contract in any class, even if the said de-registered/banned/suspended contractor/s is having registration of any other Govt. / Semi Govt. agency such as PWD/ CPWD /MJP / MHADA/MES/CIDCO etc. in any class. MCGM reserves the right to terminate the work in case of such default.
- 15.7.8 Demoted contractor/s, registered with MCGM in any class shall not be entitled to be issued any tender document/s or quotation/s for any MCGM works in any upper class during the period of Demotion even if, the said demoted contractor/s is having registration in any upper class from any other Govt. / Semi Govt. agency such as PWD/CPWD/MJP/MHADA / MES/ CIDCO etc. Further for bids in process, the contractor/s will not be considered for award of works / Contract in any upper class in such cases. MCGM reserves the right to terminate the work in case of such default.
- 15.7.8 Debarred Contractor/s (in case of Firms with outside registration) and/or contractors who are penalized by any other Govt. / Semi Govt. agency such as PWD/CPWD/MJP/MHADA/MES/CIDCO etc. shall not be entitled to be issued any tender document/s or quotation/s for any MCGM works in any class during the period of debarring. Further for bids in process, the contractor/s will not be considered for award of Works/Contract in any class, even if the said blacklisted contractor/s is having registration of MCGM or any other Govt. / Semi Govt. agency such as PWD/CPWD/MJP/MHADA/MES/CIDCO etc. in any class.

## **15.8 Payment upon banning / suspension / deregistration of firm**

If the Contractual agency is banned / suspended / deregistered for the appropriate reasons because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for value of the work done and materials ordered. Any excess expenditure incurred or to be incurred by the Municipal Corporation in completing the works or part of the works or excess loss or damages suffered or may be suffered by the Municipal Corporation due to sub-standard work shall be recovered from any money due to the Contractor on any account and if such moneys are not sufficient the Contractor shall be called upon in writing to pay the same within thirty days. If the Contractor fails to pay required sum within the aforesaid period of 30 days, the Engineer shall have right to

sell

any or all of the Contractor's unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the contract, and if thereafter there be any balance outstanding from the Contractor, it shall be recovered in accordance with provision of the contract.

Any sums in excess of the amounts due to the Municipal Corporation and unsold materials constructional plant, etc. shall be returned to the Contractor, provided always that if cost or anticipated cost of completion by the Municipal Corporation of the works or part of the works is less than the amount of which the Contractor would have been paid had he completed the works or part of the works, benefit shall not accrue to the Contractor.

#### 15.9 **REFUND OF FEES**

Demoted / banned / suspended or de-registered contractor/s shall not be entitled for refund of Registration / Up-gradation / Renewal fees.

#### 15.10 **RENEWAL FOR DEMOTED CONTRACTORS**

The renewal of demoted contractor/s shall be processed for original class and the penal action of demotion will continue till the specified period.

In case the validity of the suspended contractor/s falls in suspended period, the validity will be renewed after completion of suspension period, in continuation of validity of his registration without charging the penalty prescribed for renewal.

## **SECTION B: Safety Health & Environment**

### **CONTRACTOR'S HEALTH, SAFETY & ENVIRONMENT PROGRAMME**

#### **1. SAFETY ORGANISATION**

##### **1.1. SHE Policy**

The Contractor shall have a written health, safety and environment policy issued by the Chief Executive of the Organization, appropriate to the scale and nature of the risks involved in the contract works. A copy of the Policy shall be made available to the Employer at the time of contract in evidence of Contractor's commitment to management of employee's health and safety and compliance to Statutory and regulatory requirements. All Contractors' employees shall be familiar with the Safety Policy and their role and obligations in its implementation. The Policy shall meet the relevant statutory and regulatory requirements and the requirements of the Employer. The Policy shall periodically be reviewed for updating with respect to new and emerging legal and other requirements. SHE policy should focus and present well defined SHE objectives and targets.

##### **1.2 Site specific SHE Plan / Procedures / Forms & Documents**

Contractor will have to prepare & get SHE plan approved from the Employer's representative. Contractor will work as per OHSAS guidelines. Contractor can use Forms available with client's representative to show documentary evidence of compliance.

##### **1.3 Safety Representative**

- a) The Contractor shall appoint a Safety Representative (SR) meeting statutory competence requirements, with a minimum experience of five years of safety management in comparable contracts, approved by the Employer on the basis of his qualification [DIS] and experience & shall have hands-on experience on OHSAS 18000 & Environment Management System (EMS). Safety Head of Client's representative can disqualify the SR if found unsuitable. The SR shall give his whole time to the superintendence of the Health and Safety Programme of the Contractor.
- b) The Contractor shall also nominate in writing competent Safety Appointees from different disciplines to assist SR in implementation of health and safety measures in

their routine contract works. The SR shall have sufficient authority to direct Contractor's or his Subcontractor's personnel to meet health and safety requirements and to stop performance of work until such requirements are met.

#### 1.4 Employee consultations, Safety Committee and communication

- a) The Contractor shall ensure full involvement of all his employees recognizing their right to consultation on health and safety matters. The Safety Appointees of the various areas, in conjunction with the SR shall be responsible for ensuring employees' involvement through routine safety inspections, hazard and risk assessment in new and changed works and their control. Contractor shall maintain appropriate operating procedures to guide these requirements. Contractor shall plan, maintain and implement annual training calendar/matrix for periodical SHE Induction & Training programs for all working level personnel.
- b) The Contractor shall also appoint a Safety Committee (SC) comprising of Safety Appointees from the various areas under the chairmanship of the Contractor's Project In charge .The committee shall meet at periodic intervals minimum monthly to discuss the status and adequacy of the safety management, and any safety concerns of the employees. The committee shall also formulate and validate the safety procedures incorporating controls to prevent or mitigate hazards and risks before submission for approval by Employer / Engineer. The minutes of SC meeting shall be submitted to the Employer / Engineer. SR shall maintain the records of the meetings. The frequency of the meetings shall be clearly defined in the SHE program and minutes of the meetings shall be submitted to Employer.
- c) The Contractor shall communicate with the help of Notice board, Posters, Sign boards to the employees regularly on job hazards applicable to their tasks in hand. Safety Appointees (SA's or any of SR's nominees.) shall hold 'Toolbox talks' for this purpose on a routine basis before undertaking any safety critical and /or non-routine activities. Weekly meetings of the Contractor and his Subcontractor attended by the SR and SA's shall include safety as a key item in the agenda to discuss hazards and risk assessments, Job safety analysis, and control procedures and to review accidents and incidents (Near-miss) for remedial measures to prevent such occurrence. The minutes of the meeting shall be submitted to the Employer / Contractor. SR shall maintain the records.

#### 1.5 Contractor's accident / Environmental incident reports

"Accident" for the purpose of this clause is defined as "Undesired event giving rise to death, ill-health, injury, damage or other loss" and "Incident" is defined as "Event that gave rise to an accident or had the potential to lead to an accident". An accident

where no ill health, injury, damage or other loss occurs also referred to as "near- miss". Incident includes near miss.

The Contractor shall report orally, to Employer and Engineer regardless of their extent, duration and severity, immediately on occurrence of all accidents resulting in:

- a) Personal injury / Dangerous Occurrence,
- b) Property damages,
- c) Fires,
- d) Spills
- e) Overflows of septic tanks and
- f) near-misses

Contractor shall submit the accident/ incident report in writing to Employer / Engineer within 24 hours of its happening in the form as prescribed by the governing statute or in the absence of which, in the form prescribed by the Engineer. Contractor shall detail in the Accident/Incident report, the particulars of the dangerous occurrence leading to the accident, lost time of absence due to accident, root cause analysis and the corrective and preventive actions to prevent such recurrence. In addition, Contractor shall include his estimate of the impact of accident on project schedule. Incidents shall also be reported in the same manner identifying root cause/s to eliminate such potential occurrence or risks

#### 1.6. First -aid personnel and facilities

- a) The Contractor shall make available first-aiders, first-aid boxes and or first aid stations as per statutory requirements. The persons holding current certificates of competency of recognized institutions in prescribed numbers as per any governing statute and in the absence of such regulatory requirement a minimum of two first- aiders for each area of work for every hundred workmen. First-aiders' names shall be prominently displayed.
- b) The first -aid boxes shall display contents of medical and medicinal articles with quantity maintained, which shall be in accordance with governing statute. Nominated first-aiders shall replenish stock promptly.

The first-aid refresher training shall be provided at least once in a year and all employees shall be encouraged to undergo first-aid training. A record shall be kept of all first aid treatments with particulars of treatment and personnel providing the treatment.

#### 1.7 Purchase and Procurement Control

- a) The Contractor shall maintain a procedure for control of his purchases to ensure that all safety requirements are appropriately vetted by the safety personnel during all

stages of procurement including planning of specifications, inspection for acceptance and commissioning in order that threats to safety are not overlooked and appropriate attention is paid to the training of personnel in the operation of Contractor's new or changed machinery and their operation control procedures, to prevent / control risks.

- b) Contractor shall exercise due diligence in appointing his subcontractors and outsourcing contract services, that no new health and safety threats are created. Contractor shall ensure personnel of subcontractors and outsourced contract services are competent in health and safety management to meet the Policy requirements. They shall be made aware of the safety rules, emergency procedures and any information that will have a bearing on the safety, health and related contractual obligations

### 1.8 Hazard Identification and Risk Assessment

Contractor shall ensure that his key personnel and safety personnel are trained to be competent in hazard identification, risk assessment and risk control processes. Contractor shall on a routine basis identify, evaluate and control all health and safety risks especially in the hazardous work activities to validate the previous risk assessments. Elements such as hazard identification, evaluation of risks with existing control measures in place and estimate of tolerability of the residual risks shall be an ongoing process. Any additional/New control measures shall be designed based on this process on need basis. Contractor shall make sure that specific work related risk assessment is attached to the permit while taking the permit.

## 2.0 **Health and wellbeing of construction workers**

The objective is to ensure health and safety of the workers during construction, with effective provisions for the basic facilities of sanitation, drinking water, safety of equipment's or machinery etc.

Following are the recommendations to be followed:

1. Comply with the safety procedures, norms and guidelines (as applicable) as outlined in the document Part 7 Constructional practices and safety, 2005, National Building code of India, Bureau of Indian Standards
2. Provide clean drinking water to all workers
3. Provide adequate number of decentralized latrines and urinals to construction workers.
4. Guarding all parts of dangerous machinery.
5. Precautions for working on machinery.
6. Maintaining hoists and lifts, lifting machines, chains, ropes, and other lifting tackles in good condition. Durable and reusable formwork systems to replace timber formwork and ensure that formwork where used is properly maintained.
7. Ensuring that walking surfaces or boards at height are of sound construction and are provided with safety rails or belts.
8. Provide protective equipment; helmets etc.



9. Provide adequate measures to prevent fires.
10. Fire extinguishers and buckets of sand to be provided in the fire-prone area and elsewhere where ever found necessary.
11. Provide sufficient and suitable light for working during Nighttime.
12. Dangers, health hazards, and measures to protect workers from materials of construction, transportation, storage etc.
13. Safety policies of the construction firm/division/company.

### **2.1 Sanitation facilities for construction workers**

Sewage generated from the areas occupied by the construction laborers have to be directed into the existing sewage drain of the area. In case of non-availability of the sewer system, an onsite decentralized treatment system has to be provided.

## **3.0 Water use during construction**

### **3.1 Parameters for water quality**

Water used shall be clean and reasonably free from injurious quantities of deleterious materials such as oils, acids, alkalis, salts and microbial growth. Generally, potable water shall be used. Where water can be shown to contain any sugar or an excess of acid, alkali or salt, that water should not be used.

### **3.2 Measures for reducing water demand during construction**

To avoid wastage of curing water, following guidelines are to be followed:

1. Curing water should be sprayed on concrete structures; free flow of water should not be allowed for curing.
2. Concrete structures should be covered with thick cloth/gunny bags and then water should be sprayed on them. This would avoid water rebound and will ensure unstained and complete curing.
3. Ponds should be made using cement and sand mortar to avoid water flowing away from the flat surface while curing.
4. Water ponding should be done on all sunken slabs, this would also highlight the importance of having an impervious formwork.

## **4.0 Construction wastewater management**

Wastewater generated from the site during the construction contains suspended materials, spillage and washings from the various areas which can be hazardous and should not be mixed with the sewage water or allowed to percolate into the ground. A separate drainage should be provided for the construction wastewater and collected in a separate basin. The water should

be discharged into the sewage drain after pretreatment including filtration and removal of contaminants to the standards prescribed for disposal.

## **5.0 Noise Control**

- i) No horn shall be used in silence zones or during night time in residential areas except during public emergency.

ii) Sound emitting construction equipment shall not be used or operated during night time in residential areas and silence zone.

Area code	Category of Area/ Zone	Limits of dB(A)Leq	
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:-i) Day time shall mean from 6AM to 10 PM

ii) Night time shall mean from 10 PM to 6 AM

iii) Silence Zone is an area comprising not less than 100meters around hospitals, educational institutes, courts, religious places or any other area declared such by competent authority.

### ANNEXURE-I

## Adjustment Formulae

### a) Local Currency Component

- i. Price adjustment for increase or decrease in the cost due to **local labour** shall be paid in accordance with the following formula:

$$V_L = P_L \frac{88R(L_i - L_o)}{100L_o}$$

$V_L$  = increase or decrease in the cost of work during the quarter under consideration due to changes in rates for local labour

$L_o$  = The Consumer Price Index Numbers (General) for Mumbai (declared by the Labour Bureau, Government of India) as on the date 30 days prior to the deadline for submission of bids

$L_i$  = The average Consumer Price Index Numbers (General) for Mumbai (declared by the Labour Bureau, Government of India) for the quarter under consideration.

$P_L$  = Percentage of local labour component as specified in Special conditions of contract (SCC).

- i. Price adjustment for increase or decrease in the cost of **cement** procured by the Contractor from a source within India shall be paid in accordance with the following formula:

$$V_c = P_c \frac{88R(C_i - C_o)}{100C_o}$$

$V_c$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in the rates for cement.

$C_o$  = The whole sale price index for cement as on the date 30 days prior to the deadline for submission of bids as

published by the Office of the Economic Advisor,  
Ministry of Industry, Government of India, New Delhi.

C<sub>i</sub> = The average whole sale price index for cement for the quarter under consideration as by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

P<sub>c</sub> = Percentage of cement as specified in Special conditions of contract (SCC)

Price adjustment for increase or decrease in the cost of **reinforcing steel** procured by the Contractor from a source within India shall be paid in accordance with the following formula:

$$V_s = P_s \frac{88R(S_i - S_o)}{100S_o}$$

V<sub>s</sub> = Increase or decrease in the cost of work during the quarter under consideration due to changes in the rates for reinforcing steel.

S<sub>o</sub> = The whole sale price index for steel (Iron & Steel) as on the date 30 days prior to the deadline for submission of bids as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

S<sub>i</sub> = The average whole sale price index for steel (Other Iron & Steel) for the quarter under consideration as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

P<sub>s</sub> = Percentage of steel as specified in Special conditions of contract (SCC)

i. Price adjustment for increase or decrease in cost of **other local materials** procured by the Contractor shall be paid in accordance with the following formula:

$$m = P_m \frac{88R(M_i - M_o)}{100M_o}$$

V<sub>M</sub> = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for local materials other than Petroleum Oil & Lubricant.

M<sub>o</sub> = The whole sale price index (all commodities) as on the date 30 days prior to the deadline for submission of bids as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

M<sub>i</sub> = The average whole sale price index (all commodities) for the quarter under consideration as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

P<sub>m</sub> = Percentage of local material component as

specified in Special conditions of contract (SCC).

- i. Price adjustment for increase or decrease in cost of **fuel and lubricants** procured by the Contractor from a source within India shall be paid in accordance with the following formula

$$VF = PF \frac{88R(Fi - Fo)}{100Fo}$$

$V_F$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for fuels and lubricants.

$F_o$  = The retail price of High Speed Diesel (HSD) at the existing consumer pumps of Indian Oil Corporation (IOC) at Mumbai as on the date 30 days prior to the deadline for submission of bids.

$F_i$  = The retail price of HSD at the existing consumer pumps of IOC at Mumbai for the 15th day of each calendar month of quarter under consideration.

$P_F$  = Percentage of fuel and lubricants as specified in Special conditions of contract (SCC). (for the application of this clause the price of HSD has to be chosen to represent Fuels and Lubricants group.)

- i. Price adjustment for increase or decrease in the cost of **steel plates for pipelines** procured by the Contractor from a source within India shall be paid in accordance with the following formula:

$$Vp = Pp \frac{88R(Pi - Po)}{100Po}$$

$V_P$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in the rates for steel plates.

$P_o$  = The whole sale price index for Oromild Steel & Tensile Plates as on the date 30 days prior to the deadline for the submission of bids as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

$P_i$  = The average whole sale price index for Oromild Steel & Tensile Plates for the quarter under consideration as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

$P_P$  = Percentage of steel plates component for the Works as specified Special conditions of contract (SCC).

- i. Price adjustment for increase or decrease in the cost of **electricity** shall be paid or recovered in accordance with the following formula

$$VE = PE \frac{88R(Ei - Eo)}{100Eo}$$

$V_E$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for electricity.

$E_o$  = The group-wise index number of industrial production of electricity as on the date 30 days prior to the deadline for submission of bids as officially published in monthly RBI bulletin by Reserve Bank of India.

$E_i$  = The group-wise index number of industrial production of electricity for the quarter under consideration as officially published in monthly RBI bulletin by Reserve Bank of India.

$P_E$  = Percentage of electricity component as specified in Special conditions of contract (SCC)

- i. Price adjustment for increase or decrease in the cost of **mechanical plant and machinery going into permanent works** shall be paid or recovered in accordance with the following formula :

$$V_T = P_T \frac{88R(T_i - T_o)}{100T_o}$$

$V_T$  = Increase or decrease in the cost of work during the quarter under consideration due to changes in price for mechanical plant and machinery.

$T_o$  = The wholesale price index of non electrical machinery & parts as on the date 30 days prior to the deadline for submission of tenders as published by the office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

$T_i$  = The average wholesale price index of non electrical machinery & parts for the quarter under consideration as published by the Office of the Economic Advisor, Ministry of Industry, Government of India, New Delhi.

$P_T$  = Percentage of mechanical plant and machinery component as specified in Special conditions of contract (SCC)

For extra items of works required to be executed as per Clause 10(a) and 10 (b) of Conditions of Contract, the escalation will be payable on the basis of formulae mentioned above by adopting  $L_o$ ,  $C_o$ ,  $S_o$ ,  $M_o$ ,  $F_o$ ,  $P_o$ ,  $E_o$ , and  $T_o$  prevailing on the date of first execution of the extra items.

The percentage of various components such as labour, material, fuel and lubricants to be adopted in the formulae for working out increase or decrease in cost of work, in case of extra items shall be decided while framing the rate for extra items on the basis of actuals.

**SECTION 12 SPECIFICATIONS  
& SELECTION OF MATERIAL**

## **SPECIFICATIONS & SELECTION OF MATERIAL**

The tender is prepared on the basis of Unified Schedule of Rates and specifications 2023. The specifications of the items of USOR are available on BMC portal <http://portal.mcgm.gov.in> under the Tender tab. Hence the deserving contractor shall either download the same from BMC portal or the same may be collected in the soft copy format at the time of purchasing the tender from this office.

### **SELECTION OF MATERIAL**

1. All materials brought on the site of work and meant to be used in the same, shall be the best of their respective kinds and to the approval of the PMC/Engineer In charge. The PMC/Engineer In Charge or his representative will accept that the materials are really the best of their kinds, when it is proved beyond doubt that no better materials of the particular kind in question are available in the market.
2. The contractor shall obtain the approval of the PMC/Engineer Incharge of samples of all materials to be used in the works and shall deposit these samples with him before placing an order for the materials with the suppliers. The materials brought on the works shall conform in every respect to their approved samples. Fresh samples shall be deposited with the Engineer whenever the type or source of any material changes.
3. The contractor shall check each fresh consignment of materials as it is brought to the site of works to see that they conform in all respects to the Specifications of the samples approved by the Engineer, or both.
4. The PMC/Engineer In Charge will have the option to have any of the materials tested to find out whether they are in accordance with the Specifications and the Contractor will bear all expenses for such testing. All B bills, vouchers and test certificates, which in the opinion of the PMC/Engineer In Charge or his representative are necessary to convince him as to the quality of the materials or their suitability shall be produced for his inspection when required.
5. Any materials that have not been found to conform to the specifications will be rejected forthwith and shall be removed from the site by the contractor at his own cost within 24 hours.
6. The PMC/Engineer In Charge shall have power to cause the Contractors to purchase and use such materials from any particular source, as may in his opinion be necessary for the proper execution of the work.
7. Notwithstanding the source, the sand shall be washed using sand washing machine before use.
8. The specifications for finishing / Architectural / Civil Items shall be got approved from M. A. Department, before using on site and as per note of no. MA Che/MA/2638/I dated 16.01.2023.
9. In case of change in Specification, differential cost will be paid/recovered from the Contractor
10. Factory testing for all equipment prior to delivery shall be carried out by BMC staff/PMC for all factory supplied civil items, mechanical and electrical items. All costs related to the testing including travel, lodging and boarding will be borne by the contractor.

**SPECIFICATIONS & SELECTION OF MATERIAL i.e.**  
**MINIMUM SPECIFICATIONS**



## Section –I

### SCOPE AND SPECIFICATIONS & SELECTION OF MATERIAL FOR CIVIL WORKS

#### Specification for Concrete Work

##### **1.0 SCOPE**

1.1 This specification covers the general requirements for concrete using on-site production facilities including requirements in regard to the quality, handling, storage of ingredients, proportioning, batching, mixing, transporting, placing, curing, protecting, repairing, finishing and testing of concrete; formwork; requirements in regard to the quality, storage, bending and fixing of reinforcement; as well as mode of measurement and payment for completed works

1.2 It shall be very clearly understood that the specifications given herein are brief and do not cover minute details. However, all works shall have to be carried out in accordance with IS: 456 and other relevant standards and codes of practices or in their absence in accordance with the best accepted current engineering practices or as directed by ENGINEER from time to time. The decision of ENGINEER as regards the specification to be adopted and their interpretation and the mode of execution of work shall be final and binding on CONTRACTOR and no claim whatsoever will be entertained on this account.

##### **2.0 APPLICABLE CODES AND SPECIFICATIONS**

2.1 The following specifications, standards and codes, including all official amendments/revisions and other specifications & codes referred to therein, should be considered a part of this specification. In all cases the latest issue/edition/revision shall apply. In case of discrepancy between this specification and those referred to herein below or other specifications forming a part of this bid document, this specification shall govern.

##### **2.2 Materials**

IS:383 Specification for coarse and fine aggregates from natural sources for concrete.

IS:455 Specification for portland slag cement

IS:1489 Specification for portland pozzolona cement

IS:1566 Specification for Hard drawn Steel wire fabric for concrete reinforcement

IS:1786 Specification for high strength deformed steel bars and wires for concrete reinforcement.

IS:2062 Hot Rolled Low, Medium & High Tensile Structural Steel.

IS:2645 Specification for integral cement water- proofing compounds.

IS:4990 Specification for plywood for concrete shuttering work.

IS: 8112 Specification for 43 grade ordinary portland cement.

IS:9103 Specification for admixtures for concrete

IS: 12269 Specification for 53 grade ordinary portland cement.

### **2.3 MATERIAL TESTING**

IS:4031 (Parts 1 to 15) Methods of physical tests for hydraulic cement.

IS:4032 Method chemical analysis of hydraulic cement.

IS:650 Specification for standard sand for testing of cement.

IS:2430 Methods for sampling of aggregates for concrete.

IS.2386 (Parts 1 to 8) Methods of test for aggregates for concrete.

IS:3025 Methods of sampling and test (physical and chemical) water used in industry.

IS:6925 Methods of test for determination of water soluble chlorides in concrete admixtures.

### **2.4 MATERIAL STORAGE**

IS:4082 Recommendations on stacking and storing of construction materials at site.

### **2.5 CONCRETE MIX DESIGN**

IS:10262 Recommended guidelines for concrete mix design.

SP:23 (S&T) Handbook on Concrete Mixes.

IS:4926 Ready Mixed Concrete-Code of Practice

### **2.6 CONCRETE TESTING**

IS:516 Method of test for strength of concrete.

IS.1199 Method of sampling and analysis of concrete.

IS:2770 Methods of testing bond in reinforced concrete.

IS:8142 Method of test for determining setting time of concrete by penetration resistance

IS:9013 Method of making, curing and determining compressive strength of accelerated cured concrete test specimens.

IS:9284 Method of test for abrasion resistance of concrete.

### **2.7 EQUIPMENT**

IS:1791 Specification for batch type concrete mixers.

IS:2505 General Requirements for concrete vibrators: Immersion type.

IS:2506 General Requirements for screed board concrete vibrators.

IS:2722 Specification for portable swing weigh batchers for concrete (single and double bucket type).

IS:2750 Specification for steel scaffoldings

IS:4925 Specification for concrete batching and mixing plant.

IS:5892 Specification for concrete transit mixers and agitator.

IS:7242 Specification for concrete spreaders.

## **2.8 CODES OF PRACTICE**

IS:456 Code of practice for plain and reinforced concrete.

IS:2502 Code of practice for bending and fixing of bars for concrete reinforcement.

IS:2571 Code of practice for laying insitu cement concrete flooring.

IS:2751 Code of practice for welding of mild steel plain and deformed bars used for reinforced concrete construction.

IS:3370 (Parts 1 to 4) Code of practice for concrete structures for storage of liquids.

IS:3414 Code of practice for design and installation of joints in buildings.

IS:3558 Code of practice for use of immersion vibrators for consolidating concrete.

IS:4014 (Parts 1 & 2) Code of practice for steel tubular, scaffolding.

IS:4326 Code of practice for earthquake resistant design and construction of building.

IS:5525 Recommendation for detailing of reinforcement in reinforced concrete works.

IS:7861 Code of practice for extreme weather concreting.

Part 1 Recommended practice for hot weather concreting.

Part 2 Recommended practices for cold weather concreting

IS:9417 Specification for welding cold worked bars for reinforced concrete construction.

## **2.9 CONSTRUCTION SAFETY**

IS.3696 (Parts 1& 2) Safety code for scaffolds and ladders.

IS:7969 Safety code for handling and storage of building materials.

IS:8989 Safety code for erection of concrete framed structures.

## **2.10 MEASUREMENT**

IS:1200 – Method of measurement of building and engineering works.

## **3.0 GENERAL**

### **3.1 ENGINEER**

shall have the right at all times to inspect all operations including the sources of materials, procurement, layout and storage of materials, the concrete batching and mixing equipment, and the quality control system. Such an inspection shall be arranged and ENGINEER's approval obtained, prior to starting of concrete work. This shall, however, not relieve CONTRACTOR of any of his responsibilities. All materials, which do not conform to this specification, shall be rejected.

### **3.2 Materials**

Should be selected so that they can satisfy the design requirements of strength, serviceability, safety, durability and finish with due regards to the functional requirements and the environmental conditions to which the structure will be subjected. Materials complying with codes/standards shall generally be used. Other

materials may be used after approval of the ENGINEER and after establishing their performance suitability based on previous data, experience or tests.

## **4.0 MATERIALS**

### **4.1 Cement**

4.1.1 Cement shall be 43 grade / 53 grade ordinary portland cement conforming to IS:8112/ IS:12269 or portland slag cement conforming to IS:455 or portland pozzolona cement conforming to IS:1489. Type of cement to be used for specific work is covered in item description in section „C2” of the document.

4.1.2 Only one type of cement shall be used in any one mix. The source of supply type or brand of cement within the same structure or portion thereof shall not be changed without approval from ENGINEER.

4.1.3 Cement, which is not used within 90 days from its date of manufacture, shall be tested at a laboratory approved by ENGINEER and until the results of such tests are found satisfactory, it shall not be used in any work.

### **4.2 AGGREGATES**

4.2.1 Aggregates shall consist of naturally occurring stones (crushed or uncrushed), gravel and sand. They shall be chemically inert, strong, hard, clean, durable against weathering, of limited porosity, free from dust/silt/ organic impurities/deleterious materials and conform to IS:383. Aggregates such as slag, crushed over burnt bricks, bloated clay ash, sintered fly ash and tiles shall not be used.

4.2.2 Aggregates shall be washed and screened before use where necessary or if directed by the ENGINEER.

## **5.0 COARSE AGGREGATE**

Coarse aggregate for concrete, except as noted above and for other than lightweight concrete shall conform to IS 383. This shall consist of natural or crushed stone and gravel, and shall be clean, and free from elongated, flaky or laminated pieces, adhering coatings, clay lumps, coal residue, clinkers, slag, alkali, mica, organic matter or other deleterious matter.

### **5.1 Screening and Washing**

Natural gravel and crushed rock shall be screened and/ or washed for the removal of dirt or dust coating, if so demanded by the Engineer.

### **5.2 Grading**

Coarse aggregate shall be either in single size or graded. In both cases, the grading shall be within the limits.

The pieces shall be conical in shape and shall have granular or crystalline surfaces. Friable, flaky and laminated pieces, mica and shale, if present, shall be only in such quantities that will not, in the opinion of the Engineer, affect adversely the strength and/or durability of concrete. The maximum size of coarse aggregate shall be 40 mm for M15 to M30 concrete and 20 mm for M35 and M40 concrete, or as directed by the Engineer or specified otherwise. The maximum size of coarse aggregate shall be the maximum size specified above, but in no case greater than 1/4 of the minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and fill the corners of the form. Plums above 160 mm and up to any reasonable size can be used in plain mass concrete work of large dimensions up to a maximum limit of 20% by volume of concrete when

specifically approved by the Engineer. For heavily reinforced concrete members, the nominal maximum size of the aggregate shall be 5 mm less than the minimum clear distance between the reinforcing main bars or 5 mm less than the minimum cover to the reinforcement whichever is smaller. The amount of fine particles occurring in the free state or as loose adherent shall not exceed 1% when determined by laboratory sedimentation tests as per IS 2386. After 24 hours' immersion in water, a previously dried sample shall not have gained more than 10% of its oven dry weight in air, as determined by IS 2386.

### 5.3 Foreign Material Limitations

The percentage of deleterious substances in the aggregate delivered to the mixer shall not exceed the following:

Table -1

Sr. No.	Foreign Material	Percentage by weight	
		Uncrushed	Crushed
i)	Material finer than 75 micron IS sieve	3.00	3.00
ii)	Coal and lignite	1.00	1.00
iii)	Clay lumps	1.00	1.00
iv)	Soft Fragments	3.00	-
v)	Total of all above substances	5.00	5.00

The fineness modulus of sand shall neither be less than 2.2 nor more than 3.2.s

### 5.4 Fine Aggregate

Fine aggregate except as noted above, and for other than lightweight concrete shall consist of natural or crushed sand conforming to IS 383. The Sand shall be clean, sharp, hard, strong and durable and shall be free from dust, vegetable substances, adherent coating, clay, alkali, organic matter, mica, salt or other deleterious substances, which can be injurious to the setting qualities/strength/durability of concrete.

### 5.5 Machine-made Sand

Machine-made sand will be acceptable, provided the constituent rock-gravel composition shall be sound, hard, dense, non-organic, uncoated and durable against weathering.

### 5.6 Screening and Washing

Sand shall be prepared for use by such screening or washing, or both, as necessary, to remove all objectionable foreign matter while separating the sand grains to the required size fractions.

## 5.7 Grading

Unless otherwise directed or approved, the grading of sand shall be within the limits indicated hereunder:

Table 1 – B

IS Sieve Designation	<u>PERCENTAGE PASSING FOR</u>			
	Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
10 mm	100	100	100	100
4.75 mm	90-100	90-100	90-100	95-100
2.36 mm	60-95	75-100	85-100	95-100
1.18 mm	30-70	55-90	75-100	90-100
600 microns	15-34	35-59	60-79	80-100
300 microns	5-20	8-30	12-40	15-50

Where the grading falls outside the limits of any particular grading zone of sieves, other than 600 micron IS sieve, by total amount not exceeding 5 percent, it shall be regarded as falling within that grading zone. This tolerance shall not be applied to percentage passing the 600 micron IS sieve or to percentage passing any other sieve size on the coarser limit of Grading Zone I or the finer limit of Grading Zone IV. Fine aggregates conforming to Grading Zone IV shall be used unless mix designs and preliminary tests have shown its unsuitability for producing concrete of specified strength and workability.

## 5.8 Fineness Modulus

The sand shall have a fineness modulus of not less than 2.2 or more than 4.2. The fineness modulus is determined by adding the cumulative percentages retained on the following IS sieve sizes (4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron) and dividing the sum by 100.

The maximum size of coarse aggregate shall be as stated on the drawings but in no case greater than 1/4 of the minimum thickness of the member.

## 6.0 WATER

Water used for both mixing and curing shall conform to IS:456. Potable waters are generally satisfactory. Water containing any excess of acid, alkali, sugar or salt shall not be used.

## 6.1 REINFORCEMENT

Reinforcement bars shall conform to IS:2062 or IS:1786 and welded wire fabric to IS:1566 as shown or specified on the drawing.

All reinforcement shall be clean, free from pitting, oil, grease, paint, loose mill scales, rust, dirty, dust, or any other substance that will destroy or reduce bond.

### **6.1.1 ADMIXTURES**

Accelerating, retarding, water-reducing and air entraining admixtures shall conform to IS:9103 and integral water proofing admixtures to IS:2645.

Admixtures may be used in concrete as per manufacturer's instructions only with the approval of ENGINEER based upon the condition that desired slump and strength is obtained with optimum cement content without affecting the durability with the passage of time. An admixture's suitability and effectiveness shall be verified by trial mixes with the other materials used in the works. If two or more admixtures are to be used simultaneously in the same concrete mix, their interaction shall be checked and trial mixes done to ensure their compatibility. There should also be no increase in risk of corrosion of the reinforcement or other embedments.

Calcium chloride shall not be used for accelerating set of the cement for any concrete containing reinforcement or embedded steel parts.

### **7.0 SAMPLES AND TESTS**

All materials such as cement, aggregates (coarse & fine), reinforcement and admixtures etc. used for the works shall be tested as per relevant IS codes before use.

Manufacturer's test certificate shall be furnished, for each batch of cement and samples shall also be got tested by the CONTRACTOR in a laboratory approved by ENGINEER at no extra cost to OWNER. Sampling and Testing shall be as per relevant IS codes.

Manufacturer's test certificate shall be furnished, for each batch of steel and samples shall also be got tested by the CONTRACTOR in a laboratory approved by ENGINEER at no extra cost to OWNER. Sampling and Testing shall be as per relevant IS codes.

Sampling and testing shall be as per IS:2386 under the supervision of ENGINEER. The cost of all tests, sampling etc. shall be borne by CONTRACTOR.

Water to be used shall be tested to comply with requirements of IS:456.

CONTRACTOR shall furnish manufacturer's test certificates and technical literature for the admixture proposed to be used. If directed by Engineer, the admixture shall be got tested at an approved laboratory at no extra cost.

### **8.0 STORAGE OF MATERIALS**

All material shall be stored in a manner so as to prevent its deterioration and contamination, which would preclude its use in the works. Requirements of IS:4082 shall be complied with.

CONTRACTOR will have to make his own arrangements for the storage of adequate quantity of cement. If such cement is not stored properly and has deteriorated, the material shall be rejected. Cement bags shall be stored in dry weatherproof shed with a raised floor, well away from the outer walls and insulated from the floor to avoid moisture from ground. Not more than 15 bags shall be stacked in any tier. Storage under tarpaulins shall not be permitted. Each consignment of cement shall be stored separately and consumed in its order of receipt.

Each size of coarse and fine aggregates shall be stacked separately and shall be protected from leaves and contamination with foreign material. The stacks shall be on hard, clean, free draining bases, draining away from the concrete mixing area.

CONTRACTOR shall make his own arrangements for storing water at site in tanks to prevent contamination.

The reinforcement shall be stacked on top of timber sleepers to avoid contact with ground/water. Each type and size shall be stacked separately.

## **9.0 CONCRETE**

### **9.1 GENERAL**

Concrete grade shall be as designated on drawings. In concrete grade M20, M25 etc. the number represents the specified characteristics compressive strength of 150 mm cube at 28 days, expressed in N/sq.mm as per IS:456. Concrete in the works shall be "DESIGN MIX CONCRETE" or "NOMINAL MIX CONCRETE". All concrete works of grade M7.5, M10, M15 and M20 shall be NOMINAL MIX CONCRETE and M10, M15 and above, shall be DESIGN MIX CONCRETE.

#### **9.1.1 DESIGN MIX CONCRETE**

##### **9.1.2 Mix Design & Testing**

For Design Mix Concrete, the mix shall be designed according to IS:10262 and SP:23 to provide the grade of concrete having the required workability and characteristic strength not less than appropriate values given in IS:456. The design mix shall in addition to such that it is cohesive and does not segregate and should result in a dense and durable concrete and also capable of giving the finish as specified. For liquid retaining structures, the mix shall also result in water tight concrete. The CONTRACTOR shall exercise great care while designing the concrete mix and executing the works to achieve the desired result.

The minimum cement content and maximum free water-cement ratio for Design Mix Concrete shall be as per table – 5 of IS 456 for “Severe” category of exposure, unless noted otherwise in the specification document.

The minimum cement content stipulated in IS 456 shall be adopted irrespective of whether the CONTRACTOR achieves the desired strength with less quantity of cement. The CONTRACTOR's quoted rates for concrete shall provide for the above eventuality and nothing extra shall become payable to the CONTRACTOR on this account. Even in the case where the quantity of cement required is higher than that specified above to achieve desired strength based on an approved mix design, nothing extra shall become payable to the CONTRACTOR.

It shall be CONTRACTOR's sole responsibility to carry out the mix designs at his own cost. He shall furnish to ENGINEER at least 30 days before concreting operations, a statement of proportions proposed to be used for the various concrete mixes and the strength results obtained. The strength requirements of the concrete mixes ascertained on 150 mm cubes as per IS:516 shall comply with the requirements of IS:456. The mix design shall be approved by the Engineer before starting the concrete work.

Range of slumps which shall generally be used for various types of constructions shall be as per clause 7.1 of IS:456 unless instructed otherwise by ENGINEER.

#### **Batching & Mixing of Concrete**

Proportions of aggregates and cement, as decided by the concrete mix design, shall be by weight. These proportions shall be maintained during subsequent concrete batching by means of weigh batchers capable of controlling the weights within one percent of the desired value.



Amount of water added shall be such as to produce dense concrete of required consistency, specified strength and satisfactory workability and shall be so adjusted to account for moisture content in the aggregates. Water- cement ratio specified for use by ENGINEER shall be maintained. Each time the work stops, the mixer shall be cleaned out, and while recommencing, the first batch shall have 10% additional cement to allow for sticking in the drum.

Arrangement should be made by CONTRACTOR to have the cubes tested in an approved laboratory or in field at his own expense, with prior consent of ENGINEER. Sampling and testing of strength and workability of concrete shall be as per IS:1199, IS:516 and IS:456. Batching Plant where used shall conform to IS 4925.

### **Ready-Mixed Concrete**

Ready-mixed concrete to be used, subject to approval. It shall be produced at an approved plant. The concrete shall conform with IS:4926 and with this specification.

All the constituents for each mix shall be added at the manufacturer's plant. No extra water or other material shall be added after the concrete has left the plant.

All delivery notes shall be retained by the CONTRACTOR and made available for inspection throughout the duration of the contract.

Samples of concrete shall be taken in accordance with the requirements of the specification at the point and time of delivery. The sampled concrete shall be tested in accordance with the specification. The test results shall be certified by Owner/Engineer.

If at any time the ENGINEER is not satisfied that the ready-mixed concrete complies with the specification, ENGINEER may alter the frequency of the sampling.

## **10.0 NOMINAL MIX CONCRETE**

### **10.1 Mix Design & Testing**

Mix design and preliminary tests are not necessary for Nominal Mix Concrete. However, works tests shall be carried out as per IS:456. Proportions for Nominal Mix Concrete and w/c ratio may be adopted as per IS:456. However, it will be CONTRACTOR's sole responsibility to adopt appropriate nominal mix proportions to yield the specified strength.

### **Batching & Mixing of Concrete**

Based on the adopted nominal mixes, aggregates shall be measured by volume. However, cement shall be by weight only.

Fly ash Blended Cements conforming to IS 1489 (Part I) may be used in RCC structures as per guidelines given below

IS 456- 2000 Code of Practice for Plain and Reinforced Concrete (as amended up to date) shall be followed in regard to Concrete Mix Proportion and its production as under

The concrete mix design shall be done as "Design Mix Concrete" as prescribed in clause-9 of IS 456 mentioned above.

Concrete shall be manufactured in accordance with clause 10 of above mentioned IS 456 covering quality assurance measures both technical and organizational, which shall also necessarily require a qualified Concrete Technologist to be available during manufacture of concrete for certification of quality of concrete.

(ii) Minimum M -25 grade of concrete shall be used in all structural elements made with RCC both in load bearing and framed structure. If design demands higher grade shall also used.

(iii) The mechanical properties such as modulus of elasticity, tensile strength, creep and shrinkage of fly ash mixed concrete or concrete using fly ash blended cements (PPCs) are not likely to be significantly different and their values are to be taken same as those used for concrete made with OPC.

(iv) To control higher rate of carbonation in early ages of concrete in PPC based concrete; water/binder ratio shall be kept as low as possible, which shall be closely monitored during concrete manufacture.

If necessitated due to low water/binder ratio, required workability shall be achieved by use of chloride free chemical admixtures conforming to IS 9103. The compatibility of chemical admixtures and super plasticizers with each set OPC, fly ash and /or PPC received from different sources shall be ensured by trials.

(v) In environment subjected to aggressive chloride or sulphate attack in particular, use of fly ash admixed or PPC based concrete is recommended. In cases, where structural concrete is exposed to excessive magnesium sulphate, flyash substitution/content shall be limited to 18% by weight. Special type of cement with low C3A content may also be alternatively used. Durability criteria like minimum binder content and maximum water /binder ratio also need to be given due consideration in such environment.

(vi) Wet curing period shall be enhanced to a minimum of 10 days or its equivalent. In hot & arid regions, the minimum curing period shall be 14 days or its equivalent.

## **10.2 Use of Fly Ash Blended Cements in Cement Concrete (PPCC) in RCC Structures**

Subject to General Guidelines detailed out as above, PPC manufactured conforming to IS 1489(Part-I) shall be treated at par with OPC for manufacture of Design Mix concrete for structural use in RCC.

(ii) Till the time, BIS makes it mandatory to print the %age of fly ash on each bag of cement, the certificate from the PPC manufacture indicating the same shall be insisted upon before allowing use of such cements in works.

(iii) While using PPC for structural concrete work, no further admixing of fly ash shall be permitted.

## **11.0 FORMWORK**

Formwork shall be all inclusive and shall consist of but not limited to shores, bracings, sides of footings, walls, beams and columns, bottom of slabs etc. including ties, anchors, hangers, inserts, false work, wedges etc.

The design and engineering of the formwork as well as its construction shall be the responsibility of CONTRACTOR. However, if so desired by ENGINEER the drawings and calculations for the design of the formwork shall be submitted to ENGINEER for approval.

Formwork shall be designed to fulfill the following requirements in addition to normal requirements:

Sufficiently rigid and tight to prevent loss of grout or mortar from the concrete at all stages and appropriate to the methods of placing and compacting.

**Made of suitable materials.**

Capable of providing concrete of the correct shape and surface finish within the specified tolerance limit as per IS 456.

Capable of withstanding without deflection the worst combination of selfweight, reinforcement and concrete weight, all loads and dynamic effects arising from construction and compacting activities, wind and weather forces.

Capable of easily striking without shock, disturbance or damage to the concrete.

Soffit forms capable of imparting a camber if required.

Soffit forms and supports capable of being left in position if required.

Capable of being cleaned and/or coated if necessary immediately prior to casting the concrete; design temporary openings where necessary for these purposes and to facilitate the preparation of construction joints.

The formwork may be of timber, plywood, steel, plastic or concrete depending upon the type of finish specified. Sliding forms and slip form may be used with the approval of ENGINEER. Timber for formwork shall be well seasoned, free from sap, shakes, loose knots, worm holes, warps and other surface defects. Joints between formwork and formwork and structures shall be sufficiently tight to prevent loss of slurry from concrete, using seals if necessary.

The faces of formwork coming in contact with concrete shall be cleaned and two coats of approved mould oil applied before fixing reinforcement. All rubbish, particularly chippings, shavings, sawdust, wire pieces dust etc. shall be removed from the interior of the forms before the concrete is placed. Where directed, cleaning of forms shall be done by blasting with a jet of compressed air at no extra cost.

Forms intended for reuse shall be treated with care. Forms that have deteriorated shall not be used. Before reuse, all forms shall be thoroughly scraped, cleaned, nails removed, holes suitably plugged, joints repaired and warped lumber replaced to the satisfaction of ENGINEER. CONTRACTOR shall equip himself with enough shuttering to allow for wastage so as to complete the job in time.

Permanent formwork shall be checked for its durability and compatibility with adjoining concrete before it is used in the structure. It shall be properly anchored to the concrete.

Wire ties passing through beams, columns and walls shall not be allowed. In their place bolts passing through sleeves shall be used. Formwork spacers left in situ shall not impair the desired appearance or durability of the structure by causing spalling, rust staining or allowing the passage of moisture.

For liquid retaining structures sleeves shall not be provided for through bolts nor shall through bolts be removed if provided. The bolts, in the latter case, shall be cut at 25 mm depth from the surface and the hole made good by cement mortar of the same proportion as the concrete just after striking the formwork.

Where specified or shown on drawings all corners and angles exposed in the finished structure shall have chamfers or fillets of 20 mm x 20 mm size.

CONTRACTOR shall provide adequate props carried down to a firm bearing without overloading any of the structures.

The shuttering for beams and slabs shall be so erected that the side shuttering of beams can be removed without disturbing the bottom shuttering. If the shuttering for a column is erected for the full height of the column, one side shall be built up in sections as placing of concrete proceeds or windows left for placing concrete from the side to limit the drop of concrete to 1.0m or as directed by ENGINEER. CONTRACTOR shall temporarily and securely fix items to be cast in (embedments/ inserts) in a manner that will not hinder the striking of forms or permit loss of grout.

Formwork showing excessive distortion during any stage of construction shall be repositioned and strengthened. Placed concrete affected by faulty formwork, shall be entirely removed and formwork corrected prior to placement of new concrete at CONTRACTOR's cost.

If ENGINEER rejects any improper formwork after inspection, at any stage of construction, it is responsibility of the CONTRACTOR to get corrected before concreting at no extra cost to the OWNER.

Under normal circumstances forms may be struck after expiry of the time period given in IS:456 unless otherwise directed by Engineer. It is the CONTRACTOR'S responsibility to ensure that forms are not struck until the concrete has developed sufficient strength to support itself, does not undergo excessive deformation and resist surface damage and any stresses arising during the construction period.

### **11.1.1 FORMWORK FOR EXPOSED ARCHITECTURAL CONCRETE**

The specifications as given in CPWD shall generally be followed.

However, the Contractor to note the following:

1. Since the exposed concrete is intended to make a visual statement the Contractor to ensure that the concrete on deshuttering presents a clean and even surface. No surface treatment (apart from application of hydrophobic sealant) is envisaged and therefore no repair/patchwork will be permitted.
2. Form exposed corners of beams and columns to produce square, smooth, solid, unbroken lines, except as otherwise shown.
3. The Contractor to furnish the shutter boards in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
4. All formed joints on concrete surfaces to be exposed shall be taped and shall align so joints will not be apparent on the concrete surfaces.
5. The location of all exposed features such as through tie bolts, joints to be planned in such a way that no bolt hole/joint line etc. Seems to be arbitrary and/or out of place.
6. The shuttering should be of superior construction so as to avoid slurry leakage and consequent honeycombing etc.
7. The pattern of formwork for exposed concrete works shall be approved by the EIC prior to execution.

### **11.1.2 Mock-up**

The Contractor shall prepare a mock-up of the formwork for typical members and carry out trial castings to establish the suitability of formwork, of mould oil proposed to be used on formwork as a releasing agent to prevent surface blemishes etc.

## **12.0 REINFORCEMENT WORKMANSHIP**

Reinforcing bars supplied bent or in coils shall be straightened cold without damage at no extra cost. No bending shall be done when ambient temperature is below 5 Deg. C.

All bars shall be accurately bent gradually and according to the sizes and shapes shown on the drawings/schedules or as directed by ENGINEER.

Re-bending or straightening incorrectly bent bars shall not be done without approval of ENGINEER.

Reinforcement shall be accurately fixed and maintained firmly in the correct position by the use of blocks, spacers, chairs, binding wire etc. to prevent displacement during placing and compaction of concrete. The tied in place reinforcement shall be approved by ENGINEER prior to concrete placement. Spacers shall be of such materials and designs as will be durable, not lead to corrosion of the reinforcement and not cause spalling of the concrete cover.

Binding wire shall be 16 gauge soft annealed wire. Ends of the binding wire shall be bent away from the concrete surface and in no case encroach into the concrete cover.

Substitution of reinforcement, laps/splices not shown on drawing shall be subject to ENGINEER's approval.

Tolerances on placing of reinforcement and Tolerance for cover shall be as per IS 456.

## **13.0 TOLERANCES**

Tolerance for formed and concrete dimensions shall be as per IS:456 unless specified otherwise.

Tolerances specified for horizontal or vertical building lines or footings shall not be construed to permit encroachment beyond the legal boundaries.

## **14.0 PREPARATION PRIOR TO CONCRETE PLACEMENT**

Before concrete is actually placed in position, the inside of the formwork shall be cleaned and mould oil applied, necessary inserts/embedment's/pipe sleeves and reinforcement shall be correctly positioned and securely held, necessary openings, pockets, etc. provided.

All arrangements-formwork, equipment and proposed procedure, shall be approved by ENGINEER. CONTRACTOR shall maintain separate Pour Card for each pour as per the format enclosed.

## **15.0 TRANSPORTING, PLACING AND COMPACTING CONCRETE**

Concrete shall be transported from the mixing plant to the formwork with minimum time lapse by methods that shall maintain the required workability and will prevent segregation, loss of any ingredients or ingress of foreign matter or water.

In all cases concrete shall be deposited as nearly as practicable directly in its final position. To avoid segregation, concrete shall not be rehandled or caused to flow. For locations where direct placement is not possible and in narrow forms CONTRACTOR shall provide suitable drops and "Elephant Trunks". Minimum diameter of Elephant

Trunks shall be 200mm. Concrete shall not be dropped from a height of more than 1.5m.

Concrete shall not be placed in flowing water. Under water, concrete shall be placed in position by tremies or by pipeline from the mixer and shall never be allowed to fall freely through the water.

While placing concrete the CONTRACTOR shall proceed as specified below and also ensure the following:

- a) Continuously between construction joints and predetermined abutments.
- b) Without disturbance to forms or reinforcement.
- c) Without disturbance to pipes, ducts, fixtures and the like to be cast in; ensure that such items are securely fixed. Ensure that concrete cannot enter open ends of pipes and conduits etc.
- d) Without dropping in a manner that could cause segregation or shock.
- e) In deep pours only when the concrete and formwork designed for this purpose and by using suitable chutes or pipes.
- f) Do not place if the workability is such that full compaction cannot be achieved.
- g) Without disturbing the unsupported sides of excavations; prevent contamination of concrete with earth. Provide sheeting if necessary. In supported excavations, withdraw the linings progressively as concrete is placed.
- h) If placed directly onto hard core or any other porous material, dampen the surface to reduce loss of water from the concrete.
- i) Ensure that there is no damage or displacement to sheet membranes.
- j) Record the time and location of placing structural concrete.

Concrete shall normally be compacted in its final position within thirty minutes of leaving the mixer. Concrete shall be compacted during placing with approved vibrating equipment without causing segregation until it forms a solid mass free from voids thoroughly worked around reinforcement and embedded fixtures and into all corners of the formwork. Immersion vibrators shall be inserted vertically at points not more than 450 mm apart and withdrawn slowly till air bubbles cease to come to the surface, leaving no voids. When placing concrete in layers advancing horizontally, care shall be taken to ensure adequate vibration, blending and melding of the concrete between successive layers. Vibrators shall not be allowed to come in contact with reinforcement, formwork and finished surfaces after start of initial set. Over-vibration shall be avoided.

Concrete may be conveyed and placed by mechanically operated equipment after getting the complete procedure approved by ENGINEER. The slump shall be held to the minimum necessary for conveying concrete by this method. When concrete is to be pumped, the concrete mix shall be specially designed to suit pumping. Care shall be taken to avoid stoppages in work once pumping has started.

Except when placing with slip forms, each placement of concrete in multiple lift work, shall be allowed to set for at least 24 hours after the final set of concrete before the start of subsequent placement. Placing shall stop when concrete reaches the top of the opening in walls or bottom surface of slab, in slab and beam construction, and it shall be resumed before concrete takes initial set but not until it has had time to settle

as determined by ENGINEER. Concrete shall be protected against damage until final acceptance.

All necessary equipment required for concrete works shall be maintained in clean and good working condition by the CONTRACTOR. In case ENGINEER feels that the equipment is not maintained properly, it will be rejected and CONTRACTOR shall replace with new equipment at no extra cost to the OWNER.

## **16.0 MASS CONCRETE WORKS**

Sequence of pouring for mass concrete works shall be as approved by ENGINEER. CONTRACTOR shall exercise great care to prevent shrinkage cracks and shall monitor the temperature of the placed concrete.

## **17.0 CURING**

Curing shall start immediately after the compaction of the concrete to protect it from

- a) Premature drying out, particularly by solar radiation and wind;
- b) leaching out by rain and flowing water;
- c) rapid cooling during the first few days after placing;
- d) high internal thermal gradients;
- e) low temperature or frost;
- f) Vibration and impact which may disrupt the concrete and interfere with its bond to the reinforcement.

All concrete, unless directed otherwise by ENGINEER, shall be cured by use of continuous sprays or ponded water or continuously saturated coverings of sacking, canvas, hessian or other absorbent material for the period of complete hydration with a minimum of 7 days. The quality of curing water shall be the same as that used for mixing.

Where a curing membrane is directed to be used by the ENGINEER, the same shall be of a non-wax base and shall not impair the concrete finish in any manner. Curing shall be carried out generally as per ACI:307. Curing compound shall comply with ASTM C 309. The curing compound to be used shall be got approved from the ENGINEER before use and shall be applied with spraying equipment capable of a smooth, even textured coat, generally in conformity with recommendations of the manufacturer.

Curing may also be done by covering the surface with an impermeable material such as polyethylene, which shall be well sealed and fastened.

Extra precautions shall be exercised in curing concrete during cold and hot weather.

## **18.0 CONSTRUCTION JOINTS AND KEYS**

Construction joints will be as shown on the drawing or as approved by ENGINEER. Concrete shall be placed without interruption until completion of work between construction joints. If stopping of concreting becomes unavoidable anywhere, a properly formed construction joint shall be made with the approval of ENGINEER.

Dowels for concrete work, not likely to be taken up in the near future, shall be coated with cement slurry and encased in lean concrete as indicated on the drawings or as directed by ENGINEER.

Before resuming concreting on a surface which has hardened, all laitance and loose stone shall be thoroughly removed by wire brushing/hacking and surface washed with high pressure water jet and treated with thin layer of cement slurry for vertical joints and a 15mm thick layer of cement sand mortar for horizontal layers, the ratio of cement and sand being the same as in the concrete mix.

When concreting is to be resumed on a surface which has not fully hardened, all laitance shall be removed by wire brushing, the surface wetted, free water removed and a coat of cement slurry applied. On this a layer of concrete not exceeding 150 mm thickness shall be placed and well rammed against the old work. Thereafter work shall proceed in the normal way.

## **19.0 FOUNDATION BEDDING**

All earth surfaces upon which or against which concrete is to be placed, shall be well compacted and free from standing water, mud or debris. Soft or spongy area shall be cleaned out and back filled with either soil-cement mixture, lean concrete or clean sand compacted as directed by ENGINEER. The surfaces of absorptive soils shall be moistened.

Concrete shall not be deposited on large sloping rock surfaces. The rock shall be cut to form rough steps or benches by picking, barring or wedging. The rock surface shall be kept wet for 2 to 4 hours before concreting.

## **20.0 FINISHES**

### **20.1 GENERAL**

The formwork for concrete works shall be such as to give the finish as specified. The CONTRACTOR shall make good any unavoidable defects as directed consistent with the type of concrete and finish specified; defects due to bad workmanship (e.g. damaged or misaligned forms, defective or poorly compacted concrete) will not be accepted. CONTRACTOR shall construct the formwork using the correct materials and to meet the requirements of the design and to produce finished concrete to required dimensions, plumbs, planes and finishes.

#### **20.1.1 Surface Finish Type F1**

This type of finish shall be for non-exposed concrete surfaces against which back fill or concrete is to be placed. The main requirement is that of dense, well compacted concrete. No treatment is required except repair of defective areas, filling all form tie holes and cleaning up of loose or adhering debris. For surfaces below grade which will receive waterproofing treatment the concrete shall be free of surface irregularities which would interfere with proper and effective application of waterproofing material specified for use.

#### **20.1.2 Surface Finish Type F2**

This type of finish shall be for all concrete work which will be exposed to view upon completion of the job. The appearance shall be that of a smooth dense, well- compacted concrete showing the slight marks of well fitted shuttering joints. The CONTRACTOR shall make good any blemishes.

#### **20.1.3 Surface Finish Type F3**

This type of finish shall be for concrete work which will be exposed to view but to give an appearance of smooth, dense, well-compacted concrete with no shutter marks, stain free and with no discoloration, blemishes, arrises, airholes etc. Only lined or coated plywood with very tight joints shall be used to achieve this finish. The panel size shall be uniform and as large as practicable. Any minor blemishes that might occur shall be made good by CONTRACTOR.



#### **20.1.4 INTEGRAL CEMENT FINISH ON CONCRETE FLOOR**

In all cases where integral cement finish on a concrete floor has been specified, the top layer of concrete shall be screeded off to proper level and tamped with tamper having conical projections so that the aggregate shall be forced below the surface. The surface shall be finished with a wooden float and a trowel with pressure. The finish shall be continued till the concrete reaches its initial set. No cement or cement mortar finish shall be provided on the surface. Where specified, a floor hardener as approved by the ENGINEER shall be supplied and used as recommended by the manufacturer.

#### **21.0 REPAIR AND REPLACEMENT OF UNSATISFACTORY CONCRETE**

Immediately after the shuttering is removed, all the defective areas such as honeycombed surfaces, rough patches, and holes left by form bolts etc. shall be brought to the notice of ENGINEER who may permit patching of the defective areas or reject the concrete work.

All through holes for shuttering shall be filled for full depth and neatly plugged flush with surface.

Rejected concrete shall be removed and replaced by CONTRACTOR at no additional cost to OWNER.

For patching of defective areas all loose materials shall be removed and the surface shall be prepared as directed by the ENGINEER.

Bonding between hardened and fresh concrete shall be done either by placing cement mortar or by applying epoxy. The decision of the ENGINEER as to the method of repairs to be adopted shall be final and binding on the CONTRACTOR and no extra claim shall be entertained on this account. The surface shall be saturated with water for 24 hours before patching is done with 1:5 cement sand mortar. The use of epoxy for bonding fresh concrete shall be carried out as directed by ENGINEER.

#### **22.0 VACUUM DEWATERING OF SLABS**

Where specified floor slabs, either grade or suspended, shall be finished by vacuum dewatering including all operations such as poker vibration, surface vibration, vacuum processing, floating and trowelling as per equipment manufacturers recommendation. The equipment to be used shall be subject to ENGINEER's approval.

#### **22.1 HOT WEATHER REQUIREMENTS**

Concreting during hot weather shall be carried out as per IS:7861 (Part I).

##### **22.1.1 COLD WEATHER REQUIREMENTS**

Concreting during cold weather shall be carried out as per IS:7861 (Part 2)

The ambient temperature during placement and upto final set shall not fall below 5 Deg C. Approved anti-freeze/accelerating additives shall be used where directed.

For major and large scale concreting works the temperature of concrete at times of mixing and placing, the thermal conductivity of the formwork and its insulation and stripping period shall be closely monitored.

##### **22.1.2 WATER RETAINING STRUCTURES**

The CONTRACTOR shall take special care for concrete for underground structures such power house basement, reservoirs etc., and those others specifically called for to guarantee the finish and water tightness. Construction of water retaining structures shall generally follow the requirements of IS:3370.

The minimum level of surface finish for liquid retaining structures shall be Type F2. All such structures shall be hydro-tested.

The CONTRACTOR shall include in his price, hydro testing of structures including all arrangements for testing such as temporary bulkheads, pressure gauges, pumps, pipelines etc.

All temporary arrangements that may have to be made to ensure stability of structures during testing shall also be considered while quoting rates.

Any leakage that may occur in the structures shall be effectively stopped either by cement/epoxy pressure grouting, guniting or such other methods as may be approved by the ENGINEER. All such rectification shall be done by the CONTRACTOR to the entire satisfaction of the EMPLOYER/ENGINEER at no extra cost to the EMPLOYER.

### **22.1.3 TESTING CONCRETE STRUCTURES FOR LEAKAGE**

Hydro-static test for water tightness shall be done at full storage level or soffit of cover slabs, as may be directed by ENGINEER, as describe below.

In case of structures whose external faces are exposed, such as elevated tanks, the requirements of the test shall be deemed to be satisfied if the external faces show no sign of leakage or sweating and remain completely dry during the period of observation of seven days after allowing a seven day period for absorption after filling with water.

In the case of structures whose external faces are submerged and are not accessible for inspection, such as underground tanks, the structures shall be filled with water and after the expiry of seven days after the filling, the level of surface of water shall be recorded. The level of water shall be recorded again at subsequent intervals of 24 hrs. over a period of seven days. Backfilling shall be withheld till the tanks are tested. The total drop in surface level over a period of seven days shall be taken as an indication of the water tightness of the structure. The engineer shall decide on the actual permissible nature of this drop in the surface level, taking into account whether the structures are open or closed and the corresponding effect it has on evaporation losses. Unless specified otherwise, a structure whose top is covered shall be deemed to be watertight if the total drop in the surface level over a period of seven days does not exceed 40mm

Each compartment/segment of the structure shall be tested individually and then together.

For structures such as pipes, tunnels etc. The hydrostatic test shall be carried out by filling with water after curing as specified and subjecting to the specified test pressure for specified period. If during this period the loss of water does not exceed the equivalent of the specified rate, the structure shall be considered to have successfully passed the test.

### **23.0 OPTIONAL TESTS**

If the ENGINEER feels that the materials i.e. cement, sand, coarse aggregates, reinforcement and water are not in accordance with the specifications or if specified concrete strengths are not obtained, he may order tests to be carried out on these materials in laboratory, to be approved by the ENGINEER, as per relevant IS Codes.

OWNER shall pay only for the testing of material supplied by the OWNER, otherwise CONTRACTOR shall have to pay for the tests. Transporting of all material to the laboratory shall however be done by the CONTRACTOR at no extra cost to OWNER.

In the event of any work being suspected of faulty material or workmanship requiring its removal or if the works cubes do not give the stipulated strengths, ENGINEER reserves the right to order the CONTRACTOR to take out cores and conduct tests on them or do ultrasonic testing or load testing of structure, etc. All these tests shall be carried out by CONTRACTOR at no extra cost to the OWNER. Alternately ENGINEER also reserves the right to ask the CONTRACTOR to dismantle and re-do such unacceptable work at the cost of CONTRACTOR.

If the structure is certified by ENGINEER as having failed, the cost of the test and subsequent dismantling/ reconstruction shall be borne by CONTRACTOR.

### **23.1 INSPECTION**

All materials, workmanship and finished construction shall be subject to continuous inspection and approval of ENGINEER. Materials rejected by ENGINEER shall be expressly removed from site and shall be replaced by CONTRACTOR immediately at no extra cost to OWNER.

### **23.2 CLEAN-UP**

Upon the completion of concrete work, all forms, equipment, construction tools, protective coverings and any debris, scraps of wood, etc. Resulting from the work shall be removed and the premises left clean.

### **23.3 CHECKING VERTICALITY, ECCENTRICITY AND LEVELS OF THE STRUCTURES**

During the progress of the construction, the CONTRACTOR shall check the levels of the floors, the verticality and eccentricity of all the vertical structural members. Such checking shall be carried out with appropriate survey equipment by an independent registered land surveyor for all floors of the building structures, one floor at a time and as soon as the structural works for each floor are completed.

The CONTRACTOR shall submit two sets of the surveyor's report and field readings compiled in an approved format to the ENGINEER as and when they are completed. Such report shall indicate the levels, verticality, eccentricity and deviation, if any, of the building structures.

The checking of the levels, verticality and eccentricity of the building structures and the submission of such reports to the ENGINEER shall not relieve the CONTRACTOR of any of his duties or responsibilities under the contract.

### **23.4 SAMPLING AND STRENGTH OF DESIGNED CONCRETE MIX**

Samples from fresh concrete shall be taken as per IS 1199 and cubes shall be made, cured and tested at 28 days in accordance with IS 516.

Frequency of sampling, Test specimen and Test results of sample shall be as per IS 456.

Any other tests such as for workability, durability etc, required at field shall be done as per IS 456.

### **23.5 ACCEPTANCE CRITERIA**

Any concrete work shall satisfy the requirements given below individually and collectively for it to be acceptable.

- a) Properties of constituent materials;
- b) Characteristic compressive strength;
- c) specified mix proportions;
- d) minimum cement content;
- e) maximum free-water/cement ratio;
- f) workability;
- g) temperature of fresh concrete;
- h) density of fully compacted concrete;
- i) cover to embedded steel;
- j) curing;
- k) tolerances in dimensions;
- l) tolerances in levels;
- m) durability;
- n) surface finishes;
- p) special requirements such as;
  - i) water tightness;
  - ii) resistance to aggressive chemicals
  - iii) resistance to freezing and thawing
  - iv) very high strength
  - v) improved fire resistance
  - vi) wear resistance
  - vii) resistance to early thermal cracking

The ENGINEER's decision as to the acceptability or otherwise of any concrete work shall be final and binding on the CONTRACTOR.

For work not accepted, the ENGINEER may review and decide whether remedial measures are feasible so as to render the work acceptable. The ENGINEER shall in that case direct the CONTRACTOR to undertake and execute the remedial measures. These shall be expeditiously and effectively implemented by the CONTRACTOR. Nothing extra shall become payable to the CONTRACTOR by the OWNER for executing the remedial measures.

#### **24.0 SELF COMPACTING CEMENT CONCRETE (SCC)**

The Self Compacting Concrete (referred hereinafter as SCC) shall conform to the requirements of IS 456: 2000 reaffirmed 2005 (Fourth Revision).

In addition to the provisions of the IS code the SCC shall meet the following requirements as per EN standards:

	mm-max
T 50 cm slump flow	2-5 sec
J Ring	0 -10 mm
V funnel	8-12 sec
V Funnel	+ 3 sec
T 50 min	
L Box	$H2 / H1 = 0,8-1,0$
U Box	$H2 - H1 = 30$
Fill Box	90-100 %
Screen Stability	0-15 %
Orimet test	0-5 sec

The mineral admixture in the SCC shall be Flyash with a minimum content of 30% of the total weight of the Cementitious material.

The formwork shall be suitably designed for achieving the desired form finish of the exposed concrete.

24.1 Hydrophilic water sealing materials of assorted profiles at construction joints at different locations during the construction of Basement Raft RCC and peripheral RCC Retaining wall

## 24.2 Scope

Providing and fixing hydrophilic water sealing materials at construction joints at different locations during the construction of Basement Raft RCC and peripheral RCC Retaining wall and also construction joints at other water retaining structures including creating necessary nominal trapezoidal key shape in the formwork finish or by mason's finish, including applying suitable adhesives and sealants as recommended and supplied by the approved manufacturer for proper and highly secure bonding with substrate, rough / smooth and wet / dry, proper splicing and jointing at corners, T, L and X junctions using suitable glue, at all such locations as directed by Engineer in-charge.

## 24.3 Material

It shall be hydro-swelling water bar, ready for installation in construction joint to render the joints leak proof. It is based on the specially designed polymer composite that acts as undergoing reversible swelling on exposure to water to form an effective seal.

Hydro swelling water bar has water molecules held by molecular attraction not by vacuum. It should not generate gas or foam with water and prevents water ingress even when joint width varies. It should have elastomeric properties which keeps swelling and reverting to original volume on drying throughout the life of structure.

Construction joints at the retaining wall shall be installed with hydro-swelling water bar based on advance vinyl acrylate polymers. The water bar shall be formulated to exhibit low pre-mature swelling (less than 50% within 12 hours) and shall not be based on super absorbents. The water bar shall have low swelling pressure; not exceeding 0.25 mpa at full swelling capacity. The water bar shall be installed with special adhesive as per approved manufacturer's instructions.

## 24.4 Workmanship

The concrete substrate to which the water bar is to be fixed must be smooth and sound

Cut the water bar to the required length.

Fix the water bar to the concrete substrate using approved adhesive. Apply light tension to the water bar as it is being fixed. Allow the adhesive on the verticals to dry at least over night before concreting.

Protect the fixed water bar from mould release oil and dirt. Do not saturate the water bar before concreting as this may cause it to swell.

For additional work methodology refer Clause 22.4 of CPWD specification Vol. 2, 2009

## 24.5 Mode of Measurements

The length shall be measured as per Clause 22.4 of CPWD specification Vol. 2, 2009

25mm thick alkali resistance, closed cell polymer based expansion joint filler board of approved make, having minimum density of 28 Kg/ Cu.m & compression strength of 0.21 Kg/sqm; using double sided adhesive tape as per the manufacturer's specifications etc.

## 24.6 Scope

Providing and fixing polymer based Expansion joint filler board of approved make and as approved by Engineer in-charge.

## 24.7 Material

It shall be alkali resistant, closed cell polymer based expansion joint filler material for RCC Columns, Beams, Walls, and Slabs.

It does not react with acids & alkalis.

It should withstand joint movements.

It shall be non-impregnated, non-staining, non-bleeding and negligible water absorption properties.

Technical details

A) Water absorption (%)	: 0.02%
B) Density (Kg/cum)	: 28 (min.)
C) Compression strength (Kg/sqm)	: 0.21 (min.)
D) Tensile strength (Kg/sqm)	: 1.8 (min.)
E) Elongation (%)	: 60 (min.)
F) Bitumen content	: NIL

## 24.8 Workmanship

### 24.8.1 Surface preparation

While creating expansion joint, the filler board will become one side of shuttering.

In an expansion / movement joint filler board is to be fixed in position to substrate using double sided adhesive tape of approved manufacturer or synthetic rubber adhesive.

## **SPECIFICATION FOR STEEL WORKS**

### **1.0 SCOPE**

1.1 This specification covers the general requirements for supply where specified, fabrication and delivery at site of structural steel. The bill of quantities covers the specific requirements for the project. The two parts are complementary and are to be read together for a correct interpretation of the provisions of this specification.

1.2 This specification also covers design of all connections and substituted members, preparation of all shop fabrication drawings, inspection and shop painting of structures.

### **2.0. APPLICABLE CODES & SPECIFICATIONS**

The following specifications, standards and codes are made a part of this specification. All standards, specifications and codes of practices referred to herein shall be the latest editions including all applicable official amendments and revisions.

In case of discrepancy between this specification and other documents referred to herein, this specification shall govern.

#### **a) Materials**

- i) IS: 808 Dimensions for Hot Rolled Steel sections
- ii) IS: 801 Dimensions for Cold Formed light gauge steel sections
- iii) IS: 814 Covered Electrodes for Manual Metal Arc Welding of Carbon and Carbon Manganese Steel
- iv) IS: 1161 Steel Tubes for structural purposes
- v) IS: 1239 Mild steel tubes, tubular and other Wrought steel fittings Part 1 - Mild steel tubes Part 2 - Mild steel Tubular and other wrought steel pipe fittings
- vi) IS: 1363 Hexagon Head Bolts, Screws and Nuts of product (Parts 1 to 3) Grade C (Size range M5 to M64)
- vii) IS: 1367 Technical Supply Conditions for Threaded Fasteners (All Parts)
- viii) IS: 1852 Rolling and Cutting Tolerances for Hot Rolled Steel Products
- xi) IS: 1977 Structural Steel (Ordinary Quality)
- x) IS: 2062 Steel for General Structural Purposes
- xi) IS: 2074 Ready Mixed Paint, Air drying, Red Oxide Zinc Chrome and Priming
- xii) IS: 3502 Steel Chequered Plate
- xiii) IS: 3757 High Strength Structural Bolts
- xiv) IS: 5369 General Requirements for Plain Washers and Lock Washers
- xv) IS: 5372 Taper Washers for Channels
- xvi) IS: 5374 Taper Washer for I Beams
- xvii) IS: 6610 Heavy Washers for Steel Structures
- xviii) IS: 8500 Structural Steel-microalloyed (medium and high strength qualities)

## b) Codes of Practice

- i) IS: 800 Code of Practice for General Construction in Steel
- ii) IS: 801 Code of practice for use of Cold formed light gauge steel structural members in general building construction
- iii) IS: 803 Code of practice for design, fabrication and erection of vertical mild steel cylindrical welded storage tanks
- iv) IS: 806 Code of practice for use of steel tubes in general building construction
- v) IS : 816 Code of Practice for use of Metal Arc Welding for General construction in Mild Steel
- vi) IS : 822 Code of Procedure for Inspection of Welds
- vii) IS : 1182 Recommended Practice for Radiographic examination of Fusion - Welded Butt Joints in Steel Plates
- viii) IS : 1200 Method of Measurement in Building Civil Engineering Works
- ix) IS : 1477 Code of Practice for Painting of (Parts 1 & 2) Ferrous Metals in Buildings
- x) IS : 2595 Code of Practice for Radiographic Testing
- xi) IS : 3658 Code of Practice for Liquid Penetrant Flaw Detection
- xii) IS : 4000 High strength bolts in Steel Structures - Code of Practice
- xiii) IS : 5334 Code of Practice for Magnetic Particle Flaw Detection of Welds
- xiv) IS : 7215 Tolerances for Fabrication of Steel Structures
- xv) IS : 9595 Recommendations for Metal Arc Welding of Carbon and Carbon Manganese Steel
- xvi) IS: 819 - Code of practice for Resistance Spot welding for light Assemblies in mild steel.
- xvii) IS: 823 - Procedure Code for metal arc welding of mild steel.
- xviii) IS: 824 - Code of practice for welding of structure subject to Dynamic loading.
- xix) IS: 1261 - Code of practice for seam welding in mild steel.
- xx) IS: 1323 - Code of practice for oxy-acetylene welding for structural work in mild steel

### **3.0 STEEL MATERIALS**

Steel materials shall comply with the specifications laid down under clause 2.0 and/or as called for on the design drawings.

All materials used shall be new, unused and free from defects.

Steel conforming to IS: 1977 or ASTM shall be used only for the following:

Fe310-0(St 32-0) : For general purposes such as door/ window frames, grills, steel gates, handrails, fence posts, tee bars and other non-structural use.



Fe410-0(St 42-0): For structures not subjected to dynamic loading other than wind loads such as: Platform roofs, foot over bridges, building, and factory sheds etc.

Fe410-0(St 42-0) : grade steel shall not be used a) if welding is to be employed for fabrication. b) If site is in severe earthquake zone. c) If plastic theory of design is used.

#### **4.0 DRAWINGS PREPARED BY THE VENDOR/CONTRACTOR**

4.1 The VENDOR/CONTRACTOR shall prepare all fabrication and erection drawings based on the structural design for the entire work. All the drawings for the entire work shall be prepared in metric units. The drawings shall preferably be of one standard size and the details shown there in shall be clear and legible.

4.2 The VENDOR/CONTRACTOR shall not commence detailing unless ENGINEER's design drawings are officially approved for preparation of shop drawings. The VENDOR/CONTRACTOR shall be responsible for the correctness of all fabrication drawings. Fabrication drawings shall be revised by the VENDOR/CONTRACTOR to reflect all revisions in design drawings as and when such revisions are made by the ENGINEER.

4.3 All fabrication drawings shall be submitted to the ENGINEER for approval.

4.4 No fabrication drawings will be accepted for ENGINEER's approval unless checked and approved by the VENDOR/CONTRACTOR's qualified structural engineer and accompanied by an erection plan showing the location of all pieces detailed. The VENDOR/CONTRACTOR shall ensure that connections are detailed to obtain ease in erection of structures and in making field connections.

4.5 Fabrication shall be started by the VENDOR/ CONTRACTOR only after ENGINEER's approval of fabrication drawings. Approval by the ENGINEER of any of the drawings shall not relieve the VENDOR/CONTRACTOR from the responsibility for correctness of engineering & design of connections, workmanship, fit of parts, details, material, errors or omissions of any and all work shown thereon. The ENGINEER's approval shall constitute approval of the size of members, dimensions and general arrangement but shall not constitute approval of the connections between members and other details. The CONTRACTOR will solely be responsible for any sort of delay in fabrication/ erection work.

4.6 The drawings prepared by the VENDOR/CONTRACTOR and all subsequent revisions etc. shall be at the cost of the VENDOR/CONTRACTOR for which no separate payment will be made.

- **Please refer specifications of Building Construction as per USOR (copy uploaded with this tender).**

#### **SPECIFICATIONS FOR ITEMS OF BARRICADING.**

Barricading shall be provided as per specification and as per site requirements and the circular issued u/no MGC/F/6342 dated 05.05.2018 shall be applicable as follows.

- It will be entirely responsibility of the contractor to provide and install secure barricades on work site, wholly at his cost.

- The cardinal principal behind installing secure and continuous barricading is to ensure the safety of the road users/residents of vicinity etc. Due to non-installation of barricades or due to inadequate installation of barricades on sites, if any accident occurs on site leading to injury or loss of life then the contractor and contractor's engineer will be liable for consequent action.
- If it is noticed during course of execution that proper barricading is not provided by the contractor then a penalty of Rs 2000/- Per Meter Per day will be imposed. Penalty on account of lapses in providing barricades will be cumulatively imposed to the tune of 5% of the contract cost.

### **NOTES ON SUPPLY OF CEMENT, STEEL, ETC.**

#### **The Tender conditions in respect of procurement of Cement regarding cement works:**

- A) M.C.G.M. will not supply cement to the contractors, Successful tenders shall have to purchase cement from open market, manufactured by reputed cement companies. The Cement shall be of minimum 43 Grade ordinary Portland cement. Cement shall have to be got tested at Municipal Laboratory or any other Govt. recognized Laboratory at contractor cost before its use, for each batch. In case the cement test results are not available before its use, the concerting work will be permitted after carrying out compressive strength test for 3 days at the Municipal Laboratory and the C.C. cube test results for 3 days should conform to the proportionate strength. However, cement test results will have to be obtained by the contractors from the approved laboratory before further use of cement.
- B) Only ordinary portland cement of 43/53 Grade will be allowed to be used, Contractors shall provide godown with sufficient capacity as directed by the Engineer in-charge, under double lock system with one lock of contractor and other of Brihanmumbai Municipal Corporation. Cement from locked godown will be released only after getting satisfactory test result as per Clause 'A' above. Advance bill as per rule for cement brought on site and duly tested can be entertained only after getting satisfactory cement test results.

## **SCOPE AND SPECIFICATIONS OF ELECTRO MECHANICAL CAR PARKING WORK**

**For Robotic Parking, the similar experience criteria will mean multilevel electromechanical shuttle and robo car parker system meeting the following criteria: -**

1. System based on RCC slab and not steel plates
2. System to have car stalls on which car will be dropped and retrieved at every parking space
3. System to have car centering device at entry and exit lobby
4. OEM (Original Equipment Manufacturer) should have satisfactorily executed a minimum of aggregate 1000 car parking spaces involving Shuttle & Robo Car Parking Systems subject to at least one project of minimum 450 car spaces in BMC/Semi-Govt./Govt., Public Sector Organizations, and Private Sector Organizations during the last five (5) years in India and as well as Operation and Maintenance (O&M), for a minimum of 450 car spaces under automatic multilevel electromechanical car parking systems (Shuttle and Robo-Parker systems) in India over the last five years, ending on the last day of the month prior to the one in which bids are invited.
5. Rob parker to consist of:-
  - a) Car lifting mechanism without pressing of tire or dragging of car i.e. comb arrangement.
  - b) High speed elevators
  - c) Retrieval time not more than 150 seconds
  - d) Throughput of entire parking system not less than 100 cars per hour
  - e) Design life for minimum 20 years and thereafter refurbishment to extend the life for further 15 years.
  - f) Turntable arrangement at entry/exit level along with turntable arrangement on shuttle to improve the efficiency and parking flow.

**INSURANCE AND RISK MANAGEMENT OF ROBOTIC PARKING SYSTEM:-** The operator/bidder of the Robotic Parking System shall be fact responsible for all damages from the use of Robotic Parking System to the user. The operator/bidder of the Robotic Parking System shall avail adequate insurance including third party insurance to compensate such damages for the 5 year period. Vice versa, the user of Robotic Parking System is also responsible for all the damages to the system because of non-compliance of the instructions, rules and regulations framed by the owner/authorities. It is binding for the user of Robotic Parking System to obey the instructions of the Operation and Maintenance (O&M) staff.

### **1.0 Scope of electromechanical Shuttle and Robo Car Parker System:**

Designing and construction of Automatic shuttle type multilevel electro mechanical car parking including foundation, structure, Fire-fighting, fire alarm, all electrical works, all associated works complete.

Scope of work includes preparation of civil structural drawings, structural drawings of multilevel car parking and foundation drawings. These structural and foundation drawings shall have to be vetted from IIT or VJTI or SPCE and the bidder shall furnish, all design data required by vetting agency, to Engineer-in-Charge. Main structure of multilevel car parking should include in designing of structure required provision for erecting façade.

Multilevel car parking will be in a standalone building. Scope of work also includes preparation of architectural plan, facade drawings and complete parking system drawings for approval of Engineer-in-Charge.

- 1.1. The Various works that comprise in the scope of work shall be provided and executed as per all applicable codes; CPWD specifications, NBC-2016, BIS, ECBC, IE rules, UBBL-2016, local body guidelines etc., if not covered in Indian codes, then international codes, good engineering practice shall be followed.
- 1.2. Investigations, designing, planning, risk of engineering and construction, safety, quality lies with the bidder.
- 1.3. Approval from PLANNING AUTHORITY for construction of car parking and Completion Certificate after completion of work are to be obtained by the bidder.
- 1.4. All electrical work, control system & control cabling, programmable logic controller, fire-fighting, addressable fire alarm works are in the scope of bidder. Main power supply source are obtained from M/S BEST ELECTRIC SUPPLY UNDERTAKING by laying underground cables as per direction of Engineer-in-Charge and LT panels, feeders pillars, distribution boards etc required for parking systems/blocks are also to be provided by bidder Fire fighting and life safety shall be provided as per NBC-2016, guidelines of local body authorities etc. Fire fighting system shall be integrated with existing fire pump station in the same Building as per directions of Engineer-in-Charge. Addressable fire alarm system shall be integrated with control room panel of the Building as per direction of Engineer-in-Charge.  
Scope of work also include providing IP CC cameras and instrument set for intercom system in all parking block including cabling for CCTV and intercom The IP CC cameras shall be integrated with CCTV system being installed in the campus by another agency so camera must be compatible for integration.  
Intercom shall be provided in each parking block including laying of cable and it shall be connected with EPABX being installed by another agency.

1.5 Elevations of the multilevel car parking shall be enveloped by facade

### **2.0 Specifications of electro mechanical multilevel car parking system:**

- 2.1 Designing of automatic shuttle type electro mechanical multilevel car parking shall meet and achieved minimum parking and retrieval time. All required design considerations for achieving lowest minimum parking and retrieval time should be made by bidders for their planning and designing and the successful bidders shall present the design scheme ensuring the parking and retrieval time to Engineer-in-Charge before fabrication and execution of work.
- 2.2 Multilevel car parking system and structure of parking system shall be designed to meet the safety requirement for resistance to Seismic effect and the parking system shall be designed and constructed accordingly.
- 2.4 The work shall be carried out in accordance with Architectural drawings and structural drawings. Before commencement of any item of work, the contractor shall correlate all the relevant architectural and structural drawing, nomenclature

of items, specifications etc. and satisfy himself that the information available there from is complete and unambiguous. The figures & the written dimensions of the drawing shall supersede the measurement by scale. The discrepancy, if any, shall be brought to the notice of the Engineer in-charge for immediate decision before execution of the work. The CONTRACTOR alone shall be responsible for any loss or damage occurring by the commencement of work on the basis of any erroneous and or incomplete information and no claim, whatsoever shall be entertained on this account.

2.5 Contractor shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of work. All such reference points shall be in relation to the levels and locations, given in the Architectural drawings.

2.6 Site Electricians / Other Electrical Personnel: The contractor shall engage qualified and competent electricians and other electrical personnel while working for safe execution of contract. The electricians and other electrical personnel must possess requisite certificate issued from competent authority.

2.7 Welding and Cutting Gas cylinders in use should be kept upright on a custom built stand or trolley fitted with a bracket to accommodate the hoses and equipment or otherwise secured. The metal cap should be kept in place to protect the valve when the cylinder is not connected for use. Non-return valve and Flashback arrester shall be fixed at both end of cylinder and torch Domestic LPG cylinders shall not be used for Gas welding and cutting purpose. DCP or CO2 type Fire Extinguisher not less than 5 kg shall be fixed at or near to welding process zone in an easily accessible location. Fire Extinguisher should confirm to IS 2190: 1992. Welding grounds and returns should be securely attached to the work by cable lugs, by clamps in the case of stranded conductors, or by bolts for strip conductors. The ground cable will not be attached to equipment or existing installations or apparatus.

2.8 The contractor shall give performance test of the entire installation(s) as per the standard specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the test,

## 2.9 **Steel**

2.9.1 All finished steel shall be well and cleanly rolled to the dimensions and weight specified by BIS subject to permissible to tolerances as per IS: 1852. The finished materials shall be reasonable free from cracks, surface flaws laminations, rough and imperfect edges and all other harmful defects.

2.9.2 Steel Sections, shall be free from excessive rust, scaling and pitting and shall be well protected. The decision of the Engineer-in-Charge regarding rejecting any steel section on account of any of the above defects shall be final and binding.

## 2.10 **Fabrication:**

2.10.1 Fabrication shall generally be done as specified in IS : 800.

2.10.3 Great accuracy shall be observed in the fabrication of various members, so that these can be assembled without being unduly packed, strained or forced into position and when built up, shall be true and free from twist, kinks, buckles or open joints.

2.10.4 Wooden or metal sheet templates shall be made to correspond to each member, and position of rivet holes shall be marked accurately on them and holes drilled. The templates shall then be laid on the steel members, and holes for riveting and bolting marked on them .the ends of the steel members shall also be marked for cutting as per required dimensions. The base of steel columns and the positions of anchor bolts shall be carefully set out at the required location.

## 2.11 **Erection:**

2.11.1 Steel work shall be hoisted and erected in position carefully, without any damage to itself other structures and equipment and injury to workmen. The method of hoisting and erection proposed to be adopted by the contractor shall be got approved from the Engineer-in-charge in advance. The contractor however shall be fully responsible for the work being carried out in a safe and proper manner without unduly stressing the various members and proper equipment such as derricks, lifting tackles, winches, ropes etc. shall be used.

2.12 Fire fighting system and smoke management:

Fire fighting system and smoke management shall be designed and provided as per provision given in NBC-2016 amended up to date, BMC specification for Mechanical/Electrical, CPWD General Specifications The bidder shall get the fire fighting system and smoke management system approved from CFO before execution of work and also obtains NOC after completion of work. Nothing extra shall be paid on this account.

2.13 **Internal and external electrical installation:**

Internal electric installations, external electrical installation and earthing shall be provided and executed as per provision given in BMC general specifications for electrical works, CPWD general specifications for electrical works Part-I: 2013, Part-II: 2008, NBC-2016, IE rules, Relevant BIS codes all amended up to date. Layout of electrical installations and the light fixtures to be used, shall be shall be got approved from Engineer-in-Charge before execution.

2.14 **IP CCTV and Intercom:**

IP CCTV cameras shall be provided to cover entry and exit of parking, periphery of parking blocks and all parking area. CC cameras shall be compatible for integration. Intercom system shall be provided in the parking blocks. The work includes telephone instrument sets in control room of each parking blocks and laying of cables for intercom. This intercom system shall be integrated with EPABX of the complex which is being executed by another agency.

**Applicable codes :**

Sr. No	ITEM	CODE NO
1	Steel Wire Rope for General Purpose	IS 2266, 2002
2	Code of practice for selection, installation and maintenance of switch gear & control gear.	IS-10118 (Part I), 1982
3	Electrical wiring system	IS-732, 1989
4	Code of practice for earthing	IS-3043, 1987
5	MCB distribution boards for voltage up to and including 1000V AC	IS-13032, 1992
6	Residual current operated circuit breakers	IS-12640, 2008
7	FRLS PVC insulated flexible (Multi stranded) copper conductor wires.	IS-694, 1990
8	Steel conduit IS- 9537 (Part-II) 9.	IS-9537 (Part-II)
9	Circuit breakers- general requirements	IS-13118, 1991
10	Air break switches for voltage not exceeding 1000V AC or 1200 V DC	IS-13947 (Part-III), 1993
11	Electrical direct acting instruments	IS-1248 (All parts), 2003
12	Degree of protection provided by enclosures for LV switches gear and control gear.	IS-2147, 1962

13	Parking system safety	EN 14010: 2003, EN 14010: 2003 A1:2009
14	For all other equipments, components, materials, parking system controller, control system required to be used in the work	Applicable codes; CPWD specifications, BIS, BS, EN, UL

Note-1: Applicable codes mentioned above shall be amended up to date.

Note-2: Any other codes / specifications required for development for parking facility will be applicable even though not mentioned above.

### **PARTICULAR SPECIFICATION OF ELECTRICAL WORKS:**

#### **XLPE INSULATED HT ARMoured CABLES**

Supply & laying of Circular Aluminium conductor, conductor screened with extruded semiconducting compound, XLPE insulated, insulation screened with extruded semiconducting combination in combination with copper tape(0.3KAfor1sec.) cores laid up, FRLS PVC inner sheathed, galvanized steel strip armoured and overall FRLS PVC sheathed cable confirming to IS:7098/II/85working voltage 11KV(UE) grade to be laid 1 m below ground level including excavation, sand cushioning, covering with sand & bricks and back filling the trench etc., of the required size:-

Circular Aluminium conductor, conductor screened with extruded semiconducting compound, XLPE insulated, insulation screened with extruded semiconducting combination in combination with copper tape (0.3KA for 1sec.) cores laid up, FRLS PVC inner sheathed, galvanized steel strip armoured and overall FRLS PVC sheathed cable confirming to IS:7098/II/85working voltage 11KV(UE) grade 70sq.mm (Three Core).

### **PARTICULAR SPECIFICATION OF FIRE FIGHTING WORKS:**

#### **SPECIFICATIONS FOR FIRE HYDRANT & SPRINKLER SYSTEM.**

##### General

Work under this subhead is time-bound and has to be completed within the time limit set in the tender. Work shall be executed in accordance with an agreed schedule which shall be submitted by the tenderer along with offer and agreed to by owners.

**Scope of work.**

The scope of work in this subhead shall consist of furnishing all labour, materials, equipment and appliances necessary and required to do all work relating to the supply, installation, testing & commissioning of Fire Fighting System as described herein after and shown on the drawings. The scope of work in general shall include the following.

- i. Fire Fighting Pumps & Accessories and related electrical works.
- ii. Internal Fire Hydrant System.
- iii. Sprinkler system in entire building.
- iv. Hand Appliances.

Without restricting to the generality of the foregoing, the work shall include the following: -

A Hydrant System covering the entire complex and consisting of the following:

- i. One number of Terrace Pump – One number electric horizontal end suction pump of 900 LPM at 35 M head
- ii. Other piping system ancillaries such as Suction and Delivery Headers, Air Vessel, Pressure Gauges, Pressure Switches, Pump Panel etc. as required.
- iii. Internal Hydrant system where required with single headed landing valves on each floor accompanied by 1 number swinging type Hose Reel, 2 numbers RRL Hoses, 1 number of Branch Pipe etc. all housed in the niche. Bidder shall provide front frame with shutter for niche.
- iv. Sprinkler system for entire building.
- v. Hand appliance.
- vi. To obtain the approval of the relevant drawings before actual installation at site and to get the complete installation inspected and passed by the concerned authorities, as may be necessary as per local bye-laws. ( Any fee payable to the local bodies paid by contractor).

**Contractor's Experience.**

Contractors shall engaged specialist Successful Bidder only for this work of Fire fighting system.

**Fighting systems.**

The selected specialist Successful Bidder must have sufficient experience in the execution of turnkey projects as specified.

Contractor must submit with the tender a list of similar jobs carried out by him as required along with the name of works, name and address of clients, year of execution, capacity of plant and value of work.

**Technical Information.**

Contractor shall submit along with the tender copies of detailed specifications, cuts, leaflets and other technical literature of equipment and accessories offered by him.

Contractor's attention is specially invited to the special conditions and other clauses in the agreement which required the contractor to: -

- a. Submit detailed shop drawings.
- b. Use material of specific makes and brands
- c. Obtain all approvals from Fire Fighting authorities.
- d. Execute the entire work on a turn-key basis so as to provide a totally operating plant.

**Exclusions.**

Work under the contract does not include the following work.

Electrical cable up to Electric supply providers meter cabin.

**Site Accessibility.**

The equipment must be carried from the goods receiving station to the site in an extremely careful manner to prevent damage to the equipment building or existing services.

Contractor must visit the site and familiarize himself with above problems to ensure that the equipment offered by him is of dimensions that they can be carried and planed in position without any difficulty.

**Approvals.**

The contractor shall prepare all submission drawings and obtain all approvals of fire fighting works from fire fighting authority.

**System Description.**

The Hydrant System shall comprise of Terrace pump with all required accessories including valves, special fittings, instrumentation, control panels and any other components required to complete the system in all respects.

The Hydrant and Sprinkler System shall be automatic in action and shall be laid covering the all the floors internally.

The Fire Fighting System shall be kept pressurized at all times.

The Internal Hydrant System (Wet Risers) shall be provided at points as indicated on the drawing on each floor.



The hydrant point shall be directly tapped from the Riser pipes, and shall be furnished with required accessories such as –

- a) One no. stainless steel single headed hydrant valves.
- b) Two nos. RRL Hoses of size 63mm dia. x 15m long.
- c) One no. first aid Dunlop hose reel full swinging type 20mm dia. x 40m long.
- d) One no. stainless steel Branch pipe.

The hydrant risers shall be terminated with air release valve at the highest points to release the trapped air in the pipe work.

An overhead tank 30000 litres capacity per staircase will be connected to the fire fighting system.

Sprinkler system shall be distributed entire building so as to cover 12-12 Sqm area with one sprinkler.

Sprinkler down comer shall be provided with overhead tank of required capacity.

A suitable drainage arrangement with bye-pass valve shall be provided to facilitate maintenance of sprinkler pipe work.

## **PARTICULAR SPECIFICATIONS for Pipes and Fittings.**

### **Pipes and Fittings**

Pipes for Wet Riser system shall be of MS pipe (Heavy Duty) Pipes up to 150mm dia. shall be MS and conform to IS-1239. Pipes with dia. 200mm and above (6mm thick) shall be MS and form to IS-3589. All pipes shall be I.S.I. marked. Fittings for black steel pipes shall be malleable iron suitable for welding or approved type cast iron fittings with tapered screwed threads.

### **Jointing**

Joint for black steel pipes and fittings shall be metal-to-metal tapered thread or welded joints. A small amount of red lead may be used for lubrication and rust prevention in threaded joints.

Joints between C.I. or black steel pipes, valves and other apparatus, pumps etc. shall be made with C.I. or M.S. flanges with appropriate number of bolts. Flanged joints shall be made with 3mm thick insertion rubber gasket.

**Note:** Joints for pipes and fittings up to 50mm diameter shall be threaded joints using Teflon Tape or equivalent bonding tape on the threads. Joints for pipe and fittings above 50mm diameter shall be welded joints.

### **Pipe Protection.**

a. All pipes in underground masonry trenches/service tunnels, above ground and in exposed locations shall be painted with one coat of red oxide primer and two or more coats of synthetic enamel paint of approved shade.

b. Pipes in wall chases shall be protected from corrosion by 2 coats of bituminous paints.

c. Protection of Underground pipes.

The underground steel pipes shall be protected by coating and wrapping. The coating and wrapping shall be done, in general as per IS: 10221-1982.

It specified in Bill of Quantities, the proprietary pipe production system shall be provided as per the Manufacturers recommendation. The proprietary system shall be of approved make.

### **Installation of Pipes.**

All pipes shall be adequately supported from ceiling or walls by structural clamps fabricated from M.S. structural e.g. rods, channels, angles and flats. All clamps shall be painted with one coat of primer and two coats of black enamel paint. The contractor shall provide inserts at the time of slab casting or provide suitable anchor fasteners.

The pipe supports or hangers shall be designed to withstand combined weight of pipe, pipes fittings, fluid in pipe and insulation. Pipe supports shall be of steel and coated with rust preventing paint and finished with two coats enamel paint. The maximum spacing for pipes supports shall be as below:

Pipe(MM) Spacing(MTR)Size of support

Up to 25 2.0 6 mm

32 to 65 2.4 8 mm

75 to 125 2.7 10 mm

150 & above 3.0 12 mm

Pipes supports shall be spaced at maximum interval of 1.5 Mtrs. on either side of heavy fittings and valves. Wherever piping passes through walls, pipes sleeves of diameter larger than that of piping shall be provided. Pipe sleeves shall be of steel or cast iron pipe.

### **Valves & Other Accessories.**

#### **General**

Each valve body shall be marked with cast or stamped lettering giving the following information's:

a. The manufacturer's name or trademark.

b. The size of the valve

c. The guaranteed working pressures.

Isolating valves on the water supply lines shall be full bore ball valve type for pipe diameters up to 50mm. For 65mm dia. and above these shall be butterfly valves.

### **Full Way Ball Valve**

The valves shall be of full bore type and of quality approved by the Project Architect / EIC. The body and ball shall be of copper alloy and stem seat shall be of Teflon.

### **Butterfly Valves**

Butterfly valves shall be of centric disc construction with single piece body of Cast Iron with disc of bronze/gunmetal with nitrile seat. Shaft shall be stainless steel with Teflon bearing butterfly valve shall conform to PN 1.6 rating and shall be provided with suitable matching flanges compatible with PN 1.6 rating of valves.

### **Non-Return Valves**

Non-return valves are to be IS: 778-1984 manufactured from gun-metal or dezincification resistant brass.

### **Drain Valve.**

Drain Valves are to be provided at all low points in the system for draining the water. These shall be 40mm Dia full way ball valve fixed on 40mm Dia black steel pipe.

### **Pressure Switches.**

Pressure switches shall be differential type for operation of all pumps and for the various duties and settings required. Pressure switches shall be for heavy duty operation and of approved make. All pressure switches shall be factory calibrated.

### **Internal Landing Valves.**

The internal landing valves shall be Single-headed made of stainless steel and conforming to IS: 5290. It shall be complete with hand-wheel, quick coupling connection spring loaded type and blank cap.

Hose pipes, Branch Pipes and Nozzles.

**Hose Pipe:** Hose pipe shall be rubber lines woven jacketed and 63mm in diameter. They shall conform to type-2 (Reinforced rubber lined) of IS: 639- 1979. The hose shall be sufficiently flexible and capable of being rolled.

Each run of hose pipe shall be complete with necessary coupling at the ends to match with the landing valve or with another run hose pipe or with Branch pipe. The couplings shall be of instantaneous spring lock type.

**Branch Pipe:** Branch pipe shall be of Stainless steel 63mm Dia and be complete with male instantaneous spring lock type coupling for connection to the hose pipe. The branch pipe shall be externally threaded to receive the nozzle.

**Nozzle:** The nozzle shall be of Stainless steel, 20mm in internal diameter. The screw threads at the inlet connection shall match with the threading on the branch pipe, the inlet end shall have a hexagonal head to facilitate screwing of the nozzle on to the branch pipe with nozzle spanner.

#### **Internal Fire Hose Cabinet.**

Each internal fire hydrant valve shall be housed in a niche of size indicated on drawings. Each internal fire hose Cabinet shall hold Single headed hydrant, 2 Hoses and 1 Branch pipes and 1 no. Dunlop hose reel mounted on a drum.

- A. The cabinet shutters & frames shall be fabricated from boxed steel sections and MS plate 2mm thick.
- B. The front glass of shutters shall be 5.0 mm thick clear glass and shall be held by means of rubber. Locking arrangement shall also be made with one number of mortise lock of approved make. A separate Key Box of 16mm thick MS sheet with glass facing shall be provided.
- C. The Shutter shall be given a powder coat finish in post office red colour.

#### **Hose Reel.**

The hose reel shall be directly tapped from the riser through a 25mm dia pipe, the drum and the reel being firmly held against the wall by use of dash fasteners. The Hose Reel shall be swinging type (180 degrees) and the entire Drum, Reel etc. shall be as per IS:884. The rubber tubing shall be of approved quality and the nozzle shall be 6mm Dia shut off type.

#### **Draw out Connections.**

2 ways collecting head Fire Brigade connection shall be provided at the location indicated in the drawing.

### **AUXILIARY PUMPING EQUIPMENT**

#### **Scope**

This section covers the details or requirements of the auxiliary equipment necessary for the operation of the fire pumps.

The pump shall be directly driven from the electric motor. Flexible coupling and coupling guard shall be provided.

#### **Capacity**

The discharge and head of the Terrace pump shall be as required.

The pump casing shall be of cast iron and parts like impeller, sleeve, wearing ring etc. shall be of non-corrosive metal like bronze, brass or gunmetal. The shaft shall be of stainless steel. Bearing of the pump shall be effectively sealed to prevent loss of

lubricant or entry of the dust or water. The pump casing shall be designed to withstand 1.5 times the working pressure.

### **Motor**

The motor shall be squirrel cage A.C. induction type suitable for operations on 415 volts 3 phase 50 Hz, system. The motor shall be totally enclosed fan cooled type conforming to protection clause IP55 of IS 4691. The class of insulation shall be H synchronous speed shall be 2900 RPM. The motor shall conform IS 325-1978 and rated for continuous duty.

### **Sprinkler System**

#### **Sprinkler Heads.**

Sprinkler heads shall be of quartzoid bulb type with bulb, valve assembly yoke and the deflector. The sprinklers shall be approved make and type.

### **Types**

#### **Conventional Pattern**

The sprinklers shall be designed to produce a spherical type of discharge with a portion of water being thrown upwards to the ceiling side of wall extra. The sprinklers shall suitable for erection in upright position or pendant position.

##### **A. Side Wall Sprinklers.**

These shall be designed for installation along with the walls of room close to the ceiling. The discharge pattern shall be similar to one quarter of sphere with a small proportion discharging on the wall behind the sprinklers.

#### **Construction**

- i. Bulb – Bulb shall be made of corrosion-free material strong enough to with stand any water pressure likely to occur in the system. The bulb shall shatter when the temperature of the surrounding air reaches a predetermined level.
- ii. Valve assembly – Water passage of the sprinkler shall be controlling assembly of flexible construction. The valve assembly shall be held in position by the quartzite bulb. The assembly be stable and shall withstand pressure surges or external vibration without displacement.
- iii. Yoke: The yoke shall be made of high quality gunmetal. The arms of yoke shall be so designed as to avoid interference with discharge of water from the deflector. The sprinkler body shall be coated with an approved anti corrosive treatment if the same is to use in corrosive conditions.
- iv. Deflector: The deflector shall be suitable for either upright or pendent erection. The deflector shall be designed to give an even distribution of water over the area protected by each sprinkler.

a. Colour Code.

The relevant standard following colour code shall be adopted for classification of sprinkler according to nomination temperature ratings.

b. Sprinkler Temperature Rating.

c. Size of Sprinklers Orifices.

The sprinklers shall be of 15mm nominal bore size.

### **Pipes and Fittings**

Pipes for sprinkler system shall be of black steel conforming to I.S. 1239 (Heavy class).

Fittings for black steel pipes shall be malleable iron suitable for welding or approved type cast iron fittings with tapered screwed threads.

### **Jointing**

Joint for black steel pipes and fittings shall be metal to metal tapered thread or welded joints. A small amount of red lead may be used for lubrication and rust prevention in threaded joints.

Joints between G.I. or black steel pipes, valves and other apparatus, pumps etc. shall be made with G.I. or M.S. flanges with appropriate number of bolts. Flanged joint shall be made with 3mm thick insertion rubber gasket.

### **Pipes Protection.**

All pipes above ground and in exposed locations shall be painted with one coat of red oxide primer and two or more coats of synthetic enamel paint of approved shade.

Pipes in chase or buried underground shall be painted with two coats of hot bitumen.

### **Pipe Supports**

All pipes shall be adequately supported from ceiling or walls from structural clamps fabricated from M.S. structural e.g. rods, channels, angles and flats. All clamps shall be painted with one coat of primer and two coats of black enamel paint. The contractor shall provide inserts at the time of slab casting or anchor fastener later.

### **Valves**

Sluice valves of sizes 80mm and above shall be double flanged cast iron conforming to I.S.780. Check valve shall be of cast iron double flanged conforming to I.S.5312.

Valves on pipes 65mm and below shall be heavy pattern gunmetal valves with cast iron wheel seat tested to 20 kg/sq.cm. Pressure Valves shall conform to I.S.778.

#### **A. Air Valves**

25mm Dia screwed inlet cast iron single acting air valves on all high points in the system or as shown on drawings.

#### **B. Drain Valves**

50mm Dia black steel pipe conforming to I.S.1239 medium class with 50mm gunmetal full way valve for draining and water in the system in low pockets.

## Testing

### Testing on Completion of Installation.

The entire system shall be tested after completion of installation as per the operating sequence specified.

### Standard and Codes.

1. IS-1648-1961 Code of Practice for fire safety of building (general)

Fire fighting equipment and maintenance.

- |     |              |  |
|-----|--------------|--|
| 2.  | IS-3844-1966 | Code of practice for installation of internal fire Hydrant in                                  |
| .   | IS-2217-1963 | multi-storied Building.  |
| 3.  |              | Recommendation for providing first aid and fire fighting arrangement in public buildings.      |
| 4.  | IS-2190-971  | Code of practice for selection, Installation and maintenance of portable first fire appliance. |
| 5   | IS-3589      | Electrically Welded Steel pipes (Medium class)   |
| 6.  | IS-1239      | Mild steel tubes, Tubular and other wrought steel fittings (Medium class)                      |
| 7.  | IS-780       | C.I. Double flanges sluice valve.  |
| 8.  | IS-778       | Gun Metal Valve.   |
| 9.  | IS-909-1965  | External fire hydrant (underground)  |
| 10. | IS-5290-1969 | Internal Landing Valve.  |
| 11. | IS-884-1969  | First and hose reel.   |
| 12. | IS-934-1976  | Specification for portable chemical fire Extinguisher soda acid type.                          |
| 13. | IS-2873-1969 | Specification for fire extinguisher for carbon dioxide.  |

## **PARTICULAR SPECIFICATION FOR AUTOMATED CAR PARKING SYSTEMS**

### **TYPE: SHUTTLE WITH ROBO PARKER**

#### **General Description and criteria**

#### **Automated Parking System Capacity (Vehicle storage spaces):**

- a. Car Parking Spaces: 450 nos.
- b. Transfer spaces (service points): **Minimum 8 numbers / maximum number for faster and higher churning (as per approval of all competent authorities)**

Gross parking spaces are the total number of developed spaces in the garage. The cost of the installed system shall be based on the gross spaces because each space should be fully developed and serviced by the automated parking equipment.

#### **Vehicle overall Length Measurement Limits:**

Following should be the stalls sizes suitable to Vehicle overall measurement Limits.

Max Width outside tyres: 195 cm.

Min Width inside the tyres: 100 cm

Max wheelbase: 315 cm.

Min Wheelbase: 180 cm

Guard to ground: min.9 cm.

Maximum over all dimensions of parkable cars should be 5.2M in length, 2.1M in width and 2.10M in height, i.e. the proposed system should be capable of handling all types of cars used in India.

#### **Weight Capacity**

The proposed system should be designed to accommodate a maximum vehicle load of 2,500 kg. Dynamic testing of the system shall be conducted in accordance to standard EN14010 with a total load of 2,750Kg. The designed parameters should cover all types of cars that will fit into the parking system given the limits of the structure.

#### **Description of Basic components of proposed automated car Parking System:**

The proposed system should consists of Entrance and exit devices, Robo parker Transporters, Cantilevered Vertical Transport systems/ Vertical Transport systems (CVTS/ VTS), Shuttles capable to accept Robo parker, Electrical controls (ELEC) and parking stall, all as required to make a complete system as specified. The machinery shall conform to the requirement of Machinery directives 2006/42/CE98/37 in general and EN 14010.

#### **Entry Lobby/Exit Lobby**



This is a location up to where user is allowed to enter with car or exit with the car park. This lobby is online monitored, having all proximity sensors, infra-red sensors and other controls. The lobby is accessible to car lifting and horizontal car transfer equipment. In this project, the total number of Entry Lobby is minimum eight and exit Lobby is minimum eight **or as per approved design to achieve higher and faster churning of vehicle as per site conditions. (Subject to approval from all competent authority)**

#### **Entry Access Door to Vertical Transporter -**

On departure of user from entry lobby and on closing entry barrier, it automatically opens, allows the Robo Parker from vertical transporter/ elevator to enter into the entry lobby/ lift, on exit of car from entry lobby/ lift onto the vertical transporter or elevator, it closes automatically. It should operate on motion sensor controls. It operates vice versa on retrieval time; it allows the car to be brought into the exit lobby and closes once car lifter cum horizontal transfer equipment is out of exit. In any case it should not open when user is within entry or exit lobby. Here the total number of Entry Door is minimum Eight and exit door is minimum eight.

#### **Robo Parker**

This is a robotic car lifter and transporter transporting car in horizontal plane perpendicular to direction of movement of shuttle with a minimum thickness so that client will get maximum advantages of total building height. This Robo parker is the major device used for pickup the car, transporting to elevator or shuttle to park in stall for parking activity and vice versa for retrieval activity. The Robo parker must have a car centring device to limit the width of parking space to 2.10m. Here the total number of Robo parker is minimum Eight.

#### **Elevator**

This is equipment, which used to for vertical transportation of car along with Shuttle and Robo parker or with car only. This transports the car and Robo parker or only car to required floor from entry level for parking activity and transports the cars from different floor to exit level for exit activity. Here the total number of Elevator is minimum Eight.

#### **Shuttle**

This is equipment which transports the car along with Robo parker in horizontal plane and perpendicular axis to entry and exit axis. It transports the car from one parking slot to another at single parking level. This can be operated independently at one parking level or it can be operated along with elevator when mounted on it. Here the total number of Shuttle is minimum Eight.

## **Parking Slots/ Stalls**

These are the defined locations for parking the cars, stalls will have arrangement and sensors to allow Robo paker to bring in the cars and park it. Here the total number of Stall is 450 but two will be kept empty for manoeuvring. Additionally, 98 nos of stack parkings are proposed in basements.

## **Automated Parking System Processing Capacity:**

The minimum throughput should be 160 vehicles/hour, in or out, under continuous operation. User time is assumed to be 45 sec.

The complete Vehicle storage cycle shall consist of three steps:

- a. Entrance Cycle
- b. Vertical transfer
- c. Horizontal transfer

The complete vehicle Retrieval cycle consist of three steps:

- a. Horizontal transfer
- b. Vertical transfer
- c. Exit transfer

Under the conditions set above, each, Vertical and Horizontal transfer should Need less time compared to Entrance or exit cycles so the last two only are critical and are considered to determine the maximum throughput.

## **Garage Operations shall be continuous**

The proposed automated parking system should be designed and able to operate continuously and be available for 24 hours per day, 7 days per week. (Regular maintenance should be done at night hours, i.e. no operation time)

## **Conformance to Accepted Standards**

- The system should conform to the requirements of EC- Machinery Directive 98/37 in general and the most of requirements of EN 14010- December 2003, in particular.
- The system should also comply with German Standard VDI4466, January 2001, Automatic parking system- Basic principles, to implement EN 14010.
- Electrical Control: it should be in accordance EN 60204-1.
- Availability: the system should comply with German Standard VDI 4466.
- Noise: the system should comply with German Standard VDI 4466, January2001.

The noise value should not exceed 85db(A) as a mean value.

## **Software**

All software to operate the system shall have a permanent license for use. After the maintenance period upgrades shall be provided at the option of the owner based on an offering, but up to maintenance period vendor shall provide all upgrades. **(Handing over of the software related to operation and maintenance to BMC after**

completion of 20 years maintenance period from the date of completion.)

**Note:- As per the direction of Engineer Incharge the successful bidder has to integrate the software with the Mumbai traffic police application and proposed Mumbai parking authority application.**

**Technical specifications of various equipments:**

**Elevator suitable to receive the Robo parker with shuttle device**

- a. Counter weight frame with guiding rollers
- b. Set of wire ropes or chains. Chains IWIS as per EN standard and Steel Rope: (DRAKO) or equivalent EN standard
- c. Lifting devices equipped by 2 geared motors. The main car lift motor must be regenerated which will save the energy.
- d. Set of steel-drawn plates as vertical guides for the guidance of the elevator platform
- e. Steel platform complete with guide rollers.
- f. Locking device for securing the vertical position.
- g. Laser device for vertical positioning.
- h. Set of photocells, sensors and mechanical switches.
- i. Steel frame complete with 4 support wheels Diameter and 4 guiding Rollers.
- j. Vertical movement through 2 geared Motor controlled by inverter with the following characteristics
- k. Actuators committed to locking device for vertical movement

**Robo parker, equipped with a cable reel or without cable reel**

- a. Actuators committed to Vehicle centering
- b. Actuators committed to lifting
- c. Actuators committed to Horizontal movement

**Stall devices**

Hot deep galvanized steel sheets for front and rear wheels rest.

**Entry Bay**

- a. Steel frame suitable to receive Robo parker.
- b. Electrical pictograph for the guidance of wheels of the vehicle during his entrance.
- c. Photocells for the control of the height, length, width and presence of the vehicle
- d. Micro-wave sensor to detect movement inside the entry/exit area.
- e. Traffic light (red/green)

**Exit Bay**

- a. Steel frame suitable to receive Robo parker.
- b. Photocells for the presence of the vehicle

c. Micro-wave sensor to detect movement inside the entry/exit area.

## **BIDDERS MUST FOLLOW FOLLOWING SPECIFICATIONS IN ADDITION TO THE ABOVE**

### **Lobby**

- Must have Motorized Wheel stopper device with wheel position detection
- High speed aluminium spiral door with speed min 1 Mtr/Sec
- Car centering mechanism in the Robo Parker
- Light Curtain type sensors to be used for length detection
- LASER type photo sensors to be used for height detection
- There must be a Touch panel and RFID card readers as HMI in the entry and exit points

### **Lift**

- Positioning to be done by 2 nos Digital type LASER positioning devices
- All communication to Variable frequency drives must be over Field bus and STO inputs to be used for additional safety.
- Lifts must have locking mechanism in all levels

### **Shuttle**

- Positioning to be done by 2 nos Digital type LASER positioning devices
- All communication to Variable frequency drives must be over Field bus and STO inputs to be used for additional safety.

### **Robo Parker**

- Lifting capacity 2500 KG
- Provision to bypass the cable reeling drum in case of breakdown
- Shuttle and Robo Parker – should be able to run on concrete.

### **Turn Table**

- Positioning of turntable to be done by Absolute type Rotary encoder over Field bus for precise positioning.

### **General**

- The PLC system preferably should be Siemens **or equivalent subject to approval of Engineer Incharge** and “Failsafe” type CPU to be used. All critical low voltage devices to be protected with Micro-controller based Electronic Circuit breakers .The system must have online connectivity in secure environment so that troubleshooting can be done remotely. A web-based SCADA system is required
- Minimum 10% of Parking spaces provided with Electric Charging points as**

**directed by BMC, shall be provided with separate Electric Meter connection as per norms of the Ministry of Energy of Central Government.**

**BIDDERS TO GIVE FOLLOWING DATA**

A. Prescribed Electrical Usage for one operation

The average parking and retrieving operation should not consume more than 0.50 kWh of electrical energy.

Bidders to Fill the Requisite Data so as to evaluate them for Technical Qualification.

(Energy Consumption, Sizes of the Equipment, Current Ratings Etc.)

B. Average energy consumption for entry and exit cycle

**Average energy consumption for an entry cycle:**

Locking Device

Elevator Cycle (Consider Avg height):

Locking device

Door opening

Robo parker cycle

Door closing

Locking Device

Elevator up

Locking device

Shuttle cycle

Robo parker cycle

Shuttle cycle

Sub-Total E1

**Average energy consumption for an exit cycle:**

Locking Device

Elevator cycle (Consider Avg Height)

Locking Device

Shuttle cycle:

Robo parker cycle:

Shuttle Cycle

Locking device:

Elevator down:

Locking device:

Door Opening

Robo parker cycle:

Door Closing

Sub-Total: E2

**TOTAL ENTRY AND EXIT CYCLE = E1+E2**

### **SELECTION OF MATERIAL**

1. All materials brought on the site of work and meant to be used in the same, shall be the best of their respective kinds and to the approval of the PMC/Engineer In Charge. The PMC/Engineer In Charge or his representative will accept that the materials are really the best of their kinds, when it is proved beyond doubt that no better materials of the particular kind in question are available in the market.
2. The contractor shall obtain the approval of the PMC/Engineer In Charge of samples of all materials to be used in the works and shall deposit these samples with him before placing an order for the materials with the suppliers. The materials brought on the works shall conform in every respect to their approved samples. Fresh samples shall be deposited with the Engineer whenever the type or source of any material changes.
3. The contractor shall check each fresh consignment of materials as it is brought to the site of works to see that they conform in all respects to the Specifications of the samples approved by the Engineer, or both.
4. The PMC/Engineer In Charge will have the option to have any of the materials tested to find out whether they are in accordance with the Specifications and the Contractor will bear all expenses for such testing. All B bills, vouchers and test certificates, which in the opinion of the PMC/Engineer In Charge or his representative are necessary to convince him as to the quality of the materials or their suitability shall be produced for his inspection when required.
5. Any materials that have not been found to conform to the specifications will be rejected forthwith and shall be removed from the site by the contractor at his own cost within 24 hours.
6. The PMC/Engineer In Charge shall have power to cause the Contractors to purchase and use such materials from any particular source, as may in his opinion be necessary for the proper execution of the work.
7. Notwithstanding the source, the sand shall be washed using sand washing machine before use.

# **ADDITIONAL SPECIFICATIONS**

1. All internal walls/ceiling shall be form finished exposed concrete with 15mm gypsum plaster or brick masonry with min 15mm gypsum plaster or brick masonry with min 15mm thick (including on RCC structural members.)- Gyproc Plaster
2. Internal surface (wherever not dadoed or tiled) will be finished with two coats of acrylic emulsion of approved shade and colour over a coat of primer and one coat of Birla Putty.
3. Window/louvered window will be provided with 18mm thick polished granite sills on all sides with 6mm projection from plaster surface and with level difference.
4. All electrical/TV wiring shall run through concealed wiring in GI/PVC conduits.
5. All taps/faucets will be of single lever fitting of Jaguar/Grohe make
6. All door hinges and hardware will be of Dorma/Hettich make only.
7. Kotah stone wherever used shall be minimum 25mm thick with uniform greenish colour.
8. Rectified and Vitrified/Ceramic tiles wherever used shall be first quality of uniform size, colour and edges evenly leveled.
9. All mild steel work will be finished with 2 coats of enamel paint over one coat of anti rust primer.
10. All rain water waste and soil pipes shall be in PVC for all upper floors & C.I. for ground/Stilt floor
11. All windows will be protected by means of RCC chajja (or RCC in set/boxing) of at least 600mm
12. Staircase Areas:-
  - i. Staircases should be have minimum 2m wide staircase flight with single piece granite stone treads and risers RCC Pardi with S.S. pipe as handrail and minimum height of 1.05m.
  - ii. 2 hr fire rated door (Shakti Hormann/ Godrej make) to be provided with panic bar on inner side and lever handle on outside as per door schedule.
  - iii. Electrical wiring to be of Polycab/Finolex make. FRD door at terrace level as approved by BMC is required.
  - iv. The staircase shall be well lit and well ventilated with glazed aluminum sliding windows and/or RCC grill.
  - v. 1 light point at each landing level and mid-landing level is required.
  - vi. 2 hour Fire resistance rating for staircase FRD, lift lobby/protected lobby is required.
13. LIFT:- 8 numbers of passenger lifts to be provided with 1 additional 2.5 ton capacity freight elevator. Minimum capacity of 13 persons for passenger lift and design as per relevant IS Codes and given specifications. Comprehensive servicing and maintenance by the manufacturer for a period of years after O.C.C. 4 lift with full collective system and speed of minimum 1.75 m/s (Bank of 4 lifts) . The service lift will also be with collective controls. All lifts will have S.S. hairline finish, S.S. ceilings dual car operating panels and lobby level floor indicators and direction indicators. Lifts will be provided with granite flooring, standard accessories including C3 messaging and access control. Fireman's lift will be provided as per CFO norms. Approved makes:- Schindler/Otis/Kone/Thyssenkrup. Lifts to be with destination control.
14. Electric Meter Room:- Provide individual meters for the offices at all floor and to be located in a meter room at ground/stilt floor level. Separate meter for common lighting facility, lifts, passage lighting, pumps/STP. The meter room shall be well ventilated and provided with a lockable door and fire resistance door.
15. Parapet:- Terrace parapet should be min. of 125mm RCC or 230mm thick brick masonry of minimum 1.20m height with minimum 100mm thick RCC coping on top.
16. Internal Corridors Lobby:-
  - i. Flooring- 20mm granite finish with 150mm skirting of the same for entrance lobby and marble in lay for corridors/passages with 150mm skirting for the same.
  - ii. Painting- Acrylic Emulsion Paint on walls upto 1.50m height. Rest of the wall area and ceiling shall be OBD in shade of same color (Two coats over a coat of primer.) Paint Makes: Asian Paint/ Goodlas Nerolac/Berger.
  - iii. Number Plates- Silver anodized aluminum plates of minimum 50mm ht. for all offices
  - iv. Electrical- 1 light point at 2.40m height at every 4m interval in common passage. Individual switches as needed. Electrical makes Bajaj/Havells/Wipro. Electrical wiring: Polycab/Finolex
  - v. Signage- Composite panel digitally printed signage for all toilets/floors, fire signage, exits, shafts, lifts, staircases and floor directories.
  - vi. False Ceiling- Metallic Armstrong (Aluminium) false ceiling with gypsum board false ceiling for borders to ensure full tile fitting.



<p><b>17) O. H. water Tank:</b></p>	<p>Plumbing</p>	<p>RCC with slab and M.S. covers for MH on top with proper locking arrangement. Water proofing to be provided with injection grouting Internal and external water proof plaster. M. S. ladder to overhead water tanks. Plumbing inlets and outlets will be hidden from general view by means of a barrier wall.</p> <p>A separate water tank shall be provided in case of water from bore well in case where municipal water supply is not available or insufficient and separate water tanks and lines for domestic and fire &amp; flushing water system.</p> <p>Capacity of OHT/UGT as per MCGM norms and that of fire tank as per CFO.</p>	<p>Plumbing: I.S.I. quality (Watertec Pvt Ltd, Finolex Industries Ltd.)</p> <p>All work to be done as per concerned Statutory Authority.</p>
<p><b>18) Ducts/ Shafts</b></p>		<p>It is desirable that all vertical plumbing may be hidden from view and pass through external vertical ducts.</p> <p>Similarly all electrical wiring telephone wires, internal and TV cables will pass through special ducts provided for the purpose and accessible through lockable doors - 2 hr fire rated with Allenkey locking system</p>	<p>Ducts shall be designed to facilitate easy access for repair maintenance purpose in future.</p>
<p><b>19) Terrace water proofing</b></p>		<p>The terrace floor slab shall be water proofed. Brick bat coba shall be used for providing proper gradient for drainage of rain water to nearest down take rain water pipes.</p> <p>The terrace shall be finished with 50% Italian marble and 50% granite white glazed china mosaic.</p>	<p>As per Specifications.</p>

<b>20) External wall finish and Appearance</b>		<p>External facades of the buildings shall be neat and with pleasing aesthetics and color combinations. The wall surface shall be finished with Waterproof OS and sand faced plaster into two coats plaster in case of brick masonry construction or exposed in case of monolithic concrete construction. In either case, the wall surface will be painted externally with rain coat paint of Dr. Fixit or 100% cement weather proof paint of ISI Mark Company. Extra polymer coating of ISI marks company on all the exterior dead walls.</p> <p>Entire façade of the building shall be finish with 4mm aluminum composite panel, FR exterior grade with aluminum frame work, tray system fitment, joints fill with weather sealant and low-E unitized double glazing system with fire break, granite finish bund wall and façade firefighting norms as per CFO requirement. Openable panels to be provided at all floors as per CFO requirement. All joints between glazing and structure vertical and horizontal to be protected with 2hr fire rated calcium silicate board and sealant. Granite finished bund to be provided at all levels with skirting and top finish of granite.</p>	Paint: Asian Paint/ Goodlas Nerolac/Berger.
<b>C. INFRASTRUCTURE FACILITIES</b>			
<b>21) Compound Wall</b>		Min. 1.5 m height with RCC pillars/beams 230 mm thick brick masonry wall with pillars as required and RCC coping on top.	
<b>22) Gates to be provided various locations</b>		M. S. Ornamental gate with good design of Min. size 6.0m wide 1.5 m height with M.S. frame & Grill with track on wheel, locking arrangement.	
<b>23) Plinth Protection</b>		Minimum 1.00 m plinth protection in PCC 150 mm thick. M 25 all around building with soling below over finished Ground level with paver blocks of 80 mm thick. Hardscape for all non-landscape areas with 80mm paver blocks.	

<b>24) Lighting</b>		General light points around building and along compound wall are to be provided with light post wherever required. The Entrance gates will be well lit with decorative lights- Façade lights for building to be included. In drive way and compound with inground led lights, 12watt led tree , 8 watt led foot light and façade lighting for entire façade with recessed waterproof uplighters.	
<b>25) Security Guard cabin</b>		A well lit and well ventilated security guard cabin is to be provided near all entrance gates.	
<b>26) Common toilet</b>		A common toilet for security guards and other personnel shall be provided at ground floor level complete with WC, washbasin and bathing facility. The toilet will be well lit and ventilated complete with floor tiling and dado tiling upto full height and concealed plumbing.	Sanitary Fittings: Jaquar, Cera, Parryware
<b>27) Underground water tank &amp; pumps, pump rooms</b>		An RCC Underground water tank as per statutory requirements and norms with man-holes and man-hole covers with locking arrangement and pump room and pumps including standby arrangement (or submersible pumps) to be provided. Separate UG tank compartments and pumping arrangement for domestic and flushing water and fire requirements.  Water proofing treatment to UG tank by injection grouting/IS approved chemical base treatment from inside & outside and bottom with box type water proofing treatment.	
<b>28) Sewerage</b>		All waste water soil pipes shall be connected to external sewage system through gully traps and glazed stoneware pipes. Brick masonry with smooth cement plastered chambers with heavy duty CI/ /RCC covers shall be provided at required intervals	UPVC down take pipe with 6" dia. and 1' dia. R.C.C pipe connecting to main sewerage line.

		<p>through the route of stoneware pipes/RCC Pipes. The discharges will be in municipal sewer if available or in septic tanks, designed and built to necessary size. The discharges will finally end in soak pits.</p> <p>Sewage treatment plant with separate UG tank for treated soil water shall be provided for water re-cycling as per BMC approval guidelines.</p>	
29) <b>Storm water drainage and rainwater harvesting</b>		The runoff water at ground level and road / paved areas will be drained through storm water drains (properly covered by CI/RCC heavy duty grated covers) and connected to the UG water harvesting tank through a water treatment media for recycling and as per SWD remarks issued by MCGM. Also all parking levels to be provided with drain outlets and piping connected to stormwater drain system.	
30) <b>Electric sub station</b>		As per approval/ remarks/ requirement of D. C. rules/norms & utility supplier.	
31) <b>solar energy system, fire fighting systems, fire detection system</b>		As per approval/ remarks/ requirement of D. C. rules & MCGM.	
32. <b>video surveillance system</b>		Security Video cameras at main entrance door . Video surveillance cameras and DVR recording with storage up to 30 days for all common areas , lobbies, passages , terrace and ground level	

**Note:**

All the work is to be executed following the latest Indian and relevant Indian standard codes for material, workmanship and quality.

33. The brands of materials to use like bricks, cements, tiles, flooring, oil paints, internal/external paints shall be as directed by engineers for the work.
34. The reinforcement steel shall be as per BMC schedule of rates specification.
35. The steel used for construction on site shall be Fe-500 tor steel
36. The cement shall be of Ordinary Portland Cement (OPC) with minimum 53-grade and Pozzolana Portland Cement (PPC) shall be used for waterproofing and plastering work respectively.
37. Bidder shall maintain the record of reinforcement steel, wood, cement, RMC procured for the work along with challans, bills etc.
38. As desired by the engineer may send the challan of reinforcement steel, RMC cement to the manufacturing company official for the confirmation of the same.
39. Prefab/modern technology shall be used while execution of the work.
40. All toilets to be provided with all accessories including jet spray, toilet paper holder, mirrors, storage unit and toughened glass shower enclosures.
41. External wall finish and Appearance- External facades of the buildings shall be neat and with pleasing aesthetics and color combinations. The wall surface shall be finished with Waterproof OS and sand faced plaster in two coats plaster in case of brick masonry construction or exposed in case of monolithic concrete construction. In either case, the wall surface will be painted externally with rain coat paint of Dr. Fixit or 100% cement weather proof paint of Asian Paint, Berger or Dulux. Extra polymer coating of ISI marks company on all the exterior dead walls. Entire façade of the building shall be finish with 4mm aluminum composite panel, FR exterior grade with aluminum frame work, tray system fitment , joints fill with weather sealant all balconies is to be provided outdoor grade timber 25 mm thickness decking with interlock and pu coating merbau wood. All balconies provided with 12 mm toughen glass and stainless steel railing. All windows and sliding doors to be provided with LOW-E double glazing of St. Gobain make. Paint Makes: Asian Paint/ Goodlas Nerolac/Berger.
42. All office floors/laboratories and amenities including terrace and stilt level amenities are required to be fully furnished with quality furniture from Godrej or Durian make inclusive of Veneer finished with Pu coating. Dorma or Hettich hardware, leather upholstery, curtains/blinds of Hunter Douglas make and modular kitchen or Hacker make in pantries/cafeteria areas.
43. 8 Number of passenger lifts to be provided with one 2.5 ton capacity freight elevator. Minimum capacity of 13 persons for passenger lift and design as per relevant IS codes and given specifications. Comprehensive Servicing and Maintenance by the manufacturer for a period of 10 years after O.C.C. Lift Make:- Schindler/Otis/Kone/Thyssenkrup.
44. Concrete surface shall be in perfect plane with minimal tolerances as required by the parking system.
45. All surfaces of concrete to be finished in Epoxy finish with Pu UV resistant coating. Acrylic line marking with glass for reflective coat.
46. All columns to be protected with SS edge angles 40 x 40 x 6 Columns/structural walls in parking area.
47. Standardized colour coding and numbering system with quality signage as required at all levels.
48. Service walkways with M.S. safety railing epoxy paint coating to be provided with level wise viewing gallery.
49. All parking floors to be finished in self-levelling epoxy finish with thermo plastic paint road marking.

## **NORMS FOR STRUCTURAL DESIGN**

1. The structural design to be based on criteria and loading as mentioned below :  
The exposure condition for foundation shall be taken to cater for any chemical contents of the soil and existing marine clay. For super structure, the exposure condition shall also be taken as severe. Also the requirement of durability as per IS 456:2000 shall be met.  
For protection of all the RCC members, coal Tar-epoxy coating shall be applied on all the surfaces in contact with soil or ground.  
Type of cement is to be used if sulphate/chloride or both are present and in this case minimum cement content as per relevant stipulations of IS : 456 – 2000 is to be adopted.  
In the area located near creek and exposed to saline atmosphere, cover shall be maintained for structure as per relevant clause of IS 456:2000. The minimum grade of concrete for RCC work should be M-40.
  - i) The area is located in seismic zone – III, hence the buildings are to be designed for seismic forces in Zone- III and as per the relevant clauses in IS: 1893 – 2002, IS: 456 – 2000 and ductile detailing as per IS:13920 – 1993 shall be adopted.
    - ii) The stipulations given in IS 4326 – 1993 shall be followed wherever applicable.
    - iii) RCC walls shall be designed in accordance with Section – 5 or Annexure – B of IS : 456 – 2000 and satisfy the requirement of clause 32 of IS : 456 – 2000 except as modified by the provision of IS : 13920 – 1993 and IS : 1893 – 2002.
    - iv) Over head/ Underground water tank (water retaining structures) should be designed as un- cracked sections as per IS: 3370.
    - v) In case of pile foundation IS: 2911 (Part I to IV) latest revised version is to be adopted. Piles to have permanent 6 to 8mm thickness liner upto rock level.
    - vi) Plasticiser or other admixtures to be used shall be as per the approval of the Engineer-in- charge before starting the work as per approved list mentioned.
  - a) RCC element to be provided with the continuity reinforcement to prevent cracking due to fixity condition included because of the continuity with other elements.
  - b) The panel walls shall be designed for wind load.
  - c) Soil in foundation and plinth filling shall be compacted or consolidated or given any other suitable treatment so as not to undergo volume changes due to consolidation or due to proximity of ground water or surface water.
  - d) The proposed site is situated at the place where reclamation is to be carried out on marshy/slushy soil. It is quite possible that mass excavation, heavy de-watering may be required during execution of sub- structure.
  - e) The external wall shall extend at least 150 mm below finished ground level. The external wall and plinth protection shall be so designed so as to prevent entry of rodent into the building.

- f) Cold joints in concrete shall be properly cleaned and painted with epoxy or equivalent bonding agent.
- g) The Contractor shall note that the cost involved in carrying out experimental design/alternate methodology, design, if any, as provided in IS 456 including behavior of units/joints etc., for Non Conventional construction or equivalent, and/or taking the expert opinion from the expert selected by BMC, in the event of difference of opinion between the Contractor and the BMC shall be to the Contractor /Developers account. The expert's opinion shall be binding on both the parties.

**1.1** The structural design shall be based on the latest revised version of following ISI and any other relevant ISI codes (BIS).

**a)** Recommendation for detailing of reinforcement in IS-5225 1969 reinforced concrete works.

**b)** Code of practice for Design and Construction of Foundation IS-1904 1986 in soils :

General requirements.

**c)** Schedule of unit weight of building materials                      IS 1911 1967

**d)** Code of Practice for design loads (other than Earthquake) for buildings and structures

Part-5 Special loads and load combinations                      IS 875 (Part-5): 1987

**e)** Earthquake resistant design and construction                      IS 4326 : 1993 of buildings – Code of Practice

**f)** Criteria for earthquake resistant design of                      IS 1893 : 2002 Structure

**g)** Ductility Detailing                      IS 13920 : 1993

**h)** Explanatory hand book on Masonry Design &                      SP-20 Construction by Bureau of Indian Standards                      (S & T: 1991)

**i)** Code of practice for plain & reinforced concrete                      IS 456 : 2000

**j)** Element design                      IS 456 : 2000 IS 1904:1986  
IS 2911 (Part-I): 1979 IS 2911 (Part-2&3):1980 & IS 2911 (Part-4): 1985

The foundation shall be so engineered that short term and long term settlement (including differential settlement between adjoining columns/walls) is within permissible limits as per stipulations of IS 1904 and IS 456 : 2000.

Open foundations or *precast/cast in situ pile* foundations will be adopted as per the site conditions and no extra cost will be claimed for modifications, if required, in designing and providing suitable foundations as per the requirements of strata.

## 1.2 PROCEDURE FOR SUBMISSION OF STRUCTURAL DESIGN:

The Contractor /Developer shall have to submit the structural design calculation in Stadd pro software / or any other validated software along with structural drawing to PMC appointed by BMC through Engineer-in-charge and have the same vetted by IIT/VJTI.

These structural drawing and design calculations will be proof checked by proof consultant(PMC) and issued to concerned Engineer-in-charge for execution purpose.

## 1.3 STRUCTURAL ADEQUACY CERTIFICATE:

Structural adequacy certificate along with structural design and indemnity bond on Rs. 100/- Stamp Paper to be submitted at the time of final submission of design calculations and structural drawings for proof checking by the Developer. These documents shall be duly validated by project management consultants.

## NORMS OF PLUMBING

**2.0** Design shall be as per National / building Code – Latest or as per the relevant guidelines of local authorities in this matter.

### **2.1** WATER SUPPLY:

- a) Consumption – As per relevant guidelines of local authorities in this matter.
- b) Overhead capacity – 50 % of day requirement with free board of 0.3 mt. as per IS standards.
- c) Underground tank capacity - 100% of one day requirement
- d) Top of underground tank shall be 0.15 mt. flushed with ground with sloped edges above finish plot level.
- e) Duration for availability of water for pumping shall be assumed as per relevant guidelines of local authority in this matter – 100% stand by electric pumps shall be provided. Separate electric meter shall be provided.
- f) All the water pumps shall be submersible pumps with automatic control panel with water level indicator having 50% standby arrangement of pumps. Capacity of pumps will be as per CFO requirement.
- g) The pumps shall be so designed that the entire overhead tanks shall be filled within 2 hours and stop with automatic sequential controller.
- h) The power supply arrangement to the pumping station including XLPE 3.5 Core armoured cables of suitable size shall be laid from sub-station with earthing arrangement.
- i) The work shall contain required switchgear, starter, and capacitor with separate metering arrangement including energy meter as per MSEDCL/TATA POWER/ADANI ELECTRICITY requirements.
- j) The design should be got approved before execution from Engineer-in-charge.



- k) Separate tested water meter with stand by water meter of ISI Mark & with Test Report, shall be provided for each underground tank. The location of water meter should be nearest to the compound wall with approval from BMC's competent authority.
- l) UPVC pipe of appropriate – class shall only be allowed for piping for pipe line.
- m) Design shall be such as to ensure equal and simultaneously flow (tolerance  $\pm 15$  min).
- n) Testing of acceptance of the system as per B.I.S. with minimum of 5 kg/sq.cm. for internal and 7.5 kg/sq.cm. for all external pipes.
- o) Teflon/Synthetic tape shall be used for jointing.
- p) All UPVC pipes embedded in wall shall be well covered by bitumen dipped spun yarn.
- q) At terrace level criss-crossing of pipe line shall not be permitted. All pipe lines shall run along the parapet walls.
- r) Shower Rose brass CP with swivel joining 50 dia. to be provided.
- s) Water taps: All water taps should be of heavy class.
- t) Stop cock should be provided for the wash basin and flushing tank. In addition to this stop cock should also be provided at the entry of the water supply pipe into the tenement.
- u) Deep seal nahani trap with grating to be providing in bath area, and below kitchen sink with appropriate size as approved by EIC.
- v) Aluminum ladder of 450 mm width of adequate length and structural sections shall be provided to each of the overhead water storage tanks. The inclination, hand railing steps etc. shall be structurally sound and safe to climb up all as approved by EIC.

## 2.2 SEWERAGE:

- a) Double stack and dual pipe system shall be accepted.
- b) CI pipe for ground floor upto first inspection chamber and for above PVC pipes shall be used with Epoxy joints. The pipes shall be fixed on proper MS flats brackets (50mm wide x 6 mm thick Mild steel flats) and GI 'U' clamp and nuts with, 50 mm gap from wall.
- c) All hidden joints shall be provided with flash stripes.
- d) No joints shall be permitted in wall, slab or columns.
- e) Rat-Guards shall be provided on the pipes.
- f) Joints with floors/walls and fixtures shall be treated/caulked with Epoxy mortar. Joint filler for PVC pipes shall be spun yarn soaked in cement 20mm deep further 20mm with CM: 1:2 and further top with min 10 mm epoxy mortar finished at 45°.
- g) Acceptance testing – smoke test.
- h) C.I Nahani trap below kitchen sink is compulsory. "P" type bottle trap with PVC East pipe 40 mmdia for wash hand basin should be provided.
- i) Single piece PVC pipe from WC upto flushing cistern to be provided.
- j) No combined pipe for S.W. Drains and sewerage shall be permitted.

- k) All P & S trap shall be deep seal with seal not less than 80 mm.
- l) PVC will be accepted for soil and waste water pipes / C.I. pipe of required dia. is to be provided upto 1<sup>st</sup> floor level.
- m) PVC water spouts to be provided over the slab of in every W.C. & Bath.
- n) All pipe lines shall be painted in oil paint of colour of external wall.

### **2.3 RAIN WATER PIPE:**

- Size shall be sufficient to carry storm water discharge due to rain fall intensity of 15. 87 cms/ hr. and with run off co-efficient of one.
- Approved make PVC SWR grade ultra violet stabilized pipes conforming to IS 4985 with rubber groove socket and with fittings conforming to B.S. 4514 shall be used with all accessories like, treated door access, bends, shoes, access, chips etc. Complete and with C.I. gratings, PVC clamps.
- No Spout for discharging rain water shall be allowed except for staircase mid landing, landing, and balconies.
- Accept Testing – hydraulic test or Smoke test as per direction of Engineer in charge.
- All pipe line shall be suitably painted in oil paint.

### **2.4 INTERNAL ELECTRIFICATION:**

- a) Load to be distributed equally on all three phase.
- b) ELCBS to be provided for each tenement.
- c) Loop in system to be adopted for internal Electrification.
- d) A separate meter box shall be provided in each building. Meter board, tested meter of appropriate capacity and necessary copper wiring shall be provided by the developer. The meter should be 0.6 m. above the ground level.
- e) The work shall conform to the Bureau of Specification of India specifications (ISS 732).
- f) Earthing should be relevant standard accepted by MSEDCL/TATA POWER/ADANI ELECTRICITY.
- g) Separate energy meter should be provided for individual staircase / offices/ common services.
- h) The developer should get the meter board layout approved from MSEDCL/TATA POWER/ADANI ELECTRICITY before execution.
- i) All distribution board shall be in Teak wood or 6 mm thick boiling water proof marine ply with laminated top, brass hinges, brass hooks etc. or as per IS approved MS powder coated distribution box shall be provided.
- j) The meter door shutter shall be as specified and directed by the MSEDCL/TATA POWER/ADANI ELECTRICITY & or as directed.

k) Open PVC conduits separately for each tenement are to be provided for common TV antenna and telephoned cables. These conduits will run through the staircase bay / light ventilation duct with junction boxes and each tenement shall be provided with suitable outlets in the living room at a proper place.

### 3.0 DESIGN NORMS FOR AREA DEVELOPMENT/SERVICES (ON-SITE)

#### **WITHIN building complex: (ON SITE DEVELOPMENT)**

All services within the building complex have been termed as “On-site development” or “AreaDevelopment”.

RECREATION GROUND (R. G. areas) in layout:

Layout R. G. areas shall be provided as per provisions in DCR.

The detailed landscape plan from Horticulturist shall be submitted.

That the entire layout R. G. areas shall be duly developed as per DCR, with hardscape & softscape landscape in tune with Environmental Clearance (if MoEF NOC is required for project) and as per the directives of undersigned, before asking for O. C. to rehab building.

The R.G. areas shall be maintained by the Developer for 6 months from the date of handing over of the building after issuing O. C.

#### 3.1 WATER SUPPLY:

a) Water supply network shall be design as per I.S. 779 & I.S. 2373-1968 latest version. Water meter chambers of size 900 x 450 mm. clear with C.I. cover with locking arrangement shall be provided.

b) Acceptance testing – hydraulic test.

c) The water supply line shall be connected to the peripheral main/municipal main with prior approval of the Competent Authority. Any additional cost for providing and fixing Specials, such as, Tees, Valves, Ferrules etc., shall be born by the Contractor /Developer.

d) For water supply distribution network design following norms also be considered.

i) Minimum pressure: As per CPHEEO

ii) Minimum dia of peripheral main : 100 mm

iii) Distribution losses : 28%

iv) Transmission losses : 3%

v) Minimum residual pressure : 3.5 mtrs.

Note: The capacity of OHT/UWT and water distribution network shall be as per the 'P Form' and remarks issued by Hydraulic Department of BMC. That the detailed calculations for the proposed water supply shall be submitted by the Lic. Plumber along with the sizes of pipes mentioned in 'P Form'.

### 3.2 SEWERAGE:

- a) The remarks from SP & PD, BMC shall be obtained and work shall be executed accordingly.
- b) RCC NP2 or stone ware Glazed pipes of minimum 150mm. diameter or as per design shall be provided.
- c) 900 mm x 450 mm size (internal) chamber with pre-cast S.F.R.C. cover with frame shall be provided. The maximum depth shall not exceed 1.2 m (bottom of channel to cover top). If the depth exceeds 1.2 m. circular conical manholes of 1.2 m. dia. shall be provided.
- d) Chamber shall be provided at every 20 m. distance and as per requirement of change of diameter, direction, level and connections.
- e) All sewerage pipes shall be supported on min. 75 mm. thick hard core and 75 mm. PCC M15 bedding with full encasing and the width of bedding shall be of outer dia of pipe plus 150 mm.
- f) Wherever the drainage pipe crosses the road, the pipe line shall be NP2 Class. The bedding shall be same as describe in (d) above.
- g) All man hole covers within building shall be of heavy duty pre-cast fiber reinforced with M.S. lapping with suitable pre-cast S.F.R.C. frame.
- h) Acceptance test: smoke and hydraulic test as per B.I.S.
- i) The sewerage line should be connected to the peripheral main /municipal main at suitable location with prior approval of the Competent Authority.

### 3.3 ELECTRIFICATION :

- 1) The underground system with armoured cable shall be used and the same should be suitably protected as per standard practice.
- 2) Cable ducts/Trenches shall be provided.
- 3) Separate Energy meter shall be provided for the area lighting / pump house, pump room, lift.
- 4) LED tube light fixtures to be provided for area lighting with general level of illumination on the ground of 7 LUX.
- 5) Cabling, other electrification works and other related works from meter box to sub-station will be carried out so as to satisfy BMC/Reliance/Tata POWER/MSEDL's requirement.
- 6) Cable (armored aluminum/As per CFO requirement) from mini pillar to individual building along pathways and suitably laid and protected as per standard practice.

- 7) Rules of Maharashtra State Electricity Board, Indian Electricity Acts / Rules and Rules of National Building Code/shall be followed in that order.
- 8) Aluminum wiring/As per CFO Requirement shall be permitted.
- 9) Acceptance Testing: Certificate of Electrical Inspector, Govt. of Maharashtra.
- 10) Area lighting in the building should be provided.
- 11) Numbering on the energy meters, D.P. Switch to be done.
- 12) Adequate earthing to be provided as per Indian Electricity Act.

#### 4.0 STREET LIGHTING/BUILDING LIGHTING:

- a) Illumination level – 8 LUX on upto 6 M. wide road, 15 LUX on 10 & 15 M. wide road.
- b) Separate underground armored standard aluminum cables of XLPE to be used of 1.1 K.V. voltage grade.
- c) System is to be designed for 240 v/250 volts. Maximum permissible drop I voltage shall be 4 v.
- d) LED street light fittings of 70-90 Watts for Building Periphery lighting and Pole lights.
- e) It will be desirable to provide controlling arrangement with automatic ON/OFF to be made with timer and energy saving device.
- f) Supply of street light to be fed from controlling point by providing at the street light mini-pillar separate energy meter and protective devices.
- g) Street light G.I. octagonal poles of 7.5 m., height above ground level shall be provided on suitable foundation as approved.
- h) Work shall conform to provisions of Indian Electricity Act./MSEDCL/TATA POWER/ADANI ELECTRICITY Rules.
- i) Load sanctions acceptance testing-Certificates of Electrical Inspector Maharashtra State, PWD, MSEDCL/TATA POWER/ADANI ELECTRICITY.

(The scope of work of the developer will be as per the design approved by MSEDCL/TATA POWER/ADANI ELECTRICITY and will include other misc. items also.)

The following major items which are also required to be installed by the developer inside the built up sub-station.

#### 5.0 POWER SUPPLY NETWORK :

The developer has to design, obtain approval of MSEDCL/TATA POWER/ADANI ELECTRICITY, execute and commission the entire power supply network sub-station to individual building. The said works are to be executed on behalf of MSEDCL/TATA POWER/ADANI ELECTRICITY and the developer has to obtain their approval in principle first. In fact, MSEDCL/TATA POWER/ADANI ELECTRICITY's

approvals and concurrence in writing is required to be taken at every stage, right from beginning to commissioning stage.

Substation shall have compound wall with gate min. 4.25 m wide. One additional fire hydrant 100 mm dia shall be provided by developer on peripheral water supply net work near by the electric sub-station.

## **6.0 SPECIFICATIONS:**

The specifications of Materials/Workmanship shall be as per the contract agreement or MSEDCL/TATA POWER/ADANI ELECTRICITY's Specifications or relevant Bureau of Indian Standard (BIS), Standard Specifications of Maharashtra State Govt. and or Standard Specifications of National Building Organization and or the specification given by BMC in that order. Any other specifications if proposed to be used shall be specifically mentioned and got approved.

1 All material to be used in work shall conform to relevant Indian standard specification and wherever available ISI marked material only will be used. All material procured shall be subjected to relevant tests specified in BIS at the frequency specified therein from any Govt. recognized laboratory such as National Test house IIT/Eng College/Polytechnic/MMRDA/PWD.

Contractor has to bound to carry out the entire work & comply all the points (M&E Work, Fire fighting work, Lift work, Civil work etc.) as specified in CFO NOC.

## **7.0 GUARANTEE FOR DURABILITY OF STRUCTURES FOR 50 YEARS**

**7.1** The successful bidder shall ensure that the structure of buildings constructed for the offices are durable and shall last for the design period of the structure.

**7.2** The strength as well as durability shall be considered explicitly at design stage.

**7.3** The structure shall be designed for loads and stresses as mentioned in IS 456 - 2000 as per provision of OCR. The RCC designed of buildings shall be based on consideration of earthquake forces as per prevailing relevant IS and seismic coefficient shall be assumed for calculation of earthquake forces as prevailing relevant IS codes. The importance factor of the buildings shall be considered as 1.0.

**7.4** There is danger in case of collapse to the lives of the people as the proposed structures are meant for use as offices/laboratories. The Architect/L.S./Consultant/Contractor/Developer shall therefore be more cautious in design and execution of the work.

**7.5** For any type of foundation required for buildings in case, the soil and the sub-soil water at the site has high sulphate and chloride content. The Contractor /Developer shall have to take almost precautions to obtain a dense, concrete of low permeability.

**7.6** The Contractor/Developer shall observe methods of controlling while designing and constructing various mechanism of wear and deterioration of concrete so as to make the structure give satisfactory service and safety for design life of the structure.

**7.7** In observing the design controls, various codes of practice and design guides, which give recommendations on durability, shall be followed. The minimum cement content, water cement ratio, minimum grade of concrete, minimum cover to reinforcement for exposure conditions of environment in Mumbai city and suburbs and surrounding region shall be strictly followed.

**7.8** The mix design and concrete of various grades, shall be as per latest relevant IS specifications keeping in view both strength and durability.

**7.9** The concrete shall be of low permeability to be durable. For this purpose,

- The concrete shall be strong and dense with low water cement ratio.
- The concrete shall be compacted thoroughly.
- Sufficient hydration of cement shall be ensured through proper curing methods.
- The aggregate cement ration for given aggregate shall be sufficient to provide adequate workability with low water cement ratio so that concrete can be compacted Use of plasticizer for workability without Increase In water cement ratio, use of self compacting concrete where compaction Is difficult etc.

7.9.1 The Contractor shall be responsible for non-deterioration of foundation, proposed by him for design life of the structure and shall ensure the controlling system against the mechanism of their deterioration keeping in view the high content of sulphate and chlorides in the soil and the sub-soil water.

7.9.2 The Contractor shall be responsible for the durability of open foundation / pile foundation & RCC pile caps, plinth beams, Super structure, columns, beams cast-in-situ walls of water tanks, lift shaft and machine room etc.

7.9.3 The Contractor shall be responsible for design life of the structure against the creep and long term excessive deflection of slabs if used in specific and other structural members (where deflection is the criteria for design) like slabs, beams, lintel etc.

7.9.4 The Contractor shall ensure that the work is executed with adequate supervision- and that the execution of construction complies with the specifications. For this purpose, the

Contractor shall carryout various tests on material and finished items as per PWD norms/relevant IS specifications.

7.9.5 The curing affects primarily the concrete in the cover to the reinforcement and by definition this is the concrete that protects the reinforcement from corrosion by the ingress of aggressive agent. The Contractor shall therefore give very special attention to the curing of concrete. The period for curing mentioned in the IS code shall be strictly adhered to. The water used for curing shall be potable

7.9.6 The Contractor shall give special attention to maintain the specified cover during execution as this is very important to transfer the forces in the reinforcement, to provide fire resistance to the steel and to provide an alkaline environment at the surface of the steel.

7.9.7 The Contractor shall ensure in the design & construction that there shall be no excessive deflection, creep & cracks in the structure beyond permissible limits.

#### 8.0 IMPORTANT NOTE:

This is a Contract wherein the Contractor is required to do the structural design and construct the buildings taking into account the requirements of the codes, professional practices, etc. It is not possible to describe in details each and every item of the construction. However, some of the specifications of some of the items have been incorporated in the tender to avoid discrepancies and to have an equal basis for comparison amongst the Contractor. Certain items may not have been described in this document; however, they form part of this contract as. The Contractor is supposed to construct the buildings as per Architect/L.S.'s drawings and complete the same in all respect so as to make the office/lab building habitable and safe. The drawings and design for all services viz. electrical, sewerage, water supply, plumbing & sanitary, rain water disposal etc. shall be submitted by the Contractor /Developer and got approved from BMC's concerned departments and competent authority.

#### 9.0 SUBMISSION REQUIREMENTS:

Two copies of reports/write up/design and five copies of drawings shall be given duly signed by the Structural / Services Engineer, Contractor /Developer and proof Consultants (PMC)

- i) Structural Design – Design criteria, method of analysis, method of design, schematic drawings, references if any, durability considerations, specification, brief, preliminary design & calculations, acceptance criteria, special reference to non-conventional concept, design be made, if the Contractor /Developer is submitting his own design.
- ii) System Designs for buildings & infrastructure works.



- iii) Design brief including specifications and acceptance criteria for ON-SITE Development, and preliminary design calculations.
- iv) Brief on construction method and deployment of resources.
- v) Quality Control/Assurance brief including proposed organizational set up testing facility and frequency of testing for different materials.
- vi) A site/layout plan showing the proposed development including services with north directions scale (1:1000).
- vii) Cluster plans showing ON-SITE development under the scope. Scale (1:500).
- viii) Details of building – Plans, Elevations, sections, type of foundations, founding level etc. Scale (1:100)
- ix) Soft copy of all above submission in a compact disk (CD).

9.1 The Contractor shall submit the following documents to Dy.C.E.(B.C.) City. in required no. of copies duly signed by the Architect/L.S./designer and Contractor /PMC

- i. Detailed layout with dimension for execution – Scale (1:200)
- ii. Detailed working drawing for each type of building – Scale 1:50.
- iii. Structural, water supply, plumbing, electrification, HVAC/BMC/interior design brief and calculation sheets.
- iv. Working structural drawings including bar bending.
- v. Working drawing for ON-SITE development scale 1:50.
- vi. **Quality Assurance System:** This include detailed working programme with help of professional Consultant associated with the work and also ensure the quality of work.
- vii. **Quality Assurance Manual:** A quality Assurance Manual constituting a base document out fixing policy procedure, compliances, acceptance criteria and documentation etc.
- viii. MS project /PERT /CPM including material – labour, resources, planning and organizational chart.

The final copies shall be given only after obtaining approval of competent authority.

## **10.0 SELECTION OF MATERIAL**

- 10.1 All materials brought on the site of work and meant to be used in the same, shall be the best of their respective kinds and to the approval of the P M C / Engineer In Charge . The P M C / Engineer In charge or his representative will accept that the materials are really the best of their kinds, when it is proved beyond doubt that no better materials of the particular kind in question are available in the market.
- 10.2 The contractor shall obtain the approval of the PMC/Engineer In charge of samples of all materials to be used in the works and shall deposit these samples with him before placing an order for the materials with the suppliers. The materials brought on the works shall conform in every respect to their approved samples. Fresh samples shall be deposited with the PMC/Engineer Incharge when- ever the type or source of any material changes.

- 10.3 The contractor shall check each fresh consignment of materials as it is brought to the site of works to see that they conform in all respects to the Specifications of the samples approved by the PMC/Engineer In Charge, or both.
- 10.4 The PMC/Engineer In Charge will have the option to have any of the materials tested to find out whether they are in accordance with the Specifications and the Contractor will bear all expenses for such testing. All B bills, vouchers and test certificates, which in the opinion of the PMC/Engineer In Charge or his representative are necessary to convince him as to the quality of the materials or their suitability shall be produced for his inspection when required.
- 10.5 Any materials that have not been found to conform to the specifications will be rejected forthwith and shall be removed from the site by the contractor at his own cost within 24 hours.
- 10.6 The PMC/Engineer in charge shall have power to cause the Contractors to purchase and use such materials from any particular source, as may in his opinion be necessary for the proper execution of the work.
- 10.7 Notwithstanding the source, the sand shall be washed using sand washing machine before use.
- 10.8 The items other than USOR 2023 shall be used in project by taking approval of competent authority.

## **11.0 SPECIFICATIONS FOR FABRICATION OF STRUCTURAL STEEL**

### **A) SCOPE**

- i. This specification covers the general requirements for supply where specified, fabrication and delivery at site of structural steel. The bill of quantities covers the specific requirements for the project. The two parts are complementary and are to be read together for a correct interpretation of the provisions of this specification.
- ii. This specification also covers design of all connections and substituted members, preparation of all shop fabrication drawings, inspection and shop painting of structures.

### **B). APPLICABLE CODES & SPECIFICATIONS**

The following specifications, standards and codes are made a part of this specification. All standards, specifications and codes of practices referred to herein shall be the latest editions including all applicable official amendments and revisions.

In case of discrepancy between this specification and other documents referred to herein, this specification shall govern.

#### a) Materials

- i. IS : 808                      Dimensions for Hot Rolled Steel sections

- ii. IS : 801                      Dimensions for Cold Formed light gauge steel sections
- iii. IS : 814                      Covered Electrodes for Manual Metal Arc Welding of Carbon and  
Carbon  
  
Manganese Steel
- iv. IS : 1161                      Steel Tubes for structural purposes
- v. IS : 1239                      Mild steel tubes, tubulars and other Wrought steel fittings  
  
Part 1 - Mild steel tubes  
  
Part 2 - Mild steel Tubulars and other wrought steel pipe fittings
- vi. IS : 1363                      Hexagon Head Bolts, Screws and Nuts of product ( Parts 1 to 3) Grade  
C  
  
(Size range M5 to M64)
- vii. IS : 1367                      Technical Supply Conditions for Threaded Fasteners (All Parts)
- viii. IS : 1852                      Rolling and Cutting Tolerances for Hot Rolled Steel Products
- ix. IS : 1977                      Structural Steel (Ordinary Quality)
- x. IS : 2062                      Steel for General Structural Purposes
- xi. IS : 2074                      Ready Mixed Paint, Air drying, Red Oxide Zinc Chrome and Priming
- xii. IS : 3502                      Steel Chequered Plate
- xiii. IS : 3757                      High Strength Structural Bolts
- xiv. IS : 5369                      General Requirements for Plain Washers and Lock Washers
- xv. IS : 5372                      Taper Washers for Channels
- xvi. IS : 5374                      Taper Washer for I Beams
- xvii. IS : 6610                      Heavy Washers for Steel Structures
- xviii. IS : 8500                      Structural Steel-microalloyed (medium and high strength qualities)

b) Codes Of Practice

- 1. IS : 800                      Code of Practice for General Construction in Steel
- 2. IS : 801                      Code of practice for use of Cold formed light gauge steel structural  
members in general                      building construction
- 3. IS : 803                      Code of practice for design, fabrication and erection of vertical mild steel  
cylindrical welded storage tanks
- 4. IS : 806                      Code of practice for use of steel tubes in general building construction
- 5. IS : 816                      Code of Practice for use of Metal Arc Welding for General construction  
in Mild  
  
Steel
- 6. IS : 822                      Code of Procedure for Inspection of Welds
- 7. IS : 1182                      Recommended Practice for Radiographic examination of Fusion -  
Welded  
  
Butt Joints in Steel Plates

- |                |  |
|----------------|--|
| 8. IS : 1200   | Method of Measurement in Building Civil Engineering Works                        |
| 9. IS : 1477   | Code of Practice for Painting of (Parts 1 & 2) Ferrous Metals in Buildings       |
| 10. IS : 2595  | Code of Practice for Radiographic Testing  |
| 11. IS : 3658  | Code of Practice for Liquid Penetrant Flaw Detection                             |
| 12. IS : 4000  | High strength bolts in Steel Structures - Code of Practice                       |
| 13. IS : 5334  | Code of Practice for Magnetic Particle Flaw Detection of Welds                   |
| 14. IS : 7215  | Tolerances for Fabrication of Steel Structures                                   |
| 15. IS : 9595  | Recommendations for Metal Arc Welding of Carbon and Carbon Manganese Steel       |
| 16. IS: 819 -  | Code of practice for Resistance Spot welding for light Assemblies in mild steel. |
| 17. IS: 823 -  | Procedure Code for metal arc welding of mild steel.                              |
| 18. IS: 824 -  | Code of practice for welding of structure subject to Dynamic loading.            |
| 19. IS: 1261 - | Code of practice for seam welding in mild steel.                                 |
| 20. IS: 1323 - | Code of practice for oxy-acetylene welding for structural work in mild steel     |

### **C) STEEL MATERIALS**

Steel materials shall comply with the specifications laid down under clause 2.0 and/or as called for on the design drawings.

All materials used shall be new, unused and free from defects.

Steel conforming to IS: 1977 or ASTM shall be used only for the following:

Fe310-0(St 32-0) : For general purposes such as door/ window frames, grills, steel gates, handrails, fenceposts, tee bars and other non-structural use.

Fe410-0(St 42-0) : For structures not subjected to dynamic loading other than wind loads such as: Platform roofs, foot over bridges, building, factory sheds etc.

Fe410-0(St 42-0) : grade steel shall not be used a) if welding is to be employed for fabrication. b) if site is in severe earthquake zone. c) if plastic theory of design is used.

### **D) DRAWINGS PREPARED BY THE VENDOR/CONTRACTOR**

- i. The VENDOR/CONTRACTOR shall prepare all fabrication and erection drawings based on the structural design for the entire work. All the drawings for the entire work shall be prepared in metric units. The drawings shall preferably be of one standard size and the details shown there in shall be clear and legible.

- ii. The **VENDOR/CONTRACTOR** shall not commence detailing unless **PMC/ENGINEER** In charge design drawings are officially approved for preparation of shop drawings. The **VENDOR/CONTRACTOR** shall be responsible for the correctness of all fabrication drawings. Fabrication drawings shall be revised by the **VENDOR/CONTRACTOR** to reflect all revisions in design drawings as and when such revisions are made by the **PMC/ENGINEER IN CHARGE**. Shop drawings will be for Civil, M&E, Lift and services including structural.
- iii. All fabrication drawings shall be submitted to the **PMC/ENGINEER IN CHARGE** for approval.
- iv. No fabrication drawings will be accepted for **PMC/ENGINEER IN CHARGE** approval unless checked and approved by the **VENDOR/CONTRACTOR's** qualified structural engineer and accompanied by an erection plan showing the location of all pieces detailed. The **VENDOR/CONTRACTOR** shall ensure that connections are detailed to obtain ease in erection of structures and in making field connections.
- v. Fabrication shall be started by the **VENDOR/ CONTRACTOR** only after **PMC/ENGINEER IN CHARGE** approval of fabrication drawings. Approval by the **PMC/ENGINEER IN CHARGE** of any of the drawings shall not relieve the **VENDOR/CONTRACTOR** from the responsibility for correctness of engineering & design of connections, workmanship, fit of parts, details, material, errors or omissions of any and all work shown thereon. The **PMC/ENGINEER IN CHARGE** approval shall constitute approval of the size of members, dimensions and general arrangement but shall not constitute approval of the connections between members and other details. The **CONTRACTOR** will solely be responsible for any sort of delay in fabrication/ erection work.
- vi. The drawings prepared by the **VENDOR/CONTRACTOR** and all subsequent revisions etc. shall be at the cost of the **VENDOR/CONTRACTOR** for which no separate payment will be made.

## **E) FABRICATION**

### ***i) General***

Fabrication activity shall be strictly started only after final approval of fabrication/erection drawing from owner and engineer. All workmanship and finish shall be of the best quality and shall conform to the best approved method of fabrication. All materials shall be finished straight and shall be machined/ground smooth true and square where so specified. All holes and edges shall be free of burrs. Shearing and chipping shall be neatly and accurately done and all portions of work exposed to view shall be neatly finished. Unless otherwise directed/ approved, reference may be made to relevant IS codes for providing standard fabrication tolerance. Material at the shops shall be kept clean and protected from weather.

## **ii) Connections**

- a) Shop/field connections shall be as per approved fabrication drawings.
- b) In case of bolted connections, taper washers or flat washers or spring washers shall be used with bolts as necessary. In case of high strength friction grip bolts, hardened washers be used under the nuts or the bolt heads whichever are turned to tighten the bolts. The length of the bolt shall be such that at least one thread of the bolt projects beyond the nut, except in case of high strength friction grip bolts where this projection shall be at least three times the pitch of the thread.
- c) In all cases where bearing is critical, the unthreaded portion of bolt shall bear on the members assembled. A washer of adequate thickness may be provided to exclude the threads from the bearing thickness, if a longer grip bolt has to be used for this purpose.
- d) All connections and splices shall be designed for full strength of members or loads as per design drawings. Column splices shall be designed for the full tensile strength of the minimum cross section at the splice.
- e) All members likely to collect rain water shall have drain holes provided.

## **iii) Straightening**

All materials shall be straight and, if necessary, before being worked shall be straightened and/or flattened by pressure and shall be free from twists. Heating or forging shall not be resorted to without the prior approval of the ENGINEER in writing. The straightening work shall be carried out as per IS: 1852 Class B

iv) Cutting, punching, drilling, welding and fabrication tolerances shall be generally as per relevant IS codes.

## **v) Rolling And Forming**

Plates, channels, R.S.J. etc., for portal columns, girts, gantry girders, etc., accurately laid off and rolled or formed to required profile/ shape as called for on the drawings. Adjacent sections shall be match-marked to facilitate accurate assembly, welding and erection in the field.

## **vi) High Strength Friction Grip Bolting**

- a) Inspection after tightening of bolts shall be carried out as stipulated in the appropriate standards depending upon the method of tightening and the type of bolt used.

## **vii) Welding**

- a) Welding procedure shall be submitted to ENGINEER for approval. Welding shall be entrusted to only qualified and experienced welders who shall be periodically tested and graded as per IS 817,

IS: 7310 (Part 1) and IS: 7318 (Part 1).

b) While fabricating plated beams and built up members, all shop splices in each component part shall be made before such component part is welded to other parts of the members. Wherever weld reinforcement interferes with proper fit-up between components to be assembled for

welding, these welds shall be ground flush prior to assembly.

- c) Approval of the welding procedure by the ENGINEER shall not relieve the CONTRACTOR of his responsibility for correct and sound welding without undue distortion in the finished structure.
- d) No welding shall be done when the surface of the members is wet nor during periods of high wind.
- e) Each layer of a multiple layer weld except root and surfaces runs may be moderately peened with light blows from a blunt tool. Care shall be exercised to prevent scaling or flaking of weld and base metal from overpeening.
- f) No welding shall be done on base metal at a temperature below -5 Deg.C. Base metal shall be preheated to the temperature as per relevant IS codes.
- g) Electrodes other than low-hydrogen electrodes shall not be permitted for thicknesses of 32 mm and above.
- h) Inspection of Welds

All welds shall be inspected for flaws by any of the methods described under clause 6 "Inspection".

The choice of the method adopted shall be determined by the ENGINEER.

- i) The correction of defective welds shall be carried out as directed by the ENGINEER without damaging the parent metal. When a crack in the weld is removed, magnetic particle inspection or any other equally positive means as prescribed by the ENGINEER shall be used to ensure that

the whole of the crack and material upto 25 mm beyond each end of the crack has been removed.

Cost of all such tests and operations incidental to correction shall be to the VENDOR /

CONTRACTOR's account.

### **viii) Tolerances**

The dimensional and weight tolerances for rolled shapes shall be in accordance with IS:1852 for indigenous steel and equivalent applicable codes for imported steel. The tolerances for fabrication of structural steel shall be as per IS:7215.

### **ix) End Milling**

Where compression joints are specified to be designed for bearing, the bearing surfaces shall be milled true and square to ensure proper bearing and alignment.

## **F)INSPECTION**

- i. The **VENDOR/ CONTRACTOR** shall give due notice to the **ENGINEER** in advance of the works getting ready for inspection. All rejected material shall be promptly removed from the shop and replaced with new material for the **ENGINEER's** approval / inspection. The fact that certain material has been accepted at the **VENDOR / CONTRACTOR's** shop shall not invalidate final rejection at site by the **ENGINEER** if it fails to conform to the requirements of these specifications, to be in proper condition or has fabrication inaccuracies which prevents proper assembly nor shall it invalidate any claim which the **ENGINEER** may make because of defective or unsatisfactory materials and/or workmanship.
- ii. No materials shall be painted or despatched to site without inspection and approval by the **ENGINEER** unless such inspection is waived in writing by the **ENGINEER**.
- iii. The **VENDOR / CONTRACTOR** shall provide all the testing and inspection services and facilities for shop work except where otherwise specified.

**IV.** For fabrication work carried out in the field the same standard of supervision and quality control shall be maintained as in shop fabricated work. Inspection and testing shall be conducted in a manner satisfactory to the **ENGINEER**.

**Inspection and tests on structural steel members shall be as set forth below :**

**a) Material Testing**

If mill test reports are not available for any steel materials the same shall be got tested by the **VENDOR/CONTRACTOR** to the **ENGINEER's** satisfaction to demonstrate conformity with the relevant specification.

**b) Tests on Welds Magnetic Particle Test**

Where welds are examined by magnetic particle testing, such testing shall be carried out in accordance with relevant **IS** codes. If heat treatment is performed, the completed weld shall be examined after the heat treatment. All defects shall be repaired and retested. Magnetic particle tests shall be carried out using alternating current. Direct current may be used with the permission of the **ENGINEER**.

**Liquid Penetrant Inspection**

In the case of welds examined by Liquid Penetrant Inspection, such tests shall be carried out in accordance with relevant **IS** Code. All defects shown shall be repaired and rechecked.

**Radiographic Inspection**

All full strength butt welds shall be radiographed in accordance with the recommended practice for radiographic testing as per relevant **IS** code.



### **c) Dimensions, Workmanship & Cleanliness**

Members shall be inspected at all stages of fabrication and assembly to verify that dimensions, tolerances, alignment, surface finish and painting are in accordance with the requirements shown in the **VENDOR/CONTRACTOR's** approved fabrication drawings and the **ENGINEER's** drawings.

### **d) Test Failure**

In the event of failure of any member to satisfy inspection or test requirement, the **CONTRACTOR** shall notify the **ENGINEER** or his authorised representative. The **VENDOR / CONTRACTOR** must obtain permission from the **ENGINEER** before repair is undertaken. The quality control procedures to be followed to ensure satisfactory repair shall be subject to approval by the **ENGINEER**.

2 The **ENGINEER** has the right to specify additional testing as he deems necessary, and the additional cost of such testing shall be borne by the **BMC**, only in case of successful testing.

3 The **VENDOR / CONTRACTOR** shall maintain records of all inspection and testing which shall be made available to the **ENGINEER** or his authorised representative.

### **G) SHOP MATCHING**

For structures like portals etc. shop assembly is essential. For other steel work, such as purlins along with bracings may have to be shop assembled to ensure satisfactory fabrication, obtaining of adequate bearing areas etc. if so desired by the **ENGINEER**. All these shop/ field assemblies shall be carried out by **VENDOR/ CONTRACTOR** at no extra cost to the **BMC**.

### **H) DRILLING HOLES FOR OTHER WORKS**

As a part of this Contract, holes in members required for installing equipment or steel furnished by other manufacturers or other contractors shall be drilled by the **VENDOR/ CONTRACTOR** at no extra cost to the **BMC**. The information for such extra holes will be supplied by the **ENGINEER**.

### **I) MARKING OF MEMBERS**

- i. After checking and inspection, all members shall be marked for identification during erection. This mark shall correspond to distinguishing marks on approved erection drawings and shall be

- ii. legibly painted and stamped on it. The erection mark shall be stamped with a metal dye with figures at least 20 mm high and to such optimum depth as to be clearly visible. All erection marks shall be on the outer surface of all sections and near one end, but clear of bolt holes. The marking shall be so stamped that they are easily discernible when sorting out members. The stamped marking shall be encircled boldly by a distinguishable paint to facilitate easy location.
- iii. Erection marks on like pieces shall be in identical locations. Members having lengths of 7.0 m or more shall have the erection mark at both ends.

## **J) ERRORS**

Any error in shop fabrication which prevents proper assembling and fitting up of parts in the field by moderate use of drift pins or moderate amount of reaming will be classified by the ENGINEER as defective workmanship. In case ENGINEER rejects such material or defective workmanship, the same shall be replaced by the materials and workmanship conforming to the ENGINEER's requirements by VENDOR / CONTRACTOR free of cost at site.

## **K) PAINTING**

All fabricated steel material, except those galvanised shall receive protective paint coating  
Galvanising of fabricated steel wherever specified,

## **12.0 SPECIFICATIONS FOR ERECTION OF STRUCTURAL STEEL**

### ***A) SCOPE***

This specification covers the general requirements for erection of structural steel. It covers the supply and delivery of all necessary materials, labour, scaffolding, tools, tackles, equipment and everything that is necessary for the satisfactory completion of the job on schedule. Tender Data Sheet covers the specific requirements for the project. The two parts are complementary and are to be read together for a correct interpretation of the provisions of this specification, where requirements of the two sections conflict, those of Tender Data Sheet shall govern.

### **B) APPLICABLE CODES & SPECIFICATIONS**

The following specifications, standards and codes are made a part of this specification. All standards, specifications and codes of practice referred to herein shall be the latest editions, including all applicable official amendments and revisions

In case of discrepancy between this specification and other documents referred to herein, this specification shall govern. In case of discrepancy between tender drawings and this specification, the tender drawings shall govern Structural

IS: 800 Code of Practice for General Construction in Steel

IS: 801 Code of Practice for Use of Cold Formed Light Gauge Steel Structural Members in General Building Construction

IS: 806 Code of Practice for Use of Steel Tubes in General Building Construction

IS: 7205 Safety Code for Erection of Structural Steel Work IS:

7215 Tolerances for Fabrication of Steel Structures

IS: 4000 High Strength Bolts in Steel Structure - Code of Practice

AISC Specifications for Design, Fabrication and Erection of Buildings

### **C) ERECTION SCHEME**

Each Bid shall be accompanied by a broad erection scheme with dates and estimated completion time for various parts of the work prepared by BIDDER after a thorough study of the Bid drawings and the site conditions. This erection scheme shall describe the methods proposed to be employed by BIDDER for transporting his equipments, tools, tackles, gas cylinders, electrodes and all that is necessary to site, unloading, transporting within the site, handling, assembling, hoisting and erecting of the structural steel components and the type, capacity and quantity of equipment that BIDDER proposes to bring to site for all these operations. The scheme shall also indicate the strength and tradewise composition of the work force and supervisory personnel that will be deployed by BIDDER for the various operations.

### **D) ERECTION PROGRAMME**

i. Within two weeks of the acceptance of his Bid, the successful BIDDER shall submit, a detailed erection programme. This programme shall be accompanied by a layout plan identifying the areas

proposed for unloading, main storage, subsidiary storage, assembly and the transportation of equipment and fabricated material between the storage and work areas. The layout shall clearly indicate the points at which proposed erection begins, direction in which it is proposed to progress, the deployment of equipment, access route for cranes to reach work areas, etc. The locations and extent of site offices and stores shall also be indicated in detail on the above layout. Full details of the method of handling, transport, hoisting and erection including false work/staging, temporary bracing, guying, etc. shall be furnished by CONTRACTOR in this erection programme along with complete details of the quantity and capacity of the various items of erection equipment that will be used. A site organisation chart showing the number of supervisory personnel, and the number and composition of the various gangs shall also accompany the erection programme.

ii. Any modifications to the erection programme directed by ENGINEER for the reasons of inadequacy of the quantity and/or capacity of the erection equipment, erection personnel and supervisors, temporary bracing, guying etc., or safety of the erection methods, or stability of the erected portions of structures, or unsuitability of the erection sequence due to interference with the work of other agencies shall be incorporated by CONTRACTOR and the work shall be carried out in accordance with the revised programme. Approval by ENGINEER shall not relieve CONTRACTOR from the responsibility for the safe, sound, accurate and timely erection of structural steel work as required by ENGINEER/OWNER. CONTRACTOR shall also make no extra claims for bringing additional equipment to site for erection, if so directed by ENGINEER. CONTRACTOR shall be deemed to have visualised all erection problems while bidding for the work and no additional compensation shall be claimed on this account.

## **E) SITE OPERATIONS**

- i. An experienced and qualified Superintendent shall be in full time charge of the job.
  
- ii. CONTRACTOR shall complete all preliminary works at site well before the arrival of structural steel, such as establishment of a well equipped and adequately staffed site office, stores, unloading gantry, unloading and pre-assembly yard, labour quarters if any, electrical and water connections, electrical winches, derricks, cranes, compressors, all tools and tackles, rivet guns, welding sets, torque wrenches, spud wrenches, staging, etc. as well as experienced erection and supervisory personnel as part of this contract and any other work that may be necessary so as to start erection immediately after the arrival of the first batch of steel at site.

iii) CONTRACTOR shall furnish at his own expense, the necessary non-inflammable staging and hoisting materials or equipment required for the erection work and shall remove and take them away after completion of the job. CONTRACTOR shall also provide necessary passageways, fences, safety belts, helmets, lights and other fittings to the satisfaction of OWNER/ENGINEER and to meet the rules of local authorities and for protection to his men and materials. A licensed electrician shall be kept on the job for the entire duration of the work to maintain CONTRACTOR's electrical equipment and connections.

iv) CONTRACTOR must ensure suitable safety precautions in consultation with ENGINEER against all existing electrical installations which are live in the adjacent structures.

v) If a portion of the work of the project area cannot be made available to CONTRACTOR for his activities due to operations being carried out by other agencies, he shall suitably modify his sequence of operations so as to continue work without interruption. CONTRACTOR shall work in coordination with other agencies working on the project site and plan his work suitably so as not to hinder the progress of construction at site.

vi) Crane fitness shall be checked by competent person and fitness of Operating person shall be certified by ENGINEER at site.

#### **F) ACCEPTANCE OF STEEL, ITS HANDLING & STORAGE**

- i. Point of delivery of fabricated steel shall be as specified in Tender Data Sheet.
- ii. CONTRACTOR shall carefully check the steel to be erected at the time of acceptance. Any fabrication defects observed should be brought to the notice of OWNER/ENGINEER.
- iii. No dragging of steel shall be permitted. All shall be stored 300mm above ground on suitable packing to avoid damage. It shall be stored in the order required for erection, with erection marks visible. All storage areas shall be prepared and maintained by CONTRACTOR. Steel shall not be stored in the vicinity of areas where excavation or grading will be done and, if so stored temporarily, this shall be removed by CONTRACTOR well before such excavation and/or grading commences to a safe distance to avoid burial under debris.
- iv. Scratched or abraded steel shall be given a coat of primer specified under tender Data Sheet for protection after unloading and handling prior to erection. All milled and machined surfaces shall be properly protected from rust/corrosion by suitable coating and also from getting damaged.

## **G) ANCHOR BOLTS & FOUNDATIONS**

- i. CONTRACTOR shall carefully check the location and layout of anchor bolts embedded in foundations constructed, to ensure that the structures can be properly erected as shown on the drawings, any discrepancy in the anchor bolts/foundation shall be reported to ENGINEER.
- ii. Levelling of column bases to the required elevation may be done either by providing shims or three nuts on the upper threaded portion of the anchor bolt. All shim stock required for keeping the specified thickness of grout and in connection with erection of structures on foundations, crane brackets or at any other locations shall be of good M.S. plates and shall be supplied by CONTRACTOR at his cost.
- iii. A certain amount of cleaning of foundations and preparing the area is considered normal and shall be carried out by CONTRACTOR at not extra cost.
- iv. Where beams bear in pockets or on walls, bearing plates shall be set and levelled as part of the work.

## **H) ASSEMBLY & CONNECTIONS**

- i. Field connections may be effected by either riveting, bolting, welding or by use of high strength friction gripbolts as specified in Data Sheet-A, and as shown on the design and erection drawings.
- ii. All field connection work shall be carried out in accordance with enclosed Tender Data Sheet. All bolts, nuts, washers, rivets, electrodes required for field connections shall be supplied by Erector free of cost.
- iii. All assembling shall be carried on a level platform.
- iv. Drifts shall be used only for drawing the work to proper position and must not be used to such an extent as to damage the holes. Size of drifts larger than the nominal diameter of hole shall not be used. Any damaged holes or burrs must be rectified to the satisfaction of ENGINEER.
- v. Corrections of minor misfits and reasonable amount of reaming and cutting of excess stock from rivets shall be considered as a part of erection. Any error in the shop, which prevents proper fit on a moderate amount of reaming and slight chipping or cutting, shall be immediately reported to ENGINEER.

## **I) ERECTION**

- i. All structural steel shall be erected as shown on the drawings. Proper size steel cable slings, etc., shall be used for hoisting. Guys shall not be anchored to existing structures, foundations, etc. unless so permitted by ENGINEER in writing. Care shall be taken to see that ropes in use are always in good condition.

- ii. Steel columns in the basement, if any, are to be lowered and erected carefully with the help of a crane and/or derrick without damaging the basement walls steel or floor.
- iii. Structural steel frames shall be erected plumb and true. Frames shall be lifted at such points that they are not liable to buckle and deform. Trusses shall be lifted only at node points. In the case of trusses, roof girders, all of the purlins and wind bracing shall be placed simultaneously and the columns shall be erected truly plumb on screed bars over the pedestals. All steel columns and beams shall be checked for plumb and level individually before and after connections are made. Temporary bracings shall be introduced wherever necessary to take care of all loads to which the structure may be subjected, including erection equipment and the operation thereof. Such bracings shall be left in place as long as may be required for safety and stability.
- iv. As erection progresses, the work shall be securely bolted to take care of all dead load, wind, seismic and erection stresses.
- v. No riveting or welding or final bolting shall be done until the structure has been properly aligned and approved by ENGINEER. No cutting, heating or enlarging of the holes shall be carried out without the prior written approval of ENGINEER.
- vi. Test certificates as specified in Tender Data Sheet shall be furnished by CONTRACTOR.

## **J) INSPECTION**

ENGINEER/OWNER or their authorised representatives shall have free access to all parts of the job during erection and all erection shall be subjected to their approval. In case of faulty erection, all dismantling and re-erection required will be at CONTRACTOR's cost. No paint shall be applied to rivet heads or field welds or bolts until these have been approved by ENGINEER.

## **k) TOLERANCES**

Tolerances mentioned below shall be achieved after the entire structure or part thereof is in line, level and plumb. The tolerances specified below do not apply to steel structures where the deviations from true position are intimately linked with and directly influence technological process. In such cases, the tolerances on erected steel structures shall be as per recommendations of process technologists/suppliers which will be indicated in the drawings.

## **Columns**

- i) Deviation of column axes at foundation top level with respect to true axes :
  - (a) In longitudinal direction :  $\pm 5$  mm
  - (b) In lateral direction :  $\pm 5$  mm

- ii) Deviation in the level of bearing surface of columns at foundation top with respect to true level :  $\pm 5$  mm
- iii) Out of plumbness (verticality) of column axis from true vertical axis, as measured at column top :
- (a) For columns upto and including 15 metres in height :  $\pm 1/1000$  of column height in mm or  $\pm 15$  mm whichever is less
- (b) For columns exceeding 15 metres in height :  $\pm 1/1000$  of column height in mm or  $\pm 20$  mm whichever is less
- iv) Deviation in the level of bearing surface of columns at foundation top with respect to true level :  $\pm 5$  mm
- v) Out of plumbness (verticality) of column axis from true vertical axis, as measured at column top :
- (a) For columns upto and including 15 metres in height :  $\pm 1/1000$  of column height in mm or  $\pm 15$  mm whichever is less
- (b) For columns exceeding 15 metres in height :  $\pm 1/1000$  of column height in mm or  $\pm 20$  mm whichever is less
- vi) Deviation in straightness in longitudinal and transverse planes of column at any point along the height :  $\pm 1/1000$  of column height in mm or  $\pm 10$  mm whichever is less
- vii) Difference in erected position of adjacent pairs of columns along length or across width of building prior to connecting trusses/ beams with respect to true distance :  $\pm 10$  mm
- viii) Deviation in any bearing or seating level with respect to true level :  $\pm 5$  mm
- ix) Deviation in differences in bearing levels of a member on adjacent pair of columns both across and along the building :  $\pm 10$  mm



- i) Shift at the centre of span of top chord in member with respect to the vertical plane through the centre of bottom chord :  $\pm 1/250$  of height of truss mm or  $\pm 15$  mm whichever is less
- ii) Lateral shift of top chord of truss at the centre of span from the vertical plane whichever is less :  $\pm 1/1500$  of span of truss in mm or  $\pm 15$  mm

**passing through the centre of supports of the truss**

- iii) Lateral shift in location of truss from its true vertical position :  $\pm 10$  mm
- iv) Lateral shift in location of purlin true position :  $\pm 5$  mm
- v) Deviation in difference of bearing levels of trusses or beams from the true difference : i)  $\pm 20$  mm for trusses  
ii) For beams  
Depth < :  
1800mm :  
 $\pm 6$ mm  
Depth > :  
1800mm :  $\pm 10$  mm

- vi) Deviation in sag in chords and diagonals of truss between node points :  $1/1500$  of length in mm or 10mm whichever is smaller

- 11.2.7 Deviation in sweep of trusses, beams etc. in the horizontal plane :  $1/1000$  of span in mm  
subject to a maximum of 10 mm

**Crane Girders & Rails**

- i) Shift in the centre line of crane rail with line of web of crane girder :  $\pm 5$  mm respect to centre
- ii) Shift in plan of alignment of crane rail with of crane rail at any point :  $\pm 5$  mm respect to true axis
- iii) Difference in alignment of crane rail in plan any two points 2 metres apart along rail :  $\pm 1$  mm measured between
- iv) Deviation in crane track with respect to time gauge

- (a) For track gauges upto and including 15 metres :  $\pm 5$  mm
- (b) For track gauges more than 15 metres :  $\pm [5 + 0.25 (S-15)]$   
 metres is where S in  
 true gauge
- v) Deviation in the crane rail level at any point from true level :  $1/1200$  of the gauge distance or  $\pm 10$ mm whichever is less
- vi) Difference in the crane rail actual levels metres apart :  $\pm 2$  mm between any two points 2 metres apart along the rail length
- vii) Difference in levels between crane track rails at  
 (a) Supports of crane girders :  $\pm 15$  mm  
 (b) Mid span of crane girders :  $\pm 20$  mm
- viii) **Relative shift of crane rail surfaces at a grinding of joint in plan and elevation transition** : **2 mm subject to surfaces for smooth**
- Relative shift in the location of crane stops (end buffers) along the crane tracks track gauge S in mm :  $1/1000$  of track gauge S in mm subject to maximum with of 20 mm

## **L ) Painting**

Cleaning with shot blasting SA 2.5 before applying primer, Two shop coats of epoxy red oxide zinc phosphate primer of 30 microns each, One shop coat and one site coat of epoxy CR enamel of 30 microns each and touch-up with spray painting after erection.

# LIST OF PREFERRED MAKE

Sr. No.	Description of Items	Name of Makes/Manufacturers
<b>MULTILEVEL PARKING SYSTEM</b>		
1	Automatic Shuttle type car parking system	SOTEFIN/KLAUS/WOHR
2	Steel Plates	TATA/JINDAL/ISPAT/SAIL
3	Sheet	ESSAR/ISPAT/JINDAL/POSCO
4	Geared Motors with DC Magnate Brake	LHP/HINDUSTAN MOTORS/CROMPTON GREAVES/OEM OF PARKING SYSTEM
5	Wire Ropes	USHA MARTIN/BHARAT WIRE ROPE LTD./OEM OF PARKING SYSTEM
6	P.L.C. (Control Panel)	OMRON/SCHNEIDER/MERLIN GERIN/LS KOREA
7	Welding rods	ADVANI/ADOR/ESAB/ESSAR
8	Paints	ASIAN PAINT/BERGER/ICI/DULUX
9	Limit switch/Sensors	HONEYWELL/EMERSON/SIEMENS/AUTONIC/OMRON

<b>ELECTRICAL ITEMS</b>		
10.	FRLS PVC insulated copper wire/Telephone cable/Copper conductor control cable	L&T/ HAVELLS/ POLYCAB/ FINOLEX/ RR KABEL/ KEI/ GRANDLAY
11.	Co-axial TV cable	L&T/ HAVELLS/ POLYCAB/ FINOLEX
12.	LT XLPE aluminium cable	HAVELLS/ POLYCAB/ RR KABEL/ KEI/ BATRA HENLAY/ GRANDLAY
13.	Steel Conduit	RM CON/ AKG/BEC/ NIC ISI marked
14.	Modular Type switch/socket/Telephone socket/Electrinics fan regulator/GI boxes	LEGRAND(MYRIUS)/ HAVELLS(CORAL)/ MKHONEYWELL(BLENZE)/ NORTH WEST(NOWA)
15.	MCB/MCB DB	LEGRAND/ SIEMENS/ L&T/ ABB/ SCHNEIDER
16.	MCCB	L&T-DSINE/ SCHNEIDER-COMPACT NSX/ ABB-TMAX/ LEGRAND-DPX3/ SIEMENS
17.	LT panel/Feeder Pillar/Meter Board	ADLECMUNDKA/ CONTROL AND SWITCHGEARS PVT LTD/ TRICOLITE/ SDC ELECTROTECH LTD/ AMBIT

18.	LED fittings for indoor lighting	PHILLIPS/ CROMPTON/ WIPRO/ GE/ HAVELLS
19.	LED fittings for outdoor lighting	PHILLIPS/ BAJAJ/ CROMPTON/ WIPRO/ GE/ HAVELLS
20.	Tube/Vane Axial Fan	KRUGER/ NICOTRA/ GREENHECK/ AIRFLOW/ HUMIDIN/ FLAFTWOOD
21.	BLDC ceiling fan	USHA/ HAVELLS/ CROMPTON/ ORIENT
<b>FIRE FIGHTING SYSTEM</b>		
22.	Fire Extinguishers	SAFEX/ MINIMEX/ SUPEREX/ CEASFIRE
23.	GI/ MS Pipe	JINDAL(HISAR)/ TATA/ BST/ PRAKASH SURYA
24.	Standard M.S. Fitting & GI fittings	JAINSONS INDUSTRIES/ INDUS/ JINDAL/ ZOLOTO
25.	Ball Valve / Sluice Valve / Check Valve / Pot /Y- Strainer	AUDCO / KIRLOSKAR/ ADVANCE/ CASTLE/ C&S
26.	Butterfly Valve	AUDCO/ ADVANCE/ CASTLE
27.	Pressure Switch	SYSTEM SENSOR/ INDFOSS/ DENFOSS
28.	Flow Switch/ Level Switch/ Level Indicator	SIEMENS/ HONEYWELL/ SONTAY/ KELE
29.	Thermo plastic (Textile reinforced) Hose Reel ISI Mark	MITRA/ KESRA/ PADMINI
30.	Stainless Steel Branch Pipe	SAFEX/ PADMINI/ GETECH/ NEW AGE
31.	Fireman Axe/ Installation Control Valve	SAFEX/ PADMINI/ GETECH
32.	2-way/ 4-way FBC	SAFEX/ NEWAGE (MUMBAI)/ GETECH
33.	Sprinkler Heads	TYCO/ HD/ OMAX UL LISTED
34.	Pipe Protection Pypcoat (AW4) Wrapping	IWL/ TAXA/ MAC- POLY COAT
35.	Rubber Bellow	KANWAL INDUSTRIAL CORPORATION/ RESISTROFLEX/ AIP VALVES
36.	Window Sprinkler	TYCO/ HD
37.	Deluge Valve	SAFEX/ TYCO/ HD
38.	Air release valve	SUPEREX/ GETECH/ NEWAGE/ SAFEX
39.	Fastner	HILTI/ FISHER
40.	Hose Box(External) (GI Powder Coated)	SPC ELECTROTECH LTD/ ADLECMUNDKA/ AMBIT SWITCHGEAR PVT LTD/ MILESTONE/ TRICOLITE
41.	Flexible Drop (UL Approved)	SAFEX/ HD/ KOFULSO (EASY FLEX)
42.	Welding Rods	ADOR/ ESAB/ ESSAR/ ADVANI

43.	Dash fasteners/suspension accessories with anti-seismic feature	HILTI/ FISCHER/ CANON
44.	Fire Sealant	3M/ HILTI
<b>CCTV CAMERA, TELEPHONE INSTRUMENT SET</b>		
45.	IP Based CCTV (indoor / outdoor) camera: Fixed Dome, Bullet, PTZ	PELCO/ BOSCH/ HONEYWELL/ VERINT/ TYCO/ MOBOTIX/ HANWHA/ WISENET
46.	VMS Software	PELCO/ BOSCH/ HONEYWELL/ VERINT/ TYCO/ MOBOTIX/ HANWHA/ WISENET
47.	VMS Server / Network Video Recorder	DELL/ HP/ CISCO/ FUJITSHU
48.	Telephone Handsets	BEETEL/ BINATONE/ PANASONIC/ AVAYA/ NEC/ NORTEL/ CISCO/ MITEL

\*Raw material source to be approved by the Engineer-in-charge.

Note: In case of shortage or scarcity or non-availability of material from above mentioned manufacturers, Engineer-in-charge may approve the fresh/ new manufacturers after the testing of material.

49. HVAC Work:- VRV/VRF System, Exhaust, Pressurized System- Blue Star, Carrier, LG Mitsubishi

Note:- 14) GM/ROMA are acceptable makes for Modular Type Switch  
16) MCCB- IndoASIAN is acceptable make  
18) GM is acceptable make for LED fittings for indoor lighting  
19) GM is acceptable make for LED fittings for outdoor lighting  
21) GM is acceptable make for BLDC ceiling fan.

**LIST OF PREFERRED MAKE: CIVIL ITEMS**

<b>S.No.</b>	<b>Description of Item</b>	<b>Preferred Makes</b>
<b>STRUCTURE</b>		
1.	Ordinary Portland Cement / Portland Pozzolana Cement	ACC / ULTRATECH / SHREE/ AMBUJA / JK CEMENT
2.	White Cement	BIRLA CEMENT/ JK WHITE / TRAVANCORE
3.	Reinforcement Steel	SAIL/ TATA STEEL LTD./ RINL/JINDAL STEEL & POWER LTD / JSW / OR AS APPROVED BY CPWD FROM TIME TO TIME AS PRIMARY PRODUCER/
4.	Parallel Threaded Couplers	DEXTRA / G-TECH
5.	Re-barring Chemical	HILTI / 3M INDIA
6.	HR Structural Steel	TATA / JSW STEEL LTD / SAIL / JINDAL STEEL & POWER LTD / RINL
7.	LGS Frame/ CR Coil	JSW / TATA BLUE/ EVEREST / PENNAR INDUSTRIES
8.	Fiber Cement Board	VISHAKHA / EVEREST / HYDERABAD INDUSTRIES
9.	Gypsum Board	USG BORAL / SAINT GOBAIN
10.	Rock Wool insulation	SHREE RAM / LLOYD INSULATION / POLYBOND INSULATION / ROCKWOOL INSULATION / ROXUL ROCKWOOL INSULATION
11.	Galvanized Steel deck sheet	TATA BLUE / JSW / JINDAL / INTERARCH
12.	FIRE COATING FOR STEEL STRUCTURE	SUKRI/ NEWCHEM / SAPC INDIA / PROMAT / AKZO NOBEL / FSI LTD / JOTUN / PROMAT
13.	Plasticizer / Super Plasticizer / Admixtures / Other construction chemicals	FOSROC / SIKA / BASF / ASIAN LABORATORIES / CHOKESY / STERLING / CICO / SUNANDA
14.	AAC Block	AEROCON / BILTECH/ J K LAXMI/ MAGICRETE / MODCRETE / BIRLA AEROCON / J.K.
15.	AAC Block Adhesive	ULTRATECH / FERROUS CRETE / ARDEX ENDURA
16.	Polymer modified cementitious adhesive, mortar & Grout for tiling etc.	ARDEX ENDURA / WEBBER / MYK LATICRETE / FERROUSCRETE
17.	RMC producers	ULTRATECH/ NUVOCO / ACC / READY MIX INDIA PVT. LTD / NDCON CONSTRUCTIONS Note: The Agency shall get the design mix

		approved for the source RMC plant.
18.	Expansion Joint- modular	HERCULES / Z-Tech / SANFIELD
19.	VACUUM DEWATERING SYSTEM	SWITECH INDIA PVT LTD / TREMIX FLOORING /
20.	THERMOPLASTIC PAINTS	ASIAN PAINTS / BERGER / RELIANCE THERMOPLAST / S.N. IND. OSCAR / AUTOMARK (INDIA) INDUSTRIES LTD / STP LTD
21.	ROAD MARKING PAINT	NEROLAC / ASIAN / SHALIMAR / BERGER / STP LTD.
22.	PU COATINGS FOR STRUCTURAL STEEL	SUNANDA SPECIALITY COATINGS / SIKA / VELOSIT / X CALIBUR CONSTRUCTION SYSTEMS INC / CHOWGULE / STP LTD
23.	ANCHOR PLUG SOIL/ ROCK ANCHOR	BBR / VSL / FREYSSINET
24.	CC PAVERS / PRECAST CC KERB STONE / CC TILES / RCC SLAB/ GRASS PAVER	NITCO / HINDUSTAN / ULTRA / DALAL / UNISTONE / CECO
25.	SFRC/PRECAST C.C. COVERS	KK MANHOLE & COVERS / JAIN / PRAGATI / HINDUSTAN
26.	Cement based Ready Mix Plaster	FERROUSCRETE / ULTRATECH / SAINT GOBAIN
<b>For WATERPOOFING</b>		
27.	Single Component Liquid PU Elastomeric Membrane (spray applied) for Deck Waterproofing	PIDILITE / ASIAN SMART CARE /SUNANDA
28.	Sunken Portion / Terrace Waterproofing Cementitious Treatment	FORSOC/ MC BAUCHEMIE/ SUNANDA SPECIALITY COATINGS/ MYK SCHOMBURG/ BENGAL BITUMEN/ STP LTD.
29.	Polymeric Cementitious Coating	BASF / FOSROC/ PIDILITE / TIKIDAN
30.	Elastomeric Acrylic PU coating (UV resistant) liquid applied coating or equivalent	BASF/ FOSROC/ SIKA / TIKADEN / ASIAN SMARTCARE
31.	PVC WATER STOPS	VELOSIT / X CALIBUR CONSTRUCTION SYSTEMS INC
32.	POLYSULPHIDE / SILICON SEALANT	TUFFSEAL / GE / DOW CORNING / PIDILITE / WACKER / SUNANDA / SUPREME BITUCHEM / BENGAL BITUMEN / MYK SCHOMBURG / STP LTD
<b>For DOOR / WINDOWS &amp; WOODWORK</b>		

33.	Laminated Particle Board / Particle board / Laminates / Plywood	MERINO / GREENLAM / CENTURY / DECOLAM/ ARCHIDPLY / KITLAM / GREEN PLY / DURO
34.	Flush door shutters	GREENPLY/ ARCHIDPLY / DURO / MERINO / CENTURY / KITPLY
35.	Toilet Cubicles	GREENLAM / MERINO / ARCHID / CENTURY
36.	Polycarbonate Sheet	GE LEXAN / DANPALON/ GALLINA
37.	Natural wood veneer	SONEAR / GREEN PLY / TRUWOOD / ARCHID
38.	Anti-static high-pressure laminate	FORMICA / BAKELITE HYLAM / DECOLAM MERINO / KITMICA / CENTURY
39.	Fire Sealant	HILTI / 3M INDIA / FISCHER
40.	Extruded Polystyrene Board	STP / SUPREME / OWNECORNING / SHALIMAR
41.	Wooden / Metal / Glaze-fire rated Door Shutters & Acoustic	NAVAIR / KUTTY / GODREJ/ SUKRI / SHAKTIMET / PCIFIC
42.	UPVC Windows	ALUPLAST / ENCRAFT / FENESTA / NCL VECCA / LG / DUROPLAST / REHAU
43.	Fire Rated door	KINDLE / NAVAIR / PROMATE / SHAKTIMET / PACIFIC
44.	Fire rated glass (2 hours fire rating)	GLAVERBEL / SAINT GOBAIN / SCHOTT / PYROGUARD/ PILKINGTON
45.	ACP Panel	ALSTONE / ALUDECORE / ALSTRONG
46.	Adhesives	FEVICOL / ANCHOR / DUNLOP / 3M / PIDILITE /THERMOSHIELD / VAMORGANIC
47.	Pu Polish For Wood Works	ICA / ASIAN PAINTS / DULUX
<b>For FINISHING</b>		
48.	WOOD FINISH (MELAMINE & PU POLISH)	ASIAN / ICI LTD / BERGER / NEROLAC / PIDILITE / WEMBLEY/ STP LTD/ DULUX
49.	Polyester Powder Coating Shades	NEROLAC / BERGER / AKZONOBEL
50.	Wall Putty	BIRLA WHITE / JK WHITE / FERROUSCRETE / BERGER / ASIAN PAINT
51.	Oil Bound Washable / Acrylic Distemper	ASIAN PAINTS / BERGER / NEROLAC / ICI / AKZONOBEL DULUX
52.	Cement Primer	BP WHITE (BERGER) / DECOPRIME WT (ASIAN) / NEROLAC / AKZONOBEL (DULUX) / ICI LTD / SNOWCEM INDIA LTD.



53.	Steel / Wood Primer	AKZONOBEL (DULUX) / NEROLAC / BERGER / ASIAN PAINT / JENSON & NICHOLSON/ ICI LTD
54.	Adhesives	ANCHOR / DUNLOP / PIDILITE-FEVICOL
55.	PLASTIC/ACRYLIC EMULSION PAINT	ASIAN / ICI LTD / BERGER / NEROLAC / SUNANDA SPECIALITY COATINGS / MYK SCHOMBURG / STP LTD / DULUX
56.	Textured Exterior Finish	ASIAN (ULTIMA) / BERGER (WEATHER COAT ALL GUARD) / DULUX AKZONOBEL (ULTRA CLEAN)
57.	Synthetic Enamel Paint	ASIAN / BERGER / NEROLAC / AKZONOBEL / ICI (DULUX)
58.	CC PAVERS / GRASS PAVERS/ PRECAST CC KERB STONE / CC TILES / RCC SLAB	NITCO / BHARAT / HINDUSTAN / ULTRA / PAVER INDIA / DALAL / UNISTONE
59.	SFRC/PRECAST C.C. COVERS	KK MANHOLE & COVERS / JAIN / PRAGATI / HINDUSTAN
60.	POLY CARBONATE SHEET	SABIC LEXAN / BAYER / COXABELL
61.	STONE SEALER	AQUA MIX SEALER FROM CHOICE GOLD/ LATECRETE/ ARDEX ENDURA/ KERAKOLL/
62.	Metal façade panels	HUNTER DOUGLAS/ NOVELISE/ DWALL METALLIC/ NEW AGE
<b>For STEEL &amp; ALUMINIUM WORKS</b>		
63.	Stainless Steel Railing / Accessories etc(Grade SS 316)	SALEM STEEL / JINDAL STAINLESS STEEL / SAIL / HAFELE / DORMA / OZONE / GEZE
64.	Powder coated Aluminium frame with glass glazing	AXSYS SOLUTIONS/ FAÇADE ONE /
65.	Aluminium Railing system	ART& GLASS / AXYSYS SOLUTIONS
66.	Welding Electrodes	ADVANI-OERLIKON / MODI
67.	Dash / Anchoring Fasteners	HILTI / FISHER / BOSCH / AXEL/ TRIXEL FROM AXEL INDIA/ CANON
68.	ALUMINUM SHEET	NOVELIS / EURAMAX
69.	SS WIRE MESH	HAVER STANDARD / GRAND METAL / STRELING / TRIMURTY/ TIGER/GKD/WMW
70.	PANIC EXIT DEVICE	INGEROLL RAND / MONARCH
<b>CEILING</b>		
71.	False Ceiling – Acoustical Gypsum tiles, with ceiling Grid	SAINT GOBAIN GYPROC / AMF / USG USGBORAL INDIA GYPSUM / HUNTER

	system/ Moisture resistant	DOUGLAS
72.	Acoustical Calcium Silicate ceiling tiles/ Board with ceiling Grid system	GYPROC / AEROLITE / USG BORAL / RAMCO HILUX / ARMSTRONG / EVEREST/ NCL / PROMAT / SAINT GOBAIN/ DEXUNE
73.	Aluminium Composite Panel	ALUCOBOND/ ALPOLIC / ALUDECOR / REYNOBOND
74.	Acrylic Solid Surfaces	HANEX / L.G-HIMAC / DUPONT
<b>FLOORINGS</b>		
75.	Tiles: Ceramic / Vitrified tiles / Antiskid / Matt / Glazed / Heat Resistant /Solar Reflective	KAJARIA / H&R JOHNSON / SOMANY / ORIENTBELL / RAK CERAMICS / RESTILE /AGL
76.	Engineered stone - Marble / Quartz	ASIAN / JOHNSON / KALINGA / QUTONE
<b>GLAZINGS</b>		
77.	Glazing Structural / Suspended / Skylight/Clear / Float / Frosted Glass / Mirror / skylight / Toughened Glass / Hermetically sealed performance glass/ Interior partition	AIS / GLAVERBELL / MODIGUARD / PILKINGTON / SAINT GOBAIN/ ATUL/ MODI / ASAHI
78.	MODULAR TOUGHENED GLASS FOR PARTITIONS	JEB / OTIC PARTITION / KUBIK / CETTERIO / DAMIAN / SAINT GOBAIN / ASAHI INDIA GLASS / SCHOTT
79.	Glass Spider Fittings	DORMA / OZONE
80.	HIGH PERFORMANCE SOLAR TOUGHENED GLASS	SAINT GOBAIN / ASAHI / PILKINGTON
81.	FIRE RATED GLASS/ HARDWARE	ST. GOBAIN / PILKINGTON / SCHOTT / SUKRITI
82.	TWO HOUR FIRE RATED METAL GLASS DOOR/ HARDWARE	ST. GOBAIN / PILKINGTON / SCHOTT / SUKRITI
<b>HARDWARE</b>		
83.	Nuts / Bolts & Screws	GKW / HILTI / ATUL / TW BUILDEX & BOUSTED / CORROSHIELD / ATUL FATERNERS LTD
84.	All type of hardware and fitting for all type of glazing / doors/ windows etc. including mortise latch & lock / tower bolt / ball bearing butt hinges / friction stay hinges / sliding door bolts / lever handle / magic eye, door closer etc.	DORMA / HAFELE / GEZE / GODREJ / ASSA-ABLOY / INGERSOLL RAND / OZONE / HETTICH

77. b) SEALANT: GE Silicon/ Dow Corning

85.	Toilet Cubicles	MERINO / GREENLAM / DORMA / CENTURY
86.	Hardware for Fire Check Door/ panic bar/ panic trim/ door closer/ hinges/ mortise lock	INGERSOLL RAND / DORMA / GEZE / HAFELE / ASSA-ABLOY / KICH
87.	EPDM Gasket	HANU / ANAND / OSAKA
88.	HYDRAULIC DOOR CLOSURE/FLOOR SPRING	GODREJ / DORMA / HAFELE / GEZE
<b>Plumbing &amp; Sanitary</b>		
89.	GI Pipes	JINDAL (HISAR) / TATA/ PRAKASH SURYA
90.	GI Fittings	UNIK / ZOLOTO / SURYA / KS / ICS / K.S / NVR / JINDAL / R BRAND / AMCO
91.	G.I. PIPE JOINTING MATERIALS	LOCTITE 55/DR. FIXIT / MC BAUCHEMIE
92.	SS Pipes & fittings	JINDAL / VIEGA / J-PRESS
93.	HDPE Pipes	RELIANCE / JAIN IRRIGATION / KISAN/ ORIPLAST / SUPREME
94.	CI Double flanged sluice valve/ non return valve	KIRLOSKAR / SONDHI / KEJRIWAL/ IVC/ BURN / SIR
95.	BALL, BUTTERFLY, FLOAT VALVES	LEADER / SANT / ZOLOTO / CASTLE / IBP / ARCO/ KSB / SIR
96.	Soil waste Pipe	JAYSWAL NECO / RIF / SKF
97.	SEWAGE WATER/RAIN WATER PIPES	ASTRAL / PRINCE / SUPREME / FINOLEX / PRAKASH / AJAY / ASHIRWAD / BIRLA AEROCON / KISAN
98.	SFRC / RCC Manhole Covers, Frames& Gratings	KK / OCR / PARGATI / T-CON / JAIN / PRAGATI / BIC / KAPILANSH DHATU UDHYOG / NECO / RIF / BCM / S.S. &CO./ GRATING
99.	Stoneware Pipes and Gully Traps	PERFECT / PARRY / BURN / ANAND / RK / HIND
100.	Sanitary CP Fittings & Accessories and Chinaware	JAQUAR / ROCA/ hindware/ Parryware/Kerovit/ Somany
101.	UPVC / CPVCPipe& Fittings	ASTRAL / SUPREME / FINOLEX / ASHIRWAD / PRINCE / PRAKASH / AJAY / BIRLA AEROCON / KISAN / APL APOLLO
102.	Stainless Steel Sink	NEELKANTH / NIRALI / CERA / JAYNA
103.	RCC Pipes	LAKSHMI / SOOD & SOOD / JAIN & CO. / PRAGATI CONCRETE / KK / USHA / DIWAN SPUN PIPE / JAIN
104.	Centrifugally Cast (Hubless) Iron Pipes & Fittings (IS:	JAYSWAL NECO / RIF / SKF

	15905) /Centrifugally Cast (Spun) Iron Pipes (IS:1536)	
105.	C.I. MANHOLES COVERS	BIC / KAPILANSH DHATU UDHYOG / NEECO / RIF / BCM / SKF / HIF
106.	SS HINGED GRATING	GMGR / NEER / CHILLY
107.	MASKING TAPES	SUNCONTROL / WONDER POLYMER
108.	TREATMENT ON MS BRACKETS	GALVANISED BRACKETS AS PER IS :4759-1996 / 610
109.	FLOOR TRAP	JAINA / CHILLY / NIRALE
<b>MISCELLANEOUS</b>		
110.	FRP water tank / SMC PANEL water tank	SINTEX / POLYCON/ SFMC/ SPL / UNITEK / SHEETAL
111.	SIGNAGES	PROLITE/ GLOLITE VISTA

\* Raw material source to be approved by the Engineer-in-charge.

Note:- In case of shortage or scarcity or non-availability of material from above mentioned manufacturers, Engineer-in-charge may approve the fresh / new manufacturers after the testing of material.

Note:-

Sr. no.	Description of Item	Preferred makes
Sr.no. 3 above shall be read as	Reinforcement Steel	SAIL/TATA STEEL LIMITED/RINL /JINDAL STEEL AND POWER LIMITED/JSW OR as approved by CPWD/BMC from time to time as primary producer.
Sr.no. 6 above shall be read as	HR Structural Steel	SAIL/TATA STEEL LIMITED/RINL /JINDAL STEEL AND POWER LIMITED/JSW OR as approved by CPWD/BMC /Additional Makes Corus (Tata) and AM Make is accepted from time to time as primary producer.
Sr.no. 17 above shall be read as	RMC Producers	ULTRATECH/NUVOCO/AA/READY MIX INDIA PVT LTD/NDCON CONSTRUCTION. Note- The agency shall get the plant approved by BMC as per registration list available with Dy.C.E. (Traffic)

## **Basis of design for Electrical, Plumbing, Firefighting, HVAC and Basement Ventilation**

### **Electrical Systems**

**1.0** This design philosophy note deals with design basis and brief description of various electrical systems proposed to be provided for the MTL Building

The systems covered are

1. Power Supply System.
2. Backup Power System
3. Cabling system.
4. Earthing system.
5. Lighting system.
6. Lightning Protection System.
7. Energy Conservation Philosophy
8. Non-Conventional Energy
9. Standards, codes and regulations.

### **2. POWER REQUIREMENT.**

2.1 The power requirement for the proposed building is calculated based on the guidelines as listed below

2.2 The Criteria for load calculation considered as per the guidelines is as follows.

Sr.No.	Class of Premises	Connected Load/Sq. Mtr.
1	Office area	150 Watt per Sq. Meter
2	Testing Labs	Additional 100 kW is considered for lab
3	All other Utilities	At Actual

2.3 Considering the above mentioned norms the total power requirement calculated is as indicated below.

<u>SR.N O</u>	<u>Floor No</u>	<u>FUNCTION</u>	<u>Qty</u>	<u>CONNECT ED LOAD (KW)</u>	<u>TOTAL CONNECTED LOAD (KW)</u>	<u>DIVERSI TY FACTOR</u>	<u>DEMAND LOAD (KW)</u>
1	14th Floor	Testing lab	1	361	361.50	67%	242.20
2	15th Floor	Testing lab	1	343	343.41	67%	230.09
3	16th Floor	Testing lab	1	343	343.41	67%	230.09
4	17th Floor	Testing lab	1	343	343.41	67%	230.09
5	18th Floor	Road department office-1	1	243	243.41	67%	163.09
6	19th Floor	Road department office-2	1	243	243.41	67%	163.09
7	20th Floor	Office-First Floor	1	243	243.41	67%	163.09
8	21st Floor	Office-Second Floor	1	243	243.41	67%	163.09
9	22nd Floor	Office-Third Floor	1	243	243.41	67%	163.09
10	23rd Floor	Office-Fourht Floor	1	243	243.41	67%	163.09
11	24th Floor	Office-Fifth Floor	1	243	243.41	67%	163.09
12	25th Floor	Office-Sixth Floor	1	243	243.41	67%	163.09
13	26th Floor	Office-Seventh Floor	1	243	243.41	67%	163.09
14	27th Floor	Office-Eighth Floor	1	243	243.41	67%	163.09
15	28th Floor	Office-Ninth Floor	1	243	243.41	67%	163.09
16	29th Floor	Office-tenth Floor	1	243	243.41	67%	163.09
17	Common						
		Basement-1	1		10.00	67%	6.70
		Ground Floor	1	136	135.55	67%	90.82
		Robotic Parking (For 13 Floors)	1		250.00	67%	167.50
		Lift	9	12	108.00	60%	64.80
		STP	1	10	10.00	67%	6.70
		WTP	1	10	10.00	67%	6.70
		Fire Load	1	200	200.00	20%	40.00
		<b>TOTAL</b>	<b>277</b>		<b>5036.23</b>		<b>3272.72</b>

### **3. POWER SUPPLY SYSTEM 33/11kV**

- 3.1 The Power for the MTL Building will be catered from the nearest substation located of BSET
- 3.2 Two feeders of 33 kV are proposed from the sub station with a ring mains unit of 2 I/C and 2 O/G feeders. The ring main unit will feed to the power requirement of the building.
- 3.3 It is proposed to have no of energy meters
- 3.4 1 No of Meter for common area which will include the following system but not limited to
- Basement ventilation
  - Water Treatment Plant
  - Sewage Treatment Plant
  - Parking system
  - Fire Protection system
- 3.5 1 No of Meter will be considered for the 4 Lab floors and 2 office floors of raod department
- 3.6 10 Nos. of Meters are considered 1 for each office floor.
- 3.7 At present one consumer per office floor is envisaged
- 3.5 Refer enclosed drawing “SLD for power distribution”.
- 3.6 The relocation of the existing BEST sub station and allied electrical work as recommended by the BEST along the statutory charges shall be considered in the scope.

### **4. POWER SUPPLY SYSTEM 415V**

- 4.1 33/11kV, 3C x 300 Sq mm XLPE Insulated round wire armoured, Aluminium conductor cables will be laid from the 33/11kV switchgear to the individual transformers.
- 4.2 The power from these distribution transformers will be distributed to various metering panels to cater to the power requirement of each client. Cables will be selected to meet the load requirement and to limit the voltage drop less than 3%.
- 4.3 The cable from nearest substation to the building substation and the equipments there in such as HT Switchgear and transformer and LT feeder pillars will be in scope of Supply Company. However the cost required for the same which needs to be paid to supply company and the associated laisioning is included in the scope.

### **5.0 Backup Power Arrangement**

- 4.4 DG sets will be installed to provide 100% emergency power to the power requirement of the building. It is proposed to install 4 Nos. 1250kVA DG sets which will be synchronised and when power supply failure is sensed, the DG sets will start automatically and feed to the services connected.
- 4.5 Refer the enclosed SLD for the power distribution.
- 4.6 All the electrical installation will be carried out as per Indian standards, code of practice and statutory regulations.

## **6.0 CABLING SYSTEM**

- 6.1 The cables for 415 V power supply will be 1.1kV grade aluminium conductors, XLPE insulated.
- 6.2 The cables within the building will be routed through cable trays. The cables coming from substation will run through trench along the roads
- 6.3 Power cables will be sized considering applicable de rating factor.
- 6.4 Rising mains is proposed to distribute the power for testing lab and road department office floors.

## **7.0 EARTHING SYSTEM**

- 7.1 Safety earthing system will be provided for safety of humans and all equipment's. The earthing system will consists of buried GI flat with required pipe in pipe chemical maintenance free earth pits.
- 7.2 Copper plate and conductor will be used for earthing of the metering kiosk as per the guidelines of supply company.

## **8.0 LIGHTING PROTECTION SYSTEM**

Lighting protection for the building will be done as per Indian Code of Practice. The system will consist of air termination rods, horizontal roof conductors, down comers, test link and earth pits. The earth pits for the lightning protection will be inter connected. Early streamer emission lightning protection system will be considered as alternative system.

## **9.0 LIGHTING SYSTEM**

- 9.1 The lighting system will consist of Normal system for the common areas, staircase and the landscape lighting.
- 9.2 All the common area lighting will be with DG backup in event of power failure the DG will power will be made available.
- 9.3 The luminaries will be selected to suit architectural, functional and aesthetic requirements. Energy saving LED lamps will be used. Normally lighting circuit will be arranged in alternate pattern to reduce illumination levels when required.
- 9.4 Lighting fittings with motion sensors will be used in the corridors of the buildings.
- 9.5 All the Lighting panels for outdoor will be with timers for automatic switching ON and OFF
- 9.6 The wiring will be done with copper wires in PVC conduits. Heavy duty PVC conduit for exposed portion and medium duty PVC conduit for embedded portion will be used. The lighting wires will be run in conduits for lighting fittings, plug points, exhaust fans, etc. The lighting circuits for the car park and common areas will be TIMER controlled so that the switching ON / OFF of the lighting is done automatically.
- 9.7 All the staircase fixtures will be provided with motion sensors. This will enable the switching of the lights only when required.
- 10.0 The Lighting shall meet the requirement of project as per NBC/IS standards.
- 11.0 The following are the recommended illumination levels for various areas as per NBC/IS:

<b>Sr. No.</b>	<b>Space</b>	<b>Recommended Type of Lamps</b>	<b>Illumination level Lux</b>
1	Staircase landing	LED	80 – 100
2	Parking Area	LED	20 - 30 – 50
3	Switch room, meter room, HV substation	LED	100 - 150 – 200
4	Lift Lobby	LED	150 - 200 – 300
5	Corridor	LED	50 - 100 – 150
6	Passage	LED	50 - 100 – 150
6	Washrooms	LED	100 - 150 – 200
8	Escalators	LED	100 - 150 – 200
9	Switch board Room	LED	200 - 300 – 500
10	EPABX Room	LED	100 - 150 – 200
11	Entrance & Exits of Car Park	LED	50 - 100 – 150

## 12.0 Energy Savings.

The following Energy Conservation Methods are proposed in the project:

- Auto Timer control for external & Common lighting
- Use of CFL / LED lamps in all public/ common areas.
- Using sensor in Basement Parking area
- Electronic V3F Drives for Elevators
- Solar PV Panel power for common area lighting.
- Using 5 Star Rated Pump.

## 13.0 Non-Conventional Power

It is proposed to use Solar Power for the common area power requirements during the day time. The solar power will be used with the net metering provisions this will enable to export the power to grid in event of excess power generation. Considering the connected load and anticipated power requirement during the day time and the space available on the terrace the tentative roof top solar power plant of capacity of 170 KW is proposed.

## 14.0 AIRCRAFT WARNING LIGHTS

Aircraft warning lights will be provided to alert aircraft of the building structure. The system will be designed to the International Civil Aviation Organization (ICAO) guidelines and the local Civil Aviation Authorities for any structure above 30metres in height.

1) Between 30-50meters- Low intensity Red Light of minimum intensity of 10Cd is prescribed.

2) Above 50meters-Medium Intensity Red Light- Flashing is prescribed of minimum 1600 Candelabras to be placed at every 50 mtrs spacing in height.

Two types of Aviation Lamps are presently used for High structure aviation Obstruction lighting.

1) Xenon Lamps.



2) LED Aviation Obstruction Lights.

For trouble free maintenance Aviation Obstruction Lighting, we recommend use of LED Aviation Obstruction Lights.

**Lifts:** High speed elevators are planned for the efficient transportation of the building. Total 8 No of lifts are planned for the passenger movement in 4 car group each. Each group of 4 cars will be provided with destination control.

The minimum travel speed of the lifts shall be 1.75mps

The car and the lift doors shall be of Stainless steel having on side of the car as glass for 2 hour fire rating.

Additional freight elevator of 2500kg is also planned.

### **KEY ELEMENTS IN PHE DESIGN**

Water shall be sourced from City mains. Total water demand for about 1840 users is about 83 KLD.

Main underground tanks are planned with a 2 day storage and OHT with 1 day storage. Domestic water tank of 92 CUM and pump room is located underground to house Fire pumps, domestic pumps and WTP. Fire tank of 300 CUM is proposed.

Tank is divided into Fire, Raw and Domestic compartments.

Flushing water tank of 73 CUM shall be provided near STP. Additional Landscape water tank of 40 CUM is also planned.

The water supply for the building is being done from UGWT to OHT by Hydro-pneumatic system. From OHT water supply by gravity to all toilets on all floors.

Water Supply from OHT is planned in Zoning fashion to control pressure, velocities, diameters and to restrict maintenance impacts etc.

Dual stack system shall be adopted for Drainage. Drainage is planned via sunk in toilet with PVC SWR Type B pipes.

Domestic and Flushing Water supply is planned in CPVC pipes internally, in Shafts and terrace looping. Dual water supply scheme with separate piping for domestic and flushing water supply.

Low flow water saving fixtures shall be used to conserve water. Urinals shall be automatic flushing based on sensors and wash basin taps shall press-matic metered faucets.

The Rain Water from roof of building shall be brought down through separate set of the piping network in PVC SWR piping. Water shall be harvested via Rain Water Harvesting pits.

For Treating the Building Waste Water and Soil Water, it is planned to install the Sewage Treatment Plant (STP) of 82 KLD capacity is planned to recycle and reclaim waste water. Treated water shall be reused to meet the Flushing and Irrigation requirements of the Project.

Subsoil drainage system is planned for releasing the pore-water and underground water pressure on basement retaining

walls and rafts.

Basement shall be drained by providing channels and sumps.

Fire Fighting System Compromising of Hydrant System, Sprinkler System, Fire alarm System and water curtain system in basement has been planned. Fire Tank of 300 CUM is planned along with Multi-stage, Multi-outlet fire pumps with two zones for the high-rise towers. Entire Building shall be protected with Sprinkler system.

Sprinkler system with dousing sprinklers per car will be provided for the car parking area as per the guidelines of NBC and CFO,BMC.

Extinguishers of suitable types shall be provided at strategic locations.

### **HVAC AND BASEMENT VENTILATION**

Basement ventilation system as per NBC 2016 with Fresh and Exhaust Air axial fan, Jet fans, CO sensors interlocking with the PLC panel and FACP. In normal mode axial fans and jet fans at low speed will operate on basis CO levels. In Fire case all the fans will bypass and operates at full capacities on signal receives from FACP panel. 6 ACPH in Normal mode & 12 ACPH in Fire mode. 100% redundancy toilet ventilation system will be provided.

Pressurization system as per NBC 2016 for the Staircase and Lift well to maintain +50Pa pressure and for Lift Lobby to maintain + 25-30Pa pressure in case of fire emergency.

Fresh air system for the occupied areas like Gr floor, Testing Labs and Typical Offices floors to maintain better indoor air quality, Also Exhaust Axial fan are provided for the Atrium area in case of fire to remove smoke to outside of the building.

Air Conditioning with the VRV / VRF technology (R410a) will cater to entire building. Individual AC system for Ground floor, Each Testing lab floors and Each Typical Offices floors are provided, all VRV ODU's are placed at the terrace floor and refrigerant piping through vertical shaft for each floor from respective ODU's. For the air distribution in the occupied area indoors units are provided like 4 Way cassette and Ductable units with ducting and supply & return air diffusers. All the system will be controlled by the Central remote controller provided at each respective floor. It will also be controlled by individual unit wireless remote.

## 1. DESIGN OF BMS SYSTEM

Mentioned below is a brief about the proposed redevelopment building of Material Testing Lab Worli, Mumbai with design concept and technical specifications requirements in subsequent sections which will help guide you to provide best in class

**ELV + IT + IBMS + AV**

+ **ROBOTIC PARKING ELV SYSTEMS** solutions and latest technology including analytics and artificial intelligence

The above mentioned systems will help to optimize building MEP performance to use less energy, provide good lighting conditions, uninterrupted clean power, right temperature cooling comfort for system to maintain controlled environment for a pleasant experience by control and monitor of the MEP equipment's, space for keeping small and medium items through smart locking system for asphalt workers and intelligent smoke detectors for fire detection, public address system for voice evacuation and paging, intelligent heat sensing cable for basement and robotic parking floors and perimeter and indoor security systems in place to make the complete building safe and secure for occupants

All above systems will seamlessly integrated with each other to provide detailed and valuable data in a centralized manner to help building maintainers to take right decisions to make building experience pleasant and secure.

The building consists of the following floors

1. Basement Floor
2. Separate 2 sets of entry/exit gates for employees and tenants
3. Ground Floor (Material Testing Lab office)
4. 1<sup>st</sup> Floor to 13<sup>th</sup> Floor Robotic Podium Parking (Approx 455 cars)
5. 14<sup>th</sup> to 17<sup>th</sup> Floors (Material Testing Lab office)
6. 16<sup>th</sup> & 19<sup>th</sup> Floors (Road Dept office)
7. 20<sup>th</sup> to 29<sup>th</sup> Floors to be leased out with individual floor metering

Following are the systems which will be installed in the building to achieve centralized  
**WITH IMPORTANT NOTES FOR THE ABOVE MENTIONED SYSTEMS**

### **INTELLIGENT ADDRESSABLE FIRE ALARM SYSTEM (CPU & LOOP REDUDANCY)**

a. All floors ( basement to 29<sup>th</sup> floors) are to be covered with multi-sensor detectors for above ceiling and below ceiling including loop powered Strobe/Sounders at the 5 staircases and critical areas and control and monitor modules for tripping of HVAC systems, ELV systems, Electrical systems and other systems which require to be shut down in case of fire and addressing of all applicable conventions sensors like flow switches and beam detectors

for the Atrium Area. Each floor will have a dedicated loop excluding the parking floors covered by the intelligent line type heat detector sensing cable

b. 2 nos. of 10 loop networkable Fire Panels to be considered as per the specification, dwg qty list, one dedicated for basement, ground, 1<sup>st</sup> to 16<sup>th</sup> floor and one dedicated from 17<sup>th</sup> to 26<sup>th</sup> floor. Each panel will have a dedicated autodialer

c. The **intelligent line type heat detector sensing cable** and associated controllers which will seamlessly integrate with the fire alarm panel protocol including all accessories considered for the parking floors and the basement should ensure that **each car is covered by one dedicatedly individual addressable heat sensor**. So each floor has 35 parking's that means 35 dedicated addresses and in total 35 nos. X 13 floors 455 nos. individual for the entire 13 floors and 49 X 2 = 98 stack parking's in the basement. The addressable heat sensor electronics position in the cable should be designed as per the above requirement.

d. There will be a Central Fire Display of multi-user graphical control system with **4500 Data points** in accordance with ÖNORM F 3003 for central display and operation of fire ALARM systems using the latest IP technology only. All Messages and system states of the connected FAS panels should be collected. This will be located in the BMS room on Ground floor. Please include the latest workstation as per OEM specs at the time of delivery.

e. The 2 nos. 10 loop panel will be located in the BMS room in the Ground Floor.

f. Following areas will have individual dedicated TCP/IP based Active Repeater Panel.

g. Ground Floor 24 X 7 security area

ii. Vigilance Dept Floor

iii. Road Dept Floor

iv. Total 10 nos., one for each leased floor from 20<sup>th</sup> to 29<sup>th</sup> floors

h. All gas suppression systems will be integrated through dedicated gas release module for 2 server and electrical rooms (4/floors X 17 floors = 68 ) on all floors and 2 critical testing labs of the same fire alarm panel proposed for the entire building (Total=70 nos.)

i. Fire Survival cable resistance to Fire @ 950 deg.C for min. 2hrs. to be used for looping all devices to the fire alarm panel as per technical specifications.

- j. All panels and fire software to seamlessly integrate with BMS system over Modbus/Bacnet
- k. Please refer the matrix for detailed floor wise break-up and tender technical specifications

### **PUBLIC ADDRESS SYSTEM**

- a. All floors (basement to 29<sup>th</sup> floors) are to be covered with speakers for open space and enclosed areas like cabins/conference/meeting cubicles/labs/elevators/lifts etc
- b. There will be 2 master controllers one for Basement to 19<sup>th</sup> floor and 2<sup>nd</sup> for 20<sup>th</sup> to 29<sup>th</sup> floor as per the specification which will be the heart of the system integrating speakers, amplifiers, microphone consoles, zone extenders (1 each for both master controllers) 30W volume controllers and rack mount music player (1 each for both master controllers).
- c. There will be a dedicated Digital Class-D power amplifier 4 x 250 watts, 100 volts between 2 floors in total 12 nos. (11 +1 spare) for the entire building in the following format
  - i. 4 nos. amplifiers for Basement, Ground, 14<sup>th</sup> to 19<sup>th</sup> floors
  - ii. 2 dedicated for 1<sup>st</sup> to 13<sup>th</sup> parking floors
  - iii. 5 nos. amplifiers for 19<sup>th</sup> to 29<sup>th</sup> floors
- d. There will be a dedicated microphone console at the following locations
  - i. BMS Room
  - ii. Ground floor Reception
  - iii. Reception on 17<sup>th</sup> floor
- e. Please consider monitored 30W volume control boxes for enclosed areas like cabins/conference/meeting cubicles/labs/elevators/lifts etc
- f. Entire PA system to be hardwired to Fire Alarm system for voice evacuation in case of fire incidence and with BMS system over 4 to 6 programmable outputs from both the master controllers connected to the DDC controllers in the BMS room
- g. Fire Survival cable resistance to Fire @ 950 deg.C for min. 2hrs. to be used for looping all devices to the fire alarm panel as per technical specifications.
- h. Please refer the matrix for detailed floor wise break-up and tender technical specifications

### **IG541 INERT GAS SUPPRESSION SYSTEM**

- a. OEM certified IG541 monitored gas suppression system is applicable to the following areas on each floor. design calculation. There will be 2 centralized banks in the entire building mounted in the ground floor or basement

- i. Bank-1 will consist of 7 floors Ground, 14<sup>th</sup> to 19<sup>th</sup> floor
- ii. Bank-2 will consist of 10 floors 19<sup>th</sup> to 29<sup>th</sup> floor
- iii. 2 nos. server rooms + 2 nos. electrical rooms on each floor so total 4 X 17 floors = 68 nos. + 2 critical material testing Labs = 70 areas. (Gnd + 14<sup>th</sup> to 29<sup>th</sup> floors) Dimensions 5 X5 mts each room. Ceiling void 800 mm, room void 2200 and floor void 600 mm.
- iv. 2 nos. critical material testing labs as per MTL teams. Dimensions 15 X 15 Mts
- b. The Electrical Actuator with provision for monitoring of actuator mounting, actuator connection fault and maintenance locking at the BMS
- c. VDS Approved Pressure Regulator (Constant Discharge Technology) to be used for each cylinder to reduce the pressure from 300bar to 60bar before the manifold
- d. Proper installation completion commissioning of the system as per OEM standards including any reset tools required to successfully complete the job
- e. All necessary warning signs to be included as per industry standards including individual manual abort and release switches for each room under gas suppression system.
- f. All cylinders to seamlessly integrate with building BMS system for monitoring over hard points
- g. Fire Survival cable resistance to Fire @ 950 deg.C for min. 2hrs. to be used for all signal cabling as per technical specifications.
- h. Please submit OEM software certified design sheet for gas qty, cylinder size and nozzle qty with the technical submissions.

## **ASPIRATION SMOKE DETECTION SYSTEM**

- a. OEM certified dual pipe, dual zone aspiration type smoke detection system with power supply dual chamber [replaceable] dust indicator is applicable to the following areas on each floor. Please check the correct dimensions for design calculation
  - i. 2 nos. server rooms + 2 electrical rooms on each floors so total 2 X 17 floors= 34 nos. (Gnd + 14<sup>th</sup> to 29<sup>th</sup> floors). (2nos. dual pipe, dual zone aspiration panels on each floor.
  - ii. 2 nos. critical material testing labs as per MTL teams. (2nos. dual pipe, dual zone aspiration panels on one single floor or two different floors)
- b. Aspiration grade 25 mm piping and associated accessories to be used for covering the entire area. Mapping of holes and piping to be designed and certified by the OEM software
- b. All panels to seamlessly integrate with building BMS system over Modbus/Bacnet

# ULTRASONIC RODENT REPELLENT SYSTEM

- a. To cover all floors from Basement to the 29<sup>th</sup> floor in all voids @ 500 sq ft coverage per transducer.
- b. All transducers should be addressable and should not to be looped connected individualto the Rodent Repellent Panels
- c. Approx 40 transducers and 2 panels per floor for all floors from basement to 29<sup>th</sup> floors.
- d. All parking floors will have individual transducer for each car slot so total 455 for 10 floors and 20 panels including the other areas on each area also to be covered
- e. Please include verification Kit comprising of Ultrasound Wave Analyzer (Software and Hardware) for centralized management of the Rodent Repellent System
- f. All above panels will integrate with BMS over Modbus/Bacnet

# DIGITAL WATER LEAK DETECTION

- a. Digital water leak detection cable to cover all floors from Basement to the 29<sup>th</sup> floor for the following areas. Dimensions to be confirmed before commercial bid
  - i. Server Rooms 2 nos./floor 2 X 17 = 34 Nos. (Approx Size 5 X 5 Mts)
  - ii. Electrical Rooms 2 nos./floor 2 X 17 = 34 Nos. (Approx Size 5 X 5 Mts)
  - iii. Material Testing Labs 3/floor X 5 = 15 nos. (Approx Size 15 X 15 Mts)
- b. Dedicated Main Leak Detection Panel - 10.1" Touch Screen Panel to installed on eachfloor (Total 17 nos.)
- c. WLD Sensor Interface Module (SIM) to be considered for the following areas which will be looped and connected to the above Main Detection panel. Total 83 Nos.
  - i. Server Rooms 2 nos./floor 2 X 17 = 34 Nos.
  - ii. Electrical Rooms 2 nos./floor 2 X 17 = 34 Nos.
  - iii. Material Testing Labs 3/floor X 5 = 15 nos.
- d. All above display panels to be integrated with BMS over Modbus/Bacnet protocol

# CCTV SYSTEM

- a. The CCTV system is applicable to the entire building in the following manner
  - i. Basement, Ground, Terrace and 1<sup>st</sup> to 19<sup>th</sup> floors will be covered entirely as detailed

camera type and count matrix sheet

ii. 20<sup>th</sup> to 29<sup>th</sup> ( 10 floors) will be covered in the following areas

- Lift lobby + Freight Lift
- Server Rooms (2 nos.)
- Electrical Rooms (2 nos.)
- Fire Staircase (5 nos.)

b. The CCTV system will consist of a combination of Video Management Software and 32 Channel NVR for storage for 550 camera system(min is 32 TB however follow point c for the correct HDD required). Please refer matrix for detailed floor requirements

c. Recording @ H.265 Compression, 1080P/20FPS/continuous recording and storage for 90 days. (Include HDD calculator in technical offer) Bidders to Provide Storage Calculations to substantiate the storage requirements in the Tender. Necessary HDD to be included as per the above data

d. Following are the types of cameras which will be used for the entire building

i. 2 MP varifocal motorized Indoor dome cameras

ii. 5 MP varifocal motorized Indoor dome cameras for Material testing labs

iii. 2 MP varifocal motorized Indoor bullet cameras (3mm to 10 mm)

iv. 2 MP varifocal motorized Outdoor bullet camera (12mm to 40 mm)

v. PTZ Cameras for perimeter 32X

c. Rack mount 3 nos. VMS Servers and 3 nos. client workstation based on 550 camera requirement.

d. A 3 X 3 matrix of 55" Video Wall with necessary hardware to connect to servers and client workstations

e. A Joystick/control board for managing the PTZ cameras

f. 10 nos. of 4 to 6 mts MS powder coated 4" dia mounting poles for all outdoor cameras including complete civil work for installation.

## **Please refer the matrix for detailed floor wise break-up and tender technical specifications**

### **ACCESS CONTROL SYSTEM**

a. The access control system is applicable to basement, ground and 14<sup>th</sup> to 19<sup>th</sup> floors and only server rooms and electrical rooms from 20<sup>th</sup> to 29<sup>th</sup> floors. The access control software



should meet the requirement of 250 doors minimum and meet all the technical specifications of the tender with seamless integration with CCTV system and HR SAP software for payroll management.

- b. All doors will have in/out readers and emergency break glass in the inside.
- c. OSDP (Open Supervisory Device Protocol) complaint controllers and readers to be used to reduce the cabling to 4 core and readers to be looped in RS 485 to save 50% cabling qty.
- d. POE based TCP/IP based 2 reader OSDP complaint controllers are used for all doors with necessary hardware and firmware to meet the technical specifications of the tender
- e. 6 nos. Face Readers have been proposed which are to be used at strategic locations like Material testing labs and critical server rooms
- f. In/Out Long Range Parking readers with 10 meters range to be installed for both entry/exit gates and basement entry for parking management and record of vehicle movement within the premises.
- g. Consider 150 UHF tags for parking and 500 mifare smart access cards for employees and visitors
- h. Magnetic locks 600# and 1200# with mounting brackets as per door material, magnetic contacts to be considered as per single and double leaf doors. 2 nos. of SMPS Power Supply in each server rooms of 10 Amp rating of 10 outputs of 1 amp each to considered in casethe access control cannot power the magnetic locks.

## i. Please refer the matrix for detailed floor wise break-up and tender technical specifications

### **SMART LOCKER SYSTEM**

- a. This is system is required **on each floor** in the ASPHALT PLANT WORKER'S OFFICE from Ground, 14<sup>th</sup> to 17<sup>th</sup> floor of the Material testing labs (5 nos. in total and all integrated seamlessly to work as a single system and accessible through a centralised GUI Software)
- b. All above smart Lockers will seamlessly integrate with the Building Management System over Modbus/Bacnet protocols and comply with the tender makes and specifications.
- c. Include all necessary items required to make the system complete and working at all times

### **d. INDOOR SECURITY SYSTEM**

#### **i. Walk Through Metal Detector**

- a. This will be required at the Ground Floor both Entrances 2 nos. each for men and women separately total 4 nos.

X Ray Baggage Scanners ( Hand Held and Freight)

a. Each Entrance will require a Hand held and Freight X ray baggage scanners, so in total 4 nos., 2 each of handheld and 2 each of Freight Xray baggage scanners

a. Hand Held Metal Detectors

a. Will require 4 sets at each entrance so total 8 nos.

b. Swing Barriers & Wide Opening P Gate

c. Swing Barriers and P Gate will be installed on the ground floor entrance as per the below table for employee, tenant and freight material entries

d. Normal Swing barriers will have 600 mm opening, Handicap Swing Barrier will have 900 mm and P gate will be 1200 to 1800 mm max as per site requirements. Swing Barrier opening can have a tolerance of 15 to 25 mm depending on site requirements

SR. No.	Floors	Swing Barriers				P Gate		Total		
		2+1 (Normal + Handicap Lane) 600 mm + 900 mm		1 Normal Lane 600 mm		1200 to 1800 mm Opening as per site				
		Entrance	Entrance	Lift Lobby	Lift Lobby	Entrance	Entrance	Entrance	Entrance	
		Nxt to Elevator-1	Nxt to Elevator-4	Side 1	Side 2	Nxt to Elevator-5	Nxt to Elevator-6	Nxt to Elevator-5	Nxt to Elevator-6	
1	Ground Floor	3	3	3	3	1	1	1	1	16

## INTEGRATED BUILDING MANAGEMENT SYSTEM

a. The BMS system is applicable to the entire building from Basement, Ground, 1<sup>st</sup> to 29<sup>th</sup> floors.

b. The BMS System Architecture will be a 3 tier architecture

i. BMS software

ii. Supervisory Controllers (All soft Integrations)

iii. DDC Controllers (field level integration)

c. Please refer to the bms io summary at the end of the documents for details hard wired through

ddc controllers and soft integration via modbus/bacnet protocol through supervisory controllers

d. Wireless iot sensors will be used along with gateway over mesh network and seamlessly integrating with the bms system over MQTT protocol. Total 8 gateways and 16 to 20 sensors on each floor to monitor temp/rh

e. IT BACKBONE (ACTIVE+PASSIVE+UNDERFLOOR PVC DUCTING) PASSIVE

f. The IT passive and active hardware and software will be completely installed for Ground, 14th to 19th floors. However the underfloor raceways and junction boxes will be installed for the complete building from Gnd, 11th to 29th floors

g. There will be 100% redundancy for each data point considered in the building for ground, 14th to 19th floors and hence the passive items will be provided in accordance with the design requirements

h. All individual POE copper switches will individually collapse on the fibre backbone to the SFP core switches

i. ACTIVE

j. The entire system will be enterprise based system and as per the specifications mentioned in the tender. This is most critical part of the business continuity and hence has to be end to end sourced from a single OEM

k. 48 Port SFP Core Switch to be considered to manage the entire business network and the OT network as mentioned below. This will be heart of the entire system and will be in the server room (2 Nos.)

l. 48 ports POE managed switches will be used for the data and voice back bone with 100% redundancy at the LAN points at field side and core side. Accordingly the no. of switches to be considered (Approx 39 Nos.) Sufficient amount of Passive items to be considered to meet the switch requirement.

a. 24 ports POE Managed switches will be used for the OT (Operational Technologies) network. OT network consists of entire ELV systems (Approx 40 nos.) Sufficient amount of Passive items to be considered to meet the switch requirement.

b. Router, Next generation Firewall, NAC, IP PBX, Voice Gateway 4 PRI, Wifi Controller, Wifi Access Points, IP Phones of 4 types as per the employee grade to be provided in MTL offices.

c. Please refer the matrix for detailed floor wise break-up and tender technical specifications  
**UNDERFLOOR PVC DUCT FOR STRUCTURED CABLING**

a. We proposing Under Floor Trunking made of PVC (Polyvinylchloride) of minimum 2.0 mm thickness, minimum 3000 mm length for Gnd, 14<sup>th</sup> to 29<sup>th</sup> floors, trapezoidal duct profile for high tensile strength to give the required rigidity, including cutting floor chases as per requirement and mending good the damages clearing the debris as per requirement all complete. For 5 to 6 IP points in 13 nos. parking floors we will use same armoured CAT6 cable used for CCTV and access control.

b. All joints between two PVC trunking shall be fixed with a pvc connector as per size and 1 run or 2 runs or 3 runs of pvc trunking should have fastening galvanized clamps every 1 mtr as per duct size. All material should conform to EN 50085-2-2 standard and should be end to end from a single OEM

c. Underfloor junction box to be used for PVC ducts in heights of 25 mm and 35 mm raceways. Under floor Junction boxes sizes and qty should be considered for 1 run or 2 runs or 3 runs of pvc trunking as per the structured cabling required for entire floor and for all floors (Ground, 14<sup>th</sup> to 29<sup>th</sup> floors)

The qty of pvc trunking and junction boxes should be appropriate enough to meet the complete structured cable requirement of the MTL office and leased out floors.

## **PERIMETER SECURITY**

### **i. Under Vehicle Scanning System**

a. To be installed at the 2 entrance gates, total 2 nos.

Cantilever Technology MS Gate and Gate Automation

a. To be installed for entry and exit gates of 6 to 6.5 mts as per site, total 4 nos.

Boom Barriers

a. 2 nos. of 3 to 3.5 mts (as per site requirement) boom barriers to be installed for each entry and exit gates. So total  $4 \times 2 = 8$  nos.

b. 1 no. will be installed for the basement entrance

### **ii. Automatic Bollards**

a. 4 nos. of K4 automatic bollards as 1 set to be installed at 2 entry gates- total 2 sets.

## **OTHER SYSTEMS FOR AUTOMATED PARKING FLOORS & DELUGE FIRE PROTECTION**

The proposed below systems are applicable to automated parking floors from basement, 1<sup>st</sup> to 13<sup>th</sup> floors

a. All below mentioned systems will seamlessly work between themselves as independentsystem but will also share information with the building centralized systems

The automated parking floors will be also be protected by the following additional systems

## **1. Intelligent Addressable Fire Alarm (MAF Required. Same make as the building)**

1 loop expandable to 2 loop Intelligent Addressable fire alarm in one with the technical specifications as mentioned above this will be used for the addressable heat sensing cable system installed to monitor each parking slot. This fire panel should be on the same protocol as the building Fire Alarm System and should be integrated with the Automated parking BMS and the building BMS system

## **2. Line Type Heat Detector Sensing Cable – Intelligent Addressable (MAF Required. Same make as the building)**

For monitoring of **each and every individual parking slot** for basement+ 13 podium automated parking floors (total 98+455=553 nos.) The hermetically sealed sensor cable contains small hybrid circuits (sensor) which, to be placed at every 4 or 5 meters intervals to ensure that **each and every parking slot will have their individual Heat Detector**. The hybrids, which contain an integrated circuit with a defined address and a semiconductor temperature sensor, are electrically connected by a flat flexible cable. All the data from sensor element encapsulated in sensor cable is processed in the microprocessor-based controller having important LED indications and seamlessly integrate with the above Fire Alarm Panel communication protocol.

The total length of the system may be up to a minimum of 350 meters x 2 runs meters or 99 + 99 sensors whichever is earlier per controller.

## **3. ULTRASONIC RODENT REPELLENT SYSTEM (MAF Required. Same make as the building)**

Each **individual parking slot** to be protected by 1 no. ultrasonic rodent repellent transducer with on each floor to protect the cars from rodent menace **for basement+ 13 podium automated parking floors (total 98+455=553 nos.)**. Approx each floor will require 40 transducers and 2 nos. master controller with 128X64 Graphic LCD DISPLAY which will be

networked and connected to centralized software for better management. No looping of transducers.

## **Please refer the matrix for detailed floor wise break-up and tender technical specifications**

### **4. Building Management System (MAF Required. Same make as the building)**

Latest Version Server-Client BMS Software as specified for real-time processing of all IO points being mapped into the system by TCP/IP PLC/DDC Controllers and Protocol Integrators for monitoring of valves and sensor monitoring of the deluge fire protection system including the above Fire Alarm, Heat Sensing cable and Ultrasonic rodent repellent. Please consider minimum **1000 software tags** as per the make to ensure complete monitoring and control of the system. The same system has to seamlessly integrate in the building BMS.

The 32 bit ddc controller panels should have necessary IO and Modbus/bacnet port capacity to the complete requirements for basement + 13 automated parking podium floors.

### **AUDIO-VISUAL SYSTEMS**

a. These systems are applicable for the occupied floors on Ground, 14<sup>th</sup> to 19<sup>th</sup> floor and following areas

1. 18 Pax Conference Rooms
2. 10 Pax Conference Rooms
3. Meeting Cubicles
4. Deputy Chief Engineer Cabins
5. Executive Engineers Cabin

Please refer the matrix for detailed floor wise break-up and tender technical specifications

**SECTION 13**  
**FRAUD AND CORRUPT PRACTICES**

## **FRAUD AND CORRUPT PRACTICES**

- The Applicants and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, the Authority may reject an Application without being liable in any manner whatsoever to the Applicant if it determines that the Applicant has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process.
- Without prejudice to the rights of the Authority under relevant Clause hereinabove, if an Applicant is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, such Applicant shall not be eligible to participate in any tender or RFQ issued by the Authority during a period of 2 (two) years from the date such Applicant is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.
- For the purposes of this Clause, the following terms shall have the meaning hereinafter respectively assigned to them:

**A. “corrupt practice” means**

the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Concession Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or

save and except as permitted under the relevant sub clause, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Concession Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Concession Agreement, who at any time has been or is a legal, financial or technical adviser of the Authority in relation to any matter concerning the Project;

**A. “fraudulent practice” means** a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process ;

**A. “coercive practice” means** impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any persons participation or action in the Bidding Process;

**A. “undesirable practice” means** (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

**A. “Restrictive practice” means** forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

**A. If the Employer/Financier determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days’ notice to the Contractor, terminate the**



Contractor's employment under the Contract and expel him from the Site, and the provisions of relevant Clause shall apply as if such expulsion had been made.

- A. Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed in accordance with relevant Clause.

For the purposes of this Sub-Clause:

- i. "corrupt practice" is the offering, giving, receiving to soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- ii. "another party" refers to a public official acting in relation to the procurement process or contract execution. In this context, "public official" includes Financer staff and employees of other organizations taking or reviewing procurement decisions.
- iii. "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- iv. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- v. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- vi. "obstructive practice" is deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede the Financier investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
- vii. acts intended to materially impede the exercise of the Financer's inspection and audit rights provided .
- viii. "party" refers to a public official; the terms "benefit" and "obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.
- ix. "parties" refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, noncompetitive levels.
- x. a "party" refers to a participant in the procurement process or contract execution

**SECTION 14 PRE BID MEETING**

## PREBID MEETING

Pre-bid meeting of the interested parties shall be convened at the designated date, time and place. A maximum of three representatives of each Prospective Bidder shall be allowed to participate on production of authority letter from the Prospective Bidder .

During the course of Pre-bid meeting, the Prospective Bidder will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall Endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

Pre-Bid Meeting venue	Office of theAMC (ES) Conference Hall, Second Floor, Municipal Headoffice Annexe Building, Mahapalika Marg, Mumbai – 400 001.
Pre-Bid Meeting Date & Time	27.09.2024 from 16:00 Hrs

**Note:** The bidder shall submit their suggestions / objections/ queries, minimum three daysbefore the pre-bid meeting, i.e. upto 5:00pm by email only to [dycebccity.ce@mcm.gov.in](mailto:dycebccity.ce@mcm.gov.in) [eebccity01.ce@mcm.gov.in](mailto:eebccity01.ce@mcm.gov.in) [aebccity02.ce@mcm.gov.in](mailto:aebccity02.ce@mcm.gov.in)

**SECTION -15**  
**LIST OF APPROVED BANKS**

### **LIST OF APPROVED BANKS**

1. The following Banks with their branches in Greater Mumbai and in suburbs and extended suburbs up to Virar and Kalyan have been approved only for the purpose of accepting Banker's guarantee from 1997-98 onwards until further instructions.
2. The Bankers Guarantee issued by branches of approved Banks beyond Kalyan and Virar can be accepted only if the said Banker's Guarantee is countersigned by the Manager of a branch of the same Bank, within the Mumbai Limit categorically endorsing thereon that said bankers Guarantee is binding on the endorsing Branch of the bank within Mumbai limits and is liable to be enforced against the said branch of the Bank in case of default by the contractor/supplier furnishing the bankers Guarantee.
3. Note: IDBI Bank BG will not be applicable as per the circular no. CA/FBK/303 dt. 17/03/18.

#### **List of approved Banks:-**

<b>A</b>	<b>S.B.I and its subsidiary Banks</b>
1	State Bank Of India.
2	<del>State Bank Of Bikaner &amp; Jaipur.</del>
3	State Bank Of Hyderabad.
4	State Bank Of Mysore.
5	State Bank Of Patiyala.
6	State Bank Of Saurashtra.
7	State Bank Of Travankore.
<b>B</b>	<b>Nationalized Banks</b>
8	Allahabad Bank.
9	Andhra Bank.
10	Bank Of Baroda.
11	Bank Of India.
12	Bank Of Maharashtra.
13	Central Bank Of India.
14	Dena Bank.
15	Indian Bank.
16	Indian Overseas Bank.
17	Oriental Bank Of Commerce.
18	Punjab National Bank.
19	Punjab & Sindh Bank.
20	Syndicate Bank.
21	Union Bank Of India.
22	United Bank Of India.
23	UCO Bank.
24	Vijaya Bank.
24A	Corporation Bank.

<b>C</b>	<b>Scheduled Commercial Banks</b>
25	Bank Of Madura Ltd.
26	Bank Of Rajasthan Ltd.
27	Banaras State Bank Ltd.
28	Bharat Overseas Bank Ltd
29	Catholic Syrian Bank Ltd.
30	City Union Bank Ltd.
31	Development Credit Bank.
32	Dhanalakshmi Bank Ltd.
33	Federal Bank Ltd.
34	Indsind Bank Ltd.
35	I.C.I.C.I Banking Corporation Ltd.
36	Global Trust Bank Ltd.
37	Jammu & Kashmir Bank Ltd.
38	Karnataka Bank Ltd.
39	KarurVysya Bank Ltd.
40	Laxmi Vilas Bank Ltd.
41	Nedugundi Bank Ltd.
42	Ratnakar Bank Ltd.
43	Sangli Bank Ltd.
44	South Indian Bank Ltd.
45	S.B.I Corporation &Int Bank Ltd.
46	Tamilnadu Mercantile Bank Ltd.
47	United Western Bank Ltd.
48	Vysya Bank Ltd.
<b>D</b>	<b>Schedule Urban Co-op Banks</b>
49	Abhyudaya Co-op Bank Ltd.
50	Bassein Catholic Co-op Bank Ltd.
51	Bharat Co-op Bank Ltd.
52	Bombay Mercantile Co-op Bank Ltd.
53	Cosmos Co-op Bank Ltd.
54	Greater Mumbai Co-op Bank Ltd.
55	JanataSahakari Bank Ltd.
56	Mumbai District Central Co-op Bank Ltd.
57	Maharashtra State Co-op Bank Ltd.
58	New India Co-op Bank Ltd.
59	North Canara G.S.B. Co-op Bank Ltd.

6 0	Rupee Co-op Bank Ltd.
6 1	Sangli Urban Co-op Bank Ltd.
6 2	Saraswat Co-op Bank Ltd.
6 3	ShamraoVithal Co-op Bank Ltd.
6 4	Mahanagar Co-op Bank Ltd.
6 5	Citizen Bank Ltd.
6 6	Yes Bank Ltd.
<b>E</b>	<b>Foreign Banks</b>
6 7	ABM AMRO (N.Y.) Bank.
6 8	American Express Bank Ltd.
6 9	ANZ Grindlays Bank Ltd.
7 0	Bank Of America N.T. & S.A.
7 1	Bank Of Tokyo Ltd.
7 2	Bankindosuez.
7 3	BanqueNationale de Paris.
7 4	Barclays bank.
7 5	City Bank N.A.
7 6	Hongkong& Shanghai banking Corporation.
7 7	Mitsui Taiyokbe Bank Ltd.
7 8	Standard Chartered Bank.
7 9	Cho Hung Bank.

**SECTION -16APPENDIX**



**FORM OF TENDER**

To,

The Brihanmumbai Municipal Corporation Sir,

I/ We have read and examined the following documents relating to the construction of **Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

- i. Notice inviting tender.
- ii. Directions to tenderers (General and special)
- iii. General condition of contract for Civil Works of the Brihanmumbai Municipal Corporation Mumbai as amended up to date.
- iv. Relevant drawings
- v. v.Specifications.
- vi. vi.Special directions
- vii. vii.Annexure A and B.
- viii. Bill of Quantities and Rates.

1A. I/We \_\_\_\_\_

(full name in capital letters, starting with surname), the Proprietor/ Managing Partner/ Managing Director/ Holder of the Business, for the establishment / firm / registered company, named herein below, do hereby offer to

.....  
...  
.....  
...  
.  
.....  
.....  
...  
...  
.....

Referred to in the specifications and schedule to the accompanying form of contract of the rates entered in the schedule of rates sent herewith and signed by me/ us” (strike out the portions which are not applicable).

1B. I/We do hereby state and declare that I/We, whose names are given herein below in details with the addresses, have not filled in this tender under any other name or under the name of any other establishment /firm or otherwise, nor are we in any way related or concerned with the establishment /firm or any other person, who have filled in the tender for the aforesaid work.”

2. I/We hereby tender for the execution of the works referred to in the aforesaid documents, upon the terms and conditions, contained or referred to therein and in accordance with the specifications designs, drawings and other relevant details in all respects.

\* At the rates entered in the aforesaid Bill of Quantities and Rates.

3. According to your requirements for payment of Earnest Money amounting to Rs.

\_\_\_\_\_ 305 Bidder will deposit 10% EMD amount through

online payment gateway of www.mahatender.gov.in and 90% EMD amounting to should be in the form of Demand Draft/Bank Guarantee issued by a Bank acceptable to BMC of validity not less than 240 days from the date of issue submitted in sealed envelope to Administrative Officer (A.O.) of Building Construction (City) Department after End date of submission of Packet A, B and C and before opening of Packet A. in favour of BMC which will not bear interest.

4. I/We hereby request you not to enter into a contract with any other person/s for the execution of the works until notice of non/acceptance of this tender has first been communicated to me/us, and in consideration of yours agreeing to refrain from so doing I/we agree not to withdraw the offer constituted by this tender before the date of communication to me/us of such notice of non/acceptance, which date shall be not later than ten days from the date of the decision of the Standing Committee or Education Committee of the Corporation, as maybe required under the Mumbai Municipal Corporation Act, not to accept this tender.(Subject to condition 5 below).
5. I/We also agree to keep this tender open for acceptance for a period of 180 days from the date fixed for opening the same and not to make any modifications in its terms and conditions which are not acceptable to the Corporation.
6. I/We agree that the Corporation shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely, if.
  - a. I/We fail to keep the tender open as aforesaid.
  - b. I/We fail to execute the formal contract or make the contract deposit when called upto do so.
  - c. I/we do not commence the work on or before the date specified by the Engineer in his work order.
7. I/We hereby further agree to pay all the charges of whatsoever nature in connection with the preparation, stamping and execution of the said contract.
8. I/We further agree that, I/we shall register ourselves as 'Employer' with the Bombay Iron and Steel Labour Board' and fulfil all the obligatory provisions of Maharashtra Mathadi, Hamal and other Manual workers (Regulation of Employment and Welfare) Act 1969 and the Bombay Iron and Steel unprotected workers Scheme 1970.
9. "I/We..... have failed in the accompanying tender with full knowledge of liabilities and, therefore, we will not raise any objection or dispute in any manner relating to any action, including forfeiture of deposit and blacklisting, for giving any information, which is found to be incorrect and against the instructions and directions given in this tender.
10. "I/We further agree and undertake that in the event it is revealed subsequently after the allotment of work/contract to me/us, that any information given by me/us in this tender is false or incorrect, I/We shall compensate the Brihanmumbai Municipal Corporation Mumbai for any such losses or inconvenience caused to the Corporation in any manner and will not resist any claim for such compensation on any ground whatsoever. I/we agree and undertake that I/we shall not claim in such case any amount by way of damages or compensation for cancellation of the contract given to me/us or any work assigned to me/us or is withdrawn by the Corporation,"

Address  
faithfully,

Yours

.....  
.....

Digital Signature of the Tenderer or  
the

Firm

1.....306.....

2.....

3.....

4.....

5.....

....

Full Name and private residential address  
of all the partners constituting the Firm

A/c No.

.....  
....

1. ....

Name of Bank

2. ....

.....

...

3. ....

Name of Branch

4. ....

.....

...

5. ....

No.

Vender

.....

**AGREEMENT FORM**

Tender / Quotation

dated..... 20...

Standing Committee/Education Committee Resolution No.

.....

CONTRACT

FOR  
WORKS

THE

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This agreement made this day of ..... ..

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inhabitants of Mumbai, carrying on business at..... ..

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in Bombay under the style and name of Messrs

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..... (Hereinafter called "the contractor of the one part and Shri

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the Director(E.S.&P.) (hereinafter called "the commissioner" in which expression are included unless the inclusion is inconsistent with the context, or meaning thereof, his successor or successors for the time being holding the office of Director (E,S.& P)of the second part and the Brihanmumbai Municipal Corporation Mumbai (hereinafter called "the Corporation") of the third part, WHEREAS the contractor has tendered for the construction, completion and maintenance of the works described above and his tender has been accepted by the Commissioner (with the approval of the Standing Committee/Education Committee of the Corporation NOW THIS

THIS AGREEMENT WITNESSETH as follows:-

- 1) In this agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract for works hereinafter referred to:-
- 2) The following documents shall be deemed to form and be read and constructed as a part of this agreement viz.
  - a) The letter of Acceptance
  - b) The Bid:
  - c) Addendum to Bid; if any
  - d) Tender Document
  - e) The Bill of Quantities:
  - f) The Specification:

- g) Detailed Engineering Drawings
  - h) Standard General Conditions of Contracts (GCC)
  - i) All correspondence documents between bidder and BMC
- 3) In consideration of the payments to be made by the Commissioner to the contractor as hereinafter mentioned the contractor hereby covenants with the Commissioner to construct, complete and maintain the works in conformity in all respects with the provision of the contract.
- 4) The Commissioner hereby covenants to pay to the Contractor in consideration of the construction, completion and maintenance of the works the contract sum, at times and in the manner prescribed by the contract.

IN WITNESS WHERE OF the parties hereto have caused their respective common seals to be herein to affixed (or have hereunto set their respective hands and seals) the day and year above written.

Signed, Sealed and delivered by the contractors


In the presence of

Trading under the name and style of

--	--

Full NameAddress

Contractors

Signed by the Director (ES&P) in the presence of

Ex ..... City/ WS/ ES

Director (ES&P)

The Common seal of the Brihanmumbai Municipal Corporation Mumbai was hereunto affixed on the ..... 20 in the presence of two members of the Standing Committee.

1.

1.

2.

2.

And in the presence of the Municipal Secretary

Municipal Secretary

**ANNEXURE " A "**

**Name of work: Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

<b>1.</b>	<b>The Engineer for this work:</b>	AMC (ES) City Engineer, City Dy. City Engineer (B.C.) City Ex. Engineer (B.C.) City
<b>2.</b>	<b>Estimated cost of Tender:</b>	<b>Rs. 519,14,25,756.45/-</b> (Excluding GST)

<b>3</b> .	Earnest Money (EMD) (1% of the Estimated cost)	<b>Rs. 5,19,14,300/-</b>  (Rs. Five crore Nineteen Lakhs Fourteen thousand and Three Hundred only)
<b>4</b> .	Time Period	
1 .	Contract as a whole Period completion	6 months (for approvals) + 36 Months (Incl. of Monsoon.)

## **Annexure- B**

(On Rs. 500/- Stamp Paper)

### **PRE-CONTRACT INTEGRITY PACT**

The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of his bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commits himself to the following:-

1. The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BMC, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the Contract.
2. The Bidder further undertakes that he has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BMC or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the Contract or any other Contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the Contract or any other Contract with the Government.
3. The Bidder will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
4. The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
5. The Bidder, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments he has made, is committed to or intends to make to officials of the BMC or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.
6. The Bidder shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the BMC as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The Bidder also undertakes to exercise due and adequate care lest any such information is divulged.
7. The Bidder commits to refrain from giving any complaint directly or through any other manner without supporting it with full and verifiable facts.
8. The Bidder shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
9. The Bidder and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, the Authority may reject an Application without being liable in any manner whatsoever to the Applicant if it determines that the Applicant has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process

For the purposes of this Clause 9, the following terms shall have the meaning herein after respectively assigned to them:



1. “fraudulent practice” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process ;

1. “coercive practice” means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any persons participation or action in the Bidding Process;

1. “undesirable practice” means (i) establishing contact with any person connected with or employed or engaged by the Authority with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

1. “restrictive practice” means forming a cartel or arriving at any understanding or arrangement among Applicants with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

Signature of  
Tenderer/Bidder

**Annexure- C**

(On Rs. 500/- Stamp Paper)

**DECLARATION CUM INDEMNITY BOND**

I, \_\_\_\_\_ of \_\_\_\_\_, do hereby declared and undertake as under.

1. I declare that I have submitted certificates as required to Executive engineer

(Monitoring) at the time of registration of my firm/company \_\_\_\_\_ and there is no change in the contents of the certificates that are submitted at the time of registration.

2. I declare that I \_\_\_\_\_ in capacity as Manager/Director/Partners/Proprietors of \_\_\_\_\_ has not been charged with any prohibitory and/or penal action such as banning (for specific time or permanent)/de-registration or any other action under the law by any Government and/or Semi Government and/or Government undertaking.

3. I declare that I have perused and examined the tender document including addendum, condition of contract, specifications, drawings, bill of quantity etc. forming part of tender and accordingly, I submit my offer to execute the work as per tender documents at the rates quoted by me in capacity as \_\_\_\_\_ of \_\_\_\_\_.

4. I further declare that if I am allotted the work and I failed to carry out the allotted work in accordance with the terms and conditions and within the time prescribed and specified, BMC is entitled to carry out the work allotted to me by any other means at my risk and cost, at any stage of the contract.

5. I also declare that I will not claim any charge/damages/compensation for non availability of site for the contract work at any time.

6. I declare that I will positively make the arrangements of the required equipment on the day of commencement or with respect to the progress of the work in phases, as per the instructions of site in charge

Signature of  
Tenderer/Bidder

**ANNEXURE D:- BANKERS GURANTEE IN LIEU OF CONTRACT DEPOSIT**

THIS INDENTURE made this \_\_\_\_\_ day of \_\_\_\_\_ BETWEEN

THE \_\_\_\_\_ BANK incorporated under the English/Indian Companies Acts and carrying on business in Mumbai (hereinafter referred to as 'the bank' which expression shall be deemed to include its successors and assigns)of the first part

\_\_\_\_\_ inhabitants carrying on business at \_\_\_\_\_ in Mumbai under the style and name of Messer's \_\_\_\_\_(hereinafter referred to as 'the consultant') of the second part Shri.

THE MUNICIPAL COMMISSIONER FOR GREATER MUMBAI (hereinafter referred to as 'the commissioner' which expression shall be deemed, also to include his successor or successors for the time being in the said office of Municipal Commissioner ) of the third part and THE BRIHANMUMBAI MUNICIPAL CORPORATION MUMBAI (hereinafter referred to as 'the Corporation') of the fourth part WHEREAS the consultants have submitted to the Commissioner tender for the execution of the work of

" \_\_\_\_\_ and the terms of such \_\_\_\_\_

tender /contract require that the consultants shall deposit with the Commissioner as/contract

deposit/ earnest money and /or the security a sum of Rs. \_\_\_\_\_ (Rupees

\_\_\_\_\_)AND WHEREAS if and when any such tender is accepted by the Commissioner, the contract to be entered into in furtherance thereof by the consultants will provide that such deposit shall remain with and be appropriated by the Commissioner towards the Security -deposit to be taken under the contract and be redeemable by the consultants, if they shall duly and faithfully carry out the terms and provisions of such contract and shall duly satisfy all claims properly chargeable against them there under AND WHEREAS the consultants are constituents of the Bank and in order to facilitate the keeping of the accounts of the consultants, the Bank with the consent and concurrence of the consultants has requested the Commissioner to accept the undertaking of the Bank hereinafter contained, in place of the contractors depositing with the Commissioner the said sum as earnest money and /or security as aforesaid AND WHEREAS accordingly the Commissioner has agreed to accept such undertaking NOW THIS AGREEMENT WITNESSES that in consideration of the premises, the Bank at the request of the consultants ( hereby testified ) UNDERTAKES WITH the commissioner to pay to the commissioner upon demand in writing , whenever required by him , from time to time , so to do ,a sum not exceeding in the whole Rs.\_\_(Rupees\_\_\_\_\_)under the terms of the said tender and /or the contract .The B.G. Is valid upto \_\_\_\_\_

\_\_\_\_\_”Notwithstanding anything what has been stated above, our liability under the above guarantee is restricted toRs.\_\_\_\_\_only and guarantee shall remain in force upto\_\_\_\_\_unless the demandor claim under this guarantee is made on us in writing on or before\_\_\_\_\_

\_\_\_\_\_all your rightunder the above guarantee shall be forfeited and we shall be released from all liabilities under theguarantee thereafter”

IN WITNESS WHEREOF WITNESS(1) \_

Name and \_\_\_\_\_ address \_\_\_\_\_ WITNESS(2)\_\_\_\_\_

Name and \_\_\_\_\_ the duly constituted Attorney Manager address \_\_\_\_\_

the Bank and the said Messer's \_\_\_\_\_

\_\_\_\_\_(Name of the Bank)

WITNESS(1) \_\_\_\_\_

Name and \_\_\_\_\_ address \_\_\_\_\_ WITNESS(2) \_\_\_\_\_

Name and \_\_\_\_\_

For Messer's \_\_\_\_\_

address \_\_\_\_\_

have here into set their respective hands the day and year first above written.

**The amount shall be inserted by the Guarantor, representing the Contract Deposit in Indian Rupees.**

**ANNEXURE E:- FORMAT OF RATE ANALYSIS**

Rate Analysis Sample Format					
Details of Cost for :					
Code	Description	Unit	Quantity	Basic Rate	Amount
<b>Materials:</b>					
	Item Description				
	Add 5% for wastage				0.00
	Carriage of material	LS		1.00%	
<b>Labour:</b>					
	Foreman	Day	0.022		
	Fitter	Day	0.440		
	Helper	Day	0.440		
				Total:	
	Total Basic Amount				
	Add 5% Overheads & 10% Contractors Profit on				
	<b>Rate per Sqm:</b>				
<b>Sr. no.</b>	<b>Per Unit Amount</b>	<b>Cost Breakup</b>			
1	Total Basic Amount				
6	Overhead & Contractors Profit i.e. 15%				
7	<b>Total per unit Amount</b>				

Note:- For any item specific rate analysis prescribed format will be provided separately.

# SECTION 17: - PROFORMAS

**PROFORMAS:**

**PROFORMA- I**

The list of similar works as stated in para 'A' of Post qualification during last Seven years–

Separate similar works for Civil Works Bidder and OEM works –

Name of the project	Name of the Employer	Cost of the project	Date of issue of Work Order	Stipulated Date of Completion	Actual Date of Completion	Total BUA	Total No. of tenements	No of stories	Methodology and technology followed
1	2	3	4	5	6	7	8	9	10

**NOTE:**

- i. Scanned Attested copies of completion/performance certificates from the Engineer-in-Charge for each work should be annexed in the support of information furnished in the above proforma.
- i. Works shall be grouped financial year-wise.

**PROFORMA- II**

Yearly turnover of Civil Engineering Construction Works during the last three years.

Separate/combined Yearly turnover for Civil Works Bidder and OEM works –

<b>PROFORMA- II</b>					
Sr.No.	Financial year	Annual Turnover of Civil Engineering Works	Updated value to current year	Average of last 3 years	Page No.
1					
2					
3					
Total					

**NOTE:** The above figures shall tally with the audited balance sheets uploaded by the tenderers duly certified by Chartered Accountant.

**PROFORMA- III**

At least similar work, as stated in para ‘A’ of Post qualification during last seven years,

Separate similar works for Civil Works Bidder and OEM works –

Name of the project	Name of the Employer	Cost of the project	Date of issue of Work Order	Stipulated Date Completion	Actual Date of Completion	Actual cost of work done	Remarks explaining reasons for delay, if any	Total BUA	Total No. of tenements	No of stories	Methodology and technology followed
1	2	3	4	5	6	7	8	9	10	11	12

**Note:** Scanned Attested copies of completion/performance certificates from the Engineer-in-charge for each work should be annexed in support of information furnished in the above proforma.

**PROFORMA- IIIA**

OEM Company must have minimum 3 years’ experience in respect of Part B i.e. Operation and Maintenance (O&M) of Underground or elevated robotic parking system.

Name of the project	Name of the Employer	Cost of the project	Date of issue of Work Order	Stipulated Date Completion	Actual Date of Completion	Actual cost of work done	Remarks explaining reasons for delay, if any	Total BUA	Total No. of tenements	No of stories	Methodology and technology followed
1	2	3	4	5	6	7	8	9	10	11	12

**Note:** Scanned Attested copies of completion/performance certificates from the Engineer-in-charge for each work should be annexed in support of information furnished in the above proforma.

**PERSONNEL:**

**PROFORMA- IV**

S r . N o .	Post	Name	Qualification	Work Experience	
				No. of Years	Name of Projects
		(Prime Candidate/Alternate)			
1	Project Manager				
2	Quality Control Engineer				
3	Site Engineer				

4	Site Supervisor				
5	Structural Engineer				
6	Licensed Plumber				
7	Licensed Electrical Engineer				
8	Horticulturist				

**NOTE:** Scanned Attested copies of qualification certificates and details of work experience shall be submitted /uploaded.

**MACHINERY: (for special work only)**

<b>PROFORMA- V/A</b>			
Sr.No.	Equipment	Number	Owned/Leased/Assured access
1	2	3	4

<b>PROFORMA- V/B</b>			
Sr.No.	Equipment	Number	Owned
1	2	3	4

**Note:** The tenderer(s) shall furnish/upload the requisite Scanned Attested documents of ownership/leased of machineries. The undertaking from the suppliers will not be accepted.



**PROFORMA - VI / A**

Details of Existing Commitments and on-going works –

**PROFORMA - VI / A**

Descr iption of Work	Pla ce	Contra ct No. & Date	Name & Adresse s of employer	Valu e of Cont ract in Rs.	Schedule d date of completi on	Value of work remaini ng to comple ted	Anticipa ted Date of completi on
1	2	3	4	5	6	7	8

**Note:** Scanned Attested copies of completion/performance certificates from the Engineer-in-Charge for each work should be annexed in the support of information furnished in the above proforma.

**PROFORMA - VI / B**

Details of works for which bids are already uploaded –

**PROFORMA - VI / B**

Descripti onof work	Pla ce	Name Addresses of employee	& Value of Contra ct in Rs.	Time Period	Date which decision expected	on is	Remar ks
1	2	3	4	5	6	7	

**Note:** Scanned Attested copies of certificates from the Engineer-in-charge for each work shall be annexed.

**PROFORMA-VII- Litigation History**

<b>Other Party (ies)</b>	<b>Employer</b>	<b>Cause of Dispute</b>	<b>Amount involved.</b>	<b>Remarks showing Present Status.</b>
1	2	3	4	5



**Form ELI - 1: Bidder's Information Sheet**

<b>Bidder's Information</b>	
<b>Bidder's legal name</b>	
<b>Bidder's country of constitution</b>	
<b>Bidder's year of constitution</b>	
<b>Bidder's legal address in country of constitution</b>	
<b>Bidder's authorized representative</b> (name, address, telephone numbers, fax numbers, e-mail address)	

**The bidder shall attach copies of the following original documents with the form:**

1. In case of single entity, articles of incorporation or constitution of the legal entity named above, .

# BRIHANMUMBAI MUNICIPAL CORPORATION

Sub:-

Schedule - I

**Technical Data Sheet of Passenger lift 13 passengers/ 2.5 Metric Tonne  
Freight Elevator.**

(Detail to be submitted and approved by concerned Department before execution.)

Sr. No.	Description	Particulars
1	Make	
2	Type	
3	Capacity	
4	Speed	
5	Type of drive	
6	Travel	
7	Serving floors	
8	Lift pit depth	
9	Lift Car details	
10	Car gate details	
11	Landing gate details	
12	Method of operation&control	

Schedule - II

Technical details to be furnished by tenderer

(Detail to be submitted and approved by concerned Department before execution.)

S r .	Items	Passenger lift
1	Type and Make of Lift	
2	Capacity of Lift	
3	Lift Speed (MPS)	
4	Type of drive for Lift	
5	Hoist Motor Details	
a	Type and Make	
b	HP, RPM and operating	
	Voltage	
c	Insulation class	
d	Duty (Starts per hour)	
6	Lift car size	
7	Car Gate Opening	
8	Landing Gate Opening	
9	Method of Operation	
10	<u>Ropes :</u>	
A	Main suspension Ropes	
i	Size	
i	Construction	
i	No. of ropes	
i		
i	Roping	
v		326

v .	Factor of safety	
B	Ropes for Governor	
i .	Size	
i i .	Construction	
i i i .	No. ropes	

**Seal**

**Trading under the name  
and style of**

**Signature of Tenderer Schedule - III**

1) **H.P. Calculation of Hoist Motor** : (For Stretcher lift 884 Kgs, 5 Podiums, Stilt + 31 Floors)

2) **Roping : (Explanation/Calculation for consideration of roping for the lift.)**

**Seal**

**Trading under the name  
and style of**

**Signature of Tenderer**

**Schedule - IV**

Deviation from specifications

The Tenderer shall state briefly any deviation contained in his main offer from the specification.

If the deviations are listed in a covering letter then reference of the letter shall be made below.

Item or Clause	Deviation	Covering letter page

Seal & Signature of Tenderer  
with Date



**Schedule - V**

Tender drawings and publications

The Tenderer shall furnish a list of drawings, publications, copies of type test certificate and other literature illustrating the equipments offered in his tender. The copy of each item listed shall be uploaded with the tender.

Title	Reference

Seal & Signature of Tenderer  
with Date

**SECTION- 18  
TYPICAL DRAWINGS**

**(Separately Attached)**

**Drawings are schematic and attached with area calculations. Clarifications regarding the same for any queries will be responded in the Pre-Bid meeting.**

**SECTION – 19**  
**FINANCIAL BID FORM**  
**& OTHERS**

# (FORM 'B')

## Financial Bid Form 'B'

Sub: Bid No-

Due Date of e-Tender: As on coverpage.

S r . N o .	<b>Brief description and office estimate</b>
1	<p>I/We have received, read and am/are agreeable to the content of page no._to page no. including the Bill of Quantities while quoting the percentages offered. I/We have considered the contents of the documents contained in the above mentioned pages and into thereof, I/We have signed the documents.</p> <p>Name and Title of Signatory:</p> <p>Name of Tenderer(s):</p> <p>Address:</p> <p>E-Mail Address of the firm:</p> <p>Telephone numbers:</p> <p style="text-align: right;"><b>Digital Signature of Tenderer(s) Trading under the Name and style of</b></p>

(A separate sheet must be filled, scanned and uploaded in packet B along with e-tendering)

# FORMAT FOR PACKET C:-

Validate Print Help

## Percentage BoQ

Tender Inviting Authority: Deputy City Engineer BC City / City Engineer

Name of Work: Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parcel at S.K. Ahire Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.

Bid No: 2024\_MCGM\_1084268

Name of the Bidder/ Bidding Firm / Company:	
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### PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only.)

NUMBER #	TEXT #	NUMBER #	TEXT #	NUMBER	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	Estimated Rate in Rs. P.	TOTAL AMOUNT Without GST Rs. P.	TOTAL AMOUNT In Words
1	2	4	5	6	5a	5b
Components of the work:						
1.01	PART A: - Including Redevelopment of Material Testing Laboratory inclusive of planning, design, construction of facility with transit accommodation, civil, HVAC, electrical, firefighting, fire detection and BMS works inclusive of equipment foundations-	1.000	Nos	4015174200.000	4015174200.000	INR Four Hundred One Crore Fifty One Lakh Seventy Four Thousand Two Hundred . Only
1.02	PART B: - Planning, designing, construction and commissioning of underground and elevated Multilevel Electro Mechanical Car Parking System (Shuttle and Robo Parker System) including comprehensive annual maintenance for 20 years free of cost for 450 parking systems and 98 nos stack parkings.	1.000	Nos	1009000000.000	1009000000.000	INR One Hundred Crore Ninety Lakh . Only
1.03	PART C1: - Operation, Maintenance and Housekeeping for 5 years of parking system after completion by engaging manpower-	1.000	Nos	75000000.000	75000000.000	INR Seven Crore Fifty Lakh . Only
1.04	PART C2: - Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years .	1.000	Nos	92251556.450	92251556.450	INR Nine Crore Twenty Two Lakh Fifty One Thousand Five Hundred & Fifty Six and Paise Forty Five Only
Total in Figures					5191425756.450	INR Five Hundred Nineteen Crore Fourteen Lakh Twenty Five Thousand Seven Hundred & Fifty Six and Paise Forty Five Only
Quoted Rate in Figures			Select		0.000	INR Zero Only
Quoted Rate in Words					INR Zero Only	

**SECTION -20**  
**SCHEDULE OF PAYMENT**

## PART I:- Payment Schedule A,B,C,D

Sr. No.	Activity/phase of recommendation of Project work	%	Sub- Total
1	a) On submission of detailed methodology, structural design, soil report, architectural design, project schedule and technical DPR with project execution manual with staffing and equipment details in close coordination with MA/PMC	3%	
	b) On acceptance detailed methodology, structural design, architectural design, project schedule and technical DPR with project execution manual with staffing and equipment details in close coordination with MA/PMC by concerned competent BMC authority		5.00%
		2%	
2	a) On obtaining CFO NOC	0.5%	
	b) On obtaining approval from BP Special Cell	1.0%	5.00%
	c) On obtaining MOEF approval	0.5%	
	d) Submission of all drawings of services as firefighting, electrical, plumbing, CC camera etc.	1.00%	
	e) Submission of structural design to VJTI or IIT or SPCE	0.50%	
	f) Vetting of structural design to VJTI or IIT or SPCE	1.00%	
	g) Submission of NOC from all concerned departments i.e. Airport NOC, Remarks from Various Departments SWD, SO, SP P&D, HE NOC etc.	0.50%	
3	Completion of G+1 MTL Transit Lab and new G+2 structures including electrical/firefighting/civil/BMS/HVAC and foundations as required.	1.00%	1.00%
4	Shifting of 2 sheds+ 4 Porta Cabins. Shifting and installation of testing machines	0.5%	0.50%
5	Excavation with/without Shore Piling and foundation		
	a) On Completion of 25% Excavation (with or without) Shore Piling and foundation	2.0%	8.00%
	b) On Completion of 50% Excavation (with or without) Shore Piling and foundation	2.0%	
	c) On Completion of 75% Excavation (with or without) Shore Piling and foundation	2.0%	
	d) On Completion of 100% Excavation (with or without) Shore Piling and foundation	2.0%	

6	On Completion of Basement a) On Completion of Basement 1 with ramp and box type waterproofing system.	5.00%	5.00%
7	RCC Work and waterproofing toilets and terrace slabs where applicable at all levels		
	GF Slab	1.00%	30.00%
	1st Slab	1.00%	
	2nd Slab	1.00%	
	3rd Slab	1.00%	
	4th Slab	1.00%	
	5th Slab	1.00%	
	6th Slab	1.00%	
	7th Slab	1.00%	
	8th Slab	1.00%	
	9th Slab	1.00%	
	10th Slab	1.00%	
	11th Slab	1.00%	
	12th Slab	1.00%	
	13th Slab	1.00%	
	14th Slab	1.00%	
	15th Slab	1.00%	
	16th Slab	1.00%	
	17th Slab	1.00%	
	18th Slab	1.00%	
	19th Slab	1.00%	
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	21st Slab	1.00%	
	22nd Slab	1.00%	
	23rd Slab	1.00%	
	24th Slab	1.00%	
	25th Slab	1.00%	
	26th Slab	1.00%	
	27th Slab	1.00%	
	28th Slab	1.00%	
	29th Slab with OHT, Lift Machine Room, UG Tank, Completion for Security Room, BEST Foundation Staircase room including terrace and OH Tank waterproofing.	1.00%	
	Debris Removal System comprising of stainless steel chute system and accessories from 17th floor to Ground level including support structure, intermediate flaps, dust control system with water spray and stainless steel hopper 2 ton capacity at ground level with valve system for disposal.	0.50%	
8	Brickwork		
	a) On Completion of 25% Masonry Work, frames, jambs including concealed services if any	2.00%	8.00%
	b) On Completion of 50% Masonry Work, frames, jambs including concealed services if any	2.00%	
	c) On Completion of 75% Masonry Work, frames, jambs including concealed services if any	2.00%	
	d) On Completion of 100% Masonry Work, frames, jambs including concealed services if any	2.00%	



9	Internal Plaster		
	a) On Completion of 35% internal Plaster	1%	3.00%
	b) On Completion of 70% internal Plaster	1%	
	c) On Completion of 100% internal Plaster	1%	
10	Internal Plumbing		
	a) On Completion of 35% internal Plumbing	1%	3.00%
	b) On Completion of 70% internal Plumbing	1%	
	c) On Completion of 100% internal Plumbing	1%	
11	On Completion of internal Painting		
	a) On completion of 25% internal Painting	0.50%	2.00%
	b) On completion of 50% internal Painting	0.50%	
	c) On completion of 75% internal Painting	0.50%	
	d) On completion of 100% internal Painting	0.50%	
12	External Plaster		
	a) On Completion of 25% external Plaster	0.50%	2.00%
	b) On Completion of 50% external Plaster	0.50%	
	c) On Completion of 75% external Plaster	0.50%	
	d) On Completion of 100% external Plaster	0.50%	
13	On Completion of external Plumbing		
	a) On completion of 50% external plumbing	0.50%	1.00%
	b) On completion of 100% external plumbing	0.50%	
14	On Completion of external Painting		
	a) On completion of 25% external Painting	0.25%	1.00%
	b) On completion of 50% external Painting	0.25%	
	c) On completion of 75% external Painting	0.25%	
	d) On completion of 100% external Painting	0.25%	
15	Flooring Works		
	a) On Completion of 12.5% Flooring , skirting & dado	0.75%	6.00%
	b) On Completion of 25.0% Flooring , skirting & dado	0.75%	
	c) On Completion of 37.5% Flooring , skirting & dado	0.75%	
	d) On Completion of 50% Flooring , skirting & dado	0.75%	
	e) On Completion of 62.5% Flooring , skirting & dado	0.75%	
	f) On Completion of 75% Flooring , skirting & dado	0.75%	
	g) On Completion of 87.5% Flooring , skirting & dado	0.75%	
	h) On Completion of 100% Flooring , skirting & dado	0.75%	

16	Electrical Works		
	a) 25% completion of work total quantum of Electrical Works	0.50%	
	b) 50% completion of work total quantum of Electrical Works	0.50%	2.00%
	c) 75% completion of work total quantum of Electrical Works	0.50%	
	d) 100% completion of work total quantum of Electrical Works	0.50%	
17	On Completion of :-Doors/Windows/Grills/Façade		
	a) 50% of Doors	0.40%	4.00%
	b) 100% of Doors	0.40%	
	c) 50% of Windows/grills	0.40%	
	d) 100% of Windows/grills	0.30%	
	e) Completion of Façade		
	i) 25% façade completion	0.50%	
	ii) 50% façade completion	0.50%	
	iii) 75% façade completion	0.50%	
	iv) 100% façade completion	0.50%	
	v) Completion of signage	0.50%	
18	On Completion of lifts		
	a) Supply of lift materials	1.00%	
	b) Installation of railing and lift cabins	0.30%	
	c) Trial run of lift	0.20%	2.00%
	d) Commissioning of lift with receipt of lift PWD license.	0.50%	
19	Completion of HVAC Works		
	a) Supply of High Side equipment	1%	
	b) On completion of 25% of low side works	0.50%	3.00%
	c) On completion of 50% of low side works	0.50%	
	d) On completion of 75% of low side works	0.50%	
	e) On completion of 100% of low side works	0.50%	
20	Completion of BMS Works/Solar		
	a) On completion of 25% of BMS works	0.25%	1.00%
	b) On completion of 50% of BMS works	0.25%	
	c) On completion of 75% of BMS works	0.25%	
	d) On completion of 100% of BMS works	0.25%	
21	Completion of Interior/Furnishing Works		
	a) Ground Floor	0.50%	3.50%
	b) 14th floor	0.50%	
	c) 15th floor	0.50%	
	d) 16th floor	0.50%	
	e) 17th floor	0.50%	
	f) 18th floor	0.50%	
	g) 19th floor	0.50%	

22	On Completion of Electrical meters		
	a) On completion of 25% of Electrical meters	0.25%	1%
	b) On completion of 50% of Electrical meters	0.25%	
	c) On completion of 75% of Electrical meters	0.25%	
	d) On completion of 100% of Electrical meters	0.25%	
23	On Completion of Access road & internal pathways with streetlights etc.		
	a) On Completion of Access road & internal pathways with drain etc.	0.25%	0.50%
	b) On installation of streetlights and finishing items	0.25%	
24	On Completion of Drainage network with S.T.P (if applicable), S.W.D , Water mains and nala training		
	a) On Completion of internal Drainage network with S.T.P.	0.50%	0.75%
	b) On Completion of Water mains and nala training and S.W.D.	0.25%	
25	On Completion of Compound wall with main gate R.G area etc.		
	a) On Completion of Compound wall with main gate.	0.25%	0.50%
	b) Other area , R.G and landscape area and Completion N.O.C. of Trees	0.25%	
26	Occupation Certificate and handing over of project		
	a) Occupation Certificate	0.25%	0.75%
	b) Handing over of project with snag list compliance and submission of all documents for maintenance under defects liability period with handover manual, as built drawings for architectural, structural ,services and other relevant drawings and as per the requirements of competent authority/user Department in sets as required.	0.50%	
	<b>Total</b>	100.00%	<b>100%</b>

## PART II E&F:- Parking System Payment Schedule

Sr. No.	Activity/phase of recommendation of Project work	%
1	a) On submission of detailed parking drawings, commensurate with Civil and Structural drawings and technical details.	8%
	b) On submission of technical data sheet for parking system	4%
	c) Manufacturing and inspection of parking stalls	10%
	d) Manufacturing and inspection of Elevator Body	10%
	e) Manufacturing and inspection of Shuttle Body	10%
	f) Delivery of parking stall, elevator and shuttle body	10%
	g) Manufacture and inspection of Robo Parker	28%
	h) Delivery of Robo Parker at site	5%
	i) Installation and commissioning of above equipment	12%
	j) Final Handover	3%
	TOTAL	100%

**PART III G1**

Payment Schedule C

Year No.	Activity/phase of recommendation of Project work	%
1	a)After successful operation & maintenance of work for every 3 months	25%
	b)After successful operation & maintenance of work for every 3 months	25%
	c)After successful operation & maintenance of work for every 3 months	25%
	d)After successful operation & maintenance of work for every 3 months	25%
2	a)After successful operation & maintenance of work for every 3 months	25%
	b)After successful operation & maintenance of work for every 3 months	25%
	c)After successful operation & maintenance of work for every 3 months	25%
	d)After successful operation & maintenance of work for every 3 months	25%
3	a)After successful operation & maintenance of work for every 3 months	25%
	b)After successful operation & maintenance of work for every 3 months	25%
	c)After successful operation & maintenance of work for every 3 months	25%
	d)After successful operation & maintenance of work for every 3 months	25%
4	a)After successful operation & maintenance of work for every 3 months	25%
	b)After successful operation & maintenance of work for every 3 months	25%
	c)After successful operation & maintenance of work for every 3 months	25%
	d)After successful operation & maintenance of work for every 3 months	25%
5	a)After successful operation & maintenance of work for every 3 months	25%
	b)After successful operation & maintenance of work for every 3 months	25%
	c)After successful operation & maintenance of work for every 3 months	25%
	d)After successful operation & maintenance of work for every 3 months	25%

**PART III:- G2 OPERATION AND MAINTENANCE**

**Per year breakup**

A	Workers	Nos	Rate per month	Months per year	Amount (Rs.)
1	Safety Engineer	1		12	
2	Technician 2+2	4		12	
3	Operator 4+4	8		12	
B	Provision for housekeeping staff	Nos	Rate per month	Months per year	Amount (Rs.)
1	Supervisor	1		12	
2	Staff	14		12	
				Add 10%	
				B	
C	Provision for Sundries, Consumables			C	
D	Provision for Spares			D	
					₹
				Say	Rs.
					per year

**PART III H.**

**Subject :-** OPERATION & MAINTENANCE CHARGES for proposed BMC MTL Lab Building with Shuttle and Robo Parker System

Sr. No.	Description	Qty.	Unit	Rate in Rs.	Amount in Rs
<b>D</b>	<b>Operation &amp; Maintenance cost</b>				
i)	Operation cost for Technical Personnel 36 months	36	Month		
i)	Operation cost for Security & House Keeping Maintenance Charges for 36 months	36	Month		
ii)	Operation cost for landscaping horticulture	36	Month		
Total operation Cost (i) & (ii) in Rs.					

**Note:- Part D Payment on monthly basis based on staff deployment.**

**BRIHANMUMBAI MUNICIPAL CORPORATION**

**Subject :-** OPERATION CHARGES FOR MTL Redevelopment Project

**Required staff and Salary Calculations for three years**

\* as per Min. wage act 1948 and Chief Labour Officer circular u/no. ५१३/ 112022-23 dtd. 20.03.2023

Sr.	Post	Min. rates of wages basic rates (Per month in rupees ) as	Allowance	Total Salary / Month	Min. Wages /Day	Days of working	Amount	1/6th Reliever Charges	Sub Total	Add Levi @ 49.58%	Sub Total	Profit @ 15 %	Grand Total	No. of Shift (2)	Total No. Of persons in all shifts	Per Month (1st Year)	Per Month (2nd Year)	Per Month (3rd Year)	P.M (Average) (3 Yrs)
1	2	3	4	5=3+4	6= 5 / 26 Days	7	8= 7 X 6	9=8/6	10	11=10*49.5 8%	12	13=12*15%	14	15	16	17=16x14	18=17*10%	19=18*10%	20=(17+18+19)/3
<b>For Operation &amp; Maintenance of Project</b>																			
1	Engineer for HVAC	14000.00	7840.00	21840.00	840.00	26.00	21840.00	3640.00	25480.00	12632.98	38112.98	5716.95	43829.93	1.00	2.00	87660	96426	106068	96718
2	Technician for Fire/BMS/HVAC	13000.00	7840.00	20840.00	801.54	26.00	20840.00	3473.33	24313.33	12054.55	36367.88	5455.18	41823.07	1.00	2.00	83646	92011	101212	92290
3	Helper	11500.00	7840.00	19340.00	743.85	26.00	19340.00	3223.33	22563.33	11186.90	33750.23	5062.54	38812.77	2.00	4.00	155251	170776	187854	171294
4	Electrician / Operator	13000.00	7840.00	20840.00	801.54	26.00	20840.00	3473.33	24313.33	12054.55	36367.88	5455.18	41823.07	2.00	4.00	167292	184021	202424	184579
Total amount for Manpower for the Month in Rs.																<b>493849</b>	<b>543234</b>	<b>597558</b>	<b>544880</b>

Details of Levi @ 49.58%	
1	PF 13%
2	ESIC 3.25%
3	Bonus 8.33%
4	Gratuity 4%
5	Paid Holiday 7%
6	Safety Gadgets 4%
7	HRA 5.0%
8	Admin. Expences 5%
<b>49.58%</b>	

**BRIHANMUMBAI MUNICIPAL CORPORATION**

**Sub :** Reconstruction of MTL Lab Building with Shuttle and Robo Parker System at Plot Bearing CTS No. 1629 Pt at G/S Ward

**Protection & Maintenance of Garden charges**

Sr. No	USOR 2023	Description	Qty	Unit	Rate in Rs	Amount	No. of Months	Amount in Rs
<b>D Protection &amp; Maintenance of Garden charges for MTL Project</b>								
1	R3-GW-7-39	Protection and Maintenance of Garden excluding cost of water up to area 1000 SqM Area	3	No/ Month	13990	41970	36	1510920
2	R3-GW-7-40	Lead for Every Sq. Mtr of Garden for Protection and Maintenance of Garden excluding cost of water above 500 Sq mtr	1200	Per Sq. Mt/ Month	28	33600	36	1209600
<b>Total cost of protection &amp; maintenance of garden for 36 Months in Rs.</b>								<b>2720520</b>
<b>Total cost of protection &amp; maintenance of garden for per Months in Rs.</b>								<b>75570</b>

**BRIHANMUMBAI MUNICIPAL CORPORATION**

**Subject :-** OPERATION CHARGES at MTL Project

**Required staff and Salary Calculations for three years**

\* as per Min. wage act 1948 and Chief Labour Officer circular u/no. ५१३/ 112022-23 dtd. 20.03.2023

Sr.	Post	Min. rates of wages basic rates (Per month in rupees ) as per Min. Wage Act, 1948	Allowance	Total Salary / Month	Min. Wages /Day	Days of working	Amount	1/6th Reliever Charges	Sub Total	Add Levi @ 49.58%	Sub Total	Profit @ 15 %	Grand Total	No. of Shift (2)	Total No. Of persons in all shifts	Per Month (1st Year)	Per Month (2nd Year)	Per Month (3rd Year)	P.M (Average) (3 Yrs)
1	2	3	4	5=3+4	6= 5 / 26 Days	7	8= 7 X 6	9=8/6	10	11=10*49.5 8%	12	13=12*15%	14	15	16	17=16x14	18=17*10%	19=18*10%	20=(17+18+19)/3
<b>For Operation &amp; Maintenance of Project</b>																			
1	Security / Attendent	11500.00	7840.00	19340.00	743.85	26.00	19340.00	3223.33	22563.33	11186.90	33750.23	5062.54	38812.77	3.00	21.00	815068	896575	986232	899292
2	Supervisor	14000.00	7840.00	21840.00	840.00	26.00	21840.00	3640.00	25480.00	12632.98	38112.98	5716.95	43829.93	1.00	3.00	131490	144639	159103	145077
3	Sweeper/ cleaner	11500.00	7840.00	19340.00	743.85	26.00	19340.00	3223.33	22563.33	11186.90	33750.23	5062.54	38812.77	2.00	17.00	659817	725799	798379	727998
4	Supervisor	14000.00	7840.00	21840.00	840.00	26.00	21840.00	3640.00	25480.00	12632.98	38112.98	5716.95	43829.93	1.00	1.00	43830	48213	53034	48359
Total amount for Manpower for the Month in Rs.																<b>1650205</b>	<b>1815225</b>	<b>1996748</b>	<b>1820726</b>
Total Amt. - Consumables																110000	121000	133100	121367
<b>Total Amount</b>																<b>1760205</b>	<b>21122459</b>	<b>253469513</b>	<b>1942093</b>

**Details of Levi @ 49.58%  
( Column no. 7 )**

1	PF	13%
2	ESIC	3.25%
3	Bonus	8.33%
4	Gratuity	4%

5	Paid Holiday	7%
6	Safety Gadgets	4%
7	HRA	5.0%
8	Admin. Expences	5%
		<b>49.58%</b>

<b>SECURITY DEPLOYMENT PLAN</b>				
<b>Loc</b>	<b>Shift 1</b>	<b>Shift 2</b>	<b>Shift 3</b>	<b>Total</b>
Material Gate	2	2	1	5
Rear Gate	1	0	0	1
Main Gate	2	2	1	5
Patrolling	2	3	1	6
<b>Total</b>	<b>7</b>	<b>7</b>	<b>3</b>	<b>17</b>
Supervisor	1	1	1	3

<b>HOUSEKEEPING DEPLOYMENT PLAN</b>			
<b>Location</b>	1st shift (08.00 am to 4.00pm)	2nd shift (12.00 am to 9.00pm)	Relivers
MTL Building	3 x4 floors =12 persons	4	1
<b>Supervisor</b>	1		



MATERIAL REQUISITION												
MTL Lab Project												
SITE NAME:												
SR	PRODUCT	PARTICULARS	BRAND	PACKING SIZE	HSN CODE	UNIT	Rate w/o. GST	GST Rate	GST AMT	Rate with GST	REQUIRE QTY.	TOTAL
1	CHEMICAL	TASKI R1	DIVERSEY	5 Ltr Can	34029011	LTR	213.90	18.00	38.50	252.40	30.00	7572.06
2	CHEMICAL	TASKI R2	DIVERSEY	5 Ltr Can	34029011	LTR	186.30	18.00	33.53	219.83	20.00	4396.68
3	CHEMICAL	TASKI R3	DIVERSEY	5 Ltr Can	34029011	LTR	247.25	18.00	44.51	291.76	10.00	2917.55
4	CHEMICAL	TASKI R5	DIVERSEY	5 Ltr Can	33074900	LTR	188.60	18.00	33.95	222.55	10.00	2225.48
5	CHEMICAL	TASKI R6	DIVERSEY	5 Ltr Can	34029011	LTR	134.55	18.00	24.22	158.77	10.00	1587.69
6	AIRFRESHNER	ROOM FRESHNER	LOCAL	300 ml / can	3307	NOS	80.50	18.00	14.49	94.99	5.00	474.95
7	ACCESSORIES	TELESCOPIC POLE 9 MTR	LOCAL		96039000	NOS	2242.50	18.00	403.65	2646.15	1.00	2646.15
8	ACCESSORIES	WRINGER TROLLEY 20 LTR	LOCAL		84314100	NOS	1782.50	18.00	320.85	2103.35	2.00	4206.70
9	ACCESSORIES	METAL CADDY	LOCAL		3924	NOS	690.00	18.00	124.20	814.20	4.00	3256.80
10	ACCESSORIES	PALTI PATRA	LOCAL		3214	NOS	11.50	18.00	2.07	13.57	10.00	135.70
11	ACCESSORIES	SIGN BOARD	LOCAL		39249090	NOS	230.00	18.00	41.40	271.40	8.00	2171.20
12	ACCESSORIES	SPRAY CAN	LOCAL	750ml / can	8424	NOS	59.80	18.00	10.76	70.56	16.00	1129.02
13	ACCESSORIES	SPRAY CAN TRIGGER	LOCAL		8424	NOS	34.50	18.00	6.21	40.71	16.00	651.36
14	BROOMS/DUSTPAN	B.M.C BROOM	LOCAL		9603	NOS	126.50	18.00	22.77	149.27	25.00	3731.75
15	BROOMS/DUSTPAN	BROOM HARD SPECIAL JUMBO	LOCAL		96031000	NOS	51.75	0.00	0.00	51.75	10.00	517.50
16	BROOMS/DUSTPAN	BROOM PLASTIC	GALA		9603	NOS	115.00	18.00	20.70	135.70	8.00	1085.60
17	BROOMS/DUSTPAN	DUST PAN	LOCAL		39240000	NOS	23.00	18.00	4.14	27.14	12.00	325.68
18	BROOMS/DUSTPAN	LOBBY DUST PAN	LOCAL		84314100	NOS	747.50	18.00	134.55	882.05	4.00	3528.20
19	BRUSHES & WIPER	TALL BRUSH HARD 24" SET	LOCAL		9603	NOS	402.50	18.00	72.45	474.95	4.00	1899.80
20	BRUSHES & WIPER	TALL BRUSH SOFT 24" SET	LOCAL		9603	NOS	425.50	18.00	76.59	502.09	4.00	2008.36
21	BRUSHES & WIPER	CARPET BRUSH HARD	LOCAL		9603	NOS	55.20	18.00	9.94	65.14	4.00	260.54
22	BRUSHES & WIPER	COB WEB BRUSH	LOCAL		9603	NOS	149.50	18.00	26.91	176.41	3.00	529.23
23	BRUSHES & WIPER	COMBI BRUSH 35 CM	LOCAL		2168	NOS	345.00	18.00	62.10	407.10	2.00	814.20
24	BRUSHES & WIPER	ROAD BRUSH 24"	LOCAL		9603	NOS	402.50	18.00	72.45	474.95	3.00	1424.85
25	BRUSHES & WIPER	KITCHEN WIPER	LOCAL		9603	NOS	37.95	18.00	6.83	44.78	8.00	358.25
26	BRUSHES & WIPER	FLOOR SQUEZEE PLASTIC 24"	LOCAL		9603	NOS	155.25	18.00	27.95	183.20	12.00	2198.34
27	BUCKET/DUST BIN/ MUG	BUCKET 10 LTR	PARMAR/SUNFLOER	10 Ltr	3924	NOS	82.80	18.00	14.90	97.70	5.00	488.52
28	BUCKET/DUST BIN/ MUG	BUCKET 20 LTR	PARMAR/SUNFLOER	20 Ltr	3924	NOS	111.55	18.00	20.08	131.63	8.00	1053.03
29	BUCKET/DUST BIN/ MUG	MUG	MILAN/NYASA	1 Ltr	39241000	NOS	21.85	18.00	3.93	25.78	10.00	257.83
30	CLEANING AGENT	ACID CAN 1 LTR	LOCAL	1 Ltr Can	3303	LTR	34.50	18.00	6.21	40.71	3.00	122.13
31	CLEANING AGENT	ALA BLEACH 500ML	HUL	500ml / bottle	3402	NOS	52.90	18.00	9.52	62.42	5.00	312.11
32	CLEANING AGENT	DRAIN IT	LOCAL	50gm / pkt	3402	NOS	16.10	18.00	2.90	19.00	12.00	227.98
33	CLEANING AGENT	SUNNY PHENYLE 1 LTR	SUNNY	1 Ltr Can	38089400	LTR	138.00	18.00	24.84	162.84	30.00	4885.20
34	DUSTER	CHECK DUSTER BLUE	LOCAL		63041010	NOS	13.80	5.00	0.69	14.49	24.00	347.76
35	DUSTER	CHECK DUSTER RED	LOCAL		6307	NOS	13.80	5.00	0.69	14.49	8.00	115.92
36	DUSTER	GLASS DUSTER BLUE	LOCAL		63071010	NOS	23.00	5.00	1.15	24.15	8.00	193.20
37	GARBAGE BAG	GARBAGE BAG BIO DEGRADABLE 30"X50"	GREEN CITY/CAPTAIN		3923	ROLL	101.20	18.00	18.22	119.42	20.00	2388.32
38	GARBAGE BAG	GARBAGE BAG BIO DEGRADABLE 30"X50"	GREEN CITY/CAPTAIN		3923	ROLL	134.55	18.00	24.22	158.77	150.00	23815.35
39	GLASS PRODUCT	GLASS CLEANING KIT	LOCAL		9603	NOS	2530.00	18.00	455.40	2985.40	1.00	2985.40
40	HANDWASH	HAND WASH FEM 5 LTR	DABUR	5 Ltr Can	3401	CAN	634.80	18.00	114.26	749.06	1.00	749.06
41	MOPS & TOOLS	WET MOP REFILL	LOCAL		9603	NOS	48.30	18.00	8.69	56.99	15.00	854.91
42	MOPS & TOOLS	DRY MOP SET 24" BLUE	LOCAL		9603	NOS	356.50	18.00	64.17	420.67	5.00	2103.35
43	MOPS & TOOLS	WET MOP SET	LOCAL		96039000	NOS	174.80	18.00	31.46	206.26	12.00	2475.17
44	PPE	SAFETY GOGLE	LOCAL		7004	NOS	40.25	18.00	7.25	47.50	5.00	237.48
45	PPE	SAFETY HELMET	KARAM		6506	NOS	276.00	18.00	49.68	325.68	2.00	651.36
46	PPE	HAND GLOVES BLUE	VICTOR		4015	NOS	43.70	18.00	7.87	51.57	18.00	928.19
47	PPE	HAND GLOVES ORANGE	VICTOR		4015	NOS	43.70	18.00	7.87	51.57	10.00	515.66
48	SCRUBBER	NYLON SCRUBBER	LOCAL		73231000	NOS	4.60	18.00	0.83	5.43	12.00	65.14
49	SCRUBBER	SCOTCH BRITE	LOCAL		9603	NOS	8.05	18.00	1.45	9.50	35.00	332.47
50	TOILET PRODUCT	TOILET BRUSH WITH STAND	LOCAL		96030000	NOS	103.50	18.00	18.63	122.13	8.00	977.04
51	SCRUBBER	WHITE SPONGE	LOCAL		7323	NOS	6.90	18.00	1.24	8.14	12.00	97.70
52	SCRUBBER	YELLOW SPONGE	LOCAL		#N/A	NOS	16.10	18.00	2.90	19.00	12.00	227.98
53	TOILET PRODUCT	NAPTHALENE BALL 1 KG	LOCAL		2903	KG	230.00	18.00	41.40	271.40	2.00	542.80
<b>TOTAL</b>												<b>100004.69</b>

**SECTION 21**  
**PROJECT ESTIMATE**

**Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

1 LEVEL OF BASEMENT + GROUND FLOOR+ PODIUM LEVELS P1 TO P13 (Robotic Parking) + 16 FLOORS- (6 floors Testing Labs+ offices + 10 floors of office area)					
Sr. No.	Floor Name	Accommodation	Constructed Area (sqm)	Cost Rs /sqm	Total Cost
		<b>PART I- BUILDING - Cost includes Civil, Electrical, Plumbing, Firefighting, Fire Detection, Lifts, Lighting, Video Surveillance, Access Control, Data, UPS, Server, Furniture, Accessories and Security System.</b>			
	<b>A</b>	<b>TESTING LABS AND OFFICES</b>			
1	Ground Floor	Testing Lab with Heavy Equipment and Common Facilities	2089.94		
2	14th floor	Concrete Testing Office (including Atrium)	2110.50		
3	15th floor	Piping Testing Lab and Vigilance Office Civil	2002.14		
4	16th floor	M&E Testing Lab and Vigilance Office (M&E)	2002.14		
5	17th floor	Façade Testing, Wind Tunnel and Fire Testing and new product testing and new Vigilance Office	2002.14		
6	18th floor	Road Department Office 1	2002.14		
7	19th floor	Road Department Office 2	2002.14		
		<b>TOTAL PART A</b>	<b>14211.14</b>	<b>90000</b>	<b>1279002600</b>
	<b>B</b>				
8	20th Floor	Office Area including atrium (without furniture)	2110.5		
9	21st to 29th floor	Office Area 2002.14 x 9 (without furniture)	18019.26		
		<b>TOTAL PART B</b>	<b>20129.76</b>	<b>75000</b>	<b>1509732000</b>
	<b>C</b>	<b>BASEMENTS AND PODIUM</b>			
10	Basement 1 and Access Ramp	Four Wheeler Parking (2 Stack Parking)	2777.1		
11	Podium P1 to P13	Two Wheeler and Four Wheeler Robotic Parking 1917.13 x13	24930.49		
12	General Areas	Security Rooms, Staircase Rooms, Lift Machine Rooms, Substation, Effluent Treatment Plant, Lift Machine Room and Overhead Tanks	953.4		
		<b>TOTAL PART C</b>	<b>28660.99</b>	<b>40000</b>	<b>1146439600</b>
	<b>D</b>	<b>Debris Removal System for new building</b>			
		<b>Sample Lifting System for G+2 Structure</b>			
		<b>Testing Machine Foundation for G+1 Transit Structure</b>			
		<b>Transit Lab Set Up Cost</b>			80000000
		<b>Shifting of 2 sheds + 4 Porta Cabins</b>			
		<b>TOTAL PART I</b>			<b>₹ 4,01,51,74,200.00</b>
		<b>PART II:- Parking System</b>			
			Nos	Cost/Nos	Total Cost (Rs.)
<b>E</b>		<b>Parking System for 450 cars comprising 8 Robotic systems @ Rs. 12 Crores per Robotic System</b>	8	120000000	<b>₹ 96,00,00,000.00</b>
<b>F</b>		<b>Stack Parking at Basement 1 level (98 nos)</b>	98	500000	<b>₹ 4,90,00,000.00</b>
				<b>TOTAL II</b>	<b>₹ 1,00,90,00,000.00</b>
		<b>PART III:- Operations and Maintenance</b>			
<b>G</b>		<b>Operation and Maintenance for 5 years payable @ Rs. 1.5 Crores per year</b>	5	15000000	75000000
				<b>TOTAL III</b>	<b>₹ 7,50,00,000.00</b>
<b>H</b>		<b>Security, Housing, Landscaping and M&amp;E/HVAC Maintenance and Operations for 3 years</b>		<b>TOTAL IV</b>	<b>₹ 9,22,51,556.45</b>
		<b>I + II + III+ IV GRAND TOTAL</b>		<b>TOTAL Rs.</b>	<b>₹ 5,19,14,25,756.45</b>
		<b>NOTE:- TOTAL IS EXCLUDING GST</b>			

## **SECTION 22:- FORMS**

**BANK GUARANTEE FOR ADVANCE MOBILISATION LOAN FORM**

To,  
Municipal Commissioner,  
Brihanmumbai Municipal Corporation Municipal,  
Head Office Building Mahapalika Marg Fort,  
Mumbai 400001

Name of Work - Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.

Gentlemen,

In accordance with the provisions of the Conditions of Contract, **IMPORTANT DIRECTIONS** Clause No. 11 ("Advance Mobilizations loan" of the above mentioned contract. \_\_\_\_\_) (hereinafter called the "Contractor") shall deposit with \_\_\_\_\_ (name of Employer) a bank guarantee to guarantee his proper and faithful performance under the said clause of the Contract in an amount of (amount of Guarantee)\* \_\_\_\_\_ (in words)

We further agree that no change or addition to or other modification of the terms of the Contractor of works to be performed there under or any of the Contract documents which may be made between \_\_\_\_\_ (name of Employer) and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until \_\_\_\_\_ (name of Employer) receives full repayment of the same amount from the Contractor.

Yours truly,

SIGNATURE AND SEAL \_\_\_\_\_

Name of Bank/Financial Institution: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_ \* An amount is to be inserted by the bank or financial institution representing the amount of advance payment as specified in the contract.

Guarantee No.

On Stamp Paper

**BANKERS GUARANTEE IN LIEU OF EARNEST MONEY DEPOSIT (EMD)**

THIS INDENTURE made this day of BETWEEN THE , a Bank incorporated under the English/Indian Companies Acts and carrying on business of banking in Mumbai (hereinafter referred to as 'the bank' which expression shall be deemed to include its

successors and assigns) of the first part  
inhabitants carrying on  
business at \_\_\_\_\_ in Mumbai under the style and  
name of Messer's \_\_\_\_\_ (hereinafter referred to  
as 'the contractor') of the second part Shree

THE MUNICIPAL COMMISSIONER FOR BRIHANMUMBAI MUNICIPAL CORPORATION (hereinafter referred to as 'the commissioner' which expression shall be deemed, also to include his successor or successors for the time being in the said office of Municipal Commissioner) of the third part WHEREAS the Contractor have submitted to the Commissioner tender for the execution of the work of **“Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.”** and the terms of such tender /contract require that the Contractor shall deposit with the Commissioner as earnest money deposit a sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) AND WHEREAS if and when any such tender is accepted by the Commissioner, the contract to be entered into in furtherance thereof by the Contractor will provide that such deposit shall remain with and be appropriated by the Commissioner towards the Earnest Money deposit to be taken under the contract and be redeemable by the Contractor, if they shall duly and faithfully carry out the terms and provisions of such contract and shall duly satisfy all claims properly chargeable against them there under AND WHEREAS the Contractor are constituents of the Bank and in order to facilitate the keeping of the accounts of the Contractor, the Bank with the consent and concurrence of the Contractor has requested the Commissioner to accept the undertaking of the Bank herein after contained, in place of the contractors depositing with the Commissioner the said sum as earnest money deposit as aforesaid AND WHERE AS accordingly the Commissioner has agreed to accept such undertaking NOW THIS AGREEMENT WITNESSES that inconsideration of the premises, the Bank at the request of the Contractor (here by testified) UNDER TAKES WITH the commissioner to pay to the commissioner upon demand in writing , whenever required by him, from time to time, so to do, a sum not exceeding in the whole Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) under the terms of the said tender and/or the contract.

The B.G. is valid up to 240 days Notwithstanding anything what has been stated above, our liability under the above guarantee is restricted to Rs \_\_\_\_\_ (Rs. \_\_\_\_\_ only) and guarantee shall remain in force up to (up to 240 days from the date of tender submission unless the demand or claim under this guarantee is made on us in writing on or before \_\_\_\_\_ all your right under the above guarantee shall be forfeited and we shall be released from all liabilities under the guarantee thereafter."

Notwithstanding anything contained herein above:

- a. Our liabilities under this Bank Guarantee shall not exceed Rs.-  
\_\_\_\_\_ (Rs. \_\_\_\_\_ only)
- b. This Bank Guarantee shall be valid up to \_\_\_\_\_ (i.e Expiry Date of Bank Guarantee).
- c. We are liable to pay the guarantee amount or part thereof under this Bank Guarantee only & only if you serve upon us a written claim or demand on or before.....

Signature of  
Authorized Official of the Bank  
Name of Official .....

Designation .....

Signature of Witness

Name: .....

Address: .....

**Form H**

**MEMORENDUM OF ASSOCIATION (Registered/Notarized)**

**(Applicable When Bidder i.e. Main Agency is Civil Contractor and specialized Agency is OEM)-  
Upload in Packet-B**

MEMORENDUM OF ASSOCIATION (MOA) BETWEEN ..... (Insert Name of Bidder i.e. Main Agency) AND .....(insert Name of Specialized Agency i.e. OEM) FOR SUCCESSFUL PERFORMANCE OF THE CONTRACT IS SIGNED FOR THE FOLLOWING WORK.

**NAME OF WORK:- Turnkey EPC Contract for Redevelopment of Material Testing Laboratory at Asphalt Plant Compound on land bearing C.S. No. 1629 (Pt) of Lower Parel at S.K.Ahira Marg in G/S Ward inclusive of planning, design and construction of underground and elevated Multilevel Electro Mechanical Shuttle and Robo Car Parker System and offices with MEP Works, interior furnishing IBMS works and (i) Comprehensive Maintenance of 5 year with Technical support and spare part guarantee for 20 years for parking system (ii) Operation, Maintenance and Housekeeping of the parking system for period of 5 years by deploying manpower & (iii) Security, Housekeeping, Landscaping, M&E and Lift Maintenance for 3 years.**

Bid No:.....

This MEMORENDUM OF ASSOCIATION is executed on ..... between .....(insert Name and Address of the Bidder)hereinafter called as “Main Agency” (Which expression shall include its successor , administrators Executors and permitted assigns) and.....(insert Name and Address of OEM), hereinafter called as “Specialized Agency)” (Which expression shall include its successor, administrator Executors and permitted assigned) for the purpose of submitting a bid and entering into a Contract (in case of award) against this Bid document invited by BMC, with the requirement of the Bid criteria as stipulated in the Bid Documents, This MOA is here by created & signed a per terms and condition given below:

1. That all the responsibilities and obligations of each of the Members delineated in this MOU are expressly understood and agreed between the Members.
2. That the Main Agency only will deal with BMC on all matters pertaining to this work.
  - 2.1. MOA shall be valid during the entire currency of the contract including the period of extension, if any. Both the members of the MOA shall remain associated with the project till completion of the project and during period of Comprehensive Annual Servicing and maintenance period of 20 years from date of completion of Project.
3. There shall be significant technical contribution of both the members for the project. Even after completion of the project, Specialized Agency shall continue to associate with Main Agency for defect liabilities and Operation & Maintenance.
4. The Specialized agency shall function as technology partner and fulfil experiences criteria as specified in section 2 of bid document and submitted valid experience certificates in Packet B as per Proforma –I.
5. The Specialized agency shall bring in due diligence in installing Multi Level Car Parking by use all its experience and shall be responsible for its functional requirements, quality of work, defect liability, maintenance and operations.
6. Once the bids are submitted, the MOA shall not be modified/alterd/terminated during the validity of the tender.
7. The MOA Member will be fully governed by the terms and conditions of the contract and shall be responsible for the quality of works and timely execution thereof to meet the completion schedule under the contract.
8. This MOA shall be construed and interpreted in accordance with the law of India and the respective Court of India shall have exclusive jurisdiction to adjudicate upon the disputes between the parties.
9. We, the MOA Members agree that this association shall be irrevocable and shall form an integral part of the Contract. We further agree that this Agreement shall continue to be enforceable till the successful completion of contract or decided otherwise by BMC for any reason.
10. This Agreement shall be operative from the effective date of the contract.
11. Specialized Agency shall make technical and engineering staff fully available to the technical and engineering staff of the Main Agency to assist that Main Agency (Bidder), on a reasonable and best effort basis, in the performance of all its obligations to the Main Agency under the Contract.



12. The Specialised Agency unconditionally support the Main Agency (Bidder) technically throughout the execution of contract as well as for Maintenance/Comprehensive Maintenance Contract for the useful life of the system, and we shall also provide all the spares required for healthy functioning of the equipment for Twenty years from the date of completion of installation of Parking System.

13. The Minimum design life of the system will be 20 Years.

14. The Main Agency shall be solely and severally responsible for performance of the entire contract.

15. Main Agency and Specialised Agency will submit the Performance Guarantee (PG) of Rs 25 Lacs Each (in form of BG) for successful Operation and Maintenance period of 5 Years and Comprehensive Annual Servicing and maintenance of system for period of 20 years after record date of completion of Parking System. Same will be paid within 15 days from the date of issue of Letter of Acceptance.

16. We understand that If the P.G to be paid above is not paid within one month from the date of issue of Letter of Acceptance, the Tender / Contract already accepted shall be considered as cancelled and legal steps be taken against the us for recovery of the amount.

17. We understand that in the event of the failing or neglecting to complete the rectification work within the period up to which the we have agreed to maintain the work in good order, the amount to be adjusted against the Bank Guarantee towards the cost incurred by the Department on rectification work and further liable for action as deemed fit as per tender condition.

18. We understand that we are liable for action such as legal and penalty for non-compliance of above. (Scanned copy to be uploaded in Packet B at the time of submission of bid)

For Main Agency (Civil Contractor) Bidder

For Specialized Agency (OEM)

Signature and Stamp of Agency

Signature and Stamp of Agency

**SECTION-23  
CIRCULARS**

बृहन्मुंबई महानगरपालिका

परिपत्रक  
२०२३-२०२४

क्र. सीए/एफआरजी/ १० दिनांक १९.१०.२०२३

विषय :- महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणा-या अनस्टार दरपत्रिका/  
निविदा/दरपत्रिका/ ई-दरपत्रिका/ ई-निविदा दस्तऐवजांच्या छाननी शुल्काबाबत

- संदर्भ :- १) प्रले/एफसीई/२८ दि. १३.०१.२०२३  
२) परिपत्रक क्र. सीए/एफआरजी/२१ दिनांक ०८.०२.२०२३  
३) एमजीसी/एफ/९५८५ दि. ११.०५.२०२३  
४) परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३  
५) अति.आ./प्रकल्प/१३५१ दि. २३.०५.२०२३  
६) परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३

बृहन्मुंबई महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणाऱ्या अनस्टार दरपत्रिका/निविदा/दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता छाननी शुल्क आकारण्याबाबत उपरोक्त संदर्भ क्र. ४ व ६ अन्वये परिपत्रक निर्गमित करण्यात आले होते. परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मध्ये पुढील प्रमाणे निर्देश देण्यात आले आहेत.

“सर्व खाते प्रमुख/सहाय्यक आयुक्त/रुग्णालय प्रमुख, अधिष्ठाता यांनी त्यांच्या अखत्यारीतील संबंधित कर्मचारीवृंदाना उपरोक्त सुचनेची काटेकोरपणे अंमलबजावणी करण्याचे तसेच मंजुरीच्या दिनांकापासून मागविण्यात येणाऱ्या अनस्टार दरपत्रिका/ निविदा/ दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता निविदा शुल्क न आकारता सर्व देकारदारांकडून या परिपत्रकातील सुधारीत दरांनुसार इसारा अनामत रक्कमेचा परतावा करण्यापूर्वी छाननी शुल्क अनुज्ञेय वस्तू व सेवाकरासहित वसूल करण्याचे अथवा देकारदाराच्या संमतीने इसारा अनामत रक्कमेतून समायोजित करण्यासंबंधीचे निर्देश द्यावेत. ”

तदनंतर सुधारित परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३ निर्गमित करण्यात आले. सदर परिपत्रकात पुढील प्रमाणे निर्देश देण्यात आले आहेत.

“दरपत्रिका/निविदा/दरपत्रिका/ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता मा. महानगरपालिका आयुक्तांच्या मंजुरीच्या दिनांकापासून छाननी शुल्क न आकारता, एसआरएम कार्यप्रणाली मध्ये निविदा शुल्क न आकारण्यासंबंधीची कार्यवाही माहिती व तंत्रज्ञान खात्याकडून पूर्ण झाल्यावर त्यानंतरच निविदाकाराकडून छाननी शुल्क आकारण्यात यावेत. तसेच सदर छाननी शुल्काचा भरणा लेखा संकेताक 140402609 - Scrutiny Fees From Tenders (From May 2023)-Taxable यामध्ये करण्यात यावा.”

परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३ मध्ये नमूद केल्यानुसार एसआरएम प्रणाली मध्ये आवश्यक ते बदल माहित व तंत्रज्ञान विभागाकडून दि. २३.०६.२०२३ रोजी पूर्ण करण्यात आले आहेत.

दरम्यान माहिती व तंत्रज्ञान विभागामार्फत परिपत्रक क्र. Dir/IT/F-59 दि. १०.०५.२०२३ निर्गमित करण्यात आले. सदर परिपत्रकामध्ये दि. १५.०६.२०२३ पासून रु.२५ लाखावरील सर्व निविदा महानगरपालिकेच्या एसआरएम प्रणालीद्वारे न मागविता महाराष्ट्र शासनाच्या महाटॅंडर पोर्टलद्वारे मागविण्याबाबत निर्देश देण्यात आले आहेत. तसेच परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मध्ये इसारा अनामत रक्कमेचा परतावा करण्यापूर्वी छाननी शुल्क, अनुज्ञेय वस्तू व सेवाकरासहित वसूल करण्याचे अथवा देकारदाराच्या संमतीने इसारा अनामत रक्कमेतून समायोजित करण्यासंबंधीचे निदेश देण्यात आले आहेत. तथापि महाराष्ट्र शासनाच्या महाटॅंडर पोर्टलवर इसारा अनामत रक्कमेतून समायोजना करण्याची सुविधा नसल्याने पुढील प्रमाणे सुधारित निर्देश देण्यात येत आहेत.

"महाराष्ट्र शासनाच्या महाटॅंडर / एसआरएम प्रणालीद्वारे मागविण्यात येणारे सर्व अनस्टार दरपत्रिका/निविदा/दरपत्रिका/ ई-दरपत्रिका/ ई-निविदा दस्तऐवजांकरिता निविदा शुल्क (Tender Fee) न आकारता सर्व देकारदारांकडून परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मधील सुधारित दरांनुसार छाननी शुल्क (Scrutiny Fee) अनुज्ञेय वस्तू व सेवाकरासहित लिफाफा 'अ' व 'ब' उघडल्यानंतर व लिफाफा 'क' उघडण्याआधी फक्त नागरी सुविधा केंद्रात चलनाद्वारे भरण्यात यावे."

संदर्भित परिपत्रकातील अन्य निर्देशांमध्ये कोणताही बदल करण्यात आलेला नाही.

सही/-१६.१०.२०२३  
श्री.पांडुरंग गोसावी  
प्रमुख लेखापाल (पा.पु.म.नि.)

सही/-१६.१०.२०२३  
श्री. प्रदिप भा. पडवळ  
प्रमुख लेखापाल (वित्त)प्र.

सही/-१६.१०.२०२३  
श्री. प्रशांत गायकवाड  
उप. आयुक्त (वित्त) प्र.

सही/-१६.१०.२०२३  
श्री. पी. वेलरासू  
अति.आयुक्त (प्रकल्प)

परिपत्रक

२०२३-२४

क्र.सीए/एफआरजी/१० दिनांक ११.१०.२०२३

प्रत .....(जादा .....प्रतीसह) यांना माहितीकरिता व पुढील  
आवश्यक त्या कार्यवाहीकरिता अग्रेषित.

प्रमुख लेखापाल (वित्त) यांजकरिता

# बृहन्मुंबई महानगरपालिका

## परिपत्रक

प्र.ले./वित्त/प्रकल्प/२८ दि. २८/०३/२०२३

विषय: एकसामायिक दरसूची २०२३ अंतर्भूत करून महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु व सेवा इत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवा कराच्या अनुषंगाने अंतर्भूत करावयाच्या अटीबाबत.

संदर्भ: १) प्र.ले./वित्त/प्रकल्प/२५ दि.१२.०७.२०२२

२) संचालक/अ.से.व प्र./२९१/एमसी दि.३१.०१.२०२३

बृहन्मुंबई महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु व सेवा इत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवा कराच्या अनुषंगाने अंतर्भूत करावयाच्या अटीबाबत संदर्भित क्र. १ वरील परिपत्रकान्वये सूचना प्रसृत केल्या आहेत.

महानगरपालिका आयुक्त यांच्या क्र. एमजीसी/एफ/८७७१ दि. ३०.०१.२०२३ अन्वये एकसमान दरसूची २०२३ प्रसारीत करण्यात आली आहे. सदर एकसामायिक दरसूची २०२३ हि वस्तु व सेवाकर वगळून तयार करण्यात आली आहे. सदर अद्ययावत एकसामायिक दरसूची २०२३ नुसार अंदाजपत्रक तयार करून मागविण्यात आलेल्या/येणा-या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवाकराच्या अनुषंगाने महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु

व सेवा इत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये संदर्भित क्र.१ अन्वये दिलेल्या अटीमध्ये पुढीलप्रमाणे बदल करण्यात येत आहे.

विद्यमान अट	सुधारित अट
<p>“GST and other state levies/cess which are not subsumed under GST will be applicable. The tenderer shall quote inclusive of all taxes <u>applicable at the time of bid submission</u>. It is clearly understood that BMC will not bear any additional liability towards payment of any Taxes &amp; Duties.</p> <p>Wherever the services to be provided by the Tenderers, falls under Reverse Charge Mechanism, the Price quoted shall be exclusive of GST, but inclusive of Taxes/Duties/Cess other than GST, if any.</p> <p>Rates accepted by BMC shall hold good till completion of work and no additional individual claim shall be admissible on account of fluctuations in market rates; increase in taxes/any other levies / tolls etc. except that payment/recovery for overall market situation shall be made as per Price variation <b>and if there is any subsequent change (after submission of bid) in rate of GST applicable on the work/services to be executed as per tender, i.e. any increase will be reimbursed by BMC whereas any reduction in the rate of GST shall be passed on to BMC as per the provisions of the GST Act.</b></p>	<p>The tenderer shall quote inclusive of all taxes other than GST (<b><u>Excluding GST</u></b>), <u>Levies, Duties, Cess etc as applicable at the time of bid submission</u>. GST as applicable shall be paid separately on submission of bills/invoice.</p> <p>Input Tax Credit of GST as available with the bidder will not be claim separately by BMC. However, while quoting the rates benefit of Input Tax Credit or Exemptions shall be passed on to the BMC by way of equivalent reduction in quoted price.</p>

उपरोक्त सुधारीत अट अद्ययावत एकसामायिक दरसूची २०२३ नुसार अंदाजपत्रक तयार करुन मागविण्यात आलेल्या/ येणा-या ई-निविदा/निविदा/दरपत्रक या कामांकरिता लागू असेल.

अतएव, सध्या ज्या ई-निविदा/निविदा/दरपत्रक एकसामायिक दरसूची २०२३ अंतर्भूत करुन मागविलेल्या आहेत अशा निविदांमध्ये नियत दिनांकापूर्वी शुद्धीपत्रकाद्वारे उपरोक्त सुधारीत अट समाविष्ट करण्याबाबत तसेच यापुढे एकसामायिक दरसूची २०२३ अंतर्भूत करुन मागविण्यात येणाऱ्या ई-निविदा/निविदा/दरपत्रक यांमध्ये उपरोक्त सुधारीत अट समाविष्ट करण्याबाबत संबंधित खातेप्रमुख यांनी दक्षता घ्यावी.

सर्व खातेप्रमुख, रूग्णालयांचे अधिष्ठाता, सहायक आयुक्त, यांनी उपरोक्त सुचनांचे काटेकोरपणे अनुपालन करावे.

सही/- २८/०३/२०२३

(पांडुरंग गोसावी)

प्रमुख लेखापाल (पा.पु.म.नि.)

सही/- २८/०३/२०२३

(प्रदिप पडवळ)

प्रमुख लेखापाल (वित्त) प्र.

सही/- २८/०३/२०२३

(रामदास आव्हाड)

उप आयुक्त (वित्त)

सही/- २८/०३/२०२३

(पी. वेलरासू)

अतिरिक्त आयुक्त (प्रकल्प)

**MUNICIPAL CORPORATION OF GREATER MUMBAI**

No. CHE /BM/019919/II dated 07.01.2019.

**CIRCULAR**

Sub:- Corrections in parameters i.e. similar work experience criteria for major structural repairs / maintenance works & reconstruction / new construction building works undertaken through all M.C.G.M. departments and other corrections in para of curable and non-curable defects and the Header Data of the S.B.D.

Ref:- (1) MGC/ F/8058 dated 03.01.2019

The following amendments / corrections are proposed to be made in the respective paras of the S.B.D. document for "**works of carrying out major structural repairs / maintenance works and reconstruction / new construction building works**" undertaken through all M.C.G.M. departments as per approval of Hon'ble M.C. u/no.MGC/ F/8058 dated 03.01.2019.

- (I) **Para-Clause 1.3 : Similar experience (for works of carrying out major structural repairs / maintenance works and reconstruction / new construction building works)**

<b>Sr. No.</b>	<b>As per SBD</b>	<b>Proposed Amendment</b>
1.	For assessing the technical capacity of "Regular, Routine and Maintenance works; Similar work shall mean, the completed or on-going works in Building Construction OR Building Maintenance such as repairs OR construction / repairs of asphalt / concrete roads OR laying / rehabilitation of sewer lines along with allied components OR laying / rehabilitation of water pipe lines in Cast Iron / M.S. Pipes / HDPE/MDPE pipes OR repairs/maintenance / construction of culverts over nullah.	"For assessing the technical capacity of major structural repairs / maintenance works and reconstruction / new construction works; similar work shall mean, the completed or on-going works in Building Construction OR Building Maintenance such as repairs / retrofitting / upgradation/ structural repairs".
2.	As per Circular No.MDD/9945 of 30.01.2017 para "D", the 'Similar Experience' for 'Regular Routine and Maintenance works' shall mean " <i>any work in any department" as mentioned hereinafter.</i>	Not to be insisted for "major structural repairs / maintenance works and reconstruction / new construction building works".



(II) **Para-Curable and Non-Curable defects**

<b>As per SBD</b>		<b>Proposed Amendment</b>	
(i)	<u>Curable Defect shall mean shortfalls in submission such as :</u>		<u>Curable Defect shall mean shortfalls in submission such as :</u>
a)	Non-submission of following documents (i) Valid Registration Certificate (ii) Valid Bank Solvency (iii) Sales Tax Registration Certificate (VAT) (iv) Certified copies of PAN documents and photographs of individuals, owners etc. (v) Partnership Deed and any other documents. (vi) Undertaking as mentioned in the tender document.	a)	Non-submission of following documents (i) Valid Registration Certificate (ii) Valid Bank Solvency (iii) Sales Tax Registration Certificate (VAT)/Goods and Service Tax Registration certificate. (iv) Certified copies of PAN documents and photographs of individuals, owners etc. (v) Partnership Deed and any other documents. (vi) Undertaking as mentioned in the tender document.
	b) Wrong calculation of Bid Capacity	b)	- Deleted -
	c) No proper submission of experience certificates and other documents, etc.	c)	- Deleted -
(ii)	<u>Non-Curable Defect shall mean</u>	ii)	<u>Non-Curable Defect shall mean</u>
a)	Inadequate submission of EMD/ ASD amount	a)	Inadequate submission of EMD/ ASD amount
b)	Inadequacy of technical or financial capacity with respect to eligibility criteria as stipulated in the tender.	b)	Inadequacy of technical or financial capacity with respect to eligibility criteria as stipulated in the tender.
		c)	<b>Wrong calculation of Bid Capacity.</b>
		d)	<b>No proper submission of experience certificates and other documents, etc.</b>

(III) **Para-Header Data**

<b>As per present practice</b>		<b>As per proposed modification</b>	
Tender Document No.	XXXXXXXXXXXXXX	Tender Document No.	XXXXXXXXXXXXXX
Name of Organisation	Municipal Corporation of Greater Mumbai	Name of Organisation	Municipal Corporation of Greater Mumbai
Subject	XXXXXXXXXXXXXX	Subject	XXXXXXXXXXXXXX
Cost of Tender	Rs. XXXXXXXXXXXX/- ( 5.5% VAT)	Cost of Tender	2.50% SGST + 2.50% CGST)

Cost of E-Tender (Estimated Cost)	Rs.	Cost of E-Tender (Estimated Cost)	Rs.
Bid Security Deposit /EMD	Rs.	Bid Security Deposit / EMD	Rs.
Date of issue and sale of tender	..... from 11.00 Hrs.	Date of issue and sale of tender	..... from 11.00 Hrs.
Last date & time for sale of tender & <u>Receipt of Bid Security Deposit</u>	..... from 12.00 Hrs.	Last date & time for sale of tender	..... from 12.00 Hrs.
Submission of Packet A, B & Packet C online.	..... from 16.00 Hrs.	Submission of Packet A, B & Packet C online & <b><u>Receipt of Bid Security Deposit</u></b>	..... from 16.00 Hrs.
Pre-Bid Meeting	..... from 11.00 Hrs. in conference room of Ch.E.(.....)	Pre-Bid Meeting	..... from 11.00 Hrs. in conference room of Ch.E.(.....) <b>as applicable.</b>
Opening of Packet 'A'	..... after 16.01 Hrs.	Opening of Packet 'A'	..... after 16.01 Hrs.
Opening of Packet 'B'	..... after 15.00 Hrs.	Opening of Packet 'B'	..... <b>after 16.10 Hrs.</b>
Opening of Packet 'C'	..... after 15.00 PM.	Opening of Packet 'C'	..... after 15.00 PM.
Address for communication	Office of the Ch.E.(.....)'s office M.C.G.M., ----- floor, Engineering Hub Building, Dr.E.Moses Road, Worli Naka, Worli, Mumbai - 400018.	Address for communication	Office of the Ch.E.(.....)'s office M.C.G.M., ----- floor, Engineering Hub Building, Dr.E.Moses Road, Worli Naka, Worli, Mumbai - 400018.
Venue for opening of Bid	Online in Ch.Engg. (.....)'s office.	Venue for opening of Bid	Online in Ch.Engg. (.....)'s office.

The above amendments shall be made applicable for "major structural repairs / maintenance works and reconstruction / new construction building works" to be carried out through all M.C.G.M. departments and necessary correction shall be done in all tenders to be uploaded from this date onwards. The earlier circular issued in this regards for major structural repair / maintenance work u/No.CHE/BM/1365/II dt 20.04.2018 is treated as canceled with immediate effect.

sd/- <b>Dy.C.E.(S.I.C.)</b>	sd/- <b>City Engineer</b>	Sd/- <b>Director (E.S.&amp;P.)</b>
sd/- <b>A.M.C.(City)</b>	sd/- <b>A.M.C.(W.S.)</b>	Sd/- 03.01.2019 <b>M.C.</b>
		<b>Sd/- 07.01.2019 Ch.Eng. (BM)</b>

Copy to –

CHE /BM/019919/II dated 07.01.2019.

Director(E.S&P)	DMC(Public Health)	D.M.C.(Garden Cell)
DMC(Engineering)	DMC(Special Engineering)	DMC(School)
DMC(SWM)	DMC(Vigilance)	Director(M.E&MH)
DMC(R.E)	D.M.C.(Fire Brigade)	DMC(Environment)
DMC, Zone _____	Director(I.T)	Dean,Nair hospital
Dean,Nair Dental,	Dean,Sion Hospital	Dean, KEM.
City engineer	Hydraulic engineer	Chief Engineer(D.P)
Chief Engineer(SWM)	Chief Engineer(SWD)	Chief Engineer(Roads& Traffic)
Chief Engineer(M&E)	Chief Engineer(SP)	Chief Engineer(S.O)
Chief Engineer(MSDP)	Chief Engineer(Bridges)	Chief Engineer(WSP)
Chief Engineer(Disaster Management)	Asst. Commissioner(market)	Asst. Commissioner(Planning)
Asst. Commissioner(R.E)	Asst. Commissioner _____ ward	Asst. Commissioner(Estate)
Executive Engineer(MHO)	Chief Accountant(Finance)	Chief Accountant(WSSD)

## BARRICADING CIRCULAR

### Revised Guidelines Regarding Barricades

## MUNICIPAL CORPORATION OF GREATER MUMBAI

### CIRCULAR

U/No.MGC/F/6342 dated 5.5.2018

**Sub.:** Revised guidelines regarding barricades being used during the execution of various infrastructure development projects by MCGM in Mumbai.

Various infrastructure development projects are being executed by MCGM for the betterment of citizens of Mumbai. During the course of execution of the projects, it is necessary to provide strong and secured barricading as a safety measure to avoid any mishaps as well as to avoid nuisance to vehicular and pedestrian traffic. Nowadays, the following types of barricades are being used exclusively in MCGM as per the convenience of various departments at different sites.

1. Water/sand fillable PVC Metro barricades.
2. RW 7.45 (G.I. sheets of 22 gauge fixed on 3 inch dia. Wooden bullies buried in existing road sufficiently)
3. RW 7.36 (G.I. sheets of 22 gauge fixed on MS Angle post buried in half the depth in drums of 20 litres capacity in 1:3:6 concrete)
4. Structural steel barricade for major trenches having depth more than 2.00 meters.

Thus from the above, it can be seen that there is no uniformity in provision of barricades as they are of different size and shape. Further it is also observed that the continuity is not maintained in providing the barricading keeping gaps in between thus endangering the safety of vehicular as well as pedestrian traffic. Also the barricades are not being cleaned, thus further adding to shabbiness. Further Mumbai being the financial capital of India, people from all over the world visit the city daily and to maintain good image of city the following decisions are taken.

- A) Only two type of barricades having department wise colour coding are proposed to be used depending upon the nature of work i.e. Minor and Major.
- i) **Minor works:** Barricading made out of 1.5 mm thick MS plate fixed on M.S. angle post/ frame of 65 mm X 65 mm X 6 mm having height of 1.5 m supported on as shown in Annex-I.
  - ii) **Major works:** Structural steel barricade made out of 1.50 mm thick M.S. Plate ISMB 250, ISLC 250X50mm and ISA 50mmX50mmX6 mm having of size 2.5 m X 2 m as shown in Annex-II.
- B) The department wise colour coding for the barricading shall be as under:-
- i) H.E. & W.S.P. department – Blue
  - ii) Roads, Traffic, Bridges and Coastal Roads department– Yellow
  - iii) S.P. & S.O department – Green
  - iv) S.W.D., Building Maintenance department & for ward works – Red
- C) The basic principle behind installing secured and continuous barricading is to ensure the safety of vehicular as well as pedestrian traffic and residents in the nearby vicinity of the project. Due to non-installation of appropriate barricades on sites if any mishap occurs leading to injury or loss of life, then the contractor and contractor's Engineer in-charge will be liable for the consequent action.
- D) During the course of execution of project, if it is noticed that the contractor has not provided barricading then a penalty of Rs.1000/- per meter per day will be imposed upon the contractor and will be deducted from the due Bill. This penalty shall be a part of penalty as per tender condition.
- E) Details of the work shall be prominently displayed on the central panel of the barricades along-with the Social Slogans as given in Annexure III and the Cycle of the same shall be maintained.
- F) The contractor shall provide and install the barricading alongwith the slogans printed as per the Annexure III, at his own cost and no payment will be made for this, however the contractor shall quote the bid accordingly by considering the cost of barricading.

The condition shall be included in the tender as given below.

Barricading shall be provided free of cost as per Circular vide U/No.MGC/F/6342 dated 5.5.2018 and as per Annexure I, II and III of Standard drawings and specifications with slogans and department wise colour codes." The copy of circular will be attached to the tender as a part of tender document.

This circular will be applicable for the new tenders proposed to be invited from 01.05.2018 and also the corrigendum shall be attached to tenders which are uploaded. However, for the projects wherein the tenders are already invited, the barricading shall be provided strictly as per tender condition. All the details (Annexure I, II & III of Standard drawings and specifications with slogans and department wise colour codes, sketches and department wise colour coding) are uploaded on MCGM portal.

This circular shall come in force with immediate effect.

sd/- 20.4.2018  
(Shri V.P . Chithore)  
**Dir.(ES&P)**

sd/- 20.4.2018  
(Shri R. B. Bambale)  
**D.M.C.(S.E.)**

sd/- 21.4.2018  
(Shri Vijay Singhal)  
**A.M.C.(E.S.)**

sd/- 21.4.2018  
(Dr. Shri Sanjay Mukherjee)  
**A.M.C.(P.)**

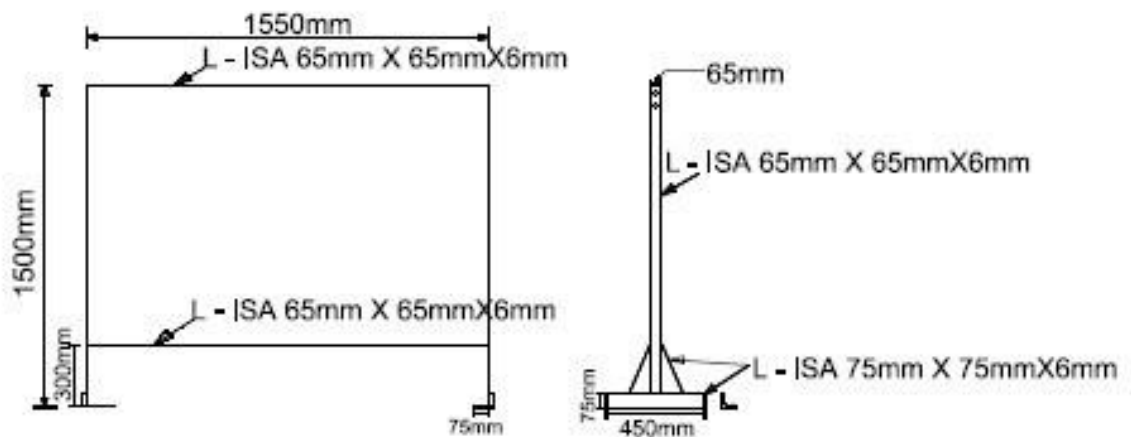
sd/- 5.5.2018  
(Shri Ajoy Mehta)  
**M. C.**

sd/-16.5.2018  
(Shri P. R. Kadam)  
**D.M.C.(S.E.)**

## ANNEXURE I

### **A) Minor work**

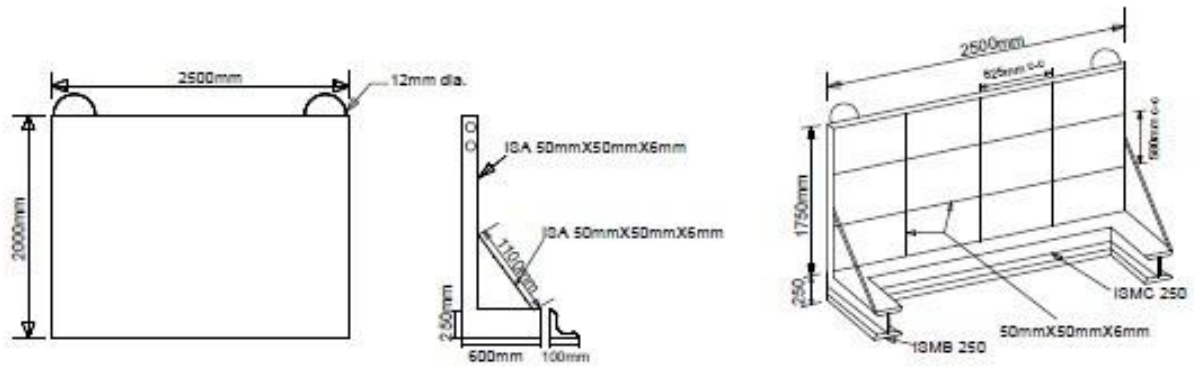
Providing, fabricating and installing the barricading made out of 1.5 m high M.S. Angle post of 65 mm X 65 mm X 6 mm with 1.5 mm thick M.S. Sheet of size 1.55 m X 1.2 m welded to the M.S. angle post/ frames and fixed to 75mm X 75mm X 6 mm angle base as shown in sketch for minor works , displaying of the social slogan as per the Annex - III, daily cleaning of the same to get better appearance and interlocking arrangement to ensure continuity in provision and to avoid gap in between etc complete and as directed by Engineer in-charge.



## ANNEXURE II

### B) Major works:

Providing, fabricating and installing the structural steel barricading made out of 1.5 mm thick M.S. plate of size 2500 mm X 2000 mm, ISMC 250 X 50 channels, M.S. Angles ISA 50 X 50 X 6mm and ISMB 250 as per IS 1161-1 RHS/SHS rolled angle plates of TATA Steel, Lloyd Steel, SAIL, ESSAR steel approved in straight profile of all sizes, shapes and for all works including stiffeners, bolts and nuts, fillet / butt welding, splicing, machine grinding, of all member joints wherever required to give neat appearance, and daily cleaning the barricading along with displaying of the Depthwise slogans as given in Annexure -III etc with interlocking arrangement to avoid gap in between and as directed by Engineer in-charge.





## ANNEXURE III

### **1) HYDRAULIC ENGINEER'S DEPARTMENT/ WATER SUPPLY PROJECTS**

- i) Inconvenience regretted
- ii) Ensuring Mumbai's water supply
- iii) Save water Save life

### **2) ROAD, TRAFFIC / BRIDGES DEPARTMENT**

- i) Inconvenience regretted
- ii) Working towards a better tomorrow
- iii) My Mumbai, Green Mumbai

### **3) SEWERAGE PROJECTS DEPARTMENT/ SEWERAGE OPERATIONS DEPARTMENT**

- i) Inconvenience regretted
- ii) Reduce Reuse Recycle
- iii) Clean Mumbai , healthy Mumbai

### **4) STORM WATER DRAIN DEPARTMENT/ WARD WORKS**

- i) Inconvenience regretted
- ii) Working towards a better tomorrow
- iii) Swatch Bharat

**BRIHANMUMBAI MUNICIPAL CORPORATION****No. Ch.E./BM/06181/II Date 05.07.2023****Sub.:-** List of Approved Building Materials updated up to 30.06.2023.

Following brands of building materials have been approved by Ch.E.(B.M.)/Director (E. S.& P.). The brands of the building materials approved and mentioned in the list with the validity given below shall be used. For the materials other than mentioned in the list brands, only ISI marks materials shall be allowed to be used with prior written permission of the engineer, for individual work. The contractors shall distinctly understand that it will not be their prerogative to insist for use of particular make/brand from following list and final selection will have to be done with approval of engineer. The following list of approved building materials may vary and some new category/brand may be added or existing ones may be deleted. The contractor shall use the brand as directed by the engineer.

<b>Sr. No</b>	<b>Category</b>	<b>Product</b>	<b>Brand Name if any</b>	<b>Manufacturer's Name &amp; Correspondence address</b>	<b>Contact Details</b>	<b>Validity</b>
1.	Cement	OPC 53 Grade & PPC	SANGHI	M/s. Sanghi Cement Limited, Krishna Commercial Centre, 11, B-Wing, 6-Udyog Nagar, S.V. Road, Near Kamath Club, Goregaon (West), Mumbai- 400 062	(022)-28713120 (0261)-2331019	27.07.2023
2.	Cement	OPC 53 Grade PPC	HATHI	M/s. Saurashtra Cement Limited, Gala No. A-1, Ground Floor, Udyog Sadan No. 3, MIDC, Central Road, Andheri (East), Mumbai- 400 093	(022)-32955567 / 32955557	24.09.2023
3.	Cement	OPC 43, 53 Grade & PPC	PERFORM ATE, OPTIMATE & DURAMATE	M/s. Kalburgi Cement Private Limited. 8-2-626, Reliance Majestic, Road No. 10, Banjara Hills, Hyderabad-500034	(022)-40831234	18.03.2024
4.	Cement	OPC 53 Grade & PSC	PSC & CONCRETE L HD	M/s. JSW Cement Limited, JSW Centre, Bandra Kurla Complex, Bandra (E), Mumbai-400051	Mob.:-9820234395	03.03.2024
5.	Cement	OPC 53 & PPC	SHREE CEMENT - ROOFON & JUNGROD HAK	M/s. Shree Cement Ltd, One BKC Building, 1110 A, 11TH Floor, C Wing, Plot no. C-66, G Block, Bandra Kurla Complex, Bandra (East), Mumbai- 400 051	Mob.:-9819623490	22.03.2025
6.	Cement	OPC 53 & PPC	Coromondel & CSK	M/s. The India Cement Ltd, 102, 1 <sup>ST</sup> Floor, Swastik Chambers, Sion-Trombay Road, Chembur (E), Mumbai - 400071.	Mob:-9689912705	27.04.2026

7.	Cement	OPC 53, PPC & Composite Cement	JK LAKSHMI	M/s. JK Lakshmi Cement Ltd., 9, Kasturi Building, 3 <sup>RD</sup> Floor, J Tata Road, Mumbai - 400020	Mob.:- 9768109206	01.05.2026
8.	GGBS	Ground Granulated Blast Furnace Slag	JSW	M/s. JSW Cement Limited, JSW Centre, Bandra Kurla Complex, Bandra (E), Mumbai-400051	Mob.:- 9819990801	03.03.2024
9.	White Cement	White Cement, Putty & Others	J K MAXX	M/s. J. K. White Cement Works 4TH Floor, Krsna Chambers, Plot no. 11, Galaxy Garden, North Main Road, Koragaon Park, Pune-411001	Mob.:- 8530332882	22.03.2025
10.	Reinforcement Protection coating	Epoxy Reinforcement Bars		M/s. Eurocoustic Products Ltd. FBEC Divn, PSL Campus, Kachigam (Via Vapi-Guj), Daman, (U.T.)-396210	022- 66447777 / 66447787	09.11.2023
11.	Reinforcement Protection coating	Epoxy Reinforcement Bars		M/s. Ayush Rebar Coating, LS No. 2088, Near Damanganga Paper Mill, Ta-Kaparada, Ambheti, Valsad, Gujrat - 396191	Mob.:- 8329092969	30.01.2026
12.	Reinforcement Protection coating & TMT Bars	TMT & FBE Coated (Fe 500 to Fe550D), FBE Coating to TMT Bars	HARIOM/ EPOXYSHI ELD	M/s. Hariom Ingots & Power Pvt. Ltd., Plot 59-60, Light Industrial Area, Bhilai, Chhattisgarh-490 026.	Mob.:- 7884055300	15.05.2026
13.	Reinforcement Bars	TMT bars of Grade (Fe415, Fe500, Fe500D)	SURYA TMX	M/s Surya Ferrous Alloys Private Ltd. 117, 1 <sup>ST</sup> Floor, Sky Lark Building, Sector No. 11, Plot No. 63, C.B.D. Belapur, Navi Mumbai- 400614	(022)- 27573081 / 7480 / 7420	08.11.2023
14.	Reinforcement Bars	TMT bars of Grade (Fe415, to Fe550D)	SUN TMX QST & MORIYA	M/s. Jaideep Metallics & Alloys Pvt. Ltd., Gut No. 73, 74, 76, 78, 79, 80, 179, 180, Village Lakhmapur, Bhiwandi Wada Road, Taluka Wada, Thane-421303.	(022)- 42032003 FAX- (022)- 42032020	08.11.2023
15.	Reinforcement Bars	TMT (Fe415 to Fe550D), FBE Coated Bars & CRS (Fe415 to Fe550D)	ELECTRO TMT PLUS  ELECTRO CRS GOLD	M/s. Electrotherm India Ltd., Survey No. 325, NH 8A, Nr. Toll Tax Booth, Samkhiyali, Ta. Bhachhau, Dist. Kutch. Gujrat- India	(022)- 65201597 / (02717)- 660649	08.11.2023
16.	Reinforcement Bars	TMT bars of Grade (Fe415, to Fe 550D)	GUARDIAN	M/s. Guardian Castings Pvt. Ltd. 415, Mahinder Chambers, W.T. Patil Marg, Opp. Dukes Factory, Chembur, Mumbai-400071	(022)- 67975145 / 5146	08.11.2023

17.	Reinforcement Bars	CRS Grade bars (Fe 500 & Fe 500D)	GUARDIAN	M/s. Guardian Castings Pvt. Ltd. 415, Mahinder Chambers, W.T. Patil Marg, Opp. Dukes Factory, Chembur, Mumbai- 400071	(022)- 67975145 / 5146	29.09.2025
18.	Reinforcement Bars	TMT bars of Grade (Fe 500, Fe 500D, Fe 550D & CRS)	BHAGWATI	M/s. Bhagwati Steel Cast Pvt. Ltd., D-101, MIDC, Malegaon, Sinner, Dist-Nashik-422113, Maharashtra	022- 40354444  Fax- 40350432	14.10.2025
19.	Reinforcement Bars	TMT bars of Grade Fe 500, Fe 500D, Fe550, Fe 550D & Fe 600	BHAGWATI	M/s. Bhagwati Ferro Metal Pvt. Ltd., A 601, Western Edge, Kanakia Spaces, Opp. Magathane, Bus Depot, Western Express Highway, Borivali (E), Mumbai - 400066	Mob.:- 98374829 72	31.07.2025
20.	Reinforcement Bars	TMT bars of Grade (Fe 500, Fe 500D & Fe 550D)	REGENCY	M/s. Regency Ispat Pvt. Ltd., 507, Bharat Chambers, Baroda Street, Iron Market, Carnac Bunder, Mumbai - 400009	(0251)- 2703815/ 98201468 15	29.09.2023
21.	Reinforcement Bars	TMT bars of Grade (415 to Fe 550D)	THANE	M/s. Thane Steel Limited, 14, Steel Yard House, S.T. Road, Carnac Bunder, Mumbai - 400009	Mob.:- 83560599 49	22.08.2024
22.	Reinforcement Bars	TMT (Fe415 to Fe550D), FBE Coated bars (Fe500 to Fe600) & FBE Coating to TMT bars	CAPTAIN	M/s. Captain Steel India Limited, 10A, Shakespeare Court, 21A, Shakespeare Sarani, Kolkata-700017	(033)- 40112525 / Mob.:- 88731250 00	23.03.2025
23.	Reinforcement Bars	Non Corrosive SS Rebar of grade SSR 550	SUNFLAG	M/s. Sunflag Iron & Steel Co. Ltd. 33, Mount Road, Sadar, Nagpur - 440001 (India)	Mob.:- 93253602 01/ 93232214 81	31.10.2024
24.	Reinforcement Bars	TMT bars of Grade Fe (415 to Fe 500D)	METRO	M/s. Metro Ispat Pvt. Ltd., Potia Industrial Estate, 3 <sup>RD</sup> Floor, Darukhana, Reay Road, Mumbai - 400010	Mob.:- 98196819 61	03.12.2024
25.	Reinforcement Bars	TMT bars of Grade Fe500, Fe500D, Fe550 & Fe550D	KALIKA	M/s. Kalika Steel Alloys Pvt. Ltd., Office No. 412, Shreekant chambers Premises, Sion Trmobay Road, Chembur, Mumbai - 400071	Mob.:- 90499973 11	28.03.2025
26.	Reinforcement Bars	TMT bars of Grade Fe500, Fe500D, Fe550 & Fe550D	KHATU	M/s. Shri Khatu Shyam Alloys Pvt. Ltd., Survey no. 148/3, Near Parle Biscuit Company, Village-Kharadpada, Silvasa-	Mob.:- 99307725 70	16.06.2025

				396230		
27.	Reinforcement Bars	TMT bars of Grade Fe500, Fe500D, Fe550 & Fe550D & CRS 500	SANGAM STEEL	M/s. SMW ISPAT Pvt. Ltd., C-2, MIDC, Deoli Growth Centre, Deoli, Dist. Wardha-442101. M.S.	Mob.:- 95997671 10	17.05.2026
28.	Reinforcement Bars	TMT bars of Grade Fe500, Fe500D, Fe550 & Fe550D	SHIV TMX	M/s. Shivkrupa Steel & Alloys Pvt. Ltd., Unit No. E-412, 4TH Floor, L & T Seawood, Grand Central, Tower-2, Plot no. R1, Sector 40, Seawood, Navi Mumbai-400706. M.S.	Mob.:- 98905019 58	30.05.2026
29.	Structural Steel	Long Steel, Flat Steel, Structural sections	RKB	M/s. RKB Global Ltd., 1 <sup>st</sup> Floor, Sugar House, 93/95 Kazi Sayyed Street, Masjid Station, Mumbai-400003	Mob.:- 87675362 51	03.01.2026
30.	Tiles	Ceramic & Vitrified Tiles (IS 15622:2006)	DAKSHINA MURTI	M/s Akash Ceramic Pvt. Ltd. Complex, 3 <sup>rd</sup> floor, Drive-in cinema road, Ahmedabad-54	(079)- 26857400 /500	25.12.2023
31.	Tiles	Ceramic & Vitrified Tiles (IS 15622:2006)	AMBANI	M/s. Ambani Vitrified Pvt. Ltd., Survey No.143 P1/P1, Morbi Charadva Road, Unchi Mandal, Morbi, Gujrat-363641.	Mob.:- 97277231 51/ 90821215 50	06.01.2026
32.	Tiles	Ceramic & Vitrified Tiles (IS 15622:2006)	VARMORA	M/s. Varmora Granito Pvt. Ltd., A-54, 1 <sup>st</sup> Floor, Elite Auto House, Mathuradas VasANJI Road, Andheri-Kurla Road, Andheri (East), Mumbai -	(022)- 28389790 /91/92	27.09.2023
33.	Tiles	Ceramic & Vitrified Tiles (IS 15622:2006)	ORIENT BELL	M/s. Orient Bell Ltd., Iris House, 16 Business Centre, Nangal Raya, New Delhi- 110046	(011)- 47119100	16.10.2023
34.	Tiles	Ceramic & Vitrified Tiles (IS 15622:2006)	RAK	M/s. RAK Ceramics India Pvt. Ltd., 1ST Floor, Carnival House, Opp. Oberoi Mall, Dindoshi Road, Malad East, Mumbai-400063	Mob.:- 99200278 28	22.02.2024
35.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	CREANZA	M/s. Commander Vitrified Pvt. Ltd., 8-A NH, B/H Landgrace Ceramic, At. Sartanpar, Ta. Wankaner, Morbi, Gujrat-363621	Mob.:- 93208125 11	16.02.2024
36.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	ZEALTOP	M/s. Zealtop Granito Pvt. Ltd., Old Ghantu Road, Morbi, Gujrat -363642	(022)- 28728750 /7585	12.06.2024

37.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	PRIYAM GRANTILE	M/s. Solvish Ceramic LLP Survey No. 106/2, Matel Road, Nr. Classy sanitaryware, Wankaner, Morbi, (Gujrat)- 363622	Mob.:- 93242325 44/ 98338778 21	25.10.2024
38.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	SOMANY	M/s. Somany Ceramics Limited, 401 to 408, Bonanza building, Sahar Plaza, Next to Kohinoor hotel, Andheri-Kurla Road, Andheri (East), Mumbai- 400 059	Mob.:- 75064086 96 / (022)- 40398300	27.02.2025
39.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	AGL	M/s. Asian Granito India Ltd., 202, Dev arc, Opp. Iskon temple, S. G. Highway, Ahmadabad - 380 015	(079)- 66125500 /698	07.04.2025
40.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	OASIS	M/s. Oasis Vitrified Pvt. Ltd. 8-A, National Highway, Kandla Road, Morbi-363642, Gujrat.	Mob.:- 86008696 65/79772 11718	29.09.2025
41.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	SUNHEAR RT CERAMIC	M/s. Sunshine Tiles Co. Pvt. Ltd. 101-103, First Floor, Titanium One, Nr. akwan Cross Road, S.G. Highway, Ahmedabad-380054. India	Mob.:- 93211513 14	13.02.2026
42.	Tiles	Ceramic & Vitrified Tiles IS 15622:2006	KAJARIA/ KEROGRE S	M/s. Kajarria Ceramics Limited, B1 - 307, Boomerang, Chandivali Farm Road, Off Saki Vihar Road, Andheri (East), Mumbai - 400072	Mob.:- 99877539 58	27.04.2026
43.	Sanitary ware	Water Closet /Basin/Urinal Cistern (IS 2556:2004)	RAK	M/s. RAK Ceramics India Pvt. Ltd., 1ST Floor, Carnival House, Opp. Oberoi Mall, Dindoshi Road, Malad East, Mumbai- 400063	Mob.:- 99200278 28	22.02.2024
44.	Sanitary ware	Water Closet /Basin/Urinal Cistern (IS 2556:2004)	PRIYAM GRANTILE	M/s. Solvish Ceramic LLP Survey No. 106/2, Matel Road, Nr. Classy sanitaryware, Wankaner, Morbi, (Gujrat)- 363622	Mob.:- 93242325 44/ 98338778 21	25.10.2024
45.	Cast Iron Pipes & Fittings	CI Pipes (IS 3989:2009)	RPMF	M/s. Raj Pattern Makers & Founders Pvt. Ltd. Nagla Kishan Lal, Hathras Road, Agra, Uttarpradesh - 282006	Mob.:- 97602832 96	20.03.2025
46.	Cast Iron Pipes & Fittings	CI Pipes (IS 3989:2009)	NFL	M/s. Nagpur Foundries Limited, N-72, MIDC, Hingana Road, Nagpur - 440 016	Mob.:- 98690850 07	07.05.2026
47.	RCC pipes	NP3 & NP4 class (450 mm -	ACPPL	M/s Aadit Concrete Products Pvt. Ltd. 80/85, Om Laxmi Niwas,	Mob.- 95525 29191	14.03.2024

		1800 mm)		Prabhat Main Road, Near Royalty Hotel, Erandwane, Pune-411004.		
48.	RCC pipes	NP3 & NP4 class (400 mm - 1800 mm)	POONA CONCRET E	M/s. The Poona Concrete Products Co. 996, Navi Peth, Abhinav Apartment, Pune-411030	Mob.:- 99201774 56	14.04.2024
49.	RCC pipes	1) NP2 class (150 mm - 300 mm) 2) NP3 & NP4 class (150 mm -1800 mm)	PRANALI	M/s Pranali Cement Pipes Pvt. Ltd, 311,Kesar Krupa CHS Ltd., Above Saraswat Bank Ltd., Chandavarkar Road, Borivali(w), Mumbai-400092	Mob.:- 93246226 69	15.03.2024
50.	RCC pipes	1) NP2 class (100 mm - 600 mm) 2) NP3 & NP4 class (150 mm -1200 mm)	SAGAR SPUN PIPE	M/s. Sagar Spun Pipes, Plot No. C-9, MIDC Industrial area, Waluj, Aurangabad – 431136	Mob.:- 98222339 99	04.06.2024
51.	RCC pipes	NP2 & NP3 class (150 mm - 1800 mm)	PAWAN	M/s. Pawan Concrete, Room No. 4, Obhan Niwas, Near Nav Bharat School, N. S. Road, Mulund (West), Mumbai – 400 080	Mob.- 77385458 29/ 98202555 07	20.06.2025
52.	RCC pipes	NP3 & NP4 class (300 mm - 1800 mm)	SPPPL	M/s. Siddhivinayak Precast Pipes Pvt. Ltd, Arihant heights, Plot 76, Sec-25, Near Gyan Prabhodhini School, Pradhikaran, Nigadi, Pune – 411 044.	(020)- 27651888	22.03.2025
53.	RCC pipes	NP2 (700 - 1800 mm), NP3 (300 - 2400 mm), NP4 (300 - 2000 mm) & Jacking Pipes (600 - 1200 mm)	GAMBHIR	M/s. Gambhir Concrete Products, B-301, Atelier, Rustomjee Urbania, Majiwada, Thane-400601	Mob.:- 90042674 20	13.02.2026
54.	RCC pipes	NP2 (150 - 1200 mm), NP3 & NP4 (250 - 1800 mm)	UNICEM	M/s Unicem vibro cast pipe Industries 16,4th floor,Highway Tower, Pune-Mumbai Road, Chindawad Pune-411019	Mob.:- 99229993 23	01.05.2026
55.	Glazed Stoneware Pipes	100mm – 300mm	KRISHNA	M/s. Krishna Industries At. Kotadi (Khanusa), Ta, Vijapur, Dist. Mehasana, Gujrat 382870	Mob.:- 98690850 07	07.05.2026
56.	Single Stack System	HDPE Single stack system	GEBERIT	Geberit Plumbing Technology India Pvt. Ltd. 305, B-Wing, Dynatsy Bussiness park, Andheri Kurla Road, Andheri (E) Mumbai 400059.	(080) – 23376127 /2357061 2	21.08.2025

57.	CPVC  SWR,  uPVC & PVC Pipes	(i) CPVC pipes IS 15778 and CPVC fitting IS7834 (ii) UPVC SWR Pipes IS 13592:1992 & Fittings 14735:1999 (iii) Potables water supply Pipes IS 4985:2000 (iv) uPVC pipes	TRUFLO BY HINDWAR E	M/s. HSIL Limited, Unit 501 & 504, Block-A, "The Platina",  Survey No. 136, Gachibowli- Miyapur Road,  Gachibowli, Hyderabad, Telangana- 500032	(040)- 66288000 Mob.:- 98983489 83	26.03.2025
58.	SWR	UPVC SWR Pipes IS 13592:1992 & Fittings 14735:1999	BIRLA AEROCON	M/s. HIL Limited, L7 Floor, SLN Terminus, Sy. No. 133, Beside Botanical Garden, Gachibowli, Hyderabad- 500 032, Telangana.	Mob.:- 86000040 36	29.03.2024
59.	PPR Pipes & Fittings	PPR Pipes & Fittings (IS 15801:2008 for Hot & Cold water supply)	KPT GREEN THERM	M/s. Kanha Plastics Pvt. Ltd., Unit no. 306, PP Trade Center, Plot no. P-1, Netaji Subhash Place, New Delhi- 110035	Mob.:- 96340079 85/ 96349044 722	16.08.2023
60.	DWC	DWC Pipes & Fittings IS 16098:2016	D-REX	M/s. Astral Poly Technik Limited 207/1, Astral House, B/h Rajpath Club, Off. S. G. Highway, Ahmedabad- 380059	Mob.:- 81087838 49	29.02.2024
61.	Low Noise SWR UD Pipes, uPVC Conduit Pipe & PE Chambers	(i) Low Noise SWR Pipes (ii) Underground Drainage Pipes IS16098: 2003 (iii) PE Inspection chambers (iv) Conduit Pipes	SILENCIO / DRAINPRO  FOAMCOR E DRAINHUL K WIREGUA RD	M/s. Astral Poly Technik Limited, 207/1, Astral House, B/h Rajpath Club, Off. S. G. Highway, Ahmedabad- 380059	(022)- 28389744 /55	01.08.2024
62.	SWR,  UPVC,  CPVC, &  UD Pipes	i) SWR Pipes IS 13592:1992 ii)UPVC injection moldings fittings IS 14735:1999 iii)CPVC pipes IS 15778 and CPVC fitting IS 7834 iv) UPVC Pipes IS 4985:2000 v) Underground	ULTRAFIT  FLOWGUA RD PLUS  AQUAFIT FOAMFIT	M/s. Prince pipes & Fittings Pvt. Ltd, The Ruby, 8 <sup>th</sup> floor, 29, Senapati Bapat Marg, (Tulsi pipe road), Dadar (W), Mumbai- 400 028	(022)- 66022222  Fax-(022)- 6602 2220	04.04.2025



		Drainage Pipes IS 16098: 2003 vi) UPVC Pipe for potable water				
63.	SWR, UPVC, CPVC	i) UPVC SWR Pipes IS 13592:1992 & fittings IS14735:1999 ii) CPVC pipes IS 15778 and CPVC fitting iv) UPVC Pipes IS4985:2000 v) UPVC Pipe for potable water	PARAS	M/s. Bothara Agro Equipments Pvt. Ltd. Bothara Compound, Industrial Estate, Nagar-Pune Road, Ahemednagar-414006	Mob.:- 86008696 65	24.08.2025
64.	SWR, UPVC, CPVC	i) UPVC SWR Pipes IS 13592:1992 & fittings IS14735:1999 ii) CPVC pipes IS 15778 and CPVC fitting iv) UPVC Pipes IS 4985:2000 & Fittings	FLOWKEM	M/s. Flowkem Poly Plast Pvt. Ltd. 5, Shukun Hebitet, 3 <sup>rd</sup> Floor, Prerna Park Soc. Nr. L. G. Corner, Ramji Mandir Road, Maninagar, Ahemedabad-380008	Mob.:- 99873750 72	13.11.2025
65.	Polypropylene Pipes	PPR Pipes	GREENFIT	M/s. Prince pipes & Fittings Pvt. Ltd, The Ruby, 8 <sup>th</sup> floor, 29, Senapati Bapat Marg, (Tulsi pipe road), Dadar (W), Mumbai- 400 028	(022)- 66022222 Fax-(022)- 6602 2220	04.04.2025
66.	High Density Polyethylene Pipes	DWC Pipes	CORFIT	M/s. Prince pipes & Fittings Pvt. Ltd, The Ruby, 8 <sup>th</sup> floor, 29, Senapati Bapat Marg, (Tulsi pipe road), Dadar (W), Mumbai- 400 028	(022)- 66022222 Fax-(022)- 6602 2220	04.04.2025
67.	High Density Polyethylene Pipes	HDPE/PE/ PVC O/DWC	DELTA	M/s. Delta Irrigation LLP Plot F ½, Opp Kirloskar Oil Engines, Kagal Five Star MIDC, Kagal, Kolhapur – 416236. M.S.	Mob.:- 77700052 57	30.01.2026
68.	High Density Polyethylene Pipes	DWC for Sewerage & underground cable, HDPE ducts	GEMINI	M/s. Tirupati Plastomatics Pvt. Ltd. B-141-1, Road no. 9-D, V.K.I. Area, Jaipur-302013, Rajasthan	Mob.:- 98202969 72	10.05.2026
69.	Polyethylene tank	Water Storage Tank	STOREFIT	M/s. Prince pipes & Fittings Pvt. Ltd, The Ruby, 8 <sup>th</sup> floor, 29,	(022)- 66022222 Fax-(022)-	04.04.2025

				Senapati Bapat Marg, (Tulsi pipe road), Dadar (W), Mumbai- 400 028	6602 2220	
70.	Chemicals	Construction Chemicals	SUNANDA	M/s. Sunanda Speciality Coatings Pvt. Ltd, Satyadham Road no. 2, Sion (E), Mumbai – 400 022	(022)-24034130	17.12.2023
71.	Chemicals	Construction Chemicals	CHRYSO	M/s. CHRYSO India Private Limited Plot No. D-30/7, TTC Industrial Area, MIDC Turbhe, Navi Mumbai-400705	Mob.:-9594948858	16.08.2023
72.	Chemicals	Construction Chemicals	KRYTON	M/s. Kryton Buildmat Co. Pvt. Ltd. 136-137, Centrum Plaza, Golf Course Road, Sector 53, Gurugram, Haryana-122002		10.11.2023
73.	Chemicals	Construction Chemicals	SHREE PRIMIX	M/s. Shree Premix Industries, 104, Corporate Avenue, Near Udyog Bhavan, Sonawala Lane, Goregaon (East), Mumbai- 400063	(022)-26853022 / 9821541867 / 7045950921	11.11.2023
74.	Chemicals	Construction Chemicals	PERMA	M/s Perma Construction Aids Pvt. Ltd. 611/612 Nirmal Corporate Centre, Mulund (W) Mumbai-400080	(022)-25903008	25.12.2023
75.	Chemicals	Construction Chemicals	FAIRMATE	M/s. Fair Mate Chemicals Pvt. Ltd. 8/1, Sai Sudha, Arunoday Soc. Alkapuri, Vadodara (Gujrat)- 390007	(0265)-2358173 / 2331193	22.03.2024
76.	Chemicals	Construction Chemicals	PAR	M/s. Par Specialty Polymers Pvt. Ltd. Unit No-309, Turbhe Industrial Park, Plot no. C-56/1, TTC Industrial Area, Turbhe, Navi Mumbai-400705	Mob.:-9619515566	18.05.2024
77.	Chemicals	Construction Chemicals		M/s. Tiki Tar Danosa India Pvt. Ltd. Tiki tar state, Village Road, Bhandup (W) Mumbai- 078	(022)-41266699	06.06.2024
78.	Chemicals	Construction Chemicals		M/s. Rheoplast Technology Pvt. Ltd., 711, A Wing, Mainframe-1, Royal Palm, 169 Aarey Colony. Goregaon (E), Mumbai-400065	Mob.:-8080444030	10.10.2024
79.	Chemicals	Construction Chemicals		M/s. Fosroc Chemicals (India) Pvt. Ltd., Embassy Point, No. 150, 2ND Floor,	Mob.:-8433973413	27.02.2025

				Infantry Road, Bengaluru – 560001		
80.	Chemicals	Construction Chemicals		M/s Krishna Conchem Product Ltd. Unit-2,Bldg.6,Sect.3, Millennium Business Park, Mahape, Navi Mumbai-400710	(022)-32986329 / 27782923 / 09324924398	21.09.2024
81.	Chemicals	Construction Chemicals	MCON	M/s. MCON RASAYAN PVT. LTD. Gala No. 6, Bardanwala Estate, Bandiwali Hill road, Jogeshwari (W), Mumbai-400102	(022)-26790031	10.02.2025
82.	Chemicals	Construction Chemicals	---	M/s. Zydex Industries Private Limited, Zydex House, 61, Gotri-Sevasi Road, Gotri, Vadodara -390021, Gujrat	(0265)-3312 0000 Mob.:-9819412355	24.01.2026
83.	Chemicals	Construction Chemicals	MYK	M/s. MYK Arment Pvt. Ltd. 8-2-703/A, 3 <sup>rd</sup> Floor, Leela Gopal Towers, Raod no. 12, Banjara Hills, Hyderabad-500034	Mob.:-9100846678	15.09.2025
84.	Chemicals	Construction Chemicals	SUNLIGHT	M/s. Sunlight Corporation, Shed No. C-1-2605/1, Phase III, GIDC, Vapi – 396195	Mob.:-7208922332	15.02.2026
85.	Chemicals	Construction Chemicals	---	M/s. Clean Coats Pvt. Ltd. K30/1, Additional Ambernath Ind. Area, MIDC, Anand Nagar, Ambernath (E), Thane – 421506, M.S.	Mob.:-8657545986	29.06.2026
86.	AAC Block	AAC Block	BIRLA AEROCON	M/s. HIL Limited, L7 Floor, SLN Terminus, Sy. No. 133, Beside Botanical Garden, Gachibowli, Hyderabad- 500 032, Telangana	Mob.:-8600004036	29.03.2024
87.	AAC Block	AAC Block & Block Jointing Mortar	BIGBLOC	M/s. Bigbloc Construction Limited, 202, 2 <sup>ND</sup> Floor, A Wing, Corporate Avenue, Sonawala Road, Goregaon (East), Mumbai – 400063	Mob.:-9773203979	30.01.2026
88.	AAC Block	AAC Block & Block Jointing Mortar	EMPEROS	M/s. Emperos, Survey No. 22/3, Devli Village, Near Padgha, Bhiwandi, Thane – 421101	Mob.:-9819176608	27.04.2026
89.	AAC Block	AAC Block & Block Jointing Mortar	GRUNTEC	M/s. Constro Solution Limited, 1/31, Teachers Colony, Bandra (East), Mumbai – 400051	Mob.:-9599767110	08.05.2026
90.	Ready to use Mortar	Ready Mix Mortar &	MAGICRETE	M/s. Magicrete Building Solutions Pvt. Ltd.	Mob.:-99704652	22.06.2024

	& AAC Block	Block Jointing Mortar		702, 22 Business Point, S. V. Road, Andheri (West), Mumbai-400058	15	
91.	Ready to use Mortar	Ready Mix Mortar & Block Jointing Mortar	KANERIA	M/s. Kaneria Plast Pvt. Ltd. 6TH Floor, Rohan Arcade, Off W.E.Highway, Dattani Park, Thakur Village, Kandivali (E), Mumbai- 400101	Mob.:- 82918924 01/ 82918924 14	25.10.2024
92.	Paints	External and Internal Paints	PEARL/ COLORTE X/ KLASSIC/ UNO/ INSPIRA	M/s. Godavari paints Pvt. Ltd., Tulsiram Gupta Mills Estate, Darukhana, Reay Road, Mumbai 400010	(022)- 23723227	05.02.2024
93.	Paints	External and Internal Paints	SNOWCE M	M/s. Snowcem Paints Private Limited, 702 A, Pranik Chambers, Saki Vihar Road, Andheri (E), Mumbai - 400072	(022)- 28573551 / 28572700	25.10.2023
94.	Paints	External and Internal Paints		M/s. Advance Paints Pvt. Ltd. Advance House, Plot no. A, Ark Industrial Compound, Makwana Road, Marol Naka, Andheri (E), Mumbai - 400059	(022)- 28590162 /63/64	16.12.2023
95.	Paints	External and Internal Paints	FAIRCOAT, FAIRTEX, FAIRSHINE, FAIRLOOK	M/s. Hindusthan Paints and products, 11-A New Empire industrial Estate, Kondivita road Andheri(E), Mumbai 400059	(022)- 28223341	06.05.2024
96.	Paints	External Paints	--	M/s. Dooall Corpro India Pvt. Ltd. 315, Bhaveshwar Arcade Annexe, LBS Road, Ghatkopar (West)-400086	Mob.:- 98208744 10	22.08.2024
97.	Paints	External and Internal Paints	--	M/s. Excel India Protective Paints Pvt. Ltd. A-33 & 34, MIDC Kulgaon, Badlapur, Thane-421503	Mob.:- 98922270 39 (0251)- 2695520	20.10.2024
98.	Paints	External and Internal Paints	MCON	M/s. MCON RASAYAN PVT. LTD. Gala No. 6, Bardanwala Estate, Bandiwali Hill road, Jogeshwari (W), Mumbai-400102	(022)- 26790031	31.07.2025
99.	Paints	External and Internal Paints	--	M/s. Zydex Industries Private Limited, Zydex House, 61, Gotri-Sevasi Road, Gotri, Vadodara -390021, Gujrat	(0265)- 3312 0000 Mob.:- 98194 12355	25.12.2025
100.	SFRC Cover with Frames	Manhole cover with frames and Grating with Frames	KK	M/s, K. K. Manhole & Grating Co. Plot. No. A-47 & 119/120/129, STICE, Shirdi Road, Sinner, Nashik.	(0253) - 2340556	20.04.2023

				Maharashtra – 422103.		
101.	SFRC Cover with Frames	Manhole cover with frames and Grating with Frames	VIKRANT	M/s. Vikrant Reinforced Products Pipewala Compound, Opp Unionbank, Near Chembur Police station, Chembur, Mumbai- 400074	Mob.:- 9869250844	06.09.2024
102.	SFRC Cover with Frames	Manhole cover with frames and Grating with Frames	MTC	M/s. Majisa Trading Company, 403, Soham May Flower CHS Ltd, Mira-Bhayander Road, Mira Road (East), Mumbai – 401107. M. S.	Mob.:- 9892922258	10.01.2026
103.	Ductile iron Covers with Frames	DI Manhole covers with Frame and Gratings	PLASMA	M/s Plasma Alloys Pvt. Ltd. Survey No.196,N.H.27,Gondal Road Veraval (Shapar) Dist-Rajkot-360 024 Gujrat	(02827)- 253766 Fax- (02827)- 253966	29.11.2024
104.	Ductile iron Covers with Frames	DI Manhole covers with Frame and Gratings	NEXUS	M/s. Nexus Cast S. R. No. 128, Plot 1, Gaurav Industrial area, Opp. 132 KV Substation, Nr. Sardar Chowk, Rajkot - 360024	Mob.:- 7021140973	01.11.2024
105.	Ductile iron & Cast iron Covers with Frames	DI & CI Manhole covers with Frame and Gratings	RPMF	M/s. Raj Pattern Makers & Founders Pvt. Ltd. Nagla Kishan Lal, Hathras Road, Agra, Uttarpradesh - 282006	Mob.:- 9760283296	20.03.2025
106.	Ductile iron & Cast iron Covers with Frames	DI & CI Manhole covers with Frame and Gratings	NFL	M/s. Nagpur Foundries Limited, N-72, MIDC, Hingana Road, Nagpur – 440 016	Mob.:- 9869085007	07.05.2026
107.	Door Shutter & Frame	FRP Door Shutter & Frame	PERMAFIN ISH	M/s. Advance FRP, 4, Avinash Bhuvan, Next to Gujarati School,Kankuwadi Dixit Cross Road no. 1, Vile Parle (E), Mumbai- 400057	(022)- 26175636 / 26122376	07.10.2024
108.	Door Shutter & Frame, Plywood, Block Board,	Flush, Panel, Fire retardant Wooden Doors, Plywood, Block board, Laminates, Veneer	KALPTARU	M/s. V. K. Patel & Co., G 2, 3, & 4, Mahesh Darshan, Near Makhmali Talao, old Agra Road, Thane (West) – 400601	8291973109/ (022) 25431548 / 9619935955	13.05.2024
109.	Door Shutter & Frame, Plywood, Block Board,	Flush wooden Doors, Plywood, Block board,	REGENCY	M/s Regal Plywood Industries (P) Ltd. C/o, M/s. Regency Wood Panel Pvt. Ltd. 106, 1st Floor, Palm Beach Galleria, Plot no. 17, Sec-19D, Vashi, Navi Mumbai-400703.	Mob.:- 9820811175/ 9619361149	27.02.2025
110.	Furniture	Chair, Table & Cupboard	ADARSH	M/s. Adarsh Infrainterio Pvt. Ltd., Unit 104, Tradecorner premises, Sakinaka Junction,	Mob.:- 9702229852	24.08.2025

				Sakivihar Road, Andheri (east), Mumbai-400072		
111.	Fire Door & Non Fire Door	Fire Door & Non Fire Door	HORMANN	M/s. Shakti Hormann Pvt. Ltd. H. No. 2-67/1, (Survey No. 188, 198). Gagillapur, Dundigal Municipality, Mandal, Dist-Medchal (Malkajgiri), Telangana-500043	+(40)-27840394 /5	30.09.2024
112.	Fire Door & Non Fire Door	Wooden Fire Door & Non Fire Door	TUFWUD	M/s. Tufwud Doors and Accessories Private Limited, 111, Diamond Harbour Road, Kolkata – 700063	Mob.:- 83350604 61	24.08.2025
113.	Fire Door & Non Fire Door	Wooden & Metallic Fire Door & Non Fire Door	ROYAL AIRCON	M/s. Royal Aircon Pvt. Ltd., 2/2, Jai Bhavani Marg, Near Ashapura Temple, Mulund Colony, Mulund (W), Mumbai – 400082. Maharashtra	Mob.:- 79773371 15	08.11.2025
114.	Fire Door & Non Fire Door	Wooden & Metallic Fire Door & Non Fire Door	BHAWANI FIRE	M/s. Bhawani Fire Protection Pvt. Ltd., Plot No. 18, 1 <sup>ST</sup> Floor, above Central bank of India, Rajendra Nagar, Sahibabad, Ghaziabad- 201005	Mob.:- 95608187 00	15.02.2026
115.	Acoustic & other	Non woven acoustic & others acoustic product	INDOSONIC	M/s. Indecor Slides (I) Pvt. Ltd., 404, Hill View Industrial Estate, Off L.B.S. Road, Amrut Nagar, Ghatkopar (West)- 400086	Mob.:- 98678629 87	15.09.2025
116.	Acoustic & other	Non woven acoustic, Metals False ceiling & False ceiling grid	TECHNO	M/s. Techno Ceiling Products, 101, Shah Nahar Estate, Dr. E. Moses Road, Worli, Mumbai – 400 018	Mob.:- 98200 81674	07.12.2025
117.	Cladding	Aluminium Composite Cladding (ACP)	ALUDECOR	M/s. Aludecor Lamination Pvt. Ltd., Suit no. 52, 5TH floor, R.N. Mukherjee Road, Kolkata-700001, West Bengal	(022)-26866633 / 98675730 5	16.08.2023
118.	Cladding	Aluminium Composite Cladding (ACP)	EUROBOND	M/s. Euro Panel Products Pvt. Ltd., 702, Aravali Business Centre, Ramdas Sutrale Road, Borivali (West), Mumbai-400092	(022)-29686500	11.11.2023
119.	Cladding	Aluminium Composite Cladding (ACP)	SUPERBOND	M/s. Keybond Industries LLP, 17, Super House, Amar Brass Ind. Estate, CST Road, Santacruz (East), Mumbai-400092	(022)-66758380 /8359	27.07.2024

120.	Cladding	Aluminium Composite Cladding (ACP), High Pressure laminate (HPL) & Laminates	VIRGO	M/s. Virgo Laminates Limited, 406, 4 <sup>TH</sup> Floor, Rectangle No. 1, Behind Select City Mall, District Centre, Saket, New Delhi-110017	(011)-47422222 Mob.:-9854799422	13.11.2025
121.	Precast RCC products	Precast RCC Drain, Box Culverts & Retaining wall	FUJI	M/s Fuji Silvertch Concrete Pvt. Ltd. 4TH Floor, House no. 5, Magnet Corporate Park, Nr. Sola Flyover, SG Road, Thaltej, Ahmedabad- 380054, Gujrat.	(079)-40210000 / 9833711834	01.11.2023
122.	Precast RCC products	Manhole Covers, Precast RCC Drain	SUPER	M/S Super Cement Article Plot. No. B-49, Behind Union Bank, NICE Area, Satpur MIDC, Nashik-422007	Mob.:-9869032374/ 9869085007	27.05.2024
123.	Precast RCC products	Precast RCC Drain, Box Culverts & Retaining wall	SPPPL	M/s. Siddhivinayak Precast Pipes Pvt. Ltd, Arihant heights, Plot 76, Sec-25, Near Gyan Prabhodhini School, Pradhikaran, Nigadi, Pune - 411 044.	(020)-27651888	22.03.2025
124.	Glass	Float, Mirror,	GOLD PLUS	M/s. Gold Plus Glass Industry Limited, 4TH Floo, Kings Mall, Sector-10, Rohoni, New Delhi-110085	Mob.:-9730041833	04.04.2025
125.	Glass	Float, Mirror, Fire rated glass	SCHOTT & FG	M/s. FG Glass Industries Pvt. Ltd., A-1204, Naman Midtown, Senapati Bapat Marg, Prabhadevi (W), Mumbai - 400013	Mob.:-9321813481	19.06.2026
126.	Others	Gypsum plaster/bond/ Wall putty/ False ceiling/Partitio n sections	WIP	M/s. Western Infrabuild Products LLP A-592, TTC Industrial Area, MIDC Mahape, Navi Mumbai-400701	Mob.:-7498196768	23.03.2025

**Note:** This list of approved building materials supersedes the earlier list of approved building materials. All the conditions mentioned in the letter of approval shall be scrupulously adhered to by the site engineering staff. In case of ISI marked brands, the latest valid BIS endorsement shall be insisted from the manufacturer. The valid list of approved Building Materials at the time of execution of works can be obtained from Dy. Ch. Eng. (B.M.) City's office OR MCGM portal under tab- Services --> Citizen Charters --> Chief Eng Building Maintenance OR under tab 'About Us--> Wards/Departments --> Chief Eng Building Maintenance--> Docs.

**SD/-**  
**04.07.2023**  
**Dy. Ch. Eng. (B.M.) City**

## MUNICIPAL CORPORATION OF GREATER MUMBAI

No. : MGC/F/6565 dtd. 25-9-2018

### CIRCULAR

Sub : Setting up the parameters of litigation history of the bidders.

As approved by Hon'ble M.C., the clause of litigation history be included as part of SBD as below :-

- 1) The bidder shall disclose the litigation history in Packet 'B' under the head "Details of Litigation History".

If there is no Litigation History, the bidder shall specifically mention that there is no Litigation History against him as per the clause of Litigation History. In case there is Litigation History -

**Litigation History must cover – Any action of blacklisting, debarring, banning, suspension, deregistration and cheating with MCGM, State Govt., Central Govt. or any authority under State or Central Govt./Govt. organisation initiated against the company, firm, directors, partners or authorized signatory shall be disclosed for last 5 years from the date of submission of bid. Also, bidder must disclose the litigation history for last 5 years from the date of submission of bid about any action like show cause issued, blacklisting, debarring, banning, suspension, deregistration and cheating with MCGM and MCGM is party in the litigation against the company, firm, directors, partners or authorized signatory for carrying out any work for MCGM by any authority of MCGM and the orders passed by the competent authority or by any Court where MCGM is a party. While taking decision on litigation history, the concerned Chief Engineer or D.M.C. or Director, as may be the case, should consider the details submitted by bidder and take decision based on the gravity of the litigation and the adverse effect of the act of company, firm, directors, partners or authorized signatory on the MCGM works which can spoil the quality, output, delivery of any goods or any work execution and within the timeframe.**

- 2) The litigation history shall be treated as curable defect and hence, the portion/clause of SBD, (C) Bid Capacity at Pg. 15 & in the chapter of 'Instructions to Applicants' at Pg. 31 of the SBD will be now corrected by deleting the word litigation history and shall be read as below.

#### **C) Bid Capacity :**

**The bid capacity of the prospective bidders will be calculated as under: Assessed Available Bid Capacity = (A\* N\* 2 - B)**

Where,

A = Maximum value of Civil Engineering works executed in any one year (year means Financial year) during the last five years (updated to the price level of the Financial year in which bids are received at a rate of 10% per year) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the Project/Works, excluding monsoon period, for which these bids are being invited. (E.g. 7 months = 7/12 year). For every intervening monsoon, 0.33 shall be added to N.

B = Value of existing commitments (only allotted works) on the last date of submission of bids as per bidding document and on-going works to be completed during the period of completion of the Project/Works for which these bids are being invited.

Note: The statement showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be attached along with certificates duly signed by the Engineer-in Charge, not below the rank of an Executive Engineer or equivalent.



Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representation in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Recced for poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation-history, or financial failures etc."

All the concerned are directed to implement the above directions with immediate effect.

o/c

*[Handwritten Signature]*  
Director (E. S. & P.)

City Engineer/Ch.Eng.(Roads & Traffic) / Ch.Eng. (Bridges) / H. E. / Ch.Eng. (WSP) / Ch.Eng.(S.P.) / Ch.Eng.(S.O.) / Ch.Eng.(MSDP) / Ch.Eng. (BM) / Ch.Eng.(Vig) / Ch.Eng. (M&E) / Ch.Eng.(D.P.)/Ch.Eng.(SWD) / Ch.Eng. (Coastal Road) / Ch.Eng.(SWM) / Ch.Eng.(CTIRC)/Dy. Ch.Eng.(HIC) / Dy.Ch.Eng.(SIC), Supt. of Gardens/

Asstt. Comm. Ward / Asstt. Comm.(Markets) / Asstt. Comm. (Estate) / Asstt. Comm.(Planning) / Asstt. Comm.(R.E.) City/W.S./E.S.

No. DIR/ES & P/915/MC dtd. 27-9-2018

C.C. to : DMC(MCO)/ DMC (Imp.) / DMC(GA)/ DMC(Vig)/ DMC(SE) / DMC(E)/ DMC(CPD)/ DMC(SWM)/DMC (Education)/DMC (RE)/ DMC(PH)/ DMC(Z-I) / DMC(Z-II) / DMC(Z-III) / DMC(Z-IV) / DMC(Z-V) / DMC(Z-VI) / DMC(Z-VII) / C.A. (F) / C.A. (WSSD) / C.A. (C.P.D.) / Law Officer

Forwarded for information please. o/c

*[Handwritten Signature]*  
Director (E.S.& P.)

No. No. DIR/ES & P/915/MC dtd. 27-9-2018

C.C. to:

Submitted please. o/c

*[Handwritten Signature]*  
Director (E.S.& P.)

A.M.C.(City) / A.M.C.(E.S.) / A.M.C(W.S) / A.M.C(P)

Sir/Madam,

No: MGE/F/1102  
Date: 25/10/2023

**BRIHANMUMBAI MUNICIPAL CORPORATION**

**Subject : Guidelines for Air Pollution Mitigation.**

- (1) All the project proponents to ensure that at least 35 feet high tin / metal sheets shall be erected around the periphery of construction projects having height more than 70 mtr.
- (2) All construction layouts having area more than 1(one) acre shall have tin / metal sheet erected of height 35 feet at least around periphery of the construction project sites and for construction sites, less than 1 (one) acre, the tin / metal sheet height shall be 25 feet at least.
- (3) All the buildings under construction shall be compulsorily enclosed by green cloth / jute sheet / tarpaulin from all sides.
- (4) All the structures under demolition shall be covered with tarpaulin / green cloth / jute sheet from top to bottom. There shall be continuous sprinkling / spraying of water during the process of demolishing of the structure.
- (5) It shall be ensured that water fogging shall be carried out during loading and unloading of materials at the construction sites (use of stationary/ mobile anti-smog guns).
- (6) The water sprinkling shall be done on debris / earth material etc. which are prone to generate air borne particulate matters at all construction sites without fail.
- (7) All vehicles carrying construction materials shall be fully covered (i.e. from top and all sides) so that construction material or debris does not become airborne during transportation and the vehicle shall not be overloaded to avoid any spillage from the vehicle.
- (8) All construction sites shall install CCTV cameras along the periphery of their work sites to ensure that vehicles are plying after cleaning tyres and are not overloaded .

- (9) All construction sites to deploy sensor based air pollution monitors at work sites and act immediately on observing pollution levels exceeding the limit. This monitoring shall be made available for inspection to BMC authorities as and when demanded.
- (10) All the work sites shall ensure that the grinding, cutting, drilling, sawing and trimming work is carried out in enclosed area and water sprinkler / water fogging is continuously done while working to avoid escape of fugitive air.
- (11) All the construction sites shall ensure that C & D (Construction and Demolition) waste generated within the premises / site of work is transported to designated unloading site strictly as per BMC's C & D Waste Management Plan. After unloading the debris, the vehicle shall be washed and cleaned thoroughly.
- (12) All vehicles carrying materials shall have valid PUC certificates and the same shall be produced as and when asked for by competent authorities.
- (13) All the construction personnel / managers shall mandatorily wear personal protective equipment such as masks, goggles, helmets, etc.
- (14) All the BMC worksites like bridges and flyovers shall have barricading of 25 feet.
- (15) All the metro works above ground shall be covered with barricading of 25 feet height. The construction site shall be covered with tarpaulin / green cloth / jute sheet. The smog guns / water sprinklers shall be used during the construction work.
- (16) The mitigation measures suggested as above shall be mandatorily observed by other agencies like SRA, MHADA, MIDC, MSRDC, MMRDA, BPT, Airport Authority of India, Railways, Govt. or Semi Govt. authorities and private construction sites.
- (17) All Asstt. Commissioners in charge of Wards shall arrange to deploy special squads to prevent illegal C & D dumping at late night.

(18) All Asstt. Commissioners in charge of Wards shall deploy squads for air pollution mitigation enforcement comprising of :-

- i) Two (Ward) engineers
- ii) One Policeman
- iii) One marshall
- iv) Vehicle

Each squad shall be headed by one senior officer from the Ward.

The formation and deployment of these squads at Ward level shall be done immediately.

The number of squads Ward-wise shall be as follows :-

- a) Smaller wards – 2 squads each ward
  - b) Middle size wards – 4 squads each ward
  - c) Larger size wards – 6 squads each ward.
- (19) The enforcement squad shall visit the premises and videograph the worksite. If it is observed that the worksite is not adhering to above stated provisions, stringent action such as issue of Stop Work notice and/or sealing of worksite shall be taken immediately.
- (20) The timeline for procurement of sprinklers shall be 15 days and for procurement of smog guns shall be 30 days from issuance of this circular. All the project proponent / contractors shall abide by the above timelines without fail.
- (21) The vehicles carrying construction material or C & D material, if found not adhering to above stated provisions, shall be seized and impounded.
- (22) The Transport Commissioner shall take action against overloading of vehicle, uncovered vehicles, vehicles spilling construction materials on roads and the heavy duty diesel vehicles which are more than 8 years old shall be strictly prohibited in Mumbai jurisdiction.
- (23) MPCB shall monitor the air pollution emitted from the industries such as BPCL, HPCL, RCF, Tata Power, industries in nearby MIDC area etc. daily for next one month and take appropriate action. The daily monitoring data shall be shared with AMC (City) and A.M.C.(W.S.).

- (24) All builders / Developers shall engage only those vehicles which possess vehicles tracking system installed on them.
- (25) The loose soil, sand, construction materials and debris of any kind and quantity shall be stored in demarcated / dedicated area and properly barricaded, fully covered / enclosed / protected with tarpaulins. It shall be ensured that there is no dumping of construction material and debris on public roads, footpaths, pavements and open area.
- (26) Vehicle tyre washing facility shall be provided at all exit points of construction sites. It shall be ensured that daily cleaning is carried out of major roads for removal of dust by using vacuum sweeping or water sprinkling, brushing, brooming and sweeping. This work may be outsourced to ensure wide and fast coverage of all major roads in one month's time.
- (27) There shall be complete ban on open burning anywhere in the geographical area under BMC, especially garbage dumping grounds and possible sites of trash burning.

(Dr. I.S. Chahal) 2016-23.  
Municipal Commissioner

# बृहन्मुंबई महानगरपालिका

## विधी खाते

परिपत्रक क्र. २६२०६ दि. 31.08.2023

- विषय - कंत्राट करार करण्यासाठी वसूल करावयाचे विधी आकार (Legal charges) व लेखनसाहित्य आकार (Stationery charges)
- संदर्भ - 1. परिपत्रक क्र. 10539 दि. 28.03.2023  
2. एमजीसी/एफ/534 दि. 28.08.2023


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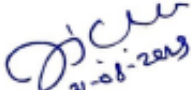
महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणा-या निविदांसंदर्भात लेखी करार करताना पक्षकाराकडून एकत्रितरित्या आकारावयाच्या विधी आकार व लेखनसाहित्य आकाराची उपरोक्त संदर्भित क्र. 1 वरील परिपत्रकानुसार दि. 01.04.2023 पासून आकारणी करण्यात आलेली आहे.


तथापि महानगरपालिका आयुक्त यांच्या संदर्भ क्र. 2 च्या मंजूरीनुसार कंत्राट करार करण्यासाठी वसूल करावयाचे विधी आकार (Legal charges) व लेखनसाहित्य आकार (Stationery charges) यामध्ये सुधारणा करण्यात आली असून खालील तक्त्यामध्ये दर्शवित्याप्रमाणे दि.01.09.2023 पासून सुधारीत विधी व लेखनसाहित्य (एकत्रितरित्या) आकार विहित करण्यात आलेले आहेत.

अनु. क्र	कंत्राट किंमत	एकत्रितरित्या आकारावयाचे सुधारीत विधी व लेखन साहित्य आकार दि. 01.09.2023 पासून दि. 31.03.2024 पर्यंत
1	रु. 50,000/-	निरंक
2	रु. 50,001 ते रु. 1,00,00,000	कंत्राट किंमतीच्या 0.10% दराने (अशी येणारी रक्कम पुढील शंभराच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर ( किमान रु. 1000/- अधिक वस्तू व सेवाकर आणि कमाल रु. 10000/- अधिक वस्तू व सेवाकर )
3	रु. 1,00,00,001 ते रु. 10,00,00,000/-	रु. 1,00,00,000/- पर्यंतच्या कंत्राट किंमतीसाठी रु.10,000/- अधिक रु. 1,00,00,000/- पेक्षा जास्त रक्कमेवर 0.05% दराने (अशी येणारी रक्कम पुढील शंभराच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर

4	रु. 10,00,00,001 ते पुढील कंत्राट किंमतीसाठी	रु. 10,00,00,000/- पर्यंतच्या कंत्राट किंमतीसाठी रु.55,000/- अधिक रु. 10,00,00,000/- पेक्षा जास्त रक्कमेवर 0.01% दराने (अशी येणारी रक्कम पुढील शंभरांच्या पटीत परावर्तित करणे यासापेक्ष) अधिक 18% दराने वस्तू व सेवाकर
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31/8/23  
( शोभा अजितकुमार )  
उप कायदा अधिकारी  
(हस्तांतरण -2)  
विधि खाते

  
31-08-2023  
( संदिप मो. पाटील )  
संयुक्त कायदा अधिकारी (प्र.)  
(शहर दिवाणी न्यायालय)  
विधि खाते

  
31/8/2023  
( सुनिल सोनवणे )  
कायदा अधिकारी  
विधि खाते

परिपत्रक क्र. दि. 31.08.2023

प्रत ..... यांना माहितीकरीता व पुढील आवश्यक त्या कार्यवाहीकरीता अग्रेषित.

  
31-08-2023  
( संदिप मो. पाटील )  
उप कायदा अधिकारी (आस्थापना )  
विधि खाते

## बृहन्मुंबई महानगरपालिका

परिपत्रक

२०२२-२३

क्र. सीए/एफआरटी/ १७ दि. ०७.१२.२०२२

विषय : "Legal & Stationery Charges" व "Sale of Publication" महसुलावर वस्तू व सेवाकर वसूल करण्याबाबत आणि चलनाच्या प्रतीबाबत.

- संदर्भ: १) परिपत्रक क्र. सीए/एफआरटी/०६ दि. ११.०७.२०१७ .  
२) वस्तू व कर सल्लागार यांचा दि. ०१.०४.२०२२ रोजीचा ई-मेल.  
३) वस्तू व कर सल्लागार यांचा दि. १३.०५.२०२२ रोजीचा ई-मेल.  
४) वस्तू व सेवाकर सल्लागार यांचा दि. २९.०६.२०२२ रोजीचा ई-मेल .

महानगरपालिकेस प्राप्त होणाऱ्या विधी व लेखनसाहित्य आकार या महसुलावरील वस्तू व सेवाकराच्या अनुज्ञेयतेबाबत बृहन्मुंबई महानगरपालिकेचे वस्तू व सेवाकर सल्लागार मे. बाटलीबॉय अंड पुरोहित यांच्याकडून दि. १३.०५.२०२२ रोजी ई-मेल द्वारे प्राप्त सल्ल्यानुसार "विधी व लेखन साहित्य आकार" (Legal & Stationery Charges) करपात्र आहे. त्याअनुषंगाने, लेखाधिकारी (एफआरटी) उपविभागाने सर्व विभाग/ खाते यांना दि. १९.०५.२०२२ रोजी ई-मेलद्वारे दि. ०१.०४.२०२२ पासून Legal & Stationery महसुलावर वस्तू व सेवाकर आकारण्याबाबत कळविले आहे. सर्व विभाग/ खाते यांनी दि. ०१.०४.२०२२ पासून Legal & Stationery Charges च्या महसुलावर वस्तू व सेवाकर वसूल केला असून, लेखा अधिकारी (एफआरटी) उपविभागाने सदर वस्तू व सेवाकराची वसुली GSTR-1 व GSTR-3B मध्ये दर्शविली आहे. विधी व लेखनसाहित्य आकारावरील वस्तू व सेवाकराच्या वसुलीकरिता दोन नवीन लेखासंकेतांक तयार करण्यात आले असून ते पुढील तक्त्यात नमूद केले आहेत.

Description of Revenue	From 01.04.2022	GL Code	Description	HSN/SAC Code
LEGAL & STATIONERY CHARGES	18%	140805301	Legal and Stationery Charges-Taxable	9997
		140805302	Legal and Stationery Charges-Reg Person	9997

तसेच परिपत्रक क्र. सीए/एफआरटी/०६ दि. ११.०७.२०१७ मधील निदेशानुसार "Sale Of Publication" (GL Code 150110500) या लेखासंकेतांकातर्गत जमा होणा-या महसुलावर ०५% वस्तू व सेवाकर लागू होता, वस्तू व सेवाकर सल्लागार मे. बाटलीबॉय अंड पुरोहित यांच्या दि. ०१.०४.२०२२ रोजीच्या ई-मेलच्याअनुषंगाने दि. ०१.०४.२०२२ पासून "Sale Of Publication" वर १२% दराने वस्तू व सेवाकर आकारणे आवश्यक आहे. लेखाधिकारी (एफआरटी) उपविभागाने दि. ०१.०४.२०२२ रोजी संबंधित विभाग / खाते यांना "Sale Of Publication"



या महसुलावरील, वाढीव वस्तू व सेवाकराची वसुली करण्याबाबत ई-मेलद्वारे कळविले आहे. त्यानुसार संबंधित विभाग / खाते यांनी १२% दराने दि. ०१.०४.२०२२ पासून वस्तू व सेवाकर वसूल केला आहे व त्याचा भरणा लेखा अधिकारी (एफआरटी) उपविभागाद्वारे शासनास विहित वेळेत करण्यात आला आहे. तरी यापुढेही "Legal & Stationery Charges" व "Sale Of Publication" वर अनुक्रमे १८% व १२% दराने वस्तू व सेवाकर आकारण्यात यावा.

तसेच वस्तू व सेवाकर सल्लागार मे. बाटलीबॉय अंड पुरोहित यांच्या दि.२९.०६.२०२२ रोजीच्या ई-मेलनुसार, वस्तू व सेवाकर कायद्यातील तरतुदीनुसार, यापुढे वस्तू व सेवाकराची रक्कम नमूद असलेल्या चलनाची एक प्रत पक्षकारास देणे अनिवार्य आहे. सद्यस्थितीत खात्याकडून दिल्या जाणाऱ्या चलनाच्या २ प्रतीपैकी १ प्रत संबंधित विभागात व दुसरी प्रत नागरी सुविधा केंद्रामध्ये (CFC) जतन केली जाते. सदर चलनावर "Amount of Tax Subject to Reverse Charge" असे नमूद असते. पक्षकार नोंदणीकृत असल्यास RCM (Reverse Charge Mechanism) अंतर्गत, वस्तू व सेवाकर शासनास भरावयाची जबाबदारी पक्षकाराची आहे हि बाब पक्षकारास अवगत होण्याकरिता, त्याला चलनाची एक प्रत मिळणे आवश्यक आहे. यास्तव यापुढे चलनाच्या २ प्रती ऐवजी ३ प्रती तयार करण्यात याव्यात. ३ पैकी १ प्रत संबंधित विभागामार्फत पक्षकारास देण्यात यावी, १ प्रत संबंधित विभागात व १ प्रत नागरी सुविधा केंद्रामध्ये (CFC) जतन करण्यात यावी.

संचालक(वै. शि. व प्र. रुग्णालये)/ सर्व खातेप्रमुख/ सहाय्यक आयुक्त/ अधिष्ठाता/ प्रमुख वैद्यकीय अधिक्षक/ वैद्यकीय अधिक्षक यांनी त्यांच्या अखत्यारितील सर्व संबंधित कर्मचाऱ्यांना उपरोक्त सूचनांची अंमलबजावणी करण्यासंबंधीचे कृपया निर्देश द्यावेत.

सही/-२९.११.२०२२  
(श्री.पांडुरंग गोसावी)  
प्रमुख लेखापाल (पा.पु.म.नि)

सही/- २९.११.२०२२  
(श्री. प्रदिप पडवळ)  
प्रमुख लेखापाल (वित्त)प्र

सही/-३०.११.२०२२  
(श्री. रामदास आक्हाड)  
उप आयुक्त (वित्त)

सही/- ०५.१२.२०२२  
(श्री.पी.वेलरासू)  
अति. आयुक्त (प्रकल्प)

परिपत्रक  
२०२२-२३

क्र. सीए/एफआरटी/ ०५ दि. ०३.०८.२०२२

प्रत..... (जादा..... प्रतीसह) यांना माहिती करिता व पुढीलआवश्यक त्या कार्यवाहीकरिता अग्रेषित.

प्रमुख लेखापाल (वित्त) यांजकरिता

**MUNICIPAL CORPORATION OF GREATER MUMBAI** c/13

**Circular** No. D.M.C/S.W.M./67, D+1 E6 APR 2018

Hon. Supreme Court of India has passed orders in the Special Leave Petition (Civil) No. D 23708 / 2017 dated 15/03/2018. Accordingly MCGM shall permit a builder or developer to carry on Construction at their sites for deposition of C & D waste subject to following procedure. The approval to the C & D "Waste Management Plan" (WMP) for transportation of C & D waste to designated unloading sites shall be provided by applicant on line.

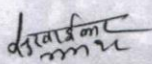
**A) For Existing designated unloading sites -**


1. Consent Letter along with notarized documents from the land owner of the designated unloading site and mentioning Quantity of C & D Waste that can be accommodated along with time period.
2. Name, address, contact person of the transporting agency.

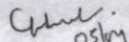
**B) For Approval of New C & D waste unloading sites -**

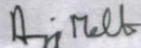
The builder/developer shall apply to Solid Waste Management Department with following details :-

1. The Owner/ POA shall submit an Application for the purpose of declaring the Site/Land as "Approved designated Unloading site" for unloading of C & D waste as per C & D Waste Management Rules, 2016.
2. The Application shall accompany with
  - (i) Property card and/ or 7/12 extract, Location Plan, Plot Boundary with Contour Map, Quantity of C & D waste which can be unloaded and Period.
  - (ii) Title Report from Advocate in practice having 5 years of experience, indicating the title of applicant.
3. The site will be inspected by Zonal E.E. (SWM) for its suitability for unloading of C & D waste within 15 days of application. If site is found to be acceptable, the Approval shall be granted to the new site as "designated unloading site" to receive C & D Waste. This site shall be made available for on line approval of C & D "Waste Management Plan".
4. The builder / developer shall pay Bank Guarantee online as per annexure-A based on the plot area of construction site.

  
Ch.E. (S.W.M.)

  
D.M.C. (S.W.M.)

  
A.M.C. (E.S.)

  
M.C. (S.W.M.) 5/4/17

# Municipal Corporation of Greater Mumbai

No. Dy.Ch.Eng./SWMB957/Op. dt. 10/9/2018

## CIRCULAR

28-9-2018

Subject: Implementation of the Construction and Demolition Waste Management Rules, 2016

Reference: i) Hon'ble Supreme Court's order in the Special Leave Petition (civil) No. D 23708/2017, dated 15/03/2018  
ii) Hon'ble M.C. Sir's Approval w/no. MGC/F/7076 dtd. 30.08.2018

The Construction and Demolition Waste Management Rules, 2016 is applicable to 'every waste resulting from construction, re-modeling, repair and demolition of any civil structure of individual or organisation or authority who generates construction and demolition waste such as building materials, debris, rubble'.

Hon'ble Supreme Court vide order dated 15/03/2018, has directed to dispose of construction and demolition waste material by following due procedure in accordance with the provisions of the Construction and Demolition Waste Management Rules, 2016.

In order to put curb on the un-authorisedly dumped waste, it is essential to control it by asking ward Maintenance department or any MCGM department to issue work-permission only after assessing the total estimated quantity of C&D waste likely to be generated out of the repairs / construction / trenching work or any such civil works, and asking them to make payment in advance or in stages of waste generation for the 'Debris on Call' system or transport C&D waste to designated unloading site.

Following standard operating procedure is proposed to be adopted:

- 1) MCGM department like A. E. (Maintenance), A. E. (B&F), H.E., S.O., S.P., M.S.D.P., W.S.P., S.W.D., S.W.M., C.E., B.C., B.M., Roads, Bridges, etc. carrying out civil work / repairs works etc. shall put condition in the tender / quotation / work order to dispose of C&D waste generated either by (i) 'Debris on Call' scheme if generation of C&D waste is less than 300MT for entire project or (ii) contractor shall transport to designated unloading site approved by MCGM S.W.M. department by following due procedure if C&D waste is more than 300MT for entire project.
- 2) The estimated quantity of the C&D waste generated shall be certified by A.E. (Maintenance) Ward or the concerned department.
- 3) If quantity of C&D waste is less than 300MT, A. E. (S.W.M.) Ward will issue Challan for making payment as per 'Debris on call' scheme on approval from Zonal Ex. Eng. (S.W.M.).
- 4) If quantity of C&D waste is more than 300MT, the contractor / agency will submit C&D waste management plan complete with requisite documents to Zonal Ex. Eng. (S.W.M.). On approval, the contractor / citizen / agency carrying out the civil works will be allowed to transport the C&D waste material to the designated unloading site.
- 5) The contractor / citizen / agency carrying out the civil works shall maintain & submit the appropriate record like date, quantity of C&D waste transported, vehicle No., Challan of Receipt of C&D waste from unloading site etc.
- 6) The whole system of issuing NOC for C&D waste transportation and payment will be made ONLINE and for this M/S. Softtech will be asked to develop appropriate software on the basis of existing norms being done for auto-DCR portal.
- 7) The proposals will be processed manually till the complete system fully operational online.
- 8) All the contractors / agencies using designated unloading site must maintain proper record of the C&D waste generated and transported along with date and vehicles through which C&D is transported & the copies of Challans from unloading site for having unloaded the C&D waste and submit the same to A.E. (S.W.M.) ward through concerned department.

Sd/-07/08/2018  
Ch. Eng. (S.W.M.)

Sd/-07/08/2018  
D.M.C. (S.W.M.)

Sd/-10/08/2018  
A.M.C.(E.S.)

Sd/-29/08/2018  
Municipal Commissioner

Ch Eng (SP) Submitted, please.

  
Dy. Ch. Eng. (S.W.M.)

**BRIHANMUMBAI MAHANAGARPALIKA**

**CIRCULAR**

**2020-21**

**No.CA(F)/Project/ 32 of 26.10.2020**

**Sub : Bid Security or EMD**

**Ref : No.MDD/7878 of 27.09.2016**

The MCGM's tender conditions have been amended and Standard Bid Document has been circulated vide No.MDD/7878 of 27.09.2016.

The condition of refund of Bid Security or EMD incorporated in SBD, is as follows :-

- (i) The Bid Security of the successful bidder will be discharged when the bidder has signed the agreement and furnished the required Security Deposits.
- (ii) The Bid Security/EMD of L-3 and bidders shall be refunded immediately after opening of financial bid but the EMD/ASD submitted by the L-2 bidder will be returned after obtaining Standing Committee Resolution.

In recent past, due to COVID-19 pandemic, various benefits and relief are given to contractor for ease of doing business and to maintain their cash flow. Further, the Statutory Committee meetings are not held in this pandemic situation. Hence, the condition of refund of Bid Security/EMD and ASD is reviewed and revised condition for all invited tenders wherein Statutory Committee's sanction has not been accorded and forthcoming e-tenders –

- (a) The Bid Security/EMD of the successful bidder will be discharged when the bidder has signed the agreement and furnished the required Security Deposits.
- (b) The Bid Security/EMD and ASD of L-2 and other higher bidders (L-3, L-4, etc.) shall be refunded immediately after opening of financial bid.

(c) In case, the successful bidder becomes non-responsive or successful bidder withdraws the bid or is unwilling to extend the bid validity period, in such circumstances, if L-2 bidder is agreeable to extend the bid validity period and ready to deposit the requisite amount of bid security/EMD and ASD to the department within the stipulated time period i.e. 15 days, the department will process further as per normal procedure.

The above revised directives shall come into effect immediately on issuance of this circular.

All Chief Engineers/Head of Departments/Deans shall note the above directives and follow them scrupulously.

Sd/-13.10.2020  
C.A.(W.S.S.D.)

Sd/-13.10.2020  
D.M.C.(Infra)

Sd/-16.10.2020  
A.M.C.(P)

Sd/-13.10.2020  
D.M.C.(E)

Sd/-13.10.2020  
C.A.(Finance)i.c

Sd/-13.10.2020  
Dir.(ES&P)

Sd/-23.10.2020  
Municipal Commissioner

(ii) **Fair Item**

Nature of work	Permissible limit of Fair Item and Approving authority		
	DMC(Infra)/ DMC(E)/ DMC(SE)/ Dir(ES&P)/ Jt.M.C.	Concerned A.M.C.	Municipal Commissioner
For all nature of work	Total <u>Cumulative</u> amount of Fair <u>on all items</u> upto 2% of the total contract cost, but not exceeds Rs.20 Lakh	Total <u>Cumulative</u> amount of Fair <u>on all items</u> upto 5% of the total contract cost, but not exceeds Rs.1 crore  (Other than the proposals in the purview of DMC/Jt.MC)	Total <u>Cumulative</u> amount of Fair <u>on all items</u> above 5% of the total contract cost. And / OR <u>Cumulative</u> amount of Fair <u>on all items</u> exceeding Rs.1 Crore.

**Payment Terms:**

**Fair Items** shall be got approved by the concerned DMC/Dir(ES&P)/Jt.M.C. The engineer in-charge shall work out these fair items at fair and reasonable market rates on the basis of material, labour and operation of construction equipment required to execute the item and allowing 15% to cover profits and overhead charges(i.e. including taxes, duties, etc.) On the same lines of rate analysis prepared for the items that are in "Unified Schedule of Rate" of MCGM.

**The rates of Fair Items** shall be valid for one year only. Moreover, no escalation will be admissible on the fair items till the completion of such works, in which the fair items are executed.

**Fair Items** shall be paid **at PAR** in case of premium quoted by the contractor, in newly created FAIR ITEM or item not included in prevailing "Unified Schedule of Rate" of MCGM at the time of tender. OR at rebate quoted by the contractor if it is already added in prevailing "Unified Schedule of Rate" of MCGM at the time of tender.

Sd/- 13.10.2020      Sd/- 13.10.2020      Sd/- 13.10.2020      Sd/- 13.10.2020      Sd/-14.10.2020      Sd/-13.10.2020  
C. A. (WSSD)      C. A. (Finance).l.c.      D.M.C.(Infra)      D.M.C.(E.)      D.M.C.(S.E.)      Dir.(E.S.&P.)

# बृहन्मुंबई महानगरपालिका

परिपत्रक

२०१९-२०

क्रमांक : सीए/एफबीके/२४१, दिनांक २७.११.२०१९

विषय : बँकेने दिलेले हमीपत्र (बँकर्स गॅरंटी) स्विकारण्याबाबत.

संदर्भ : सीए/एफबीके/३९, दिनांक - ०७/१२/२०१२  
सीए/एफबीके/२५, दिनांक - १०/१०/२०१२

कंत्राटदार / पुरवठादार यांच्याकडून सादर करण्यात येणारी बँक हमीपत्रे (बँकर्स गॅरंटी) स्विकारण्यासंदर्भात उपरोक्त संदर्भाधीन परिपत्रकान्वये मार्गदर्शनपर सूचना परिक्रमित करण्यात आल्या आहेत. सदर परिपत्रकातील परिच्छेद क्रमांक २ मध्ये पुढील प्रमाणे सुधारणा करण्यात येत आहेत.

सदर परिपत्रकात नमूद केलेली भारतीय रिझर्व बँकेची "rbidocs.rbi.org.in/rdocs/publications/pdfs/84656.pdf" ही लिंक "www.rbi.org.in" अशी वाचण्यात यावी.

तरी, सर्व खातेप्रमुख, सहाय्यक महापालिका आयुक्त आणि संबंधित यांनी वरील सुधारणेची नोंद घेऊन संबंधित कंत्राटदार/पुरवठादार यांना अवगत करावे.

सही/- १४.११.२०१९  
प्रमुख लेखापाल (पा.पु.म.नि.)

सही/- १४.११.२०१९  
प्रमुख लेखापाल (वित्त) प्र.

## परिपत्रक

२०१९-२०

क्रमांक : सीए/एफबीके/२४१, दिनांक २७.११.२०१९

----- यांना प्रत (-----) अधिक प्रतीसह  
माहितीकरिता व योग्य त्या कार्यवाहीसाठी पाठवित आहे.

सदर परिपत्रक महानगरपालिकेच्या <ftp://hr.mcgm.gov.in/Circular/CA/Finance/2019/> या संकेतस्थळावर प्रसिद्ध करण्यात आलेले आहे.

वि.प्र. कथरे. २७/११/१९  
एमएच लेखापाल (वित्त) मांजकगिना

बृहन्मुंबई महानगरपालिका

परिपत्रक  
२०२३-२०२४

क्र. सीए/एफआरजी/१८ दिनांक २७.०२.२०२४

विषय:- महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणा-या अनस्टार दरपत्रिका / निविदा / दरपत्रिका / ई-दरपत्रिका / ई-निविदा दस्तऐवजांच्या किमतीच्या दरात वाढ करण्याबाबत

- संदर्भ :- १) परिपत्रक क्र.सीए/एफआरजी/०३ दि. ११.०५.२०२३  
२) परिपत्रक क्र.सीए/एफआरजी/०४ दि.२४.०५.२०२३  
३) परिपत्रक क्र.सीए/एफआरजी/१० दि. १९.१०.२०२३

बृहन्मुंबई महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणाऱ्या अनस्टार दरपत्रिका / निविदा / दरपत्रिका / ई-दरपत्रिका / ई-निविदा दस्तऐवज याबाबत आकारावयाचे छाननी शुल्क उपरोक्त संदर्भ क्र. ०१ वरील परिपत्रकानुसार दिनांक ११.०५.२०२३ पासून दिनांक ३१.०३.२०२४ पर्यंत आकारण्याबाबत निर्देश देण्यात आले होते. तसेच उपरोक्त संदर्भ क्र. १ च्या परिपत्रकात मा. अतिरिक्त आयुक्त (प्रकल्प) यांच्या मंजूरी अन्वये वेळेवेळी सुधारणा करून उपरोक्त संदर्भ क्र. २ व ३ ची परिपत्रके निर्गमित करण्यात आली आहेत.

दिनांक ११.०५.२०२३ पासून लागू करण्यात आलेल्या अनस्टार दरपत्रिका / निविदा / दरपत्रिका / ई-दरपत्रिका / ई-निविदा दस्तऐवजांकरिता आकारावयाच्या छाननी शुल्क दरांमध्ये परिपत्रक क्र. सीए/एफआरएम/७ दि. ०३.०५.२०२१ व परिपत्रक क्र. सीए/एफआरएम/४९ दि. ०७.०२.२०१३ अन्वये सन २०२४-२५ या वर्षामध्ये १०% वाढ करण्यात येत आहे. तसेच महानगरपालिकेचे वस्तू व सेवाकर सल्लागार एकबोटे देशमुख अँड कंपनी यांच्या दि. १८.०४.२०२३ रोजी प्राप्त झालेल्या अभिप्रायानुसार सदर छाननी शुल्कावर (Scrutiny Fee) १८% दराने वस्तू व सेवाकर लागू आहे. त्यानुसार आकारावयाच्या छाननी शुल्काचे सुधारित दर खालीलप्रमाणे आहेत :-

DMC (ESD)

J-67683  
(1-3)



अनु क्र.	स्वारस्याची अभिव्यक्ती प्रस्ताव/ मालाचा पुरवठा/ सल्लागार सेवासह स्थापत्य कामे आणि सेवा इत्यादी विषयक कार्यालयीन अंदाजे रक्कम	अनस्टार दरपत्रिका/निविदा/दरपत्रिका/ ई- दरपत्रिका/ ई-निविदा दस्तऐवजांचे विद्यमान छाननी शुल्क (दि. ११.०५.२०२३ पासून दि. ३१.०३.२०२४ पर्यंत)	दि. ०१.०४.२०२४ पासून दि. ३१.०३.२०२५ पर्यंत मागविण्यात येणाऱ्या अनस्टार दरपत्रिका/निविदा/दरपत्रिका/ ई- दरपत्रिका/ ई-निविदा दस्तऐवजांचे सर्व देकारदारांकडून वसूल करावयाचे छाननी शुल्क
०१	रु. ०३ लाखापर्यंत	रु. ३००/- + १८% वस्तु व सेवाकर	रु. ३३०/- + १८% वस्तु व सेवाकर
०२	रु. ३,००,००१/- ते रु. ५,००,०००/-	रु. ६००/- + १८% वस्तु व सेवाकर	रु. ६६०/- + १८% वस्तु व सेवाकर
०३	रु. ५,००,००१/- ते रु. १०,००,०००/-	रु. १,२००/- + १८% वस्तु व सेवाकर	रु. १,३२०/- + १८% वस्तु व सेवाकर
०४	रु. १०,००,००१/- ते रु. २०,००,०००/-	रु. ३,०००/- + १८% वस्तु व सेवाकर	रु. ३,३६०/- + १८% वस्तु व सेवाकर
०५	रु. २५,००,००१/- ते रु. ५०,००,०००/-	रु. ६,०००/- + १८% वस्तु व सेवाकर	रु. ६,६६०/- + १८% वस्तु व सेवाकर
०६	रु. ५०,००,००१/- ते रु. १,००,००,०००/-	रु. १२,०००/- + १८% वस्तु व सेवाकर	रु. १३,२००/- + १८% वस्तु व सेवाकर
०७	रु. १,००,००,००१/- ते रु. २५,००,००,०००/-	रु. १५,०००/- + १८% वस्तु व सेवाकर	रु. १६,५००/- + १८% वस्तु व सेवाकर

3-67683

०८	रु. २५,००,००,००१/- पेक्षा जास्त	रु. २५,०००/- + १८% वस्तू व सेवाकर	रु. २७,५००/- + १८% वस्तू व सेवाकर

अनस्तर दरपत्रिका/ निविदा/ दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता छाननी शुल्काचे सुधारीत दर दि. ०१.०४.२०२४ ते दि. ३१.०३.२०२५ पर्यंत लागू राहतील.

तरी सर्व खाते प्रमुख/सहाय्यक आयुक्त/ रुग्णालय प्रमुख / अधिष्ठाता यांनी त्यांच्या अखत्यारीतील संबंधित कार्यकारी वृंदाना उपरोक्त सूचनेची काटेकोरपणे अंमलबजावणी करण्याचे तसेच दिनांक ०१.०४.२०२४ पासून मागविण्यात येणाऱ्या अनस्तर दरपत्रिका / निविदा / दरपत्रिका / ई-दरपत्रिका / ई-निविदा दस्तऐवजांकरिता या परिपत्रकातील सुधारीत किमतीनुसार दर आकारण्याचे निदेश द्यावेत.

सही/- २१.०२.२०२४  
श्री. प्रदीप भा. पडवळ  
प्रमुख लेखापाल (वित्त) प्र.

परिपत्रक

२०२३-२४

क्र.सीए/एफआरजी/१८ दिनांक २७.०२.२०२४

यात ..... (जादा ..... प्रतीसह ) यांना माहितीकरिता व पुढील

आवश्यक त्या कार्यवाहीकरिता अग्रेषित.

Office of the D.M.C.  
(Education)  
No. P. M.C (Edu). 140  
Date: 26/04/2024

A.O. E.O. / Dy. C.E. CSIC)

सर्व संबंधितांनी नोंद घ्यावी.

D.M.C. (Education)

N.S. 5555 CA - BMPP - 67683 - 2023 - 24 - 22 00 00 00 00

Pradipta Bagwe  
09/03/2024  
प्रमुख लेखापाल (वित्त) यांजकरिता

# **BRIHANMUMBAI MAHANAGARPALIKA**

No.Dir/ES&P/291/MC dt.31.01.2023.

## **C I R C U L A R**

Sub:- Revision of Unified Schedule of Rates without GST –  
USOR 2023.

Ref:- Hon.M.C.'s sanction under No.MGC/F/8771 dated  
30.01.2023.

With reference to the above mentioned subject, Hon.M.C.'s following orders regarding Unified Schedule of Rates vide above reference shall be scrupulously followed by all the departments of MCGM.

- 1) To start the work of estimation of new projects based on common schedule of rates 2023 and specifications.
- 2) To upload all the new tenders with effect from 1<sup>st</sup> February 2023 based on common schedule of rates 2023 and specifications.
- 3) To take schedule rates from SAP system only while making estimates for their projects.
- 4) To stop using USOR 2018 and fair items prior to January 2023 for new estimates, as these items are inclusive of GST Taxation. Further, if the department feels to use these fair items with same descriptions for new tenders prepared with USOR 2023, then the department should take approval from the competent authority and taking cognizance of GST i.e. without GST.
- 5) All the HODs to upload their respective schedules in SAP through their own E.E.(P) independently.
- 6) All the departments and staff are instructed to take the Activity No., Item Description, Unit and Rate of the item from SAP system only.
- 7) The soft copy in the PDF format should be uploaded by all concerned departments on the portal - mcgm.gov.in under the Unified Schedule of Rates head.

*Hell*  
31.1.23  
Director (E.S. & P.)

H.E. / C.E. / Ch.Eng.(Viq.) / Ch.Eng. (B.M.) / Ch.Eng.(Bridges) / Ch.Eng. (S.W.D.) /  
Ch.Eng. (Rds. & Traffic) / Ch.Eng.(S.W.M.) / Ch.Eng. (S.P.) / Ch.Eng. (S.O.) /  
Ch.Eng.(MSDP) / Ch.Eng.(W.S.P.) / Ch.Eng.(M&E) / Ch.Eng.(DP) / Ch.Eng. (CTIRC) /  
Dy.Ch.Eng.(HIC) / Dy.Ch.Eng.(SIC) / M.A. / S.G. / C.A.(Finance) / C.A.(WSSD)

D:\PA2023\Dir Minutes\ USOR 2018\ Circular \USOR 2023\1

c.c.:- A.C.(Planning) / A.C.(Estates) / A.C.(Market) / Asstt. Commissioners of A, B, C, D, E, F/South, F/North, G/South, G/North, H/East, H/West, K/East, K/West, L, M/East, M/West, N, S, T, P/South, P/North, R/Central, R/South, R/North

Ward Ex.Engineers of A, B, C, D, E, F/South, F/North, G/South, G/North, H/East, H/West, K/East, K/West, L, M/East, M/West, N, S, T, P/South, P/North, R/Central, R/South, R/North

For information and doing needful please.

*Handwritten signature*  
31-01-23  
Director (E.S. & P.)  
of

c.c.:- Jt.MC(Vig) / Jt.MC(MCO) / Jt.MC(GA) / Jt.MC(CPD) / Jt.MC (Z-III) / DMC(Infra) / DMC(Engg.) / DMC(SE) / DMC(Env.) / DMC(SWM) / DMC(Finance) / DMC (Garden) / DMC(Z-I) / DMC(Z-II) / DMC(Z-IV) / DMC(Z-V) / DMC(Z-VI) / DMC(Z-VII) / Director (ME & MH) / Dean (KEM) / Dean (Sion) / Dean (Nair)

For information please.

*Handwritten signature*  
31-01-23  
Director (E.S. & P.)

c.c.:- A.M.C.(P) / A.M.C.(City) / A.M.C.(E.S.) / A.M.C.(W.S.)  
Sir/Madam,

Submitted for information, please.

*Handwritten signature*  
31-01-23  
Director (E.S. & P.)

c.c.:- Hon.M.C.  
Sir,

Submitted please.

*Handwritten signature*  
31-01-23  
Director (E.S. & P.)  
of

## बृहन्मुंबई महानगरपालिका परिपत्रक

प्र.ले./वित्त/प्रकल्प/२८ दि. २८/०३/२०२३

विषय: एकसामायिक दरसूची २०२३ अंतर्भूत करून महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु व सेवा हत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवा कराच्या अनुषंगाने अंतर्भूत करावयाच्या अटीबाबत.

संदर्भ: १) प्र.ले./वित्त/प्रकल्प/२५ दि.१२.०७.२०२२

२) संचालक/अ.से.व प्र./२९१/एमसी दि.३१.०१.२०२३

बृहन्मुंबई महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु व सेवा हत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवा कराच्या अनुषंगाने अंतर्भूत करावयाच्या अटीबाबत संदर्भित क्र. १ वरील परिपत्रकान्वये सूचना प्रसूत केल्या आहेत.

महानगरपालिका आयुक्त यांच्या क्र. एमजीसी/एफ/८७७१ दि. ३०.०१.२०२३ अन्वये एकसमान दरसूची २०२३ प्रसारीत करण्यात आली आहे. सदर एकसामायिक दरसूची २०२३ हि वस्तु व सेवाकर वगळून तयार करण्यात आली आहे. सदर अद्ययावत एकसामायिक दरसूची २०२३ नुसार अंदाजपत्रक तयार करून मागविण्यात आलेल्या/येणा-या ई-निविदा/निविदा/दरपत्रक यामध्ये वस्तु व सेवाकराच्या अनुषंगाने महानगरपालिकेद्वारे हाती घेण्यात येणारी विविध कामे तसेच प्राप्त करण्यात येणा-या वस्तु

व सेवा हत्यादीबाबतच्या ई-निविदा/निविदा/दरपत्रक यामध्ये संदर्भित क्र.१ अन्वये दिलेल्या अटीमध्ये पुढीलप्रमाणे बदल करण्यात येत आहे.

विद्यमान अट	सुधारित अट
<p>“GST and other state levies/cess which are not subsumed under GST will be applicable. The tenderer shall quote inclusive of all taxes <u>applicable at the time of bid submission</u>. It is clearly understood that BMC will not bear any additional liability towards payment of any Taxes &amp; Duties.</p> <p>Wherever the services to be provided by the Tenderers, falls under Reverse Charge Mechanism, the Price quoted shall be exclusive of GST, but inclusive of Taxes/Duties/Cess other than GST, if any.</p> <p>Rates accepted by BMC shall hold good till completion of work and no additional individual claim shall be admissible on account of fluctuations in market rates; increase in taxes/any other levies / tolls etc. except that payment/recovery for overall market situation shall be made as per Price variation and if there is any subsequent change (after submission of bid) in rate of GST applicable on the work/services to be executed as per tender, i.e. any increase will be reimbursed by BMC whereas any reduction in the rate of GST shall be passed on to BMC as per the provisions of the GST Act.</p>	<p>The tenderer shall quote inclusive of all taxes other than GST (<b>Excluding GST</b>), <u>Levies, Duties, Cess etc as applicable at the time of bid submission</u>. GST as applicable shall be paid separately on submission of bills/invoice.</p> <p>Input Tax Credit of GST as available with the bidder will not be claim separately by BMC. However, while quoting the rates benefit of Input Tax Credit or Exemptions shall be passed on to the BMC by way of equivalent reduction in quoted price.</p>

उपरोक्त सुधारीत अट अद्ययावत एकसामायिक दरसूची २०२३ नुसार अंदाजपत्रक तयार करुन मागविण्यात आलेल्या/ येणा-या ई-निविदा/निविदा/दरपत्रक या कामांकरिता लागू असेल.

अतएव, सध्या ज्या ई-निविदा/निविदा/दरपत्रक एकसामायिक दरसूची २०२३ अंतर्भूत करुन मागविलेल्या आहेत अशा निविदांमध्ये नियत दिनांकापूर्वी शुद्धीपत्रकाद्वारे उपरोक्त सुधारीत अट समाविष्ट करण्याबाबत तसेच यापुढे एकसामायिक दरसूची २०२३ अंतर्भूत करुन मागविण्यात येणा-या ई-निविदा/निविदा/दरपत्रक यांमध्ये उपरोक्त सुधारीत अट समाविष्ट करण्याबाबत संबंधित खातेप्रमुख यांनी दक्षता घ्यावी.

सर्व खातेप्रमुख, रूग्णालयांचे अधिष्ठाता, सहायक आयुक्त, यांनी उपरोक्त सुचनांचे काटेकोरपणे अनुपालन करावे.

सही/- २८/०३/२०२३

(पांडुरंग गोसावी)

प्रमुख लेखापाल (पा.पु.म.नि.)

सही/- २८/०३/२०२३

(प्रदिप पडवळ)

प्रमुख लेखापाल (वित्त) प्र.

सही/- २८/०३/२०२३

(रामदास आन्हाड)

उप आयुक्त (वित्त)

सही/- २८/०३/२०२३

(पी. वेलरासू)

अतिरिक्त आयुक्त (प्रकल्प)

बृहन्मुंबई महानगरपालिका

परिपत्रक  
२०२३-२०२४

क्र. सीए/एफआरजी/ १० दिनांक १९.१०.२०२३

विषय :- महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणा-या अनस्तर दरपत्रिका/  
निविदा/दरपत्रिका/ ई-दरपत्रिका/ ई-निविदा दस्तऐवजांच्या छाननी शुल्काबाबत

- संदर्भ :- १) प्रले/एफसीई/२८ दि. १३.०१.२०२३  
२) परिपत्रक क्र. सीए/एफआरजी/२१ दिनांक ०८.०२.२०२३  
३) एमजीसी/एफ/९५८५ दि. ११.०५.२०२३  
४) परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३  
५) अति.आ./प्रकल्प/१३५१ दि. २३.०५.२०२३  
६) परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३

बृहन्मुंबई महानगरपालिकेच्या विविध खात्यांमार्फत मागविण्यात येणाऱ्या अनस्तर दरपत्रिका/निविदा/दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता छाननी शुल्क आकारण्याबाबत उपरोक्त संदर्भ क्र. ४ व ६ अन्वये परिपत्रक निर्गमित करण्यात आले होते. परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मध्ये पुढील प्रमाणे निर्देश देण्यात आले आहेत.

"सर्व खाते प्रमुख/सहाय्यक आयुक्त/रुग्णालय प्रमुख, अधिष्ठाता यांनी त्यांच्या अखत्यारीतील संबंधित कर्मचारीवृंदांना उपरोक्त सुचनेची काटेकोरपणे अंमलबजावणी करण्याचे तसेच मंजुरीच्या दिनांकापासून मागविण्यात येणाऱ्या अनस्तर दरपत्रिका/ निविदा/ दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता निविदा शुल्क न आकारता सर्व देकारदारांकडून या परिपत्रकातील सुधारीत दरांनुसार इसारा अनामत रक्कमेचा परतावा करण्यापूर्वी छाननी शुल्क अनुज्ञेय वस्तू व सेवाकरासहित वसूल करण्याचे अथवा देकारदाराच्या संमतीने इसारा अनामत रक्कमेतून समायोजित करण्यासंबंधीचे निदेश द्यावेत. "

तदनंतर सुधारित परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३ निर्गमित करण्यात आले. सदर परिपत्रकात पुढील प्रमाणे निर्देश देण्यात आले आहेत.

"दरपत्रिका/निविदा/दरपत्रिका/ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता मा. महानगरपालिका आयुक्तांच्या मंजुरीच्या दिनांकापासून छाननी शुल्क न आकारता, एसआरएम कार्यप्रणाली मध्ये निविदा शुल्क न आकारण्यासंबंधीची कार्यवाही माहिती व तंत्रज्ञान खात्याकडून पूर्ण झाल्यावर त्यानंतरच निविदाकाराकडून छाननी शुल्क आकारण्यात यावेत. तसेच सदर छाननी शुल्काचा भरणा लेखा संकेताक 140402609 - Scrutiny Fees From Tenders (From May 2023)-Taxable यामध्ये करण्यात यावा."



परिपत्रक क्र. सीए/एफआरजी/०४ दि. २४.०५.२०२३ मध्ये नमूद केल्यानुसार एसआरएम प्रणाली मध्ये आवश्यक ते बदल माहित व तंत्रज्ञान विभागाकडून दि. २३.०६.२०२३ रोजी पूर्ण करण्यात आले आहेत.

दरम्यान माहिती व तंत्रज्ञान विभागामार्फत परिपत्रक क्र. Dir/IT/F-59 दि. १०.०५.२०२३ निर्गमित करण्यात आले. सदर परिपत्रकामध्ये दि. १५.०६.२०२३ पासून रु.२५ लाखावरील सर्व निविदा महानगरपालिकेच्या एसआरएम प्रणालीद्वारे न मागविता महाराष्ट्र शासनाच्या महाटॅंडर पोर्टलद्वारे मागाविण्याबाबत निर्देश देण्यात आले आहेत. तसेच परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मध्ये इसारा अनामत रक्कमेचा परतावा करण्यापूर्वी छाननी शुल्क, अनुश्रेय वस्तू व सेवाकरासहित वसूल करण्याचे अथवा देकारदाराच्या संमतीने इसारा अनामत रक्कमेतून समायोजित करण्यासंबंधीचे निदेश देण्यात आले आहेत. तथापि महाराष्ट्र शासनाच्या महाटॅंडर पोर्टलवर इसारा अनामत रक्कमेतून समायोजना करण्याची सुविधा नसल्याने पुढील प्रमाणे सुधारित निर्देश देण्यात येत आहेत.

"महाराष्ट्र शासनाच्या महाटॅंडर / एसआरएम प्रणालीद्वारे मागविण्यात येणारे सर्व अनस्टार दरपत्रिका/निविदा/दरपत्रिका/ ई-दरपत्रिका/ ई-निविदा दस्तऐवजांकरिता निविदा शुल्क (Tender Fee) न आकारता सर्व देकारदारांकडून परिपत्रक क्र. सीए/एफआरजी/०३ दिनांक ११.०५.२०२३ मधील सुधारित दरांनुसार छाननी शुल्क (Scrutiny Fee) अनुश्रेय वस्तू व सेवाकरासहित लिफाफा 'अ' व 'ब' उघडल्यानंतर व लिफाफा 'क' उघडण्याआधी फक्त नागरी सुविधा केंद्रात चलनाद्वारे भरण्यात यावे."

संदर्भित परिपत्रकातील अन्य निर्देशांमध्ये कोणताही बदल करण्यात आलेला नाही.

सही/-१६.१०.२०२३  
श्री.पांडुरंग गोसावी  
प्रमुख लेखापाल (पा.पु.म.नि.)

सही/-१६.१०.२०२३  
श्री. प्रदिप भा. पडवळ  
प्रमुख लेखापाल (वित्त)प्र.

सही/-१६.१०.२०२३  
श्री. प्रशांत गायकवाड  
उप. आयुक्त (वित्त) प्र.

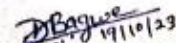
सही/-१६.१०.२०२३  
श्री. पी. वेलरासू  
अति.आयुक्त (प्रकल्प)

परिपत्रक

२०२३-२४

क्र.सीए/एफआरजी/१० दिनांक १९.१०.२०२३

प्रत .....(जादा .....प्रतीसह ) यांना माहितीकरिता व पुढील  
आवश्यक त्या कार्यवाहीकरिता अग्रेषित.

  
प्रमुख लेखापाल (वित्त) यांजकरिता

०६	रु. ५०,००,००१/- ते रु. १,००,००,०००/-	वरील प्रमाणे	रु.१२,०००/- + १८% वस्तू व सेवाकर
०७	रु. १,००,००,००१/- ते रु. २५,००,००,०००/-	वरील प्रमाणे	रु.१५,०००/- + १८% वस्तू व सेवाकर
०८	रु. २५,००,००,००१/- पेक्षा जास्त	वरील प्रमाणे	रु.२५,०००/- + १८% वस्तू व सेवाकर

अनस्टार दरपत्रिका/ निविदा/ दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता छाननी शुल्काचे सुधारीत दर मंजुरी दिनांकापासून ते दिनांक ३१.०३.२०२४ पर्यंत अंमलात येतील.

तरी सर्व खाते प्रमुख/सहाय्यक आयुक्त/रुग्णालय प्रमुख, अधिष्ठाता यांनी त्यांच्या अखत्यारीतील संबंधित कर्मचारीवृंदाना उपरोक्त सुचनेची काटेकोरपणे अंमलबजावणी करण्याचे तसेच मंजुरीच्या दिनांकापासून मागविण्यात येणाऱ्या अनस्टार दरपत्रिका/ निविदा/ दरपत्रिका/ ई-दरपत्रिका/ई-निविदा दस्तऐवजांकरिता निविदा शुल्क न आकारता सर्व देकारदारांकडून या परिपत्रकातील सुधारीत दरांनुसार इसारा अनामत रक्कमेचा परतावा करण्यापूर्वी छाननी शुल्क अनुज्ञेय वस्तू व सेवाकरासहित वसूल करण्याचे अथवा देकारदाराच्या संमतीने इसारा अनामत रक्कमेतून समायोजित करण्यासंबंधीचे निदेश द्यावेत.

सही/- २८.०४.२०२३  
श्री.पांडुरंग गोसावी  
प्रमुख लेखापाल (पा.पु.म.नि.)

सही/- २८.०४.२०२३  
श्री. प्रदिप भा. पडवळ  
प्रमुख लेखापाल (वित्त)प्र.

सही/- २८.०४.२०२३  
श्री. रामदास आक्हाड  
उप. आयुक्त (वित्त)

सही/- ०२.०५.२०२३  
श्री. पी. वेलरासू  
अति.आयुक्त (प्रकल्प)

सही/- १०.०५.२०२३  
श्री. इ.सिं. चहल  
महापालिका आयुक्त

परिपत्रक

२०२२-२३

क्र.सीए/एफआरजी/०३ दिनांक ११.०५.२०२३

प्रत .....(जादा .....प्रतीसह ) यांना माहितीकरिता व पुढील  
आवश्यक त्या कार्यवाहीकरिता अग्रेषित

*DiBague*  
११/०५/२३  
प्रमुख लेखापाल (वित्त) यांजकरिता

**SECTION 24**  
**SOIL TESTING REPORT**  
**(Separately Attached)**

**SECTION 25**  
**SCOPE AND**  
**SPECIFICATIONS OF**  
**MAINTENANCE WORKS**

## MAINTENANCE AND OPERATION OF ASSETS

### 1.0 General Scope for maintenance:

- 1.1 **All assets created from this contract agreement and services shall be maintained by the agency as per maintenance procedures for 5 years after record date of completion of construction work**
  - 1.2 During defect liability period, every asset found defective shall be replaced. After that, during whole maintenance period, every asset shall be maintained by repairing the same and if repairing is not found possible, the same shall be replaced. The defective items, materials, finishes, fitting shall be replaced with items of same specifications and compatible to the work.
  - 1.3 Contractor shall bear the cost of all AMC's required for all assets including routine, preventive & breakdown service of the system.
  - 1.4 All T&P, testing instruments etc. required for the work shall have to be arranged by the Contractor. No T&P shall be issued by the Department.
  - 1.5 Contractor shall depute trained staff for maintenance of the system having experience in the field. Wherever Safety staff / facility staff / Marshals required, same shall be provided by the Contractor
  - 1.6 The Contractor shall make all safety arrangement required for the staff engaged by him at his own cost. All consequences due to negligence or due to lapse of security/safety or otherwise shall remain with the agency. The BMC shall not be responsible for any mishap, injury, accident or death of the agency's staff. No claim in this regard shall be entertained /accepted by the department. Staff engaged by the Contractor shall be staff of Contractor for all purpose, not the principal employer.
  - 1.7 Contractor shall be fully responsible for any damage to property of Government and / or user of the system, by him or his labour during carrying out the work and the same shall be rectified by the Contractor at his own cost.
  - 1.8 The watch & ward of the whole campus during maintenance period shall be the responsibility of the Contractor.
  - 1.9 Contractor shall set up maintenance & operation centre which will operate 24 X 7 on all working days.
  - 1.10 Contractor shall hire adequate electro mechanical car parking operators, technicians, Engineers for respective field of job on Part Time basis. The staff engaged shall have a mobile phone to enable the Engineer-in-charge for timely communication.
  - 1.11 Staff employed by the agency shall be well behaved, polite & courteous. In case of any complaint against staff, such staff shall be replaced by the Contractor on demand from Engineer-in-Charge. Agency will submit police verification of worker employed for the maintenance work.
  - 1.12 The facilities to be made available at the Service Centre by contractor.
    - 1.12.1 All furniture required for Contractor's staff shall be arranged by the Contractor at his own cost.
    - 1.12.2 Electric connection for general purpose at the service centre shall be taken and Bills for the electricity consumed shall be paid by the Contractor .
  - 1.13 The Contractor shall be responsible for watch and ward. The loss, if any shall be made good by the agency at his cost. The decision of Engineer-in-Charge in this respect shall be final and binding on the Contractor.
  - 1.14 Stores and bins shall be provided by the Contractor for storing the Materials.
  - 1.15 The Contractor will maintain attendance records of the staff, which may be checked by the Engineer-in-charge or his representative of the work. In case of absence of any staff, recovery shall be made at the following rates: -
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- 1.16 Bad workman ship whenever noticed and conveyed to the agency shall be rectified by the agency to the satisfaction of the Engineer-in-charge
- 1.17 After the expiry of the contract, the Contractor shall hand over the complete installations to the department in proper working order. All defects and deficiencies shall have to be rectified by the firm to the entire satisfaction of Engineer-in-charge failing which the work shall be got done at the risk and cost of the firm.
- 1.18 The Contractor will submit full names, address, and photographs of the staff, they are going to appoint at said location.
- 1.19 The Contractor shall provide uniform along with Badge and shoes wearing logo of BMC service centre. In the event of non-compliance, a recovery of Rs.100/- per day per employee shall be made. Contractor will provide neat & clean uniform to all workers. Colour & pattern of uniform shall be as per decision of Engineer-in-charge.
- 1.20 The Contractor shall have registration with Employees Provident Fund Commissioner and employees State Insurance Corporation for safeguarding welfare of his workmen. He shall obtain all other necessary approvals from statutory bodies as per law in force.
- 1.21 No residential accommodation shall be provided to any of the staff engaged by the agency. The Contractor shall also not be allowed to erect any temporary set up for staff on site.
- 1.22 All the consumable required for housekeeping work shall be supplied by the contractor.
- 1.23 All the taxes, duties, payments towards EPF & ESIC, Workmen's compensation shall be included in total cost. No claims shall be entertained later on in this respect. The vendor shall pay the wages to employees as per 'Minimum Wages Act' and while quoting rates in the tender, he has to consider future periodical increase in rate of 'Minimum Wages Act'. No compensation claim will be entertained in this respect.
- 1.24 **Not to claim for employment in BMC:** Under no circumstances whatsoever, the staff/personnel appointed by the contractor for performing duties shall be allowed to claim, for his employment in Brihanmumbai Municipal Corporation.
- 1.25 In case of non attendance of the duty by any of the staff, a substitute arrangement shall be made within 30 minutes. In case of absenteeism of any of the staff beyond this limit, the staff present on duty shall not leave the work place until next duty staff resumes his duty. However, if in case the sufficient staffs strength is not maintained in particular shift, penalty as described below will be imposed.
  - 1) Parking System Operator: - Rs.1500/- per shift
  - 2) Parking attendant: - Rs.1200/- per shift
  - 3) House Keeper: - Rs.1000/- per shift
- 1.26 Accidents: The vendor shall be responsible to ensure proper protection against accident on the work sites. The vendor shall indemnify the Corporation against any claims for damage or injury to person or property resulting from and in the course of work undertaken and also under the provision of the Workman's Compensation Act.

## 2.0 Scope of Maintenance work:

- 2.1 The Contractor shall maintain all assets created through this agreement. Any damage to the installation shall be made good by the contractor within the scope of work.

## 3.0 Scope of operation & maintenance of Electro Mechanical Parking System including services:

- 3.1 Operation & maintenance:

3.1.1 The successful contractor shall deploy the requisite nos. of CAR parking operators, parking attendant & sweeper with acquired necessary qualifications along with general Tools, safety gears, housekeeping consumable items etc

**Deployment of Manpower:**

Designation	Shift- I	Shift - II	Shift- III	Total
	(7 a.m to 3 p.m)	(3 p.m to 11 p.m)	(11 p.m to 7 a.m)	
Safety Engineer	0	1	0	1
Technical Operator	1	2	1	4
Operation Supervisor	2	1	2	5
Housekeeping Staff	4	6	6	14
<b>Grand Total</b>	<b>16</b>			

**te-** USER Department have the rights to minimize the nos. of manpower as per their requirement.

The shift timing may varies as per requirement of User department.

**4.0 Desired Qualification for Car Parking operator & Parking Assistant**

- ITI NCTVT in Electrician/ Wireman/ Mechanic-Auto, Electrical, Electronics/ Mechanic - Medical electronics or equivalent

**OR**

- One Year Full Course in above / equivalent technical trade from reputed private institute
- At least One year full-time experience in this field.
- Should be able to Read, Write and Understand Marathi, Hindi, English Language.
- Should have valid driving License of light motor vehicle.

**4.1 Duties of Manpower is as below :**

**I] Car parking operators:**

1. Guide the car owner to the nearest vacant entry level platform.
2. Operator issued the dummy token to car owner and give flash card along with car keys to parking assistant.
3. Request car owner to follow the instructions of using and parking the car as per instructions by parking elevator provider (displayed on BT panel).
4. Operator will supervise parking assistant for park the car on designated location on turn table.
5. Operator will ensure that only vehicle will be on the turn table while cars are moving for the parking process.
6. If the car parking systems reject the car for parking as the dimension of car exceed than the car parking slot then operator should inform the car owner for same.
7. When car owner come for pick up his car, operator should collect dummy token from the car owner and place dummy token with flash card in designated place together.

**II] Parking Assistant:**

1. Controlling the traffic on Entry & Exit Gate.

2. Guide the car owner to the nearest vacant entry level platform.
3. Take keys from Operator to park the car from entry level platform to designated location of turn table.
4. Request car owner to follow the instructions of using and parking the car as per instructions by parking elevator provider (displayed on BT panel).
5. Car keys along with Chip should be place in safe and designated place (key box) till the car exit.
6. When car owner come to pick up the his car, the parking assistant will flash the chip of concerned cards to BT panel and take car keys from designated place (key box) and Drive the car from turn table to nearest vacant exit level platform.

**III] Housekeeper:**

1. Removal of waste from all floors etc. from the common areas.
  2. Dusting of furniture & clean the Collection room
  3. Cleaning and scrubbing of tiles of Entry & Exit gate as & when required.
  4. Cleaning Ramp floors with dry & wet mops.
  5. Dry & wet mopping of stair ways.
  6. Removal of cobwebs.
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## **SECTION 26**

# **SCOPE OF COMPREHENSIVE ANNUAL MAINTENANCE AND SERVICING OF SERVICING OF PARKING SYSTEM**

1. The contractor shall through the OEM provide technical support to the BMC for a period of 20 years for all maintenance, repairs, service and upgrade for the robotic parking systems installed.
2. The contractor through the OEM shall ensure the availability of spares and solutions to upgraded parts to ensure seamless operation for 20 years.

### **Comprehensive Annual Maintenance and Servicing for period of 20 years from record date of completion of Parking System:**

- a) **The Successful Bidder shall carry out Comprehensive Annual Maintenance and Servicing for period of 20 years from record date of completion of Parking System in coordination with OEM Cost of the same is included in Quoted cost of project (Part A of Financial Quote). No Extra payment will be made for the same.**
- b) The contractor shall use the services of trained, appropriately skilled personnel who shall be directly employed and appointed by the contractors. They shall be experienced to keep the entire parking system and its equipments in proper working condition. They will also take all reasonable care to maintain the equipments properly and they will take all reasonable care to maintain the system in efficient, reliable, neat tidy and safe operational condition.
- c) The contractor shall direct their said personnel to the above said mechanized multi level car parking once in a three month to examine, lubricate and adjust the equipments of the said equipment in presence of either Municipal Engineer or concerned person of user department. They shall obtain from them signature on the service report with Names, Designation for each Quarterly servicing and maintenance and produce the same in every quarter The contractor shall check and adjust, clean, lubricate etc. all the items mentioned below if applicable and enter into log book duly signed.
- d) Most of the jobs should be carried out on line mode, means no shutdown is required, however if the course of shutdown is required, then the same shall be applicable with valid justification.
- e) The contractor shall replace/ repair all the spare parts free of cost immediately for normal wear and tear whenever necessary.
- f) The contractor shall arrange to direct the maintenance personnel to attend the multi level car parking immediately after break down. The contractors shall give priority in their service, repair and manufacturing facilities to restore the equipments to normal service.
- g) The successful contractor shall attend the breakdown calls & carry out the minor repairs immediately & put the unit in perfect working condition. The breakdown period shall not be more than 24 hrs for minor repair work & 72 hrs for major repair work. Otherwise, a penalty of Rs.5000/- per day will be recovered.
- h) The CONTRACTOR shall maintain a complaint register, duly paged, at site and shall make it available to the users of the parking to note down the complaints. The complaint register will be kept properly and it shall be mentioned on the signboard about its availability.
- i) Stock of standard consumable spares will be maintained at site by Contractor. The consumption of major spares will be recorded immediately.

- j) The system shall be checked for its proper functioning. Any defects, it found shall be rectified within the stipulated time. All defective spares shall be repaired /replaced as and where required during the contract.
- k) The contractor / firm has to arrange a technically qualified liasioning officer in respect of day to day servicing and maintenance of car parking system, who will keep regular contact with office of ATC wing of Office of Dy.Ch.E (Traffic). and attend to the defects informed to him immediately. He shall give feedback to BMC after complying with the rectification/repairs.
- l) The CONTRACTOR should carry out the maintenance works in such a way as to minimize inconvenience to users of the car Parking Systems.
- m) No equipments, manpower, tools etc, will be provided by M.C.G.M, during the course of servicing contract.
- n) **The bidder as well as OEM has to submit the Performance Guarantee (PG) of Rs 25 Lacs Each for successful Operation and Maintenance period of 5 Years and Comprehensive Annual Servicing and maintenance of system for period of 20 years after record date of completion of Parking System. Same shall be paid within one month from the date of issue of Letter of Acceptance.**

**If the P.G to be paid above is not paid within one month from the date of issue of Letter of Acceptance, the Tender / Contractor already accepted shall be considered as cancelled and legal steps be taken against the contractor for recovery of the amount.**

**In the event of the contractor failing or neglecting to complete the rectification work within the period up to which the contractor has agreed to maintain the work in good order, the amount to be adjusted against the Bank Guarantee towards the cost incurred by the Department on rectification work and Further Necessary action as deem fit will be taken.**

**SECTION 27:-  
HOUSEKEEPING TERMS AND  
CONDITIONS**

1. The tenderer agency shall have PF/ESI registrations and TIN/PAN and GST registration number. Copies of the registration should be enclosed.
2. The tendering agency should have a minimum working strength of 100 employees. The tendering agency personnel should be capable to provide all the functions of housekeeping and cleaning services as mentioned in the scope of the contract. They also must be trained in using equipments and latest technologies being used in the housekeeping and cleaning control related function in the industry including Govt Bodies, PSUs, and reputed corporates.
3. The bidder shall have his own Establishment/Training institute to provide training aids or should have tied up with a training institute for training his housekeeping personnel to provide best services at his own cost to ensure correct and satisfactory performance of his liabilities and responsibilities under the contract.
4. The Housekeeping services shall be carried out on all days of the month except Sundays and National Holidays and Holidays declared at the discretion of BMC. The working hours are from 9.00 am to 6.00 pm with half an hour lunch time. Some of the housekeeping staff shall be asked to work from 7.00 am to 9.00am and 6.00pm to 8.00pm. The timings are liable to be changed at the discretion of BMC.
5. Details of jobs to be carried out twice in a day as under:-  
 Services required twice a day
  - a) General cleaning (sweeping, mopping, dusting and any other connected work) of the office rooms, open office halls, conference rooms (Halls), Laboratories, cleaning of books, reception, corridors, stores, pantry area, stairs, space for water coolers & toilets, labs staff rooms, parking areas, service area, pavements and roads surroundings of building and all unspecified areas/location within the Campus, including Rain water & sewer drains, electrical substation, A/c plant room, DG room, UPS room, pump room, fire room and shaft & ducts, dusting of furniture, cupboards, office equipment's. Cleaning with soap-oil or liquid cleaners wherever required.
  - b) Removal of garbage from dustbins in biodegradable bags and replacing old biodegradable bags with new biodegradable bags. Garbage would be carried in trolley with high quality rubber wheels ensuring that the garbage is not spilt in loading trolley as well as in its transportation. No garbage will be left in the site overnight. The biodegradable bags for the dustbins and trollies for carrying the garbage will have to be provided by the successful tenderer. Sweeping & Mopping floors of entire BMC premises which includes work area on all blocks, Conference rooms, Labs, offices, Generator rooms, pump house AC rooms, Amenity Block, Library, Canteen, Reception area, Board, Terrace area, passages, record rooms, lift area, railings, windows, drivers room, Parking area in basement, clearing dust bins, etc. with first quality cleaning equipments & cleaning agents twice a day as per timings specified by BMC Representative.
  - c) Removal of waste papers, packing material and any other garbage from the entire premises including the staircases, open area, in front of electrical shafts etc. Cleaning/removal of any type of stains of ink etc from the building and staircases.
  - d) Cleaning of workstations, table tops, chairs, and desks, almirahs, frames, panels, railings, glasses and cabin partitions with approved cleaning material. Cleaning of tables in the canteen during breakfast/lunch/tea breaks.
  - e) Stain removal treatment of entire premises including stairs, area of office cabins, halls, conference halls, stores, reception, toilets and lifts etc. and stain removing of the furniture and equipment. Cleaning of tea/coffee serving area on each floor.
  - f) Air-freshener spray in offices and laboratory & other officer's rooms, atrium area once in a day and also on requirement basis. Cleaning of the hand wash area in the cafeteria thrice.
  - g) Cleaning and dusting of computers, keyboards, terminals, printers, Photostat machines, filing cabinets, telephones, electric fans and any other article on the Site. Cleaning of toilets, at all floors in all blocks in the site three times a day as per timings specified by BMC Representative, using the

required cleaning agents, refilling hand wash, tissue rolls, naphthalene balls/urinal cakes and maintain the toilets floors dry during office hours. Cleaning of windows and window sills of all toilets to be done regularly. Wash basins, urinals, WC area to be cleaned with suitable detergent. Flushing system of all toilets is to be checked at regular interval every day. At least once a day disinfectant like harpic etc should be used for cleaning the toilets.

h) Re-stocking of toiletries in toilets after intensive daily checking in the morning and at intervals of two hours thereafter, cleaning and scrubbing of toilets, WC"s, urinals wash basins, floor area of toilets and cleaning and wet dusting / wiping of mirrors, frames etc. in toilet with approved material, re-filling liquid soap dispensers (on daily basis in Public toilets and requirement basis in officers toilets), re-filling of toilet rolls / tissue papers etc. cleaning of Rain water drains and removal of sewer blockage, if any. Lifting and disposal of dead birds, animals, rats etc. if found in and around the site.

i)Cleaning and dusting of planters, paintings, posters, notice boards etc. Collection of waste paper from rooms, waste paper, baskets, floors and putting in bags at the specified location.

j)Removal of bird droppings and other dirt's on the inner walls or on the foot of doors, ventilators etc. as and when required. Disposal of garbage at the waste yard two times a week or as directed by the BMC Representative.

k)The biodegradable and non-biodegradable waste shall be segregated and disposed of by the contracting agency on day-to-day basis and required numbers of dustbins will have to be provided by the Agency. Shifting of materials from one place to another as and when required.

l)Plumbing works pertaining to water supply, distribution and checking of leakages and replacement of leaking taps, etc. Ensuring water supply to toilets.

m)Sanitation of bathrooms and toilets including supply of necessary items like liquid soap, naphthaline balls, room freshners, etc. to maintain hygienic atmosphere. Checking of all the taps and sanitary fittings in all the toilets and replace/ fix new fittings when required by the Plumber.

n)Cleaning and maintenance of all the drains within the compound of the Department. Carrying out all kinds of general carpentry work like fixing/replacement of locks, repair of furniture, fixing/removal of aluminum partitions, etc.

o)Pest control, mosquito control including winged pests, larva control and rodent control of the entire campus of the Department in all covered and open area. Sweeping & Mopping of common passages, staircase twice a day.

p)Daily duty chart to be displayed and signed by the Supervisor and submitted to Administration by evening.

q)Filling of water bottles at all work stations twice a day.

r)The above mentioned work from (7.1.1.1) to (7.1.1.17) are to be carried out on twice a day and also on requirement basis as directed by BMC representative.

**s)Details of jobs to be carried out weekly are as under**

i)Vacuum cleaning & brushing of work areas, laboratories, and all other buildings on site.

ii)Acid wash and thorough cleaning of all toilets. Removal of blockages, if any., scrubbing and cleaning of all floors and wall tiles in toilets with soap, detergents, kerosene/petrol or any other chemicals.

iii)Cleaning of all workstations.

iv)Cleaning of glass, panelling and aluminium channels/partitions.

v)Cleaning of all doors and window panes.

vi)Cleaning & perfuming of telephones using disinfectant.

vii)Cleaning of air conditioner grills, air curtains and drainage trays.

viii)Removal of cobwebs.

ix)Cleaning of water filters & glasses.

x)Cleaning of all the drainages and clearing of blockages, if any.

xi)Repair work for damage in pipe lines of drainage and water supply.

xii)Repair work for damage in pipe lines of drainage and water supply.

- xiii) Machine and Hand scrubbing and thorough cleaning / washing of the entire floor area by using approved cleaning material and dry/wet mopping.
- xiv) Cleaning of drinking water coolers area, dust bins buckets etc. with detergents.
- xv) Removal of poster, banner etc. from inside and outside walls of the building
- xvi) Thorough cleaning of all the bookshelves of the library by removing books from the shelves
- xvii) Cleaning of terrace, rain water and sewer drains.

t) Details of jobs **to be carried out monthly basis are as under**

- i) Polishing of brass plates, flower vase, potholders, etc., with brass polish.
- ii) Fixing/replacing of loosen/broken glass panes including that of aluminum door frames.
- iii) Insect Control/Disinfestations treatment will be done by means of spraying in kitchens, Pantries and Toilets to get rid of ticks, cockroaches, ants, beetles etc.

u) Waste Disposal Management

- i) The contractor shall ensure collection, mechanized screening/ segregation of dry and wet garbage in the earmarked area.
- ii) The contractor shall also ensure segregation of bio degradable and non bio degradable garbage.
- iii) The contractor shall arrange for disposal of garbage at such a place as may be permissible by Municipal Corporation of Delhi.

**v) MATERIALS TO BE SUPPLIED BY THE CONTRACTOR:**

**The Housekeeping materials should be supplied after obtaining specific approval of the BMC.**

The following brand new cleaning equipments\* should be procured for exclusively for BMC facility and maintained by the agency for carrying out the above work. The maintenance of the equipments will be the sole responsibility of the agency.

Sl. No.	Particulars of Housekeeping equipments	Minimum Quantity
1	Heavy Duty Vacuum Cleaner (Tasky Brand)	02 Nos
2.	Heavy Duty Auto Scrubber Drier (Tasky Brand)	04 No.
3.	Vehicle for garbage disposal	01 No.
4.	Aluminum Ladder 'A' Type (atleast 10 feet length)	01 nos.
5.	Aluminum Ladder 'A' Type (atleast 20 feet length)	01 nos.

**\* To be unpackaged in presence of BMC authority concerned.**

**w) RODENT and PEST CONTROL SERVICES**

BMC requires pest control, strong rodent control and disinfestations services to be carried out at its premises:

- i) The Scope of the contract includes carrying out the following jobs as below:

Sl. No.	Particulars	No. of services required Per annum
1.	General insect/pest control services for cockroach & mosquito extermination	Every week
2	Rodent Control Services	Every Fortnight
3.	Fumigating canteen stores	Once every month
4.	Eradication of Bats	As and when required
5.	Restriction of movement of snakes inside building & catching/retrieval of Snakes	As and when required
6.	Beehive removal (per beehive) - Campus	As and when required

ii) Spray of scented mosquito and cockroach killer on all floors as and when required.

Mosquito/cockroach killers shall be of ISI mark.

iii) The agency should depute its professional staff for spraying the required pesticides or chemicals through a spray gun or place them if they are dry cubes or carry out such chemical treatment through insecticide sprays. Only company made chemicals and herbal powder mixed with water is to be used.

iv) Services should be carried out every week on Saturdays or any other holiday with the prior permission from administration.

#### 6. STATUTORY OBLIGATIONS

a) The following statutory regulations/Acts should be strictly adhered to during the period of contract. The agency shall be solely responsible for any failure to fulfill the statutory obligations mentioned below and all other necessary statutory requirements. All necessary statutory documents, records like log book, register of wages, attendance registers, ESI and EPF Registers etc., should be maintained and regularly reviewed by BMC.

b) The Contract Labour (Abolition & Regulations) Act 1970.

c) The Minimum Wages Act 1948.

d) The Employees' Provident Funds & Miscellaneous Provisions Act 1952.

e) The Employees State Insurance Scheme under ESI Act 1948.

f) The Payment of Gratuity Act 1972.

g) The Workmen's Compensation Act 1923.

h) Other relevant Statutory Regulations liable to be applicable during the period of the Contract.

i) All necessary statutory documents, records like log book, wage registers, attendance registers, ESI and EPF Registers etc., should be maintained and produced on demand.

j) BMC shall not be responsible for any accident, death or injury to housekeeping agency employees which would arise during the course of their duty nor shall be responsible or be liable to pay damage or compensation to such persons. The agency/contractor should at all times indemnify and keep BMC indemnified against all claims which may be made under Workmen Compensation Act, any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman while in our premises or during course of their duty. The agency/contractor shall be responsible for any insurance coverage of their employees.

k) Any payment to be made by BMC to any statutory authority due to non-adherence of the stipulated norms shall be borne by the contractor agency.

l) In case the Contractor's staff suffer any injuries/damages or meet with an accident in BMC premises or outside BMC premises, during discharge of duties, the entire cost of compensation shall be borne by the Contractor.

m) In case of any accidents, the contractor will be solely responsible for the statutory/financial obligations. BMC will not enter into any litigation whatsoever under any circumstances.

n) The contractor shall be responsible for all claims from third parties (including the staff of BMC in the event of any accident involving the liability).

## 7. a) Consumables

<b>Sl.No.</b>	<b>Description</b>	<b>Mandatory consumption per month</b>
01	Table Duster white and yellow Cloth (Best Quality)	6 dozen
02	Glass cleaner/squeezer (10 ft.) (Best Quality)	05 nos.
03	Glass cleaner/squeezer ( Refill)	10 nos.
04	White Phenyl (Germisol (chemical sanitiser) (Make:Gainda)	20 litres
05	Rubber Wiper (Best Quality)	15 Nos.
06	Soap oil for cleaning TEAPOL	35 Litre
07	Liquid Hand wash (Dettol/Lifebuoy))	40 Litre
08	Soft Broom (555 make or equivalent)	15 No.
09	Hard Broom (Best Quality)	10 No.
10	Floor Mop ( Best Quality )	15 No.
11	Floor Mop refill ( Best Quality)	15 No.
12	Dry Mop ( Best Quality)	30 No.
14	Scrubber ( Scotchbrite )	30 No.
15	Toilet Cleaner (Harpic)	40 Litre
16	Glass Cleaner (Colin )	30 Litre
17	Toilet cleaning brush	15 No.
18	Steel Wool (Best Quality)	02 Kg.
19	Naphthalene Ball ( Make:Trisul )	10 Kg.
20	Toilet Cleaning Acid (Best Quality)	60 Litre
21	Brasso Polish	200 ml
22	Toilet Roll (Daffodil make or equivalent)	2400 Rolls of 350 pulls each
23	Face Tissue (Mystique/Daffodil)	1800 Boxes of 100 pulls each
24	Garbage Bag (Small)	15 Pkt. of 50 each
25	Garbage Bag (Big)	15 Pkt. of 50 Each



26	Bleaching Powder (Best Quality)	02 Kg.
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27	Dettol/Savlon antiseptic	05 Litre
28	Room Freshener (Odonil )	25 bottles
29	Perfumed floor cleaner ( Best Quality)	15 Litre
30	Air Freshener ( Odonil )	60 nos
31	Thinner ( Best Quality)	05 Litre
32	Spray Gun	15 No.
33	Urinal Cake	35 packet of 35 gms each
34	Hit (Mosquito)	15 Nos
35	First quality Patti Blade	10 Nos
36	High reach Cobweb Duster / Brush	10 No.
37	All out with refill	10 Nos
38	Washing Powder (Nirma/NIP)	15 Kg
39	Bottle Cleaning Brush	10 Nos
40.	Big Broom	5 nos.
41.	Dust pans	12 pcs.
42.	Bucket	05 nos.
43.	M-Fold tissues	80 cartons
44.	Mug	10 nos.
45.	Hand Gloves	20 nos
46.	Plastic Juna	1 dozen

#### 7b) Housekeeping Equipments

SI No.	Particulars of Housekeeping Equipments	Quantity
1	Heavy Duty Vacuum Cleaner(Tasky)	2 Nos
2	Heavy Duty Auto Scrubber Drier (Tasky)	4 Nos
3	Vehicle for Garbage Disposal	1 Nos
4	Ladder (atleast 10 feet length)	1 Nos
5	Ladder (atleast 20 feet length)	1 Nos

<b>Sl. No.</b>	<b>Particulars</b>	<b>No. of services required Per Annum</b>
1.	Effective Rodent Control Services- Site	26
	Use of Rodenticides	
	Chemical Pest Control	
	Rodent Traps	
	Glue or Sticky Board	
2.	Disinfestations Services – Campus	Every week
3.	Fumigating canteen stores	12
4.	Eradication of Bats	As and when required
5.	Restriction of movement of snakes inside building & catching/retrieval of Snakes	As and when required
6.	Beehive removal (per beehive) – Campus	As and when required

## **SECTION 28**

### **M&E Services Maintenance**

## **A) Services of M&E Maintenance/Lift/BMS- Preferably with OEM only of individual items**

The Contractor will maintain a range of services by providing a responsive, cost effective, efficient and quality service, which is in compliance with good practice and statutory health & safety requirements.

The Contractor's services under the Contract include, but are not limited to, the following:

- 1.1.1 The performance of planned preventative maintenance (PPM) tasks.
- 1.1.2 The provision of a reactive/call out service and associated repairs on the instructions of the BMC Help Desk. All jobs are delivered by the Help Desk either by paper or electronically to a suitable device. All tasks performed to statutory regulations.
- 1.1.3 The performance of alterations, upgrades and new works instructed by BMC.
- 1.1.4 Attendance on other Contractors during Statutory Inspections/Audits of the relevant installations.
- 1.1.5 The maintenance of energy consuming plant to optimize efficiency, carry out 12-monthly energy reviews.
- 1.1.6 Establishing documented disaster recovery plans for the key installations, e.g. H.V., L.V. and Data Suite cooling failures.
- 1.1.7 This Specification outlines the type of work envisaged by this contract carried out as planned preventative maintenance (PPM) and reactive maintenance works. These works are described in detail in the Service Requirements section of this Specification.
- 1.1.8 The works includes the maintenance, repair, and alteration to the mechanical and electrical installations and the provision of 24 hours/day, 365 days/year emergency response.

## **B)CONTRACT REQUIREMENTS**

### **1.1 General**

1.1.1 In delivering, performing and providing the Services the Contractor will, at all times, in addition to complying with its obligations elsewhere in this Contract, comply with the requirements identified in this Specification. Specifically, and in addition to what follows, it will at all times:

1.1.1.1 meet the business needs of BMC and other third parties; and

1.1.1.2 maintain a safe, secure and comfortable working environment for staff whilst minimising adverse impact on the environment.

### **1.2 Site Presence and Out ofHours**

1.2.1 The Contractor shall provide a site presence covering both the Mechanical and Electrical disciplines during the hours 0700 to 1900 hours, excluding Bank Holidays. The Contractor office must be covered from 0800 to 1630 hours Monday to Saturday, excluding Bank Holidays. The contract manager or contract supervisor must be on site from 0800 to 1600 hours Monday to Saturday, excluding Bank Holidays.

1.2.2 In addition to the site presence the Contractor shall provide an out of hours on call service covering both the Mechanical and Electrical disciplines 24 hours per day/7 days per week/365 days per year.

### **1.3 Good Industry Practice**

1.3.1 The Contractor will be technically proficient with and perform all services in accordance with Good Industry Practice, SFG20 and all relevant legislation, standards or codes of practice applicable to each part of the services including but not limited to those set out in this Specification and manufacturer's recommendations.

## **2.4 Working Practices**

2.4.1 The Contractor will ensure all tasks follow those detailed within its detailed Method Statements at all times unless otherwise mutually agreed.

2.4.2 The Contractor will ensure all detailed Method Statements have been risk assessed and that preventative measures are being followed at all times.

2.4.3 The Contractor will ensure all tasks are subject to other required assessments at all times.

2.4.4 The Contractor will ensure all tasks are subject to suitable qualitative, commercial and general management control procedures at all times.

2.4.5 All working practices employed by the Contractor will not compromise the construction, fabric or finishes of any building, or its contents at any time.

## **2.5 Cleanliness and Tidiness**

2.5.1 The Contractor will ensure that within their demarked areas of responsibility, and whilst undertaking all tasks, a high standard of cleanliness and tidiness is maintained.

2.5.2 The Contractor will ensure they remove all rubbish and surplus materials, both existing and as it accumulates on a daily basis such that all areas are left clean and tidy at all times.

## **2.6 Call-outs, Response Times and Corrective Action**

- 2.6.1 The Contractor will provide an effective call out service at all times. Site engineers attending an out of hours call out are expected to be on site within a n hour of receiving the call. If an out of hours third party contractor call out is required, the contractor is expected to be on site within four hours of receiving the call.
- 2.6.2 The Contractor will meet service requests within the Specified Response and Corrective Action times in this Contract. The cost of this Service is deemed to be included within the Price.
- 2.6.3 Following a call out, the Contractor will be required to inform the Help Desk of the scheduled date and time for attending the building.
- 2.6.4 Once the call out event has been attended to (at the investigation stage, temporary fix, permanent fix or at any relevant other point of progress) the Contractor will report the status of the defect to the Help Desk.

## **2.7 Quality**

- 2.7.1 The Contractor will manage and deliver all Services in such a manner as to comply with BMC's Quality Management System and the requirements of ISO: 9001.
- 2.7.2 For the avoidance of doubt the level and competence of workmanship will also be monitored by the Contractor in accordance with the standards set out elsewhere in this Contract. BMC will audit this process as part of its audit program.

## **2.8 Service Management System and Help Desk**

- 2.8.1 BMC will operate a Service Management System ("CAFM system") and Help Desk to support the Contract. The Contractor will ensure it follows the CAFM system and Help Desk interface and reporting requirements at all times.
- 2.8.2 The Contractor will also ensure its Contracting Associates and other third parties engaged by the Contractor conform to the CAFM system and Help Desk interface and reporting requirements at all times.
- 2.8.3 The Contractor will ensure all defects and requests are reported through the Help Desk and completed in an appropriate and timely manner in accordance with this Contract.

## **2.9 Statutory and Legal Requirements**

- 2.9.1 The buildings and Services provided must comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

## **2.10 Governmental, Civil Service, Departmental and BMC's Standards**

- 2.10.1 The Contractor will be required to comply with all Governmental, Departmental and BMC's Standards under this Contract as detailed in this Specification.

## **2.11 Consents and Licences**

- 2.11.1 The Contractor will obtain and maintain all licences, consents, permits and approvals required for the delivery, performance and provision of the Services, and comply with the terms thereof.

## **2.12 Environmental Issues**

- 2.12.1 To avoid doubt, the Contractor will, at all times, comply with all Environmental Legislation.
- 2.12.2 The Contractor will comply at all times with the environmental policies of BMC and will ensure that the systems and procedures are in place to support such policies and requirements. In particular the Contractor will ensure that:

- 2.12.2.1 all records are maintained so that they are kept fully auditable and information is freely available to support ISO 14001;
- 2.12.2.2 all spent fluorescent tubes and rechargeable batteries are recycled;
- 2.12.2.3 there is a system to ensure legal compliance with all duty of care legislation for all waste streams. BMC waste streams may be used with prior approval to do so;
- 2.12.2.4 all procurement follows environmental procurement guidelines (PUG/as amended) and that subcontractors, contracting associates, suppliers and other third parties engaged by the Contractor comply equally; and
- 2.12.2.5 There is no venting of recoverable ozone-depleting or global warming substances from any equipment used on our behalf, and that these substances are recovered for recycling or destruction using appropriate technology.
- 2.12.3 At all times the Contractor will, so far as is reasonably practicable:
  - 2.12.3.1 conserve light and power whilst undertaking work and ensure it remains commensurate with safe and secure working practices;
  - 2.12.3.2 conserve resources;
  - 2.12.3.3 reduce pollution;
  - 2.12.3.4 protect biodiversity;
  - 2.12.3.5 support the Government's vision of sustainable development; and
  - 2.12.3.6 support the Government's Green Transport Policy.

### **2.13 Timing of Services and Avoidance of Disruption**

- 2.13.1 The Contractor shall deliver the Services:
  - 2.13.1.1 in an effective, timely and efficient manner; and
  - 2.13.1.2 in a manner which will cause minimum disruption to BMC's Business which will include carrying out various Task/Services which would materially disrupt BMC's Business in the vicinity of those Services, as far as practicable, outside Normal Working Hours
- 2.13.2 To avoid doubt, the cost of all necessary out of hours working to perform or deliver the Services must be borne by the Contractor. Services will be performed or delivered in such a way to enable continued delivery of the Required Outputs. The Contractor will not itself and will ensure that all Contracting Associates and other third parties engaged by the Contractor do not, cause any nuisance or annoyance to BMC, Tenants or any third party.
- 2.13.3 The Contractor shall be fully responsible in performing the Services for the following:
  - 2.13.3.1 any required movement and subsequent replacement of desks together with associated telephones, computer terminals, keyboards, screens, etc.;
  - 2.13.3.2 third party costs consequential upon the Contractor fulfilling their obligations; and
  - 2.13.3.3 the provision of any additional security required for the services to be carried out.
- 2.13.4 Other than in an emergency or responding to a Help Desk call-out, the Contractor will give to BMC via BMC's Representatives, not less than two weeks' notice of any works which will or could impact on the operations of BMC. Works that may affect the computer suite such as UPS and Generator maintenance, etc. requires a minimum of three weeks.

2.13.5 The Contractor will carry out all Services in a manner that, as far as possible, minimizes the disruption arising from noise, dust or vibrations associated with any works

## **2.14 Liaison with BMC's Representative and Local Users.**

2.14.1 The Contractor will manage and co-ordinate effective liaison with BMCs' Representative and local users as appropriate.

## **2.15 Liaison with thirdparties**

2.15.1 Where necessary the Contractor will manage and co-ordinate effective liaison with BMC's contractors and suppliers via BMC's Representative and in relation to the M&E installations forming part of this Contract.

2.15.2 The Contractor shall ensure attendance at Initiation (Scope Definition), Feasibility, Pre-Start, Progress and Handover Meetings in relation to the delivery of and M&E Works, either delivered by them or through other contractors working at the Site.

2.15.3 The Contractor shall participate in the testing and witnessing of Commissioning of new or modified equipment.

2.15.4 The Contractor shall participate in the formal handover and acceptance of the works following BMC's Projects.

2.15.5 The Contractor will liaise and communicate as necessary with the contractor undertaking the projectworks.

2.15.6 The Contractor will liaise and communicate as necessary regarding the management of defects that occur during the Defects Liability Period.

2.15.7 From Practical Completion of any Project Works, up to and including the end of the Defects Liability Period, the Contractor will undertake all planned and reactive maintenance to the new or modified asset/equipment.

## **2.16 Mechanical and Electrical Disconnections**

2.16.1 The Contractor will not disconnect or cause to be disconnected any item of equipment or services which will impact the normal operation of BMC, without the specific written approval of BMC's Representative unless in an emergency.

2.16.2 Where possible, the Contractor will co-ordinate to undertake planned activities that requires mechanical and electrical disconnection with other planned activities that may also require mechanical and electrical disconnection so as to minimize business disruption.

## **2.17 Access Outside Normal Working Hours**

2.17.1 BMC will require the Contractor to provide access for all essential Required Accommodation Standards elements and Services outside of Normal Working Hours as necessary, to meet the business needs of BMC.

2.17.2 The Contractor should note that BMC does not normally work on Saturdays Sundays and Statutory Holidays except where identified in the Facility Output Requirement.

2.17.3 The Contractor shall notify BMC promptly of any instances where staff members request services, outside of the Normal Working Hours.

## **2.18 Management of Services**

2.18.1 The Contractor will manage the delivery, performance and provision of the Services in a co-ordinated manner.

2.18.2 In so doing the Contractor will (without limiting the above):

2.18.2.1 establish, maintain and operate procedures for effective planning, organization, control, monitoring and review of all Services;



- 2.18.2.2 manage and carry out the management of Services in an efficient manner and provide and operate appropriate quality assurance systems in accordance with this Contract;
- 2.18.2.3 monitor and report to BMC on the management of the Services and provide such other information regarding the Services at such frequencies as BMC requires;
- 2.18.2.4 use objective endeavors to ensure that all its staff are suitably incentivised and that staff attrition is minimised; and
- 2.18.2.5 provide all equipment and apparatus appropriate for the delivery, performance and provision of the Services and maintain it in a safe, serviceable and clean condition including all access systems where fixed installations are not provided.

## **2.19 Health and Safety**

- 2.19.1 To avoid doubt, the Contractor will, at all times, comply with all Health and Safety Legislation.
- 2.19.2 The Contractor will comply with the Health and Safety policies of BMC and will ensure that the systems and procedures are in place to support such policies.
- 2.19.3 The Contractor will adopt best practice methods and procedures issued by BMC, other Government Departments and agencies that relate to buildings occupied by BMC.
- 2.19.4 The Contractor will ensure that all its personnel, and those of its Contracting Associates, engaged in the delivery of all Services, have received up to date health and safety training in respect of their roles and responsibilities.
- 2.19.5 The Contractor shall be responsible for undertaking refresher training where required and regular updates in response to changes in working practices and/or legislation.
- 2.19.6 The Contractor shall maintain such records to demonstrate that initial and refresher training has been undertaken.

## **2.20 Asbestos**

- 2.20.1 The Contractor will ensure that its employees and subcontractors have undertaken an asbestos awareness training course to make them aware of asbestos material in buildings and of the actions to be taken if such materials are found. This is to prevent risk from inadvertent exposure to asbestos fiber.
- 2.20.2 The Contractor will be required to ensure that:
  - 2.20.2.1 asbestos materials left in-situ are maintained in a safe condition so as to prevent asbestos fibers being released into the atmosphere;
  - 2.20.2.2 any work on or effecting asbestos materials is carried out in accordance with current legislation;
- 2.20.3 Asbestos information is passed on to the BMC to ensure BMC's Asbestos database is updated

## **2.21 Security**

- 2.21.1 The Contractor will comply with BMC's security policies and standards in the delivery, performance and provision of the Services and must ensure that all persons engaged in any activity under the terms of this Contract are aware of and comply with all security procedures in the buildings.
- 2.21.2 All Contractor personnel engaged in any activity under the terms of this Contract will be security cleared to 'Basic Check' requirements.
- 2.21.3 The Contractor will be responsible for all costs arising from attaining security clearance for its operatives including those arising from any delays in approval by the relevant authorities.

## **2.22 Business Continuity**

2.22.1 The Contractor will, for each building, provide, manage and execute a Business Continuity Plan in respect of all Services using BMC's guidance.

## **2.23 Maintenance, Repairs and Replacement**

2.23.1 If maintenance works and/or repairs are not possible for one of the reasons listed below, then the Contractor will make safe, ensure the prevention of further damage and provide a full report to BMC with a suggested remedy:

- Where this will not allow the uninterrupted delivery of outputs other than by repetitive reactive maintenance;
- Where this will mean that any part of the site (including any building, equipment, components, material, plant or machinery) is not operating economically;
- Where repairs cannot be achieved without undue disruption or delay to BMC business, or
- They will result in failure of a building or any part thereof (including any elements) to meet its design criteria or to match with the surrounding area.

2.23.2 Any redundant parts, equipment and/or appliances must be promptly and safely removed from the building and disposed of and the cost borne by the Contractor

2.23.3 Without diminishing the obligation to ensure consistency (see paragraph below), the Contractor will, in performing all repairs, maintenance, replacements, redecoration and other works, use the best current practices, methods and elements available, and applicable at the time the works are performed. The Contractor will use new elements when carrying out any such works, unless expressly agreed otherwise in writing with BMC.

2.23.4 For the avoidance of doubt, on completion of maintenance/works the Contractor will test and commission the works/systems as appropriate to ensure and demonstrate to BMC that the installation meets the design requirements. Handovers should include but not limited to, service sheets, commissioning records, O&Ms, etc. where applicable.

## **2.24 Authorisation and Escalation**

2.24.1 The Contractor will at all times comply with BMC's authorisation practices and procedures (as updated from time to time) and will not act on any instruction unless it has been properly authorised.

2.24.2 The Contractor will present to BMC, prior to the commencement of this Contract, its internal escalation procedures for review and approval. This will be agreed with BMC's prior to the Date for Commencement and the Contractor will make and implement any changes to its procedures requested by BMC

## **2.25 Employment of Trained Staff**

2.25.1 The Contractor will ensure there are sufficient competent resources to deliver the Services.

2.25.2 To avoid doubt the Contractor will at all times employ staff who are trained, skilled and experienced in all aspects of their work and at all times properly supervised and managed in the manner described in the Contract.

## **2.26 Performance Improvement**

2.26.1 The Contractor will identify opportunities for improving the standard of Service delivery and delivering the Services more cost effectively. As these opportunities arise the Contractor will as appropriate implement amendments, prepare detailed amendment proposals for BMC's authorisation, or discuss amendment alternatives with BMC.

## **2.27 IT Providers**

- 2.27.1 The Contractor notes that BMC may from time to time use different IT providers, and consequently have different arrangements with those providers.
- 2.27.2 The Contractor will, in the provision, performance and delivery of the Services, liaise with the relevant IT provider so that the IT provider and the Contractor have reasonable notice and understanding of their respective roles and responsibilities so that they can co-ordinate their activity so far as practicable to avoid any conflicts.
- 2.27.3 The Contractor shall monitor any electrical loadings and additional heating, ventilation or air conditioning that BMC and its IT providers install, or propose to install, to ensure that the overall integrity of the building services are not adversely affected. If such adverse effects occur or are foreseen, then the Contractor shall immediately inform BMC's Representative.

## **2.28 Service Publicity**

- 2.28.1 Where appropriate, the Contractor will publicise the services provided to users, ensuring information is widely available on the scope of services and how they can be accessed. The Contractor will propose for agreement with BMC and BMC's Representative a schedule for regularly reviewing service publicity.

## **2.29 Support to Building Strategy Plan**

- 2.29.1 The Contractor will support BMC in its collaboration with BMC for the preparation of the annual Buildings Strategy plan, e.g. Long Term Maintenance plan (LTM).

## **3. REQUIRED MAINTENANCE STANDARDS**

### **3.1 General**

- 3.1.1 The Contractor will ensure that all buildings meet the Required Accommodation Standards described in this Specification at all times.
- 3.1.2 The Contractor will ensure that all plant, equipment and equipment rooms necessary for the delivery, performance and provision of the Services are kept in proper working order in accordance with their design.

### **3.2 Water Supply, Storage and Distribution Systems**

- 3.2.1 The Contractor will maintain all water supplies, storage and distribution systems from the point at which the Utilities service is being delivered and ensure the adequate, continuous and direct supply of water to all points in each building where it is needed.
- 3.2.2 In addition, the Contractor will take reasonable steps to ensure that, where appropriate, the supply arrives in a condition suitable for direct consumption.
- 3.2.3 Water Treatment Risk Assessments will be undertaken by BMC's estates team and where necessary, cleaning, the installation and maintenance of dosing systems and chlorination will be undertaken.
- 3.2.4 Where there is a requirement for hot/cold water or potable water, the Contractor will maintain systems that can supply, store and deliver this at required temperatures and in sufficient quantity at all points of supply to meet likely predicted demand. If this requirement cannot be met, the Contractor should advise BMC if they consider that the existing systems are inadequate (refer to ACOP L8 and HSG274 for guidance).

### **3.3 Drainage and Waste Systems**

- 3.3.1 The Contractor will maintain adequate drainage and waste systems including all sanitary ware, traps, sinks and gullies and the connections to the appropriate soil waste and drainage systems.
- 3.3.2 In addition, the Contractor will maintain adequate surface water drainage to obviate the risks of flooding and ensure uninterrupted use of the building.
- 3.3.3 Measures will be taken to prevent the transfer of odors from the drainage and waste systems into other areas of the buildings and will advise BMC's Representative if it considers that the existing systems are inadequate to fulfil this requirement.
- 3.3.4 In the event of a drain blockage the Contractor shall undertake all necessary CCTV surveys, jetting and remedial works when instructed by BMC.

### **3.4 Airconditioning Systems**

- 3.4.1 Taking into account all factors likely to affect the internal environment of the buildings, including business operations, and subject to any specific temperature requirements applicable to particular parts of the buildings (such as computer rooms), the airconditioning systems in the buildings will, at all times, be capable of meeting the minimum temperature requirements referred to below.
- 3.4.2 The Contractor will maintain suitable controls to facilitate the airconditioning systems proper and efficient operation.
- 3.4.3 The minimum temperature requirement is 22 °C within one hour after the commencement of Normal Working Hours, unless otherwise agreed in writing and incorporated into the Method Statement for the relevant Facility.
- 3.4.4 The Contractor shall also undertake such operations including inhibitor dosing, cleaning of strainers, and the like so as to protect the system from corrosion and other damage.

### **3.5 Ventilation Systems and Humidity Controls**

- 3.5.1 At all buildings where there is mechanical ventilation, air conditioning and/or cooling systems and humidity controls, or other specialist ventilation/extraction systems, these will remain balanced and operate efficiently and effectively, in accordance with their design and maintenance parameters and the environmental criteria included in Schedule 5 and SFG20.
- 3.5.2 The Contractor shall report to BMC's Representative any actions and/or conditions which compromise the environmental criteria.

### **3.6 Electrical Power Distribution**

- 3.6.1 The Contractor will ensure access from the point at which the Utilities service is provided (HV switches and transformers included) to a permanent, constant and consistent electrical power supply, adequate for BMC's requirements.
- 3.6.2 The Contractor will undertake regular load / phase monitoring to enable appropriate balancing of the system and identification of service failure risks. Where necessary the Contractor shall re- balance the system.
- 3.6.3 The Contractor will maintain electrical power and all associated equipment and plant to support the operation of IT and telecom systems including:
  - 3.6.3.1 cabling distribution systems;
  - 3.6.3.2 non-standard socket outlets and outlet apertures; and

3.6.3.3 temperature control.

### **3.7 Stand-by Electrical Supply**

3.7.1 At all buildings where there is a standby electrical supply the Contractor will maintain it to ensure the continuous operation of electrical equipment during a mains failure and shall demonstrate this through routine load testing.

### **3.8 Uninterrupted Power Supplies(UPS)**

3.8.1 The Contractor will maintain an uninterrupted power supply to ensure the operation of electrical equipment during a mains failure, dip, spike or surge.

### **3.9 Interior Lighting**

3.9.1 The Contractor will maintain adequate lighting systems at all buildings capable of meeting the lux level and lighting category for the function of the area, all in accordance with HSE publication HSG38 'Lighting at Work'.

3.9.2 The Contractor will undertake routine testing of lighting levels, regular replacement of lamps, cleaning of grilles and diffusers.

3.9.3 Suitable controls shall be provided to allow proper, efficient and economical use of lighting.

### **3.10 External Lighting**

3.10.1 The Contractor will maintain external lighting that will allow safe entry and egress for all buildings and safe movement within the buildings and to provide an effective security deterrent, all in accordance with HSE publication HSG38 'Lighting at Work'.

### **3.11 Emergency Lighting**

3.11.1 The Contractor will maintain emergency lighting that will enable users to safely exit all buildings, to the lighting levels recommended in with HSE publication HSG38 'Lighting at Work'.

3.11.2 The Contractor shall test the emergency lights

### **3.12 Lifts and Hoists**

3.12.1 The Contractor will maintain in the buildings all lifts and hoists and keep them in operational order and in accordance with design parameters, manufacturers' specifications and in line with current legislation.

### **3.13 Lightning Protection System**

3.13.1 The Contractor will maintain a system, where fitted, to provide the buildings, systems and users protection from any lightning strikes.

### **3.14 Fire Detection and Alarm Systems**

3.14.1 The Contractor will maintain all fire alarms and fire detection systems as appropriate and in line with current legislation and Indian Standards.

### **3.15 Induction Loops**

3.15.1 The Contractor will maintain induction loops where fitted for the deaf and hard of hearing.

### **3.15 TV and Radio Cabling, Aerials and Sockets**

3.16.1 Excluded from this Contract

### **3.17 Mechanically Operated Filing and Retrieval Systems**

3.17.1 Contractor maintain in accordance with relevant legislations and best practice.

### **3.18 Intruder Detection Systems**

3.18.1 The Contractor will ensure that the intruder detection systems comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification and to achieve the required level of security appropriate to the assessed risk at each building.

### **3.19 Panic Alarms Systems**

3.19.1 The Contractor will maintain panic alarms activated by remote signals and ensure that they comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification, to achieve the required level of security appropriate to the assessed risk and internal requirements at each Facility.

### **3.20 Access Control**

3.20.1 The Contractor will maintain access control systems and ensure that they comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification, to achieve the required level of security appropriate to the assessed risk and internal requirements at each Facility.

### **3.21 Closed Circuit Television Systems**

3.21.1 The Contractor will maintain the CCTV systems to their current capability and ensure that they comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification to achieve the required level of security appropriate to the assessed risk at the site.

### **3.22 Gatehouses and Security Barriers**

3.22.1 The Contractor will maintain gatehouse security equipment and/or security barriers.

### **3.23 Security CCTV, Intruder Alarm and Access Control Telephone Lines Monitoring**

3.23.1 The Contractor will be responsible for ordering, inspection, installation, maintenance, operation of Security Telephone Lines, including where necessary security and intruder alarm engineering response in the event of system fault or alarm activation.

### **3.24 Fume Cupboards**

**The Contractor shall maintain the fume cupboards, laminar flow cabinets and LEV's to ensure there is continuous operation in accordance with the appropriate Indian Standards**

## **4. SERVICE REQUIREMENTS**

### **4.1 Introduction**

4.1.1 The Contractor will, at all times, deliver the Services in accordance with the requirements set out in the Contract at all buildings.

## **4.2 Facilities, Equipment and Small Tools,etc.**

- 4.2.1 BMC will provide free of charge the following facilities for the use of the Contractor. On handover and thereafter the Contractor shall assume full responsibility and liability for the fitness for purpose:
- Contractor maintenance area/workshop together with the associated furniture will be located in KDB-027.
  - Changing room with lockers will be located in TECS-006.
  - Contractor offices and meeting room located in GIH-142, GIH-143 and GIH-144 will have office furniture i.e. desk and chairs. The use of the meeting room will be shared between the Contractor and the BMC Estates Team.
- 4.2.1.1 Contractor shall seek authorisation from BMC before accommodating any additional space on site.
- 4.2.1.2 A desk located in the Contractor's Office will have a benchtop PC with one licence to access the BMC maintenance system (CAFM) for the Contractor's Contract Manager and Contract Supervisor to have access to CAFM.
- 4.2.1.3 The Contractor shall be provide mobile phones for their staff.
- 4.2.1.4 Any existing hand tools (of the personnel to be transferred to the Contractor) will be handed to the Contractor who will be responsible for subsequent maintenance and replacement;
- 4.2.1.5 use of the on site toilets and other welfare facilities; and
- 4.2.1.6 use of the on site electricity and gas and water supplies.
- 4.2.2 All other facilities, uniforms, PPE, data lines, vehicles, equipment, etc., required to deliver the Services shall be provided by the Contractor.
- 4.2.3 The Contractor shall provide a monthly report to BMC certifying the fitness for purpose of all PPE, vehicles, equipment, small tools, etc. used in delivering the Service.
- 4.2.4 On completion of the Contract the Contractor shall hand back to BMC all such equipment, etc., in an equivalent condition.

## **4.3 Records & Reporting**

### **4.3.1 Format of Records and Reports**

- 4.3.1.1 All records and reports shall be provided to BMC in both hard and electronic copy.

### **4.3.2 Maintain technical records and information**

- 4.3.2.1 The Contractor will securely and accurately provide, maintain and update technical records, information, operating and maintenance manuals, drawings and asset registers; and
- 4.3.2.2 The Contractor will update the data necessary for the efficient operation of the CAFM system and Help Desk as required.

### **4.3.3 Reporting and Communication**

- 4.3.3.1 The Contractor will monitor and report to BMC and BMC's Representatives on the management of the Services and shall provide and validate such other information regarding the Services at such frequencies as BMC and BMC's Representative require;
- 4.3.3.2 The Contractor shall provide a monthly management report and review of all management issues for each building and in addition report against the contracted Key Performance Indicators (KPIs) as outlined in the Service Level

Agreement (SLA); and

- 4.3.3.3 The Contractor shall review the overall delivery of the services on a 6-monthly basis and report to BMC on achievements and recommendations to improve the value for money.
- 4.3.4 The Contractor will carry out statutory inspections and assessments (as required) and will ensure that all accidents and incidents on site are reported in accordance with the relevant legislation.
- 4.3.5 Each party will, as far as is reasonably practicable, keep the other informed of all risks, potential hazards, accidents, incidents and dangerous occurrences within all buildings.
- 4.3.6 The Contractor will actively participate and co-operate in establishing and maintaining regular joint Health and Safety inspections.
- 4.3.7 The Contractor shall use BMC's standard forms to report any injury, incident or near miss occurring in the delivery of the Services.
- 4.3.8 Communication with the user and regular reporting will be carried out to the standards specified below.

#### **4.4 Maintain Records**

- 4.4.1 The Contractor will ensure that, in accordance with Statutory Requirements, records of all statutory inspections (unless exempt in Schedule 2), insurance records, testing sheets, independent testing, risk assessments, incidents, accidents, dangerous occurrences and emergency procedure training are maintained at each building and are available to BMC.
- 4.4.2 The Contractor will file in a suitable format all Health and Safety reports, certificates, risk assessments and other documents, on the CAFM system to the specified template.
- 4.4.3 The Contractor will also maintain all records in BMC's Reference Station on Site and in addition shall issue to BMC hard copies of all statutory compliance certificates and report and update the CAFM system.

#### **4.5 Reports and Remedial Action**

- 4.5.1 The Contractor will advise BMC's Representative immediately of all incidents, accidents and dangerous occurrences and provide BMC with a full written report containing details of any remedial action taken, or necessary within 1 Business Day.
- 4.5.2 Following statutory inspections and risk assessments, the Contractor will take all remedial action necessary to rectify areas of non-compliance and provide a written report to BMC within 3 Business Days.
- 4.5.3 Accident/incident reports received by the Contractor from BMC's will be actioned within 1 Business Day.

#### **4.6 Health and Safety – Specific Requirements**

##### **4.6.1 Introduction**

- 4.6.1.1 The Contractor shall provide and manage the following Health & Safety processes, in relation to the M&E services included under this Contract, to protect users, visitors and contractors and minimise risk in respect of the buildings:
  - 4.6.1.1.1 The Permit to Work system;
  - 4.6.1.1.2 Health and safety signage;
  - 4.6.1.1.3 Business Continuity and Disaster Recovery plans;
  - 4.6.1.1.4 Risk Assessments; and



#### 4.6.1.1.5 Method Statements

4.6.1.2 The Contractor will comply with all relevant legislation, standards, codes of practice and practice guidelines.

4.6.1.3 The Contractor will manage and operate according to a recognised and comprehensive Health, Safety and environmental system, as approved by BMC, at all times.

4.6.1.4 The Contractor will plan, organise, control, monitor and review its Health and Safety management system to ensure preventative and protective Health and Safety measures are taken.

4.6.1.5 A copy of the building Specific Health and Safety Plan will be maintained at the site in the appropriate reference station.

4.6.1.6 The Contractor will liaise with all other occupiers of the property where appropriate.

4.6.1.7 Permit to Work (PTW):

4.6.1.7.1 The Contractor will ensure their PTW system is adhered to at all times;

4.6.1.7.2 The Contractor's PTW System will be issued to BMC's Representative periodically for auditing purposes.

4.6.1.7.3 The Contractor will ensure that it, and third party contractors provide detailed Method Statements and Risk Assessments for all work activities to be undertaken to enable the transfer of information relative to known M&E specific hazards and risks. This will be a necessity in operating a compliant and effective PTW;

4.6.1.7.3 The Contractor will ensure its team members are trained as authorised persons for management, control and issue of PTW; and

4.6.1.7.4 The PTW system must also make provision for specialist hot works, excavation, confined space, high voltage and asbestos permit processes.

### 4.6.3 Fire Risk Assessments

4.6.3.1 Excluded

### 4.6.4 Emergency Procedures

4.6.4.1 The Contractor will make their staff aware of the emergency procedures relating to the relevant building and keep staff advised of all relevant changes.

### 4.6.5 First aid

4.6.5.1.1 BMC will nominate suitably qualified First Aiders in accordance with the provisions of all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.

4.6.5.1.2 The Contractor will notify BMC's Representative, not less than 3 months in advance of the need for a nominated first aider to receive refresher training.

## 4.7 Statutory Requirements

4.7.1 The Contractor will ensure statutory inspections are undertaken in respect of all Services provided (within scope as Schedule 2); this will include, but not be limited to all statutory inspections, insurance records and testing sheets. Records will be maintained in a suitable format, on the CAFM system and in the BMC Reference Station.

## **4.8 Maintenance**

4.8.1 Objective:

4.8.2 At each building, the provision by the Contractor of a maintenance service to ensure the Required Outputs are met at all times.

4.8.3 General Requirements:

4.8.4 The Contractor will provide the Services to the extent of the operational capability and capacity of the Plant, Equipment and systems installed at the building.

4.8.5 The Contractor will ensure that Maintenance Output Requirements are achieved by assessing the performance of assets and adjusting, planned maintenance and operating regimes to minimise reactive calls and maximise the reliability, energy efficiency and operation of plant

4.8.6 The Contractor will ensure maintenance staff are equipped with the following as a minimum:

4.8.6.1 mechanical hand tools and specialist tools;

4.8.6.2 lifting beams, block and tackle;

4.8.6.3 access equipment;

4.8.6.4 pressure gauges;

4.8.6.5 hydraulic test equipment;

4.8.6.6 protective clothing;

4.8.6.7 efficiency test apparatus;

4.8.6.8 calorimeter - dryness fraction testing; and

4.8.6.9 test equipment.

4.8.7 The Contractor will be responsible for the undertaking of all Statutory Inspections (within scope) and for providing the necessary attendance at all insurance inspections.

4.8.8 Statutory compliance - the Contractor will assist BMC in reviewing the effect of legislative change and the implications for equipment installation, upgrade or removal and the impact upon the Operations overall. The Contractor will safeguard the interests of BMC and add to service quality.

4.8.9 All maintenance Specifications and Life Cycles Replacement Plans will be discussed and agreed with BMC to ensure that any adverse impact on the business needs of BMC is foreseen and minimised and that the plans accurately align with BMC's business strategies.

4.8.10 Value engineering techniques will be utilised by the Contractor to drive innovation, efficiency, and quality in the specification, procurement, supply and distribution of services to BMC.

4.8.11 The Contractor will minimise disruption to BMC by investigating and instigating alternative methods of works where practical and most cost effective as agreed with BMC.

4.8.12 The Contractor, in agreement with BMC, will ensure that the Annual Maintenance schedules have in-built flexibility measures that enable them to be adapted to meet the evolving requirements of BMC.

## **4.9 Planned Maintenance**

4.9.1 The Contractor will plan maintenance activities to include:

4.9.1.1 statutory certification and maintenance of all plant and equipment;

4.9.1.2 routine maintenance of all items requiring regular attention, adjustment and inspection;

4.9.1.3 advising BMC on maintaining stock lists;

4.9.1.4 cleaning of light diffusers and air filters; and

4.9.1.5 reporting requirements for Health and Safety and security systems.

4.9.2 The Contractor will be responsible for the preparation, control and validation of the maintenance task sheets against the specific assets at each building and where appropriate presenting to BMC, modified tasks to reflect building specific requirements. The Contractor will be responsible for undertaking regular reviews and updating the maintenance task sheets during the Term, and in response to changes in legislation, industry best practice codes, guidance notes and maintenance methods and manufacturers recommendations.

4.9.3 The Contractor will prepare new maintenance task sheets and maintenance programmes in response to plant replacement or upgrade. Revised maintenance task sheets will be provided to BMC for validation and approval, and subsequent incorporation onto the CAFM system.

## **4.10 Annual maintenance**

4.10.1 The Contractor will be responsible for identifying and preparing the draft Forward Maintenance Registers (FMRs) for each building.

4.10.2 The Contractor's local knowledge of the buildings, their understanding of the occupiers' requirements and knowledge will aid in the preparation of the draft FMRs.

4.10.3 The FMRs will be kept under review by the Contractor and subject to formal review every six months.

## **4.11 Maintenance approach**

4.11.1 A Planned Preventative Maintenance ("PPM") regime will be used by the Contractor which is based upon best industry practice including manufacturer's recommendations and requirements to maintain warranties by reference to SFG20.

4.11.2 Condition assessment and trend monitoring adopted by the Contractor will underpin a system that delivers the required standards and makes most efficient use of resources.

4.11.3 Periodic statutory works will be carried out according to a fixed schedule based on current legislation and written schemes. Assessment of condition will be used by the Contractor to develop a PPM regime that optimises performance and standards. As plant is replaced, BMC will work with the Contractor to install condition based monitoring equipment (where appropriate). An initial survey of existing plant by the Contractor will establish the benefits of installing condition monitoring equipment onto existing systems, particularly in critical areas.

4.11.4 All plant will be maintained under a Planned Preventative Maintenance regime. The regime will be developed by the Contractor in co-operation with BMC.

4.11.5 Maintenance will be undertaken by the Contractor to reflect the following priorities and response times detailed in Schedule 6 of this Specification.

4.11.6 Routine maintenance task requirements and frequencies will be determined between BMC and the Contractor in accordance with the following and including statutory regulations:

4.11.6.1 Health and safety requirements;

4.11.6.2 Operating and maintenance manuals for each building;

4.11.6.3 Manufacturers' recommendations; and

4.11.6.4 Industry best practice.

4.11.7 The issue of work sheets by the Contractor will be automated, and sheets will identify the Specification of planned work. Once the task has been completed, readings, observations and information from the technician's report will be entered onto the CAFM system. Any corrective jobs that are required will be raised as a new task on the CAFM system and the planned maintenance task will be closed.

#### **4.12 Approach to undertaking reactive maintenance**

4.12.1 The Contractor will be responsible for reactive maintenance work and the provision of a comprehensive out-of-hours service.

4.12.2 The Contractor will be required to be on call at all times and will provide appropriate staff coverage, supported by the necessary communication technology (pagers, mobile phones, PDAs) to ensure that they are contactable at all times.

#### **4.13 Environmental improvement**

4.13.1 The Contractor will address the following in its maintenance regimes:

4.13.1.1 pollution reduction measures and the Control of Pollution Regulations;

4.13.1.2 energy and water preservation initiatives;

4.13.1.3 optimal recycling of waste materials;

4.13.1.4 protection of natural resources by use of renewable and sustainable resources and those that are appropriate in both physical and ecological terms; and

4.13.1.5 protection and conservation of the environment both locally and globally.

4.13.2 The Contractor will:

4.13.2.1 review maintenance activities to identify and quantify adverse environmental impacts;

4.13.2.2 design management processes in co-operation with BMC in support of BMC's Environmental Management System to monitor environmental impact and set targets to eliminate or minimise any identified detrimental consequences;

4.13.2.3 ensure its Contracting Associates and Suppliers are informed of and are committed to BMC's environmental policies;

4.13.2.4 use energy, water and other natural resources efficiently by use of sensor controls, timed lighting systems and water flush reduction, where provided;

4.13.2.5 minimise the production of waste, and identify the best environmental option for its disposal in accordance with Governmental targets for recycling; and

4.13.2.6 train its staff in relevant environmental issues and of the role they must play in delivering the environmental program.

#### **4.14 Repair and Replacement of Defective or Non-Serviceable Parts**

- 4.14.1 The Contractor will carry out repair and replacement of defective or non-serviceable parts at the buildings to ensure the services are maintained in good operational order and that the Required Outputs are met at all times.
- 4.14.2 The Contractor will put in place a regime to avoid delay in the repair and/or replacement of defective items so that the services provision is maintained.

#### **4.15 Consumables and Spare Parts**

- 4.15.1 All consumables necessary for the maintenance and operation of all Services at all buildings will be provided free of charge by BMC, however, the Contractor will be responsible for keeping BMC informed of the consumable and the stock levels required
- 4.15.2 All spare parts will be provided by the Contractor but shall be reimbursed separately to the Contract Price following approval and based on the agreed costs.

#### **4.16 Life Cycle Planning**

- 4.16.1 The Contractor will assist BMC in the current annual Five Year Plan and FMR process. If it is agreed that the asset, or collection of assets, is due for life cycle replacement, it will be included in the life cycle plan. In the interim the Contractors responsibilities will remain unaltered.
- 4.16.2 If the Contractor reasonably believes that an asset or collection of assets is or is nearing the end of its economic life then the Contractor will continue the operation of and minimise further damage to or resulting from the existing conditions of the relevant asset or assets and advise BMC in writing of the proposed works that would be required to repair, renew, or replace the relevant item or items.

#### **4.17 Underground building services – Drainage**

- 4.17.1 The Contractor will maintain the services to ensure that surface water and sewage flow off in a manner that will ensure the prevention of foul odours and that the flow of all drainage material is constant and unimpeded.
- 4.17.2 The Contractor will maintain the entire drainage network in good condition, free from blockages with internal grease traps and external interceptors in a clean and satisfactory condition.
- 4.17.3 The Contractor will comply with the local water authorities' regulations for effluent discharges and will ensure the disposal of waste from the buildings conforms to the Environmental Protection Regulations, and great care will be exercised in ensuring that radioactive waste, chemical waste, solvent waste, asbestos waste and biological agents that cause harm to humans, animals, plants and the environment are excluded from the drainage system.
- 4.17.4 In addition to the routine maintenance of the drainage systems, the Contractor will provide a fast and responsive service to any blockages, overflow discharges and smells emanating from the drainage system including the undertaking of rodding, jetting and CCTV investigations.
- 4.17.5 The Contractor will have day to day responsibility for management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.
- 4.17.6 Close liaison will be maintained between the Contractor and BMC to ensure all drainage issues are resolved quickly. A 24 hour call-out service will be provided.
- 4.17.7 Appropriate records and incident reporting systems will be maintained by the Contractor on the CAFM system to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action also logged. Existing drawings of the drainage system for the buildings will be collated by the Contractor and recorded on the CAFM system and retained at the relevant building. The drawings will identify drainage routing, manholes, invert levels and drainage diameters as well as outfall and external sewer connections.

#### **4.18 Maintenance of Mechanical and Electrical Services, Plant, Systems and Equipment**

- 4.18.1 The Contractor will ensure that all mechanical and electrical services, plant, systems and equipment and all rooms, facilities and equipment associated with the delivery of these services, and all equipment and appliances at the site required to meet the Required Outputs are maintained in good repair in accordance with the Required Accommodation Standards of this Specification, to meet the optimum performance of the plant and equipment and thereby provide an acceptable working environment.
- 4.18.2 The Contractor will provide all plant, equipment, necessary for the delivery, performance and provision of the Services and ensure they are in proper working order in accordance with their design.
- 4.18.3 The Contractor will ensure that defective, flickering and/or failing luminaries are replaced as a priority activity.
- 4.18.4 The Contractor will maintain all equipment and appliances so that they operate effectively and safely.

#### **4.19 Building Management Systems(BMS)**

- 4.19.1 The Contractor will undertake appropriate monitoring of BMS installations where located at a building to ensure the services are operating to their optimum and to the design and environmental criteria set by BMC.
- 4.19.2 Maintenance of the BMS system will be undertaken by the Contractor as part of the contract. BMC will retain access rights. Any adjustments made by the Contractor must be communicated to BMC.
- 4.19.3 The Contractor shall advise BMC of any recommended adjustments to the BMS system settings to optimise or improve performance.

#### **4.20 Inspections**

- 4.20.1 The following engineering services will be inspected, maintained and repaired on a regular basis by the Contractor, these shall include but not be limited to:
  - 4.20.1.1 air conditioning and ventilation plant;
  - 4.20.1.2 gas services;
  - 4.20.1.3 industrial compressed air;
  - 4.20.1.4 local industrial and domestic gas fired boilers;
  - 4.20.1.5 cold water services;
  - 4.20.1.6 domestic hot water services;
  - 4.20.1.7 low pressure and medium pressure hot water heating services;
  - 4.20.1.8 calorifiers and pumps;
  - 4.20.1.9 HVAC equipment
  - 4.20.1.10 stand-by generators;
  - 4.20.1.11 uninterrupted power supply (UPS);
  - 4.20.1.12 lifts and other transportation systems;
  - 4.20.1.13 high voltage equipment;
  - 4.20.1.14 low voltage distribution, FET.

4.20.1.15 lightning conductors;

4.20.1.16 lighting;

4.20.1.17 emergency lighting including battery replacement;

4.20.1.18 fire alarm systems; and

4.20.1.19 Security access control, CCTV & intruder / perimeter detection systems

4.20.2 For the avoidance of doubt the following are excluded from the Contract and will be maintained under other contracts by BMC:

4.20.2.1 television aerials; and

4.20.2.2 sanitary fittings (taps are included);

#### **4.21 Water supply, storage and distribution systems**

4.21 The Contractor will maintain all water supplies, storage and distribution systems to ensure the adequate, continuous and direct supply of water to all points in each building where it is needed. In addition, the Contractor will take reasonable steps to ensure that, where appropriate, the supply arrives in a condition suitable for direct consumption. To include cleaning, chlorination and disinfection as required.

4.22 The Contractor shall carry out the daily & weekly flush of outlets, weekly calorifier temperature checks and the reactive tasks following low or elevated temperatures and or poor chlorine dioxide reserves.

4.22.1 Where there is a requirement for hot or cold water, the Contractor will maintain systems that can supply, store and deliver this at required temperatures and in sufficient quantity at all points of supply to meet likely predicted demand and viable recovery periods.

4.22.2 The Contractor will maintain standby and duty pumps in most situations to give continuity of service and also to aid cleaning. Where pumping systems are linked to a building management system, the Contractor will ensure that run times can be controlled and that maintenance regimes linked into this arrangement. Where pumps are not so linked a changeover between run and standby pumps will be undertaken manually on a periodic basis by the Contractor and details of such operations reported under the maintenance records for that asset.

4.22.3 The Contractor will ensure that expansion joints, anchor points, associated supporting brackets, insulation of all pipe work and fittings including valves will be maintained.

4.22.4 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.

4.22.5 Appropriate records and incident reporting systems will be maintained by the Contractor to indicate that regular inspections, maintenance, repair and testing have taken place.

4.22.6 The Contractor shall ensure that all pressure vessels comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

4.22.7 Appropriate documentation will be maintained by the Contractor on the CAFM system and at the relevant CSO to provide a general description of all services including technical details on safe operating limits, drawings, a Specification of all equipment within individual plant rooms, including the marking and identification of all pressure vessels.

- 4.22.8 The maintenance regime will consist initially of a planned maintenance approach, in accordance with good industry standards based on run times but will be developed into a condition based approach during the Term of this Contract. Appropriate mechanical and electrical checks will take place on drive motors and pumps.
- 4.22.9 Integrity of all pipe work will be maintained by the Contractor at all times to prevent any possible contamination risk. Where pumping systems are linked to a BMS, run times will be set, controlled and maintenance regimes linked into this arrangement.
- 4.22.10 Temperature will be maintained in accordance with the Legionella Risk Assessment for each building and so that the room temperature will be reasonable in accordance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

#### **4.23 Condition of pumps and pipework**

- 4.23.1 The Contractor will undertake an inspection in accordance with the timetable in the existing PM Specifications and FMR and annually thereafter of all pump and pipe work infrastructure to ensure that pipe work, fittings, vessels and other features are undamaged and conforming with statutory requirements.
- 4.23.2 The following management protocols will be adopted:
- 4.23.2.1 full training will be given by the Contractor to all personnel undertaking maintenance on all aspects of all fluid systems, including localised boiler plant;
- 4.23.2.2 all new pipe work vessels and major fittings installed by the Contractor will be suitably identified and labelled;
- 4.23.2.3 access to engineering plant will be restricted to authorised personnel;
- 4.23.2.4 the Contractor will identify within one month of the Commencement Date all restricted assets;
- 4.23.2.5 there will be regular systems checks for leaks; and
- 4.23.2.6 engineering plant will be maintained to a high standard in accordance with good industry standards.

#### **4.24 Cold water services**

- 4.24.1 Water supply pressures will be maintained by the Contractor to ensure a correct level of supply at all points at the building, including fire hydrants.
- 4.24.2 Water will be stored on buildings where the necessary facilities exist:
- 4.24.2.1 to provide reserve supply during possible failure of the main cold water supply;
- 4.24.2.2 to reduce the maximum demand on the cold water main fluctuations;
- 4.24.2.3 to provide accommodation for the expansion of any water subject to heat;
- 4.24.2.4 to limit the pressure on the distribution system; and
- 4.24.2.5 the cold water pipe work distribution system will be compliant with water bylaws and all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification. Pipe work is to be insulated, particularly where it is in close proximity to other services. Cold water will be stored at a maximum temperature of 20°C to comply with L8 Approved Code of Practice.
- 4.24.3 At some buildings there may be need for additional chlorination or other appropriate treatment. The Contractor will check by the regular monitoring of chlorine residuals and microbiological quality around the building in accordance with the Legionella Risk Assessment and recommendations regarding water quality. BMC estates will manage the ClO<sub>2</sub> dosing plant, currently there are two on site.



- 4.24.4 The Contractor will have day to day responsibility for the management, operation, organisation of cold water services and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set- out in this Specification. With a high focus on the flushing of outlets and the removal of any dead legs discovered.
- 4.24.5 Appropriate records and incident reporting systems will be maintained by the Contractor to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action logged. The Contractor will ensure that all records are maintained on the CAFM system.

## **4.25 Hot water services**

- 4.25.1 The Contractor will ensure that installations are compliant with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set- out in this Specification and will ensure that:
- 4.25.1.1 the entire storage volume will be operated to comply with L8 without permanent pockets of lukewarm water;
- 4.25.1.2 storage capacities for hot water will be limited to minimise stagnation and stratification. Tank shell linings will be resistant to bacterial growth. Sufficient access will be given to facilitate cleaning with a drain fitted at the base to enable the vessel to be properly drained;
- 4.25.1.3 circulation hot water temperatures will be maintained to comply with L8, with local temperatures at the point of delivery exceeding 50°C or as dictated by the Legionella Risk Assessment. There will be full circulation of hot water between the storage vessel and the  
  
individual outlets, taps, mixing valves or other outlet devices served from the distribution system;
- 4.25.1.4 storage will be limited to the requirements of peak demand and the rate of heat input will be based on two peak demands during the hour period. Sufficient recovery time will be allowed. The Contractor will ensure that all controls are building set and regularly adjusted;
- 4.25.1.5 attention will be given to ensuring that the water is retained in a wholesome condition, and in particular the need to conform to the latest Legionella guidance; and
- 4.25.1.6 water supply pressures will be maintained to ensure a correct level of supply at all points on the building, including showers, if fitted. Pipe work will be insulated particularly where it is in close proximity to other services; and pasteurisation of all vessels will take place after statutory inspections and other draining down operations and as dictated by the maintenance regime recommended in the Legionella Risk Assessment for the building.
- 4.25.1.7 The Contractor will have day to day responsibility for the management, operation, organisation of the hot water service and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set- out in this Specification.
- 4.25.1.8 The Contractor will ensure that appropriate records and incident reporting systems will be maintained to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action logged. BMC estates will overview the water system management.
- 4.25.1.9 The Contractor will ensure that hot water is safe to use, of the designated quality, volume and pressure and be operated safely with suitable protective safeguards installed in respect of excess pressure and temperature control features. All individual water systems will be suitably identified and free from leakage, with emphasis given to the provision of quality water via strained, filtered and treated systems.
- 4.25.2 BMC will ensure all statutory inspection examinations and certificates are recorded and copies retained for inspection.
- 4.25.3 Legionella precautions will be practiced throughout the whole network to ensure conformity with laid down standards. Protocols, regimes, temperature monitoring and testing will all be carried out at regular intervals. The

building management system, where fitted, will be used to monitor tank and other key water temperatures.

- 4.25.4 Visual inspections will take place at least annually to ensure that pipe work, fittings, vessels and other features are undamaged and conforming to statutory obligations. Temperature limits will be under the control of the BMS, where available, to provide safety and also control pumps and associated control valves.
- 4.25.5 The Contractor will adopt the following management processes:
  - 4.25.5.7 full training on all aspects of hot water systems and controls;
  - 4.25.5.8 all pipe work vessels and major fittings to be suitably identified and labelled;
  - 4.25.5.9 access to engineering plant only by authorised personnel. Within three months of the Transfer Date, the Contractor will identify all work activities and plant and equipment by building, requiring authorised personnel;
  - 4.25.5.10 regular systems checks for leaks;
  - 4.25.5.11 to all approved standards;
  - 4.25.5.12 carry out statutory inspections carried out to all pressure vessels in accordance with the written scheme;
  - 4.25.5.13 operate a Permit to Work system as necessary; and
  - 4.25.5.14 maintain engineering plant to the specified standard.

## **4.26 Water treatment**

- 4.26.1 Water treatment and testing in the buildings is required as a minimum, but not limited to cold drinking water and hot water systems, in order to ensure that all water used complies with current legislation on water quality.
- 4.26.2 The quality of water will be governed by the quality delivered to the building, and any subsequent softening and chemical conditioning techniques system which will be used in conjunction with potable water systems.
- 4.26.3 Where any plant or equipment uses processed water, including any water circuits as part of a production process, the concentration of any chemical will be checked to ensure that it is not harmful if treated water comes into contact with operators or a product, and that safe conditions are maintained. Consideration will also be given to ensuring that the process kills organisms flowing through the equipment, leaving no disinfectant agents. All water treatment systems will be fail safe and have sufficient instrumentation to monitor operation and delivery.
- 4.26.4 Regular inspection and maintenance of water treatment regimes, including both equipment and water quality, will be instituted.
- 4.26.5 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.
- 4.26.6 The task of maintaining clean and quality water systems requires the continual addressing of many issues including technical training of the engineers involved. All work will comply with all relevant legislation, standards or codes of practice applicable in respect of risk assessments, protocols, management, training, record keeping and monitoring.
- 4.26.7 BMC will provide all chemicals and filters to the CLO2. Dosing pumps, metering devices, tanks, fittings and filters will be regularly cleaned, with appropriate microbiological and other technical checks will be made to confirm a pure water supply free from contaminants. Regard will be taken of the levels of CLO2.
- 4.26.8 Legionella precautions will be practiced throughout the whole network to ensure conformity with laid down standards. The Contractor will abide by the Legionella Risk Assessments carried out by BMC and carry out a review of these every 2 years. The treatment, testing and maintenance regime will be dictated by the findings of this

assessment. Protocols, regimes, temperature monitoring and testing will all be carried out at regular intervals. The BMS, where available, will be used to monitor tank and other key water temperatures or physical testing where this is not possible. Visual inspections will take place at regular intervals of time to ensure that pipe work, fittings, vessels and other features are undamaged and conforming to statutory obligations.

4.26.9 The Contractor will adopt the following management protocols:

4.26.9.7 full training on all aspects of water treatment systems will be provided by BMC to all personnel responsible for maintaining and operating the systems;

4.26.9.8 all new pipe work to be suitably identified and labelled;

4.26.9.9 good housekeeping discipline within plant room areas;

4.26.9.10 access to engineering plant only by authorised personnel;

4.26.9.11 regular systems checks for chemical and microbiological defects; and

4.26.9.12 engineering plant maintained to a high standard.

## **4.27 Storage Tanks**

4.27.1 Storage tanks are used to provide water supplies to various parts of a building for:

4.27.1.7 cold water services for domestic hot water;

4.27.1.8 tanked water;

4.27.2 The Contractor will ensure that:

4.27.2.7 all storage cisterns will comply with all relevant legislation, standards or codes of practice;

4.27.2.8 cold water will be stored at temperatures of not more than that recommended in L8;

4.27.2.9 water supply pressures will be maintained to ensure a correct level of supply at all points on the building, including fire hydrants.

4.27.2.10 the cold water pipe work distribution system will be compliant with all relevant legislation, standards or codes of practice; and

4.27.2.11 pipework will be insulated where recommended by the Legionella Risk Assessment or as part of any remedial actions particularly where it is in close proximity to other services. The Contractor shall bring to the attention of BMC any such pipework not insulated.

4.27.3 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.

4.27.4 All tanks will be subjected to regular temperature checks and inspection to ensure that all equilibrium float valves function correctly and there is no build-up of algae. A regular program of tank cleaning will be undertaken, using purogene and chlorination, to ensure good standards of hygiene. The insulation of tanks will be maintained undertaken as dictated by the

Legionella Risk Assessment to ensure that tank temperatures are kept below the lower limit of 20°C. Frequencies will be dictated by the L8 approved code of practice (ACOP) and L8 Risk Assessment.

4.27.5 Underground storage tanks will be regularly checked to ensure that they are free from contamination, particularly if they are in close proximity to sewers and drains.

The Contractor will ensure that:

4.27.6 water supply pressures will be maintained to ensure a correct level of supply at all points on the building, including fire hydrants and any hose reels;

a) the cold water pipe work distribution system will be compliant with all relevant legislation, standards or codes of practice; and

b) pipework will be insulated where recommended by the Legionella Risk Assessment or as part of any remedial actions particularly where it is in close proximity to other services.

c) The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.

4.27.7 Close liaison will be maintained between the Contractor and BMC to ensure that water quality at the point of delivery is acceptable.

4.27.8 There are many hazards associated with water systems such as pressure system safety and protection and Legionella. Hence effective control and discipline of all these areas is essential.

4.27.9 The Contractor will maintain the internal water storage and distribution system to ensure that water is safe to use, supplied to the designated quality, volume and pressure standards. The system is to be operated safely with suitable protective safeguards in respect of external incidents affecting quality or quantity to the building. All individual water systems will be suitably identified and free from leakage.

#### **4.28 Fume Cupboards**

4.28.1 The Contractor shall maintain the fume cupboards to ensure their continuous operation in accordance with the appropriate Indian Standards.

4.28.2 Further information on the secuflow auxiliary air fume cupboards is included in the Schedules accompanying this Specification.

#### **4.29 Ventilation systems and humidity controls**

4.29.1 In all buildings where there is mechanical ventilation, air conditioning, cooling systems and humidity controls, or other specialist ventilation/extract systems, these will remain balanced and operate efficiently and effectively, in accordance with their design and maintenance parameters. In all other buildings, natural ventilation will be maintained.

4.29.2 Where fitted the Contractor will utilize the BMS to provide continuous operational monitoring to each individual system and initiate an alarm indication when any feature moves beyond an acceptable parameter.

4.29.3 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but

not limited to those set-out in this Specification.

- 4.29.4 The Contractor will maintain appropriate records to indicate that inspections have taken place, remedial action taken and the correct level of on-going technical training has been undertaken with the personnel involved.
- 4.29.5 Visual inspections of the installation will ensure that the structural fabric, ancillary equipment and attendant controls remains in sound and safe condition, without corrosion, and that all guards and fixings are secured.
- 4.29.6 The Contractor will adopt the following management systems to ensure that:
  - 4.29.7 access to plant is by authorized personnel. The Contractor will identify plant with a restricted access requirement;
  - 4.29.8 the plant environment is safely maintained, with easy access for inspection purposes;
  - 4.29.9 good housekeeping to maintain the area free of debris, obstructions or other hazards;
  - 4.29.10 all access doors are secured and free from leaks;
  - 4.29.11 internally the plant is clean and free from accumulations of visible moisture;
  - 4.29.12 maintained free from vegetation, rubbish and mold growth;
  - 4.29.13 louvres clean and smooth and insect and vermin screens are clear and intact;
  - 4.29.14 automatic isolation and fire dampers functional and free to operate;
  - 4.29.15 intake areas maintained free of roosting and nesting activities of gulls, pigeons or other species;
  - 4.29.16 validation of exhaust ventilation in respect of COSHH regulations; and
  - 4.29.17 where necessary to maintain the system the Contractor will undertake ductwork cleaning and disinfection.
- 4.29.18 All heat exchange surface areas will be maintained in a clean condition. Operating parameters will be set to ensure plant protection.
- 4.29.19 Noise and vibration will be maintained within acceptable operational limits. Drive arrangements, belts and bearings will be maintained in effective operational condition. The operational temperatures of motors will be kept within safe limits.
- 4.29.20 Visual inspections to confirm that media is intact and dry. Filter units fit securely within their housings, forming an effective seal with no leakage. Manometer readings are between preset pressure limits. Inspection lights are operating correctly. Filters will be replaced as required to ensure the systems operate within the design parameters of the units.
- 4.29.21 Water level in the traps provides an effective seal, when the system is operational and at rest. Water in the glass trap is in a clean condition. The air break dimensions are correct. Pipe work is supported correctly to maintain the correct dimensions and prevent distortion. Drainage tray is clean, mounted at the correct attitude to direct water to the drainage point, avoid standing water, free from corrosion and mould growth. Inspection lights are operational. Fins, tubes and heat exchange surfaces - clean and clear from obstruction. Condensation discharges to drain with no standing water. Condensate is effectively trapped away from batteries. Cooling coils drainage is effective. Inspection lights are operating. No evidence of condensation collecting permanently on adjacent ductwork, or moisture contamination of filters; no standing water. Condensate is effectively trapped away from humidifiers. Inspection lights are operating.
- 4.29.22 If spray humidifiers are in use, BMC will replace them as a matter of urgency, in the meantime the Contractor

will ensure BMC is aware of their existence and ensure they are checked daily or disconnected until replacement is possible.

- 4.29.23 At appropriate intervals of time, ductwork and sound attenuators will be inspected internally for the accumulation of fine particles and corrosion. Remedial action will be implemented according to the degree of contamination and accumulated debris. All parts of the plant that become damp in normal use will be disinfected at least every six months or in accordance with the Legionella Risk Assessment. This will include humidifiers, cooler batteries, cooling coils, ductwork, drainage systems and energy recovery devices, in compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

#### **4.30 HVAC**

4.30.1 The Contractor will ensure the refrigerant cycle is used in conjunction with the building management system, where available, to control, change and monitor specific environmental conditions to maintain comfortable temperatures in accordance with design to ensure a satisfactory condition.

#### **4.31 Electrical Power Distribution**

4.31.1 The Contractor will maintain the internal electrical distribution system to provide a permanent, constant and consistent electrical power supply, adequate for BMC's requirements.

4.31.1 The Contractor shall ensure the electrical systems are maintained in accordance with the relevant legislation and best practice.

#### **4.32 Building Management Systems("BMS")**

4.32.1 The Contractor will operate and maintain BMS in accordance with the following instructions:

4.32.2 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

4.32.3 Environmental standards in terms of temperature and other requirements will be set by the Contractor in accordance with the design of the buildings, and in accordance with the Workplace Regulations, to ensure statutory compliance.

4.32.4 Given the complexity of a building management system installation, all staff involved in the operation of this activity will be provided with higher standards of training by the Contractor together with an understanding of the interactions between the systems and their functions. Specialists will only work on systems for which they have been trained.

4.32.5 The Contractor will use any BMS installation in a comprehensive manner, such that a live data bank of information and knowledge can be applied to the effective management of all engineering functions.

4.32.6 Operational Specifications will be produced by the Contractor within three months of the Transfer Date, based on the original design, that indicate the way in which the buildings and plant are to be controlled. The Contractor will determine the required BMS monitoring and control routines, its logical configuration and some of its physical characteristics.

4.32.7 Only trained and competent persons will be appointed by the Contractor to carry out the operation and control of this function.

4.32.8 All changes to set points and other parameters within the BMS must be agreed with BMC and written notification of these changes provided to the Estates Manager.

#### **4.33 Standby Electrical Supply**

4.33.1 At all buildings where there is a standby electrical supply the Contractor will maintain it in condition to the standards set out below to ensure the operation of electrical equipment during a mains failure.

4.33.1 Given the time to affect a changeover from mains electrical supplies to generator electrical supplies of 7.5 to 15 seconds, the Contractor will ensure that critical equipment continues to be served by UPS units

that provide an instant electrical facility particularly to computer rooms.

- 4.33.2 The prime function of emergency standby generators is to provide electricity to sections of a building when failure of the mains or combined heat and power (if fitted) occurs. The Contractor will ensure that electrical supply is delivered, having a satisfactory sinusoidal wave form will be free from harmonic distortion, with voltage, frequency and other characteristics will be compatible with the local Regional Electricity Company and the permitted limits of all relevant legislation, standards or codes of practice. The output capacity of the generating plant will be matched to building requirements.
- 4.33.3 If the loading levels of existing plant are considered by the Contractor to exceed its design capacity then the Contractor will notify BMC immediately clearly identifying the operational risks and immediate activities that may be put in place to mitigate such risks.
- 4.33.4 Full control procedures will be derived by the Contractor to safeguard the working of all generating plant and to comply with safety standards and maintenance personnel. These instructions will relate to the starting, stopping, operating and routine testing of all  
generating sets. This log book will also record details of generator run times, mains failures and maintenance checks. Battery and charger histories will also be recorded by the Contractor onto the CAFM system.
- 4.33.5 Routine servicing instructions will be scheduled by the Contractor together with plant history of all work that is carried out, including details of any parts that are replaced.
- 4.33.6 Visual inspections of all installations will ensure that the fuel tanks, engines and electrical components remain in a sound condition, without corrosion, and that all guards, fixings and protective devices are secured.
- 4.33.7 The standby electrical supplies will be maintained with the same output supply voltages provided by the site 'Voltage Optimisation Systems'.
- 4.33.8 Management systems are applied which ensure that:
- 4.33.8.1 access to plant and spaces is by authorised personnel only. The Contractor will identify such assets requiring authorised access within three months of the Transfer Date;
- 4.33.8.2 fuel oil supplies and protective devices are controlled and maintained in accordance with fire requirements;
- 4.33.8.3 engine deficiencies are addressed as they occur - coolant, anti-freeze will be checked on a regular basis and replenished as appropriate;
- 4.33.8.4 noise and vibration are within acceptable operational limits;
- 4.33.8.5 output technical characteristics are maintained;
- 4.33.8.6 regular records concerning basic running and maintenance protocols are maintained, checked and reviewed;
- 4.33.8.7 safety protective clothing is worn such as Ear Defenders whilst tests are undertaken and during any occupation within the space;
- 4.33.8.8 air intake and discharges maintained free from vegetation, rubbish and mould growth; and
- 4.33.8.9 louvres are clean and smooth, and that insects and vermin screens are clear and intact; and intake areas are maintained free from roosting and nesting activity of gulls or other species of birds.

Regular checks will be made by the Contractor on batteries and trickle chargers to ensure that all engines start and run. When possible, emergency generator engine running will be carried out under load conditions - with at least 70% of full load. Start-up will be made by simulated loss of supply. . Technical records will be kept by the Contractor of all testing, including faults found and associated remedial action. Regular load testing shall be undertaken.

4.33.9 Regular servicing of battery equipment by the Contractor's competent personnel will be carried out. Battery chargers will be checked to ensure satisfactory charging rate at the correct trickle charging current, and with a constant specific gravity. All batteries will be recharged at the current and time values recommended by the manufacturer.

4.33.10 Generator voltage will be maintained to within plus or minus 2.5% of the rated voltage with a power factor of 0.8 (lagging).

4.33.11 Sensors are securely fixed in position. Control circuits and drop-out contactors, associated relays and interlocks are regularly checked and physically examined.

#### **4.34 High Voltage**

4.34.1 The Contractor will maintain the high voltage equipment systems to achieve continuity of operation and maintain essential services. Site based High Voltage Authorised Person is to form part of the contractors team.

4.34.2 High voltage equipment consists of transformers, switchgear, protective devices and cabling.

4.34.3 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

4.34.4 There will be close liaison maintained with the energy supplier.

4.34.5 Appropriate Permit to Work records will be maintained to indicate that control of work, testing and inspections have taken place, with repairs and other remedial action details noted.

4.34.6 Only Approved Persons shall be permitted to work on electrical installations.

4.34.7 High voltage equipment is only to be accessible and operated by the engineers authorised for that purpose.

#### **4.35 Electrical Services - power and lighting**

4.35.1 The Contractor will undertake maintenance of electrical services, including power, lighting and miscellaneous related services. Including Portable Appliance Testing (PAT).

4.35.2 The scope of this service covers low voltage distribution systems, power outlets and lighting installations including light sources both external and internal as well as associated protective devices.

4.35.3 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

4.35.4 Maintenance and testing including PAT testing will be carried out in complete accordance with BS 7671 2008, 17<sup>th</sup> Edition (including amendments) of the IEE regulations, and at required intervals of time.

4.35.5 At the end of any electrical testing, test certificates will be recorded and copies retained for inspection. Copies of records will be provided by the Contractor for inclusion onto the CAFM system.

4.35.6 Lighting fittings will be regularly cleaned, with lamp replacement as required.



## 4.36 Luminaires

- 4.36.1 The Contractor will undertake the repair, maintenance and testing of all lights, lamps, signs and switches. The objective of the testing and inspection is that all this equipment is safe and will remain safe to operate and be free from risk.
- 4.36.2 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.
- 4.36.3 Illumination levels are crucial, and spot testing of lighting levels will be carried out by the Contractor where there is doubt about lighting performance.
- 4.36.4 Emergency and other related lighting have to function at all times, particularly in times of mains failure. Hence, batteries and contactors will be checked regularly to ensure lighting maintainability with battery replacement undertaken as required.
- 4.36.5 The Contractor will ensure that a program for the inspection of checking and testing of all lights, lamps, signs and switches is implemented at each building with all equipment initially assessed for Health and Safety risks. Full functional and safety checks will be carried out on all equipment.
- 4.36.6 Lamp replacement and the cleaning of shades, diffusers and signs will be carried out on a programmed basis, supplemented by the replacement of individual lamps that fail in key areas on either a break down or a day to day repair basis.
- 4.36.7 Regard will be given to the correct colour rendering and matching of all lighting, in whatever form. This will include fluorescent, tungsten, halogen and industrial discharge lighting located in workshops, plus external road lighting and extra low voltage lighting. Care will also be given to the continued use of energy efficient lighting.
- 4.36.8 Lamp holders, capacitors and chokes will be examined to check for performance and adequate ventilation to minimise heat.
- 4.36.9 Emergency lighting on fire escapes routes and other areas will be regularly examined and tested to ensure continuity of supply and compliance with all relevant legislation, standards or codes of practice.
- 4.36.10 The Contractor will determine the extent of the corrective maintenance, and thus the economic viability of the repair. If, for whatever reason, corrective maintenance or repair is not immediately undertaken, the appliance must be disabled and a taped notice affixed stating "DANGER DO NOT USE THIS APPLIANCE".
- 4.36.11 All maintenance will be undertaken in accordance with Indian Standards, codes of practice and manufacturers' recommendations.
- 4.36.12 These tasks will consist of the following:
  - 4.36.12.1 maintenance routines and testing carried out in accordance with agreed documented procedures;
  - 4.36.12.2 records kept of technical events; and
  - 4.36.12.3 the whole of the work will be undertaken by trained, knowledgeable, accredited personnel.
- 4.36.13 The majority of this equipment will be tested and inspected as part of the ongoing program of the inspection and testing of the whole electrical installation. Procedures will comply with the latest edition of the Electricity Regulations and tests rendered accordingly.
- 4.36.14 Only approved meters specifically designed for maintenance appliance testing are to be used by the

Contractor (to GS 38 regulations). Currently this includes those manufactured by:

- 4.36.14.1 Megger;
- 4.36.14.2 Robin;
- 4.36.14.3 Edgecombe Peebles (Metrohm); and
- 4.36.14.4 Seaward.

4.36.15 Any equal and approved alternative will be considered on its merits, any meter used must be supported by a current certificate of operational accuracy. (Calibration Certificate).

4.36.16 The Contractor will ensure that defective, flickering and/or failing luminaries are replaced immediately.

#### **4.40 Interior Lighting**

4.40.1 The Contractor will maintain lighting systems at all buildings.

4.40.2 Suitable controls will allow proper, efficient and economical use of lighting.

#### **4.41 External Lighting**

4.41.1 The Contractor will maintain external lighting that will allow safe entry to and egress from buildings and safe movement within the buildings.

#### **4.42 Emergency Lighting**

4.42.1 The Contractor will maintain emergency lighting that will enable users to exit all buildings safely in accordance with all relevant legislation, standards or codes of practice. Including replacing batteries where required.

#### **4.43 Lightning Protection System**

4.43.1 The Contractor will maintain a system where installed to ensure that the buildings, systems and users will be protected from any lightning strikes.

#### **4.44 Uninterrupted Power Supply (UPS)**

4.44.1 The Contractor will maintain an uninterrupted power supply where installed to ensure the operation of electrical equipment during a mains failure, dip, spike or surge.

4.44.2 Interruptions in electrical power supplies will usually be met by some form of battery contained within an existing Uninterruptible Power Supplies system (“UPS”). These units will be maintained by the Contractor.

4.44.3 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.

4.44.4 The Contractor will ensure that it maintains appropriate records, log books and incident reporting systems will be maintained to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action also logged.

4.44.5 Regular servicing of battery equipment by competent personnel will be carried out.

- 4.44.6 Recharging of batteries will be done either at a constant current or a constant voltage and recharged at current and time values recommended by the manufacturer. Equipment will be charged to conform to approved standards and manufacturers.
- 4.44.7 Instrumentation should be adequate and maintain mains and battery voltages as well as charging and output currents. Lead-acid and alkaline batteries will be topped up with approved levels of distilled water, or distilled water at the correct levels to prevent battery plate damage.
- 4.44.8 All batteries for luminaries and engine starting will be recharged immediately after use. In UPS, the battery recharging load will be delayed or kept disconnected from the UPS charger by selective switch control and the energy left available for priority services until a more settled supply prevails. This is also to avoid additional load on standby generators.
- 4.44.9 Routine maintenance of emergency lighting will be carried out on a regular basis to check out relay operation, luminaire output and battery condition in accordance with all relevant legislation, standards or codes of practice.
- 4.44.10 Appropriate repairs and replacements to be undertaken as required.
- 4.44.11 Records will be maintained of all inspections of batteries (including output voltages, cell condition and electrolyte top ups), associated charging equipment, relays and luminaire outputs. The Contractor will provide and maintain an adequate supply and selection of long life dry cell batteries for utilisation in the various equipment in use.
- 4.44.12 Regular ongoing maintenance and testing of all batteries will take place in accordance with a formalised planned preventive maintenance program. This activity will embrace a thorough physical inspection of all mechanical and electrical components and controls to ensure that all these items remain in a sound condition.
- 4.44.1 The Contractor will provide continuous off site monitoring of the UPS systems and report any supply variations outside pre-defined parameters i.e. power failures to BMC; a monthly report will be submitted to the Estates Manager.

#### **4.45 Kitchen Equipment**

- 4.45.1 The Contractor will:
- 4.45.1.1 maintain all equipment to keep it in a safe and operable condition and satisfy the requirements of the Environmental Health and associated Food Hygiene Regulations;
  - 4.45.1.2 manage energy conservation where energy is used and emitted from all these appliances;
  - 4.45.1.3 maintain cold rooms for the storage of food, and
  - 4.45.1.4 continuously monitor the refrigerant performance and maintain to closely defined limits. Instrumentation will be calibrated at regular intervals. Any incidents of failure to maintain the correct temperatures will be brought to the immediate attention of the Catering Manager.
- 4.45.2 The Contractor will have responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.
- 4.45.3 Close liaison will be maintained between the Contractor, and BMC's representatives and catering suppliers, to ensure that technical performance at the point of delivery remains satisfactory, and that production Specifications and catering policies are upheld.

- 4.45.4 Appropriate records and incident reporting systems will be maintained by the Contractor and held on the CAFM system to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action logged. All operatives undertaking maintenance work on gas appliances will be registered on the 'Gas Safety Register'.
- 4.45.5 The task of maintaining catering equipment requires the continual addressing of many issues, including technical training of the personnel involved.
- 4.45.6 The Contractor shall ensure that all pressure vessels comply with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set out in this Specification.
- 4.45.7 Appropriate documentation will be maintained by the Contractor to provide a general description of all Services, including technical details on safe operating limits, drawings, a specification of all equipment within the kitchen areas, including the marking and identification of all pressure vessels. The maintenance regime will consist of a planned approach with appropriate mechanical and electrical checks taking place on drive motors and other operating parts.
- 4.45.8 Grease traps and filters will be regularly cleaned to maintain adequate discharge to the drainage system and to prevent blockage.
- 4.45.9 The Contractor will develop and maintain a register for each item of plant and equipment that is subject to statutory examinations, details will be recorded on the CAFM system. All examination certificates will be recorded and copies retained for inspection.
- 4.45.10 At the outset, a full asset register will be compiled by the Contractor that details each piece of equipment to be maintained. This will be supplemented by plant history sheets recording failures and repairs.
- 4.45.11 The Contractor will complete an annual review of the equipment condition, by visual inspection, to ensure that pipe work, fittings, vessels, electrical safety and other features are undamaged and conforming to statutory obligations.

#### **4.46 Lifts and Hoists**

- 4.46.1 The Contractor will maintain in the buildings all lifts and hoists and keep them in operational order and in accordance with design parameters and the manufacturers' specifications.
- 4.46.2 The Contractor will have day to day responsibility for the management, operation, organisation and compliance with all relevant legislation, standards or codes of practice applicable to each part of the Services including but not limited to those set-out in this Specification.
- 4.46.3 The legal responsibility for ensuring that lifts are properly maintained rests with the Contractor. All passenger lifts are to be examined by a competent person at least once in a period of six months, and a report of the outcome will be prepared, signed and dated by the person carrying out the examination. The Contractor will be responsible for all Statutory and best practice inspections and tests including those required on an annual, 3-yearly, 5-yearly, or 10-yearly, as appropriate.
- 4.46.4 Fire regulations require that certain lift controls be operated by the Fire Service, so that fire personnel can take immediate control of the lift for safety and fire-fighting purposes. All lifts will be provided with emergency communications, in the form of a telephone linked to a reception or security desks or the Help Desk point. The Contractor is to identify and manage such links.
- 4.46.5 Compliance to the requirements of all relevant legislation, standards or codes of practice will be achieved by ensuring that only appropriately trained and competent staff have access to the electrical supplies and equipment.

- 4.46.6 The Contractor will be responsible for responding to incidents of people trapped in a lift within 15 minutes of the call to the Help Desk.
- 4.46.7 If it is established that this will take longer than 15 minutes, BMC can immediately, by agreement, call the Fire Service.
- 4.46.8 Only by agreement between the Help Desk and The Contractor can the 15 minute period be extended. The only grounds for this is if BMC is satisfied from information given by the Help Desk that the person able to release the lift occupants will arrive before the Fire Service would.
- 4.46.9 Records and incident reporting systems be maintained to indicate that regular inspections, maintenance, repair and testing have taken place, with any remedial action logged. Emergency call-out procedures will be implemented to ensure a continual and regular service.
- 4.46.10 Protective barriers or other approved segregation (plus the posting of warning notices) will be temporarily installed when maintenance or other works take place at landing floor levels.
- 4.46.11 No work involving a complete cessation of service in excess of 30 minutes will be undertaken without prior arrangement with BMC's Representative and adequate warning notices posted.
- 4.46.12 All lift motor rooms and lift pits will be kept clean and tidy including keeping free from hydraulic fluids, oils and greases on equipment and floors where not appropriate, with adherence to fire regulations in respect of housekeeping. Access to these areas will be by approved personnel only.
- 4.46.13 Emergency procedures for the hand winding of electric traction lifts and the hand lowering of hydraulic lifts will be displayed within the lift motor room. Door release keys and hand wheel facilities will be provided and maintained by the Contractor and will be retained in the same area. The Contractor will ensure appropriate training for its staff and relevant subcontractor's staff will be undertaken to ensure familiarity with the practical process of releasing people from lifts, should this become necessary.
- 4.46.14 Appropriate written documentation will be maintained by the Contractor to provide a general description of all lift services including:
- 4.46.14.1 schematic drawings;
  - 4.46.14.2 a Specification of all equipment within individual lift motor rooms;
  - 4.46.14.3 marking and identification of all electrical equipment and control cabling;
  - 4.46.14.4 identification of emergency procedures; and
  - 4.46.14.5 easy interface with the inspections register.
- 4.46.15 Maintenance and testing of electrical systems will be carried out in complete accordance with all relevant legislation, standards or codes of practice applicable to each part of the services including but not limited to those set out in this Specification.
- 4.46.16 Thermal testing of key distribution point areas will also be implemented. At the end of any electrical testing, test certificates will be recorded and copies retained for inspection.
- 4.46.17 Light fittings in the lifts will be regularly cleaned by the Contractor.
- 4.46.18 The Contractor will undertake checks on lift telecommunications arrangements.
- 4.46.19 The Contractor will undertake regular inspection and maintenance on all items to ensure that electrical

connections are secure, mechanical supports or fixtures are sound and the main components comprising car, gearbox, motors, rams, safety gear, balance weights, control devices plus cable distribution points and local wiring connections are positive. Any overheating or deformation of individual components will be rectified.

- 4.46.20 The Contractor will undertake routine inspections and check the quality of ride and will undertake routine adjustments to door mechanisms and levelling controls to ensure a good, reliable level of service and comfort of ride, provided that such adjustments are not covered by a manufacturer's warranty in which case the Contractor shall use subjective endeavours to enforce the terms of such warranty.
- 4.46.21 In the event of lift failure the Contractor will undertake all necessary diagnostic tests to identify faults and to prevent future failure.
- 4.46.22 This task will be done by visual inspection and appraisal at annual intervals to ensure that the above and other features are undamaged and conform to statutory obligations.
- 4.46.23 The Contractor will install the following management protocols:
- 4.46.23.1 all equipment is included on an asset register so that it can be easily located;
- 4.46.23.2 an on-going program of testing will be established from the Transfer Date as an integral part of the planned maintenance program. This will ensure statutory compliance and continual updating of asset registers;
- 4.46.23.3 all tested equipment will be clearly labelled by a discrete number, and with the latest date;
- 4.46.23.4 all defective equipment will be taken out of use and minor repairs undertaken; and
- 4.46.23.5 full procedures will be produced for basic maintenance on all types of equipment.

#### **4.47 Alarm Systems**

- 4.47.1 Alarm systems in the buildings are installed to give early warning of failure, potential danger or in the case of security, unauthorised access to a building or to summon assistance.
- 4.47.2 All alarm systems will be maintained by the Contractor according to the following management protocols. New systems will be selected to provide the appropriate level of security consistent with the latest proven technology available.
- 4.47.3 The Contractor will have day to day responsibility for the management, organisation and compliance with the appropriate codes of practice and standards namely Indian Standards.
- 4.47.4 Appropriate written documentation will be maintained to and copies included in the building Reference Station providing a general description of all services including:
- 4.47.4.1 schematic drawings of individual systems and wiring;
- 4.47.4.2 a Specification of all detectors, sensing and other devices, including panels;
- 4.47.4.3 marking and identification of all electrical equipment and cabling; and
- 4.47.4.4 easy interface with the inspections register.
- 4.47.5 Maintenance and testing will be carried out in complete accordance with all relevant legislation, Indian and BMC's Standards or Policy and industry Codes of Practice.

- 4.47.6 At the end of any electrical testing, test certificates will be recorded and copies retained for inspection.
- 4.47.7 Light fittings and lamps will be regularly cleaned with lamp replacement occurring as appropriate. Where local lamp failures occur, these will be dealt with quickly on an ad hoc basis.
- 4.47.8 Regular inspection and maintenance will occur on all items to ensure that connections are secure, fittings and fixtures are sound and that cable distribution points and local wiring connections are positive.
- 4.47.9 This task will be done by visual inspection and appraisal at yearly intervals of time to ensure that the above and other features are undamaged and conform to statutory obligations.
- 4.47.10 The following management protocols will be adopted:
  - 4.47.10.1 all equipment will be included on an asset register so that it can easily be located;
  - 4.47.10.2 an on-going program of testing will be established as an integral part of the planned maintenance program. This will ensure statutory compliance and continual updating of asset registers;
  - 4.47.10.3 all tested equipment will be clearly labelled by a discrete number, and with the last test date;
  - 4.47.10.4 all defective equipment will be taken out of use, and minor repairs undertaken where possible; and
  - 4.47.10.5 full procedures will be produced for basic maintenance on all types of equipment.

#### **4.48 Maintenance of Intruder Alarms**

- 4.48.1 The Contractor will at all times maintain in operation the intruder detection systems and comply where appropriate with all relevant legislation, Indian and BMC Standards or Policy and industry Codes of Practice applicable to each part of the Services including but not limited to those set out in this Specification.
- 4.48.2 Where a failure occurs, the Contractor will be responsible for providing contingency arrangements that meet the required security standards.
- 4.48.3 The Contractor will ensure that the intruder detection systems are maintained to comply with all relevant legislation, current Indian and BMC Standards or Policy and industry Codes of Practice applicable to each part of the Services including but not limited to those set- out in this Specification to achieve the required level of security appropriate to the assessed risk at each building.
- 4.48.4 The Contractor will ensure that any failure is rectified within two hours of the fault first being reported

#### **4.49 Maintenance of Closed Circuit Television Systems (CCTV)**

- 4.49.1 The Contractor will at all times maintain in operation CCTV systems to comply with all relevant legislation, current Indian and BMC's Standards or Policy and industry Codes of Practice applicable to each part of the Services including but not limited to those set out in this Specification.
- 4.49.2 The Contractor will ensure that any failure is rectified within four hours of the fault first being reported.
- 4.49.3 In the interim, the Contractor will be responsible for providing contingency arrangements that meet the required security standard.
- 4.49.4 The Contractor will achieve the required level of security appropriate to the assessed risk at each building. This includes all monitoring, recording and playback equipment necessary for the correct operation of the

system.

- 4.49.5 The Contractor will supply and install Data Protection Signage to BMC's agreed design.
- 4.49.6 Images should be securely retained for not less than thirty days. Images not required for evidential purposes should be deleted after the thirtieth day. Copies of images required for evidential purposes whether these are held in tape, disc or other format should be subject of a record system and securely retained. Where CCTV tapes are in use these should be destroyed after use. Tapes & Discs should be destroyed through a confidential waste system. Each tape or disc should have an individual identifying serial number.
- 4.49.7 The Contractor will ensure that all computerised system operating settings are backed up and securely retained.

#### **4.50 Maintenance of Access Control Systems**

- 4.50.1 The Contractor will at all times maintain in operation access control systems to comply with all relevant legislation, current Indian and BMC's Standards or Policy and industry Codes of Practice applicable to each part of the Services including but not limited to those set-out in this Specification.
- 4.50.2 Where a failure occurs, the Contractor will be responsible for providing contingency arrangements that meet the required security standard.
- 4.50.3 The Contractor will achieve the required level of security appropriate to the assessed risk and internal requirements at each building.
- 4.50.4 The Contractor will ensure that any failure is rectified within four hours of the fault first being reported.
- 4.50.5 The Contractor will ensure that all computerised access control system's operating settings and the database of access card holders are regularly backed up to an external data storage device and securely retained. The Contractor will provide and ensure that all manufacturers' software is updated regularly to maintain an effective operational access control system. Code operated mechanical and electronic access control systems will have their codes changed by the Contractor as part of normal maintenance in compliance with the frequency as set by BMC's Standards.

#### **4.51 Reporting Requirements for Health and Safety and Security Systems**

- 4.51.1 The Contractor will provide reports on Health and Safety and security systems at all buildings, including reporting on fire alarms, smoke alarms, suppression systems, access control systems, CCTV equipment and intruder detection systems.
- 4.51.2 building specific risk assessments will be undertaken by the Contractor in all buildings to cover all activities relating to the Services detailed under the Specification. Where particular instructions are required for an activity, the Contractor will incorporate in the instructions for the Planned Preventative Maintenance task, or against the system to ensure that any requirements are conveyed for reactive tasks. When new systems are installed the risk assessments will be revised accordingly. These risk assessments will determine whether Permit to Work systems will be required at a building, and then implemented by the Contractor if required.
- 4.51.3 All testing, maintenance and inspections required due to Health and Safety or legislative requirements will be programed into the Planned Maintenance System by the Contractor as a priority one task. Where priority one tasks are not undertaken at the scheduled time, an escalation procedure will be activated. Initially this escalation will involve BMC's Health and Safety Manager.



- 4.51.4 The Contractor will ensure all building specific risk assessments are adhered to, undertake and partake in an audit program on Health and Safety driven by BMC, organise Health and Safety training ensuring this is kept up to date.
- 4.51.5 The Contractor will provide to BMC reports demonstrating a systematic, rigorous and thorough program of testing and inspection of the systems and equipment. Paper reports relating to Health and Safety tests, maintenance and inspection will be cross referenced with the CAFM system. This will enable ease of auditing, since an initial check can be made using the CAFM system that can then be corroborated by cross referencing with the paper record.
- 4.51.6 The Contractor will immediately advise BMC's Representative of any action taken in the event of any failure of the system and, where necessary, of any interim measures taken to protect the staff and property.
- 4.51.7 Within two Business Days, the Contractor will provide BMC's Representative with a full written report with the outcome of the remedial action and details of any further work required.

#### **4.52 Catering Equipment**

- 4.52.1 The Contractor will maintain the catering equipment to allow the efficient delivery of food, goods and disposal of waste.
- 4.52.2 The Contractor will ensure that the relevant equipment where owned by BMC is maintained operated in accordance with its design to prevent the transfer of cooking odours into business areas.

#### **4.53 Tea points**

- 4.53.1 The Contractor will maintain equipment and maintain facilities within tea points.
- 4.53.2 The Contractor will maintain dishwashers.

#### **4.54 Redundant Catering and Tea Point Equipment**

- 4.54.1 With regard to any redundant catering/tea point equipment The Contractor will disconnect and make safe service connections and remove equipment to storage as directed by BMC.

#### **4.55 Utilities and Environment**

- 4.55.1 The Contractor will co-operate with BMC's Estates Team to ensure the availability of electricity, gas, water and sewerage services and all equipment required for measuring, recording, analysing, managing and reporting the use of these
- 4.55.2 The Contractor will use its subjective endeavours to meet, and will assist BMC, in meeting Governmental environmental commitments and targets applicable to the site.
- 4.55.3 The Contractor will identify to BMC potential improvements to existing systems or where the installation of new systems will create economic advantage.
- 4.55.4 The Contractor will assist BMC to meet its environmental commitments and performance targets.
- 4.55.5 The Contractor will provide comprehensive and accurate monthly reports showing performance against Governmental and Departmental commitments and targets.

#### **4.56 Water and sewage**

- 4.56.1 The Contractor will assist BMC in the implementation and identification of mechanisms for reducing consumption and for water re-use.

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