E-TENDER

FOR

Name of Work - Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for interception & diversion of sewage.

Name of Project - Rejuvenation and Beautification of Poisar River

Project Consultant: Tandon Urban Solutions Pvt Ltd

Volume – 1
(ITB, GCC, SCC & Bid Forms)

Website-portal.mcgm.gov.in/tenders

Office of Chief Engineer (SWD)

Engineering Hub Building,

Dr E Moses Road,

Worli Naka, Worli

Mumbai – 400 018

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ABBREVIATIONS

DBO	Design Build Operate
MCGM	Municipal Corporation of Greater Mumbai
SRM	Supplier Relationship Module
ASD	Additional Security Deposit
EMD	Earnest Money Deposit
Dy.Ch Eng	Deputy Chief Enginner
MLD	Millions Litre per day
NOCs	No Objection Certificate
STP	Sewage Treatment Plant
PERT	Program Evaluation Review Technique
CPM	Critical Path Method
PAN	Permanent Account Number
GST	Goods and Services Tax
C.A.	Chartered Accountant
E.S.I.C.	Employees State Insurance Corporation
AMC	Additional Municipal Commissioner
DLP	Defects Liability Period
PG	Performance Guarantee
FDR	Fixed Deposit Receipts
RM	Retention Money
ITB	Instructions to Bidders
AFM	Anti Profiteering Measures
NEERI	National Environmental Engineering Research Institute
GA	General Availability
SCADA	Supervisory Control And Data Acquisition
MOU	Memorandum of Understanding
RCC	Reinforced Cement Concrete
CCTV	Closed Circuit Television
CFO	Chief Financial Officer

O&M	Operations and Maintenance
PLC	Programmable Logic Controller
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
DO	Dissolved oxygen
TDS	Total Dissolved oxygen
NABL	National Accreditation Board for Testing and Calibration Laboratories
CAR	Contractor's All Responsibility
GCC	General Conditions of Contract
DMC	Deputy Municipal Commissioner
RMC	Ready Mix concrete
LOA	Letter of Approval
JV	Joint Venture
PWD	Public Works Department
M.M.R.D.A	Mumbai Metropolitan Region Development Authority
ISPS	Intermediate Sewage pumping Station
NPSH	Net Positive Suction Head
M.S.	Mild Steel
S.P.	Sewerage Projects
S.O.	Sewerage Operations
W.S.P.	Water Supply Project
S.W.D.	Storm Water Department

SECTION 1

E-TENDER NOTICE

MUNICIPAL CORPORATION OF GREATER MUMBAI

Chief Engineer (SWD)

Bid No. 7100177427

E-TENDER NOTICE

Subject: Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for interception & diversion of sewage.

The Municipal Corporation of Greater Mumbai (MCGM) invites e-tender to appoint Contractor for the aforementioned work from 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 Municipal Corporation of Greater Mumbai, (MCGM) in **category C-II, C-III & V and Class I (A) in civil works (as per new registration rules 2015 & 2016) and/or in Class AA in M&E works as per registration of 2015 & class A in M&E as per registration rules of 2016** (Excluding those who are blacklisted or against whom FIR have been filed) or those having equal or more work experience from Central or State Government/Semi Govt. Organization/Central or State Public Sector Undertakings, will be allowed subject to condition that, the contractors who are not registered with MCGM 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 cost or Rs. 10,000/- whichever is more will be recovered/deducted from the contractors payment/bill by the executing department. The contractor, who fails to get registered with MCGM in Civil/Mechanical and Electrical disciplines, shall not be considered for MCGM work in future in that discipline.

Bidding Process will comprise of THREE stages

The application form can be downloaded from MCGM's portal (http://portal.mcgm.gov.in) on payment of Rs. 8085/- (Rs7700+2.50% CGST+2.50% SGST). The applicants not registered with MCGM are mandated to get registered (Vendor Registration) with MCGM for e-tendering process & obtain login credentials to participate in the online bidding process.

i. To download the application form, for those applicants not having vendor registration, need to apply first for vendor registration at the office of Account Officer (FAR), 3rd floor, Municipal Headquarter.

ii. Followed by SRM login ID and password to be obtained from Central Purchase Department (CPD), Office at Byculla, Bakariadda, Mumbai

iii. For e-Tendering registration, enrolment for digital signature certificates and user manual, please refer to respective links provided in 'Tenders' tab. Vendors can get digital signature from any one of the Certifying Authorities (CA's) licensed by controller of certifying authorities namely, Safes crypt, IDRBT, National informatics centre, TCS, CUSTOMS, MTNL, GNFC and e- Mudhra CA.

Sr. No.	**Name of Work**	**Bid Invitation No.**	**Contract Period**	**EMD**	**Cost of e-tender**
1	Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for	**7100177427**	**36 Months (Excluding Monsoon)**	**Rs. 7,51,69,400/-**	**Rs. 8085/- (Rs7700+ 2.50% CGST+2. 50% SGST).**

	interception & diversion of sewage.				

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. 7,51,69,400/-** (Rupees Seven Crore Fifty One Lakh Sixty Nine Thousand Four 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 MCGM portal (http://portal.mcgm.gov.in) as mentioned in the Header Data of the tender.

As per THREE Packet systems, the document for Packet A & B is to be uploaded by the bidder in vendors' document online in Packet A, B. 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 Chief Engineer (SWD). 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.

Joint venture is allowed for this work.

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 MCGM Portal. (http://portal.mcgm.gov.in)

The Applicants interested for the above referred works may contact the Chief Engr. (SWD) at the following address on any working day during office hours.

Office of Chief Engineer (SWD)
Engineering Hub Building,
Dr E Moses Road,
Worli Naka, Worli
Mumbai – 400 018.

The applicants may wish to visit the site under reference located along Poisar River, and can collect the information of the present status from the department who have invited the bids.

The MCGM 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 Website of MCGM. (http://portal.mcgm.gov.in/tenders)

Sd/-

Dy. Ch. Eng. (SWD)WS

HEADER DATA

Bid Number	7100177427
Tender Document No	WS-536
Name of the Organization	Municipal Corporation of Greater Mumbai
Subject	Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for interception & diversion of sewage.
Cost of Tender	Rs. 8085/- (Rs7700+2.50% CGST+2.50% SGST).
Bid Security Deposit/EMD	**Rs. 7,51,69,400/-**
Date of Issue and sale of tender	21/04/2020 from 11:00 Hrs
Revised Last date and time for sale of tender and receipt of Bid Security Deposit	26/05/2020 upto 12:00 Hrs
Revised Submission of Packet A,B and Packet C (online)	26/05/2020 upto 16:00 Hrs
Pre-Bid Meeting	11/05/2020 at 15:00 Hrs in the office of AMC (P), Municipal Head Office, Mahapalika Marg, Fort, Mumbai 400001.
Opening of Packet A	27/05/2020 after 16:05 Hrs
Opening of Packet B	27/05/2020 after 16:10 Hrs
Opening of Packet C	09/06/2020 after 15:00 PM
Address for Communication	Office of Chief Engineer (SWD) Engineering Hub Building, Dr E Moses Road, Worli Naka, Worli Mumbai – 400 018.

Venue for Opening Bid	Dy.Chief Engineer (SWD)

This tender document is not transferable.

The MCGM 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.

Sd/-

Dy. ChE. (SWD.) W.S.

SECTION 2

ELIGIBILITY CRITERIA

ELIGIBILITY CRITERIA

Eligibility

1. **Technical Capacity**

The tenderer(s) in their own name should have satisfactorily executed the work of design, construction and execution of sewage treatment Plant (STP), Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains with 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)

I) The tenderer(s) in their own name should have satisfactorily executed the work of

a) Three completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 9.15 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 99,94,36,000/-**

OR

b) Two completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 12.20 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 1,33,25,81,300/-.**

OR

c) One completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 18.30 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 1,99,88,72,000/-**

AND

II) The tenderer(s) in their own name should have satisfactorily executed the work of Sewer Line along with Roads,

a) Three completed works or currently executing three works of each costing **Rs. 28,78,90,100/-.**

OR

b) Two completed works or currently executing two works of each costing **Rs. 38,38,53,400/-.**

OR

c) One completed work or currently executing one work of **Rs. 57,57,80,100/-.**

The value of executed works shall be brought to current costing level by enhancing the actual value of work at compound rate of 10 % per annum; calculated from the date of completion to last date of receipt of applications for tenders.

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.

2. Financial Capacity

Achieved a average annual financial turnover as certified by 'Chartered Accountant') equal to amounting to **Rs 2,25,50,80,400/-** in last three (3) financial years immediately preceding the Financial Year in which bids are invited.(i.e. 01/04/2016 to 31/03/2019)

- 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.

3. Technical Experience:

- For assessing the technical capacity of bidder as per clause **1. (I)** similar work shall mean the completed works of Design and construction of RCC sub structure, RCC super structure, RCC foundation and allied works for civil works and design and construction of Mechanical and Electrical works for at least 10 MLD capacity Sewage Treatment plant and respective operation & experience of minimum One(1) year.

AND

- For assessing the technical capacity of bidder as per clause **1. (II)** similar work shall mean the completed works of laying Gravity/rising main in sewage Network/SW drain network.

  AND

  The bidder shall have experience of providing and laying Sewer/Water/Petroleum/Gas line / Telecommunication cables / High Power Cables by HDD (Horizontal Directional Drilling) or Microtunneling for the cumulative minimum length of 150 RM in completed or ongoing projects in MCGM /Semi Govt. /Govt. & Public Sector Organizations during last seven (7) years.

  OR

  They should submit memorandum of understanding (MOU) with a firm and the firm should have laying experience as per the requirement given above either in his own capacity or as an officially approved Sub-contractor. The tenderer has to submit all the credentials of the firm with whom they are entering with MOU.

4. 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 i.e works executed between 1st April 2014 and 31st March 2019

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.

In case the Bidder does not meet any particular criteria as mentioned, in clause no. 1, 2, 3 and 4 but its parent company of which the Bidder is a wholly owned subsidiary meets those particular criteria, then the experience of the parent company will be considered as if it is met by its bidding wholly owned subsidiary company provided the parent company gives an unconditional undertaking supported by Board Resolution with regard to providing total support both financially and technically to its subsidiary during the currency of the contract.

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 or financial failures etc.

****** Technology provider:

The bidders have to submit the MOU with the technology provider of the STP having the proven MBR technology based experience of at least 10 MLD capacity (of being technology provider i.e. he should be responsible for designing of process and supplying key components) and facilities for designing, manufacturing and operations of the key components like Ultra Filtration membrane of the MBR based STP capable of producing Effluent (product water) of the prescribed standards in the tenders.

The agency should have a registered office in India, with the trained manpower in the area of process design, detailed engineering, commissioning and support during O&M period. The agency shall provide the process design of the plant and supply key process equipments required for MBR plant in order to ensure

the proper functioning of the MBR plant for producing desired quality effluent. The agency should have the patent or liscence to commertially manufacture the ultra filtration membrane (MBR) shall be used in the plant.

The technology provider is allowed to tie up with multiple bidders.

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 Municipal Corporation of Greater Mumbai (MCGM), 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai (MCGM), 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 Municipal Corporation of Greater Mumbai (MCGM) accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed here.

The Municipal Corporation of Greater Mumbai(MCGM), 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai (MCGM) 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 Municipal Corporation of Greater Mumbai(MCGM) 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 Municipal Corporation of Greater 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 Municipal Corporation of Greater Mumbai (MCGM), hereafter called the "corporation", the primary agency responsible for urban governance in Greater Mumbai.

MCGM (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, MCGM 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 MCGM 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.

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

Scope of Work:

MCGM 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.

(* PROJECT SPECIFIC SCOPE OF WORK IS MENTIONED IN SECTION 7)

SECTION 5

E-TENDERING ONLINE SUBMISSION PROCESS

E-TENDERING ONLINE SUBMISSION PROCESS

The terminology of e-Tendering is solely depending upon policies in existence, guidelines and methodology adopted since decades. The SRM is only change in process of accepting and evaluation of tenders in addition to manual. The SAP module to be used in this E-tendering is known as Supplier Relationship Module (SRM). SRM is designed and introduced by ABM Knowledge ware Ltd. who will assist MCGM in throughout the tendering process for successful implementation.

NOTE: This tendering process is covered under Information Technology ACT & Cyber Laws as applicable

(1) In e-tendering process some of the terms and its definitions are to be read as under wherever it reflects in online tendering process.

Start Date read as "Sale Date"

End Date read as "Submission Date"

Supplier read as "Contractor/bidder"

Vendor read as "Contractor/bidder"

Vendor Quotation read as "Contractors Bid/Offer"

Purchaser read as "Department/MCGM"

I. Before entering in to online tendering process, the contractors should complete the registration process so as to get User ID for E-tendering links. For this, the contractors can access through Supplier registration via MCGM Portal.

There are two methods for this registration :(II and III)

II. Transfer from R3 (registered contractors with MCGM) to SRM

a. Contractors already registered with MCGM will approach to Vendor Transfer cell.
b. Submit his details such as (name, vendor code, address, registered Email ID, pan card etc.) to Vendor transfer cell.
c. MCGM authority for Vendor Transfer, transfers the Vendor to SRM application from R3 system to SRM system.
d. Transferred Vendor receives User ID creation link on his supplied mail Id.
e. Vendor creates his User ID and Password for e-tendering applications by accessing link sent to his mail ID.

III. Online Self Registration (Temporary registration for applicant not registered with MCGM)

a. Vendor fills up Self Registration form via accessing MCGM portal.
b. Vendor Transfer cell (same as mentioned above) accesses Supplier Registration system and accepts the Vendor request.
c. Accepted Vendor receives User ID creation email with Link on his supplied mail Id.
d. Vendor creates his User ID and Password for e-tendering application.

IV. CONTRACTORS BIDDING: Applicant will Quote and Upload Tender Documents

1. Access e-tender link of SRM Portal
2. Log in with User ID and Password
3. Selects desired Bid Invitation (he wants to bid)
4. To download tender documents contractors will have to pay online Tender fee. The same can be done by accessing Pay Tender Fees option. By this one will be able to pay Tender fee through Payment Gateway-If transaction successful, Contractors can register his interest to participate. Without Registration one cannot quote for the Bid/Tender.
5. Applicant will download Tender Documents from Information from purchaser tab by accessing Purchaser document folder through collaboration „C" folder link.
6. Applicant will upload Packet **A** related and Packet **B** related Documents in Packet **A** and Packet **B** folder respectively by accessing these folders through "My Notes" Tab and collaboration folder link.
7. All the documents uploaded have to be digitally signed and saved. Contractors can procure their digital signature from any certified CA"s in India.
8. Bid security deposit/EMD, should be paid online as mentioned in tender. Also, ASD, if applicable, should be paid online as mentioned in tender.
9. For commercial details (in Packet **C**) contractors will fill data in Item Data tab in Service Line Item via details and quotes his rates.
10. Applicants to check the bid, digitally signs & save and submit his Bid Invitation.
11. Applicants can also save his uploaded documents/commercial information without submitting the BID for future editing through „HOLD" option.

12. Please note that “Hold” action do not submit the Bid.
13. Applicants will receive confirmation once the Bid is submitted.
14. Bid creator (MCGM) starts Bid Opening for Packet **A** after reaching End Date and Time and Bid Evaluation process starts.

As per Three Packet system, the documents for Packet **A & B** are to be uploaded by the tenderer in 'Vendor's document' online in Packet A & B. Before purchasing/ downloading the tender copy, tenderer may refer to post- Qualification criteria mentioned in e-Tender Notice.

The tenderer shall pay the EMD/Bid Security through payment gateways before submission of Bid.

The e-tender is available on MCGM portal, http://portal.mcgm.gov.in, as mentioned in the Header Data of the tender. The tenders duly filled in should be uploaded and submitted online on or before the end date of submission. The Packet **„A‟**, Packet **„B‟**& Packet **„C‟** of the tenderer will be opened as per the time-table shown in the Header Data in the office of Ch Eng.(SWD)

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 MCGM Portal (http://portal.mcgm.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 Municipal Corporation of Greater Mumbai (MCGM) invites e-tender to appoint Contractor for the aforementioned work from 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 Municipal Corporation of Greater Mumbai (MCGM) in **category C-II, C-III & V and Class I (A) in civil works (as per new registration rules 2015 & 2016) and/or in Class AA in M&E works as per registration of 2015 & class A in M&E as per registration rules of 2016** (Excluding those who are blacklisted or against whom FIR have been filed) and from the contractors/firms equivalent and superior classes registered in Central or State Government/Semi Govt. Organization/Central or State Public Sector Undertakings, will be allowed subject to condition that, the contractors who are not registered with MCGM 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 cost or Rs. 10,000/- whichever is more will be recovered/deducted from the contractors payment/bill by the executing department. The contractor, who fails to get registered with MCGM in Civil/Mechanical and Electrical disciplines, shall not be considered for MCGM work in future in that discipline.

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

1. Eligibility

1.1. Technical Capacity

The tenderer(s) in their own name should have satisfactorily executed the work of design, construction and execution of sewage treatment Plant (STP), Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains with 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)

I) The tenderer(s) in their own name should have satisfactorily executed the work of

a) Three completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 9.15 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 99,94,36,000/-**

OR

b) Two completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 12.20 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 1,33,25,81,300/-.**

OR

c) One completed or currently executing projects of design, construction and execution of sewage treatment Plant (STP) having minimum capacity of each STP 18.30 MLD and pumping including civil & Mechanical & Electrical works or each STP amounting to **Rs. 1,99,88,72,000/-**

AND

II) The tenderer(s) in their own name should have satisfactorily executed the work of Sewer Line along with Roads,

a) Three completed works or currently executing three works of each costing **Rs. 28,78,90,100/-.**

OR

b) Two completed works or currently executing two works of each costing **Rs. 38,38,53,400/-.**

OR

c) One completed work or currently executing one work of **Rs. 57,57,80,100/-.**

The value of executed works shall be brought to current costing level by enhancing the actual value of work at compound rate of 10 % per annum; calculated from the date of completion to last date of receipt of applications for tenders.

*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

Achieved a average annual financial turnover as certified by 'Chartered Accountant') equal to amounting to **Rs 2,25,50,80,400/-** in last three (3) financial years immediately preceding the Financial Year in which bids are invited.(i.e. 01/04/2016 to 31/03/2019)

- 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.

1.3 Technical Experience:

- For assessing the technical capacity of bidder as per clause **1. (I)** similar work shall mean the completed works of Design and construction of RCC sub structure, RCC super structure, RCC foundation and allied works for civil works and design and construction of Mechanical and Electrical works for at least 10 MLD capacity Sewage Treatment plant and respective operation & maintainance experience of minimum One(1) year.

AND

- For assessing the technical capacity of bidder as per clause **1. (II)** similar work shall mean the completed works of laying Gravity/rising main in sewage Network/SW drain network.

AND

The bidder shall have similar experience of providing and laying Sewer/Water/Petroleum/Gas line / Telecommunication cables / High Power Cables by HDD (Horizontal Directional Drilling) or Microtunneling for the cumulative minimum length of 150 RM in completed or ongoing projects in MCGM /Semi Govt. /Govt. & Public Sector Organizations during last seven (7) years.

OR

They should submit memorandum of understanding (MOU) with a firm and the firm should have laying experience as per the requirement given above either in his own capacity or as an officially approved Sub- contractor. The tenderer has to submit all the credentials of the firm with whom they are entering with MOU.

1.4 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 i.e. works executed within 1st April 2014 to 31st March 2019.

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 asper 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.

In case the Bidder does not meet any particular criteria as mentioned, in clause no. 1.1, 1.2, 1.3 and 1.4 but its parent company of which the Bidder is a wholly owned subsidiary meets those particular criteria, then the experience of the parent company will be considered as if it is met by its bidding wholly owned subsidiary company provided the parent company gives an unconditional undertaking supported by Board Resolution with regard to providing total support both financially and technically to its subsidiary during the currency of the contract.

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 or financial failures etc

****** Technology provider:

The bidders have to submit the MOU with the technology provider of the STP having the proven MBR technology based experience of at least 10 MLD capacity (of being technology provider i.e. he should be responsible for designing of process and supplying key components) and facilities for designing, manufacturing and operations of the key components like Ultra Filtration membrane of the MBR based STP capable of producing Effluent (product water) of the prescribed standards in the tenders.

The agency should have a registered office in India, with the trained manpower in the area of process design, detailed engineering, commissioning and support during O&M period. The agency shall provide the process design of the plant and supply key process equipments required for MBR plant in order to ensure the proper functioning of the MBR plant for producing desired quality effluent. The agency should have the patent or liscence to commertially manufacture the ultra filtration membrane (MBR) shall be used in the plant.

The technology provider is allowed to tie up with multiple bidders.

2 Equipment Capabilities as required for this work

The bidder should, undertake their own studies and **furnish with their bid,** a de-tailed 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 MCGM.

Note:

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

3 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 "no of years" experience working on similar nature of projects.

For fixing requirement of Technical Staff as required for this work.

(A) General Guidelines for Fixing Requirement of Technical Staff

Cost of Work (Rs in Crore)	**Requirement of Technical Staff (of Major + Minor Component)**		**Minimum Experience (Years)**	**Designation**
	Qualification	Number		
More than 100	i) Graduate Engineer	1	20	Project Manager
	ii) Graduate Engineer	2+1	12	Dy Project manager
	iii) Graduate Engineer OR iii) Diploma Engineer	4 Or 2	5 Or 10	Project/Site Engineer
	iv)Graduate Engineer	1+1	8	Quality Engineer
	v) Diploma Engineer	1	8	Surveyor
	vi) Graduate Engineer	1+1	6	Project Planning/ Billing Engineer
	vii) Graduate Engineer	1	5	Safety Engineer

Guidelines for Fixing staff for O&M for each STP:

Sr. no.	Quaification	No.	Minimum Experience (Years)	Designation
1	Post Graduate Engineering Degree	1	Exp 10 years	Plant Manager
2	Engineering Graduate	1	Exp 10 years	Duty Manager
3	Engineering Graduate	1	Exp 8 years	Process Engineer
4	Project Engineer	1	Exp 5 years	Electrical/ Instrumentation Engineer
5	Project Engineer	1	Exp 5 years	Mechanical Engineer
6	Operator/ Graduate engineers	2	Exp 2 years	Operator/ Graduate engineers
7	9Th Pass	10	Exp 2 years	Labour
9	MSc Chemistry	2	Exp 5 years	Chemists
10	ITI Qualified	2	Exp 2 years	Mechan/ Electrical Technicians
11	9th Pass	12	Exp 2 years	Security Guard
12	BSc/ BCom/ BA	1	Exp 2 years	Office Admin Staff
13	BCom	1	Exp 2 years	Accountant
14	10th Pass	1	Exp 2 years	Peon
	Contractor is free to provide additional manpower for maintainance activities of STPs and other Infrarstructure at his own cost			

Notes -

1. "*Cost of Work", in the above table shall mean the agreement amount of the work.*
2. *Rate of recovery in case of non-compliance of the clause be stipulated at the following rates –*

Sr No.	Qualification	Experience (Years)	Rate of Recovery
1	Project manager with degree	20	Rs. 60,000/- p.m

2	Deputy Project manager with degree	12	Rs. 40,000/- p.m
3	Project/ Site Engineer (Degree/Diploma)	5 or 10 respectively	Rs. 25,000/- p.m
4	Quality Graduate Engineer	8	Rs. 25,000/- p.m
5	Surveyor	8	Rs. 15,000/- p.m
6	Project Planning/ Billing Engineer	6	Rs. 20,000/- p.m
7	Safety Engineer	5	Rs. 20,000/- p.m
8	Plant Incharge	5	Rs. 20,000/- p.m
9	Plant Operator	3	Rs. 15,000/- p.m
10	Labour	2	Rs. 12,000/- p.m

The requirement of technical staff and their experience can be varied depending upon nature of work by competent authority i.e. Chief Engineer with recorded reasons. 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.

4 TIME PERIOD OF THE PROJECT:

Entire project should be completed and delivered within 36 months of time from the date of award of contract that excludes Monsoon.

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 given work as per phase given below:

For Kranti Nagar (1.5 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(A)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/	First 3 months

	NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	
Milestone II(A)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(A)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals) , 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(A)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Kranti Nagar (2 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(B)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(B)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(B)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and	From 17th to 28th month

	installation of STP equipments/instruments.	
Milestone IV(B)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Appapada Kurar Nagar, Gokul Nagar (4 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(C)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(C)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(C)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals)10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(C)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Muslim cemetry near kurar culvert, Durga Nagar (3.5 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(D)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs	First 3 months

	and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	
Milestone II(D)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(D)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(D)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Mahindra Green Gate (1.5 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(E)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(E)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(E)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month

Milestone IV(E)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Thakur parking plot (8 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(F)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(F)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(F)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(F)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Near poisar subway, Gaon devi, Bihari Tekdi (4 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(G)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne	First 3 months

	by the MCGM for design)	
Milestone II(G)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(G)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(G)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Opp. Poisar Gymkhana, Tulaskar wadi (3 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(H)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(H)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(H)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month

Milestone IV(H)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Irani Wadii (4 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(I)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)	First 3 months
Milestone II(I)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(I)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(I)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

For Laljipada kandiwali west, Sanjay Nagar (2 MLD) and related infrastructure		
Milestones	**Description**	**Schedule**
Milestone I(J)	A. Submission of detailed Survey and soil investigation report B. Process Design, NOCs and approval of STPs and all engineering components. C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne	First 3 months

	by the MCGM for design)	
Milestone II(J)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP platforms and wet wells as per approved design	From 4th to 16th month
Milestone III(J)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings. B. Construction of STP superstructures and installation of STP equipments/instruments.	From 17th to 28th month
Milestone IV(J)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings. B. Implementation, Commissioning and testing of Automation / scada and control system.	From 29th to 36th month

Full work will be completed in 36 Months excluding monsoon

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

5 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 to the maximum for 30 days period 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 Work Order received by him.

If the amount of the Execcution of contract or Contract Deposit to be paid above is not paid within 30 days from the date of issue of Letter of Work Order, the Tender / Contractor already

accepted shall be considered as cancelled and legal steps are taken against the contractor for recovery of the amounts.

The amount of Security Deposit retained by the MCGM 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 MCGM shall be adjusted towards the excess cost incurred by the Department on rectification work.

6 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 owning 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

7 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 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.

8 General Information

Categories and classes available for Civil Contractors

Category	**Description of Work**
Building C-I	Building and allied works, pile foundation, precast or cast in situ concrete works, diaphragm walls, ground anchors and allied works, water proofing, leak proofing of various types of structures.

Category	**Description of Work**
Bridges C-II	Bridges including road over bridges, flyover/foot over bridges, subways and culverts.
Roads C-III	Road works of various types including storm water drains, culverts and training/desilting of nallas, underground storm water drains.
Water Supply C-IV	Laying of water mains, rising mains, water pumping stations, reservoirs, head works.
Sewerage C-V	Laying of sewers, rising mains and underground storm water drains, sewage pumping stations, treatment plants, outfalls, etc.

Classes available according to the limits of works, amount of solvency, Registration fees and amount of standing deposit prescribed for each class.

Classes available for Civil Engineering works according to the limits of works, amount of solvency, Registration fees and amount of standing deposit prescribed for each class. (As per the reframed rules circulated under number EE/M&R/517/Civil dtd 26.05.2015

MINIMUM FINANCIAL AND ORGANIZATIONAL REQUIREMENTS FOR CIVIL ENGINEERING DISCIPLINE

(Rs. In Lakhs)

Sr. no.	Class	Upper limit of Tendering	Minimum Solvency	Total Turn-Over in Last 3 Years	Cost of Single Work Completed within Last 3 Years	No. of Civil Engineers Employee
1	2	3	4	5	6	7
1	I (A)	Without Limit	200	4000	1500	4 Graduate with 5 yrs or 1 Graduate with 5 yrs and 5 Diploma Holder with 7yrs experience
2	I (B)	2500	175	2500	750	3 Graduate with 5 yrs or 1 Graduate with 5 yrs and 4 Diploma Holder with 7yrs experience
3	I (C)	1500	150	1500	300	3 Graduate with 5 yrs or 1 Graduate with 5 yrs and 4 Diploma Holder with 7yrs experience
4	II	750	100	750	150	2 Graduate with 3 yrs or 1 Graduate with 3 yrs and 3 Diploma Holder with 5 yrs experience
5	III	300	75	300	90	2 Graduate with 3 yrs or 1 Graduate with 3 yrs and & 2 Diploma Holder with 5 yrs experience
6	IV	150	40	150	50	1 Graduate with 1 yrs OR 1 Diploma Holder with 3 yrs experience

MUNICIPAL CORPORATION OF GREATER MUMBAI

NOTICE

SUB: "RULES GOVERNING THE REGISTRATION OF CONTRACTOR/S FOR CIVIL AND MECHANICAL & ELECTRICAL ENGINEERING WORKS – 2016".

All are requested to note that the existing rules for the registration of contractor/s are now reframed and the New Rules-2016 titled, **"RULES GOVERNING THE REGISTRATION OF CONTRACTOR/S FOR CIVIL AND MECHANICAL & ELECTRICAL ENGINEERING WORKS – 2016"** are made effective from 01/12/2016.

Therefore, henceforth no new registration will be done except under the New Rules of 2016.

Booklet of the new registration rules and application form will be available from Executive Engineer (Monitoring & Registration) Cell's office, provisionally from 5th December 2016 onwards on payment of prescribed charges amounting Rs.1,000/-+VAT each for booklet and application form separately.

At present, there are few contractors who are registered as per Registration Rules 1992 & Registration Rules 2015. Even after implementation of Registration Rules 2016, all these contractors registered earlier will also be allowed to participate in bidding procedure of MCGM, till the expiry of validity of their registration. Thereafter they have to get registered as per Registration Rules 2016 only. If desired they may apply for registration as per Registration Rules 2016, even before expiry of their existing registration.

Registration as per rules 1992 will be phased out completely in Dec 2017 and registrations as per rules 2015 will be phased out completely in December 2019. Thereafter, tenders will be invited from the contractors registered as per rules 2016 only and any contractor, whether Civil or M&E, who is not registered as per the new rules, will not be eligible to participate in the bidding procedure of MCGM.

For further details please visit Tender / Manual on MCGM portal on http://portal.mcgm.gov.in

sd/-	sd/-	sd/-
City Engineer	**C.A. (Finance)**	**Director (E. S. & P.)**

MINIMUM FINANCIAL AND ORGANIZATIONAL REQUIREMENTS FOR CIVIL ENGINEERING DISCIPLINE

(Rs. In Lakhs)

Sr. no.	Class	Upper limit of Tendering	Minimum Solvency	Total Turn-Over in Last 3 Years	Cost of Single Work Completed within Last 3 Years	No. of Civil Engineers Employee
7	IV(A)	90	25	90	30	1 Graduate with 1 yrs OR 1 Diploma Holder with 3 yrs experience
8	V	50	15	50	15	1 Graduate with 1 yrs OR 1 Diploma Holder with 3 yrs experience
9	V(A)	30	8	00	0	1 Fresh Graduate OR 1 Fresh Diploma Holder
10	VI	15	2	00	0	1 Fresh Graduate OR 1 Fresh Diploma Holder
11	VII	10	1	0	0	1 Fresh Graduate OR 1 Fresh Diploma Holder
12	VIII	5	0.50	0	------	1 Fresh Graduate OR 1 Fresh Diploma Holder
13	IX	3	0.25	------	------	1 Fresh Graduate OR 1 Fresh Diploma Holder

Note: - 1) A Solvency Certificate registered beyond 12 months from the date of its issue will not be considered. Certificate of Solvency (in Hindi/Marathi/English) shall be obtained from scheduled or Nationalise Bank, in the name of the applicant / Firm /Company only

2) Turn-over shall be supported with work completion / performance certificate of civil works only. In case of works carried out in Private Organization; T.D.S. Certificate is essential and certificate from Licensed Architect is necessary.

3) Cost of single work criteria will be governed as given in following Table

Table – I

MINIMUM FINANCIAL REQUIREMENTS FOR CIVIL ENGINEERING DISCIPLINE

(Rs. In Lakhs)

Class	Amounts upto which works 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	0.50	1	1.5
IX	2	0.25	0.5	1

Note: -

1) A Solvency Certificate shall not be accepted for the purpose of registration / renewal / up-gradation more than 12 months after the date on which it was granted. Certificate of Solvency (in Hindi / Marathi /English) shall be obtained from scheduled or Nationalised Bank, in the name of the applicant / Firm / Company only.

2) Turn-over shall be supported with work completion / performance certificate of Civil / M&E works only. In case of works carried out in Private Organization; T.D.S. Certificate (Form No.16/ 26AS) is essential and certificate from Licensed Architect and Chartered Accountant is necessary.

3) Respective amounts mentioned against class shows upper tendering limit of that class, however number of works can be carried out simultaneously will be governed by the bid capacity of the contractor/s

4) The application for New Registration shall be considered only if the contractor has carried out / is carrying out **at least two sizable works** where the value of work done is in each case is not less than the maximum limits of the category two stages below the category for which he has applied (e.g. Category – III for registration in Category – I and category IV for registration in category II and so on). The weightage shall be given for works carried out for private persons / bodies shall be 100% of the value of work as certified by the Registered Chartered Accountant or Registered Income Tax Practitioner (Format X).

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SPECIAL DIRECTIONS FOR ACCIDENT COMPENSATION

SPECIAL DIRECTIONS FOR ACCIDENT COMPENSATION

(A) Preamble:

In MCMGM infrastructural project works are ongoing by various departments such as Roads/SWD/HE/WSP/MSDP/SO/SP/BM etc. As per GCC clause 12, 15 and Special Condition of Contract Clause 53 at present contractor is submitting 3 policies namely.

1. W.C. Policy – Workmen Compensation Policy
2. CAR Policy – Contractor All Risk Policy
3. Maharashtra State worker Welfare Policy

Workmen Compensation Policy covers for labours working on particular project as per Workman Compensation Act.

CAR Policy i.e. Contractor All Risk Policy covers contractor's work, plant, machinery etc and third party liability to the extent of one event.

Maharashtra State Worker Welfare Board's policy for welfare of workers.

In spite of observing all safety precautions at site, unforeseen incidences/ accidents/ untoward accident may happen. Further, it is observed that, Accidental Compensation to any third party / Public / Trespasser are not fully covered under any of these policies. In view of the various incidences / accidents occurring at site, it is felt that an Accident compensation Policy to cater for public liability is necessary.

(B) Post accidental situation can be described in 4 stages :-

1. In case of any mishap caused to any third person within construction site/ project site because of the negligence/ or due to accident / or untoward incident / or due to unforeseen reason on account of contracto5rs personnel/ machinery resulting into injury / permanent disability / death, the contractor shall pay the following compensation to the citizen or his / her legal heir.
   (a) **First Aid** :- This facility shall be made available at each site by the contractor with all preliminary medical aid
   (b) **Hospitalization** :- In case of injury, the contractor shall admit the injured person to the nearest Government Hospital or in absence of government / Municipal Hospitals, Private hospital and shall bear all the medical expenses maximum up to Rs. 20,000/-
   (c) **Partial / Permanent Disability** :-
      i) In case of partial disability, compensation upto Rs. Rs. 2.50,000/- shall be paid by the contractor within 7 days on receipt of directions from the competent authority / MCGM Panel

ii) In case of permanent disability compensation up to Rs. 5,00,000/- shall be paid by the contractor within 7 days on receipt of directions from the competent authority/ MCGM Panel

Note : The state of the partial / permanent disability to the injured person will be decided after evaluation and certification from the MCGM Panel

d) **Death** :-

In case of death, a fixed compensation of Rs. 10,00,000/- shall be paid by the contractor to his / her legal heir within 15 days on receipt of directions from the competent authority / MCGM Panel

Contractor's obligation period will start from the date of issuance of the work order upto the date of completion of work on site.

Death / Permanent Disability / Partial Disability due to accident should not be cause by the following :-

a) Attempted suicide or self inflicted injuries while sane or insane or whilst the person is under the influence of any narcotic substance or drug or intoxicating liquor.
b) The Death / Permanent Disability / Partial Disability shall be caused by violent, external and visible means

MCGM Panel :- May be included with

1) HOD of the concerned department
2) MOH of the Ward
3) A.S.O. of the Ward

Or as may be decided by the Municipal Commissioner.

SUBMISSION OF TENDERS

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. The tenderer shall upload the screenshot of receipt of payment of EMD
b. Valid Registration Certificate
c. Valid bank solvency certificate for minimum solvency amount should be issued within period of 6 months prior to the date of submission of e-tender.
    i. For Class I(A) as per new registration – Rs 2.0 Cr.
    ii. For Class I(A) as per new registration (Year -2016)- Rs 1.5 Cr.
d. A document in support of Registration under Goods& Service Tax (GST)
e. 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.
f. Latest Partnership Deed in case of Partnership firm duly registered with Chief Accountant (Treasury) of MCGM.
g. The bidders shall categorically provide their Email-ID in packet „A".

NOTE:

- 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 e-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 through e- mail within a time period of three working days (as specified in the departmental e-mail) otherwise tenderer will be treated as non-responsive.

PACKET B

The Packet "B" shall contain scanned certified copies of the following documents-

a. The list of similar type of works as stated in para „A" of Post qualification criteria successfully completed during the last seven years in prescribed proforma, in the role of prime contractor. Information furnished in the prescribed proforma (Proforma – I) 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 Post qualification criteria. Bidder should submit information of one/two/three similar type of work in proforma (Proforma - III).

b. Annual financial turnover for preceding three financial years (i.e 1st April 2016 to 31st March 2019) 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.

c. Also for calculating bid capacity, Annual financial turnover for preceding Five financial years (i.e 1st April 2014 to 31st March 2019) as certified by Chartered Accountant preceding the Financial Year in which bids are invited (Proforma – II) 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).

d. 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

   New and Original Works: The bidder should, undertake their own studies and furnish with their bid, a detailed construction planning and methodology sup- ported with assessment study of requirements of equipment/plants & machineries to allow the employer to review their proposal. The bidder shall ensure his com- mitment to make the arrangements of the required equipment on the day of com- mencement or with respect to the progress of the work in phases, as per the in- structions of site in charge on an undertaking on Rs.500 stamp paper to be sub- mitted along with the Bid in Packet B.

However, this condition in no way shall dilute the respective condition in Registration Rules of MCGM.

Bidder should submit information for technical personnel in proforma (Proforma –IV), Information for equipment, machinery vehicles in proforma (Proforma –V/A & V/B).

e. Details of works in hand (Proforma VI-A & VI-B) (original), along with copies of work orders & attested copies of percentage of works completed or part thereof
f. Statement showing assessed available Bid Capacity.
g. The undertaking of Rs.500/- stamp paper as per the proforma annexed in „Annexure B & C"

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

h. 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.
8. Submission of Preliminary Engineering Designs, Drawings, Process Calculations, Layout design, \construction material, Data Sheets along with the manufactures makes,as per bid requirements with proposed Sewerage technology, Construction methodology for sewer lines and deep wells, construction methodology and basic structural design for STP platform, specifications of Interceptors, Fixed and Mechanised Screens, Electrical load consumption for entire system.

Note:

I. The Electrical / Mechanical work shall be carried out by the civil contractors through the contractors registered with MCGM 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.

2. 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 MCGM 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.

3. 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 MCGM 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.

4. As per circular MGC/F/6565 dated 25.09.2018
   The bidder shall disclose the Litigation History in Packet 'B' under the heads "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.

Note:

- If it is found that the e-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 through e- mail within a time period of **three working days** (as specified in the departmental e-mail) otherwise tenderer will be treated as non-responsive.

PACKET – C

Online tender invited on item rate basis for construction of Sewage treatment plant, Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River.

The tenderer has to quote his rates for STPs on MBR Based technology in the format given in the Section 8.

The tenderer has to quote his final costs for Sewer Network, Intercepting Chamber, Road side Drains and Service road online only. Detailed BOQs for the same are given in Section 8.

Note: The rate analysis should be submitted by the e-tender through e- mail within a time period of three working days (as specified in the demand notification). Non submission of rate analysis due to failure of system, any other reasons is not acceptable. The format for rate analysis is annexed at Annexure D.

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 favour of the authority mentioned in the Bid Data Sheet and shall be valid till the validity of the bid.
- The tenderers shall pay the EMD online instead paying the EMD at any of the CFC centres in MCGM Ward Offices.
- 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 signed the Agreement and furnished the required Security Deposits
- The Bid Security/ EMD of L-3 and downwards shall be refunded immediately after opening of financial bid but, the EMD submitted by the L-2 bidder will be returned after obtaining Standing Committee Resolution.
- 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/deregistration, 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

Note:

I **Curable Defect shall mean shortfalls in submission such as:**

A. Non-submission of following documents,
   a. Valid Registration Certificate
   b. Valid Bank Solvency
   c. GST Registration Certificate
   d. Certified Copies of PAN documents and photographs of individuals, owners, etc
   e. Partnership Deed and any other documents
   f. 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, etc.

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 bid-der may refuse the request without forfeiting his Bid Security. A bidder agreeing to the re-quest 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 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.

The DLP shall be as below:

Department	**Type of Works**	**DLP**
For other departments	Civil Work	**5 years**
	Mechanical & Electrical	**3 years**

- 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 carryout 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 PERFOMANCE GUARANTEE

A. Security Deposit

The security deposit shall mean and comprise of

I) Contract Deposit

II) Retention Money

I) **Contract Deposit-**The successful tender, here after 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.

II) **Retention Money-**

The contractor shall pay the retention money an amount equal to **five (5) percent** of the Contract Sum which will be recovered from the contractors every bill i.e. interim/

running / final bill. The clause of retention money will not be applicable M. & E. Department.

B. <u>Additional Security Deposit (Not Applicable for this tender)</u>

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/100) 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.

C. <u>Performance Guarantee (Refer SCC No. 115)-</u>

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:

Offer	**PG applicable %**
For premium, at par and rebate 0 to 12%	PG= 0.92% x contract sum applicable for rebate of 12%
For rebate of 12.01% and above	P.G. = {0.92% x contract sum applicable for rebate of 12%} +(X) x contract sum where X= percentage rebate quoted more than 12%

Note: Contract sum shall mean amount after application of rebate 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 scheduled bank

v) An electronically issued irrevocable bank guarantee bond of any Schedule bank or 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 as one complete B.G. & 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 receipt of Letter of acceptance.

D. <u>Refund of Security Deposit</u>

i. **Refund of Contract Deposit**

The Contract Deposit shall be released within 30 days after completion of 3rd year of DLP (in case of 5 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. No claim shall be made against the Balance Contract Deposit after the issue of Defects Liability Certificate.

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 5 years DLP) 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. 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 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 <u>(Not Applicable for this tender)</u>**

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

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 5 years DLP

Deposits refunded after completion	After 3 yrs of DLP	After Completion of DLP
ASD + 50% of RM	CD+50% of RM	PG

b) Time of Refund for works having 1 or 2 or 3 years DLP

Deposits refunded after completion	After Completion of DLP
ASD + 50% of RM	CD+50% of RM+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 upto 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.

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

Successful tender shall pay the Legal Charges +Stationary charges as per Circular no CA/FRG/3 dtd 23.04.2019

Contract value						**Legal + stationery charges**
Upto	Rs.	50,000/-	to	Rs		Nil
From	Rs.	50,001/-	to	Rs	3,00,000/-	Rs. 550/-
From	Rs.	3,00,001/-	to	Rs	20,00,000/-	Rs. 920/-
From	Rs.	20,00,001/-	to	Rs	1,00,00,000-	Rs. 3,570/-
From	Rs.	1,00,00,001/-	to	Rs	Any amount	Rs. 8,880/-
						(Maximum)

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.

F. Stamp Duty: (As per applicable circular)

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

i. As per the provision made in Article 63, Schedule I of Maharashtra Stamp Act 2015, 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

(a)	Where the amount or value set forth in such contract does not exceed rupees ten lakh.	Five Hundred rupees stamp duty

(b)	Where it exceeds rupees ten lakhs	Five hundred rupees plus one hundred rupees for every Rs.1,00,000/- or part thereof, above rupees ten lakh subject to the maximum of rupees Twenty five lakh stamp duty.

ii. The successful bidder shall enter into a contract agreement with M.C.G.M. within 30 days from the date of issue of LoA and the same should be adjudicated for payment of Stamp Duty by the successful bidder.

iii. 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.

iv. All legal charges and incidental expenses in this respect shall be borne and paid by the successful tenderer.

v. As per para 54 read with 40(b) of Maharashtra Stamp duty Act, Stamp duty at the rate of 0.5 % is payable on total amount of Bank Guarantee (original as well as extended) submitted by Tenderer. If the time period of the Bank required to extend then the same shall be considered as new Bank Guarantee and again 0.5% stamp duty shall be applicable.

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 portal.mcgm.gov.in\tenders for "The Manual of Bid-Submission for Percentage Rate/Item Rate Tender Document." The detail guidelines for creation and submission of bid are available in the referred document.

   Any queries or request for additional information concerning this TENDER shall be submitted by e-mail to dyche01ws.swd@mcgm.gov.in. The subject shall clearly bear the following identification/ title: **"Queries/ Request for Additional Information:** TENDER for **Rejuvenation of Poisar River by providing Sewage Treatment Plants based on MBR technology , Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River."** Any changes in mail ID will be intimated on the portal.

3. In case of **Equal Rate** 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 done by IT department in MCGM's SRM 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 Ch.Eng.

4. As per circular CA/F/Project/17 of 06.09.19

   "Chapter XXI-Miscellaneous, Section 171(1) of GST Act, 2017 governs the „Anti Profiteering Measures" (AFM). As per the provision of this section, „Any reduction in rate of tax on any supply of goods or services or the benefit o 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 tax rate or additional Input tax credit, to MCGM.

Further, all the provision of GST Act will be applicable to the tender."

- As per MGC/F/7867 dt 12/10/15

All excavated & surplus material on site will be disposed by next of transportation or as directed by Site in charge on the cost of contractor. No additional / separate payment will be done to contractor

- As per circular MGC/F/7076 dt 30/08/18

It is directed to dispose of construction and demolition waste material by following due procedure in accordance with the provision of the Construction and Demolition Waste Management Rules-2016

- As per circular U/No.MGC/F/6342 dated 5.5.2018

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 is attached to this tender as a part of tender document.at pg.189 to 214.

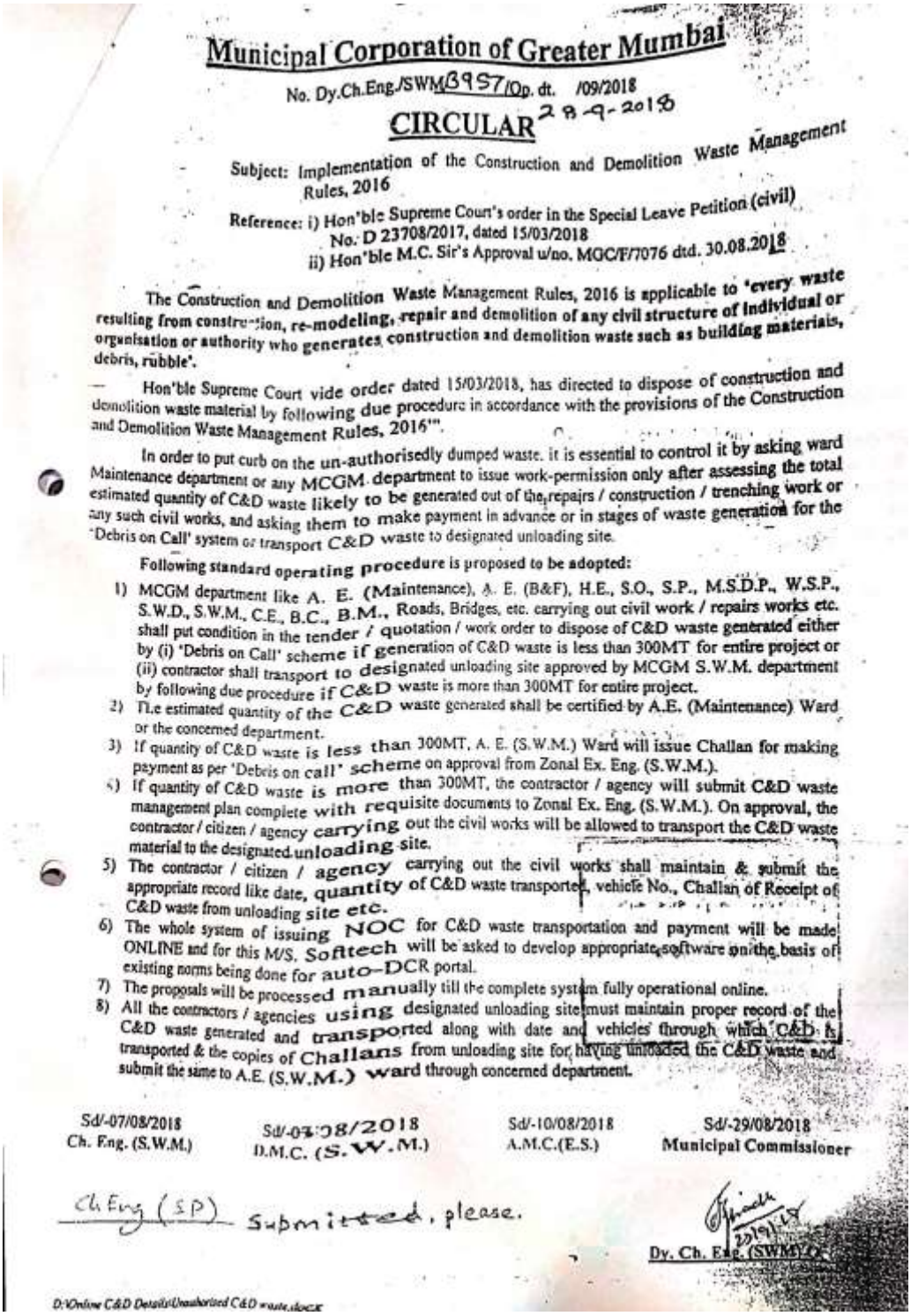
- As per circular no. CA/FRT/623 dt 8/10/12

The party of second part shall duly observe & comply with all the provisions of law, rules & regulations referred by government / Municipal Corporation or any other competent authority applicable to the said tender work & the activity being conducted therein. Also, as per the circular CA/FRI/12 dt 21/06/12, 1% amount of labour cess will be recovered.

- As per circular MGC/F/6565 dated 25.09.2018

The bidder shall disclose the Litigation History in Packet 'B' under the heads "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.



Municipal Corporation of Greater Mumbai

No. Dy.Ch.Eng./SWM/3957/Op. dt. /09/2018

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 u/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. (SWM) (E)

D:\Online C&D Details\Unauthorized C&D waste.docx

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
- Record 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.

No. DE/E.S.&P./915/mc
27.9.18

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 Garden s/

Asstt. Comm. Ward / Asstt. Comm.(Markets) / Asstt. Comm. (Estate) / Asstt. Comm.(Planning) / Asstt. Comm.(R.E.) City/W.S./E.S.

(SP)

बृहन्मुंबई महानगरपालिका प्रमुख अभियंता भांडवल प्रकल्प यांचे कार्यालय वरळी.
5164/P.
29 SEP 2018

DY. Ch. E. (S.P.) Const/P&D
A.O.(S.P.(G)/Const/P&D
Pl do further needful
29/9
Chief Engineer (Swe. Project)

EE (SP)P&D City/ES/WS/Micro
A. O. (SP) - General/Estt/Constn/P&D.
1. Put ... Compliance
2. P...
3. For Nin...
4. Please Circulate
All to note & instruct concerned staff accordingly
Dy. Ch.E(SP)P&D

Sodaye
This is the part of tender document
3/10/18

SECTION 7

SCOPE OF WORK

SCOPE OF WORK

Name of Work - Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for interception & diversion of sewage.

Overall Features of the Project:

Salient features of Poisar River Project

Sr. No.	Particular	Salient features
1	**About PoisarRiver**	Poisar River begins in the Sanjay Gandhi National Park and empties into the Marve Creek and finally into the Arabian Sea. The river is now nothing more than an urban stream when it begins and is contaminated with industrial effluents and sewage. Municipal Corporation of Greater Mumbai have taken an initiativeof Rejuvenation & Beautification of Poisar River starting from starting point near Appapada, Malad (East) at SGNP to Malad Creek (e.g. preventing ingress of sewage into the river, provision of sewer lines, STP, ETP, etc., solid waste disposal plan, improvement of biological quality of water, provision to improve the bio diversity of the river, development of mangroves park, Crab / Fish farming, Boating / kayaking, Bird Watch Towers, Sit-outs, Breathing Space, provision of gardens, green belt, amusement and children park etc., along river banks/outfall.
2	**Total Length of River**	10300 m
3	**Point of Origin**	within the Sanjay Gandhi National Park
4	**Meeting Point**	Malad Creek
5	**Basin Area**	2095 Ha
6	**Components included**	Sewerage Network, Road Side Drain, Service Road, Retaining Wall, pumping stations, Sewage Treatment Plants.
7	**Contract Type**	Item Rate/ Design Build Operate
8	**Areas (locations) through which the River flows**	AppaPada, Kranti Nagar, Kurar Village, HanumanNagar, Thakur Complex, Mahindra & Mahindra establishments (near Western Express Highway), Poisar

9	**Polluting areas or Unsewered Areas**	Under MCGM Area- Kranti Nagar, Gokul Nagar , Durga Nagar, Kurar Village, Hanuman Nagar, Shivaji Nagar, Parekh Nagar, NarsiPada, Janata Nagar, Gaondevi , Bhajiwadi, Nanjiwadi, Bihari tekdi, FatehBaug, Janta Colony, Kandivali(W), Jai Janta Nagar, IraniWadi,TulaskarWadi, Jai Bhim Sanjay Nagar, Ganga Nagar
10	**Length of Existing Sewer Lines in Near By Areas of the River**	4.50 km
11	**Rejuvenation & Beautification**	This includes the treatment of water entering through nullahs and various other outfalls by laying sewer network and providing packaged STPs, fencing along the nullahs, bioremediation techniques, wetlands, recreational facilities, etc.
12	**Dedicated provision for Utility Services**	Sewerage, Drainage, Gardens, Amusement parks,Bird Watch Towers, Sit-outs, Breathing Space, Green belt.
13	**Contribution in various areas**	Contribution towards Pollution Control of River, Benefiting to citizens and beautification of the river and city.

PART A– STPs

DETAILED SCOPE OF WORK FOR MBR BASED MODERNISED SEWAGE TREATMENT PLANT (STP):

The Scope of Work under this contract is divided in three sections namely

(a.) Design Engineering

(b.) Supply, Installation testing and commissioning of pumping stations and STPs

(c.) Operation and Maintenance for 15 years after successful commissioning.

The mentioned Scope of Work includes but is not limited to the following in relation to the design, construction, and operation of the Works:

(a.) Design Engineering

MBR Based Plant

Membrane Bio Reactor (MBR)

The MBR process shall be designed by the bidder in consultation with the original equipment manufacturer (OEM) of membrane in order to ensure that the plant performance is in accordance with the objectives of the project outlined in the bid document.

MBR Process Units

Broadly the MBR System shall comprise the following process units. However, the bidder is free to provide such additional units as he may desire to achieve the desired outlet parameters.

- Coarse Screens 6 mm nominal particle size
- Fine Screens 2 mm nominal particle size
- Grit Separator / Degritter to remove finer discrete particles and grit
- Anoxic Pre-denitrification Chamber
- Aerobic Nitrification Chamber
- Membrane Bio-Reactor Tank
- Post de-nitrification chamber
- MBR Filtrate Storage Tank of 20 minutes peak flowrate holding capacity

The MBR system shall be designed with all the necessary automation, instrumentation and integrated with the other STP Process Units.

- The bidders have to submit the MOU with the technology provider, of the STP having the proven MBR Based technology experience and facilities for designing and manufacturing of the key components of the STP capable of producing Effluent (product water) of the prescribed standards in the tenders.
- Successful bidder along with the technology provider whose Memorandum of Understanding (MOU) has been submitted at the time of bidding shall submit the following engineering details for the design approvals.
- i. Detailed Sizing, Design, and Engineering, of all treatment units, buildings, structures, and equipment (including all civil, mechanical, electrical, architectural, instrumentation, control, automation, and SCADA components)
- ii. Preparation of GA Drawings, Site Layout, Unit Process/Equipment/Facility/Building layouts, Hydraulic Profile, Process Flow Diagram, Process and Instrumentation Diagram (P&ID)
- iii. Submission of Process and Hydraulic Design for approval which shall fulfill the latest CPHEEO manual standards of Recycling and reuse of waste water for gardening. (Chapter no 7, Table no 7.19 recommended norms of treated sewage quality for specified activities at point of use.)
- iv. Design and Construction of all Civil Structures and Building Works including support structures over the river on bridge type platform wherever necessary and deep well in adjoining plot as instructed by MCGM.
    - Design, supply, installation, testing and commissioning followed by operation and maintenance for a period of 10 years including replacement and renewal of necessary items of SCADA Automation of the entire STP, Sewage collection, pumping and integration with the STP treatment units, operation of all the pumps at various

locations and zonal pumping stations. The instrumentation shall be designed to analyse and monitor at the following locations (but not restricted to) For Inlet of STP: pH Analyzer, COD, BOD, TSS, TOC Analyzer, Total coliform Analyzer, Nitrate and Ammonical Nitrogen Analyser. The contractor may opt for any type analyzer combined or individually for each plant.For out let of STP: Minimum four number of individual analyser for each plant given as follows; 1.pH Analyzer, COD, BOD, TSS, TOC Analyzer, 2.Total coliform Analyzer,3.Nitrate and Ammonical Nitrogen Analyser ;4. Toxicity monitoring system For the following Parameters: Oil & Water Analyzer , Flouride Analyzer , Chloride Analyzer ,Zinc Analyzer , Iron Analyzer , Hexavelent Chromium Analyzer , Mercury Analyzer , Lead Analyzer ,Cadmium Analyzer ,

Nickel Analyzer. And along with Ultraviolet disinfection system and post disinfection system with chlorination.

- v. Design, Construction and Commissioning of Bypass Lines
- vi. Submission of Detailed Engineering Designs, Drawings, Process Calculations, Data Sheets as per bid requirements
- vii. Contractor has to take the third party approval of process and hydraulic design from IIT Bombay /NEERI as instructed by Engineer In charge. The Fees for third party approval of IIT/ NEERI shall be borne by the MCGM.
- viii. Contractor has to design and execute all street lighting/ area lighting in the plant area using renewable hybrid technology.
- xi. Contractor has to collect the sample and get it tested prior to bid submission, the Test reports done by MCGM are also given along with this tender for reference.
- x. Provision and removal of site access road including temperory road.
- xi. Design and construction of approach road/structures and pathways
- xii. Construction of temperory structures and cofferdam as necessary.
- xiii. Removal of encroachment, obstructions falling along work as per descrition of MCGM.
- xiv. Co-ordination with all agencies obtaining permissions and approval of all concerned egencies including Electrical Inspector, Safety Office, Tree authority, CRZ Regulatory Authority, Pollution Control Boards, Service Providers all expenses and fees connected with permissions and approvals shall be borne by the bidder
- xv. Necessary provision for temperory flow diversion
- xvi. Contractor shall submit total electric load for STPs along with the bid in ‘Packet B’.

- xvii. Payment of electricity charges during operations of STP and associated infrastructures like pumping etc. shall be directly paid to the respective Power Distribution Company by the MCGM upto the approved consumption of power by MCGM from time to time. The electricity charges of Rs 7 per Kw shall be considered for evaluation purpose.
- xviii. The penalty due to lagging or leading power factor will be paid by contractor. Also if the maximum demand exceeds than the designed load submitted by the contractor, payment for excess load will be paid by contractror.
- xiii. Flow for 5 MLD STP at Indira Nagar is required to be tapped from manhole on existing sewer line of 600 mm on JS Road as per GA drawing.
- Prepare the digital twin of the above proposed work using Building Information modelling concept with minimum LOD 350 and shall have to provide access to MCGM during entire construction and O&M period for BIM platforms, standard design software like Open utility designer, STP designer, STAD Pro, Bridge design software RM60, etc. asper the directions of engineer of incharge.
- Contractor also required to appoint a competent agency to prepare a 5 min documentary film of work carried outand the outcomes of the project achived in 4K using advance unmanned arial and under water photographic captures
- In case of failure in providing a Digital twin reality model, a penalty of 3% of the Project cost shall be imposed on the contractor, the same work shall be by nominating expert agency of having enough BIM execution experience at the risk and cost of contractor.

(b.) Supply, Installation, testing and commissioning of pumping stations and STPs:

- Contractor shall submit the work schedule in the form of bar chart for the approval.
- Site Topographic Survey and Geotechnical Investigations as deemed necessary by the Contractor
- Setting out of the works
- Site Clearing, Excavation, Leveling, Grading and Backfilling Activities
- Procurement, Supply and Installation, Erection of all Mechanical, Electrical, Instrumentation, SCADA Equipment
- Execution of all Civil, Mechanical, Electrical, Instrumentation, SCADA Works at Site including Construction, Erection, Testing along with required platform and foundations.
- Construction of Internal Plant Roads, Curbs, Pavements, Parking Spaces, Compound Wall, and RCC Storm Water Drains wherever required as per site conditions and as instructed by Engineer In charge.
- Provision of CCTV surveillance and Fire safety provision including sprinkler systems as

per CFO requirements including with O&M period.

- To observe shock loads, provision of pH, COD, BOD, TSS, TOC, Coliform, Phosphates, Nitrate & Ammonia analysers should be provided at the inlet and outlet of the STPs.
- Plantation and Landscaping work as per the site condition and as instructed by Engineer In charge.
- Tanker filling points shall be provided to deliver the treated water from STP upto the nearest MCGM office or upto distance as instructed by Engineer in charge.
- Ownership rights of treated water shall be vested with the MCGM.
- Continuous air and rain monitoring stations atleast two shall be provided.

(c.) Asthetic Appearance

- Bidder shall prepare conceptual drawings and plans that illustrate the architectural image of the proposed Sewerage facility individually. These images shall show site plan, conceptual floor plan and building elevations.
- The whole area should have a well-designed Landscapes, tree plantations, Tiled path ways, Proper Safety hand railings at all Units, area lighting for the whole plant area and well-designed sewage & drainage system
- Unique characteristics that the bidder is proposing shall be shown separately to clarify intent. Architectural floor plans showing the proposed layout of rooms and spaces, building elevations showing proposed finishes and materials, and code requirements. It should include Mechanical plans showing the proposed equipment layout and interconnecting piping.
- The Contractor shall submit architectural Designs and Concepts along with the technical proposal of the tender and after obtaining comments from MCGM along the detail engineering drawings. The architectural design proposals for Sewerage Treatment Plant for interior and exterior architecture along with an appropriate landscaping scheme.
- The contractor shall give statement of Architectural factors in the design in relation to locality and surrounding
- Architectural work shall include walls, roof, flooring and floor finish, roof water proofing, down water pipes, windows, ventilators, doors, glazing, equipment access doors, painting and other ornamental works
- The contractor shall Horticultural, arboriculture, and architecture elements for boundary wall lawns, green walls, ground covers, rockeries, , creepers & climbers,

shrubs, flower beds planters at all levels of the building, indoor plants and other pot plants within the Sewerage treatment plant .

- The contractor must have installation along the paths, fountains and other hard landscape features in the garden area including decorative electrical fittings and lights etc.
- The Contractor shall have water fountains or water cascading elements for disposal of water which can be visible to public. The elevation visible to the public from roadside needs to be covered by the well maintained at all the times with natural plants.
- Odour control mechanism needs to be installed which can remove the foul order if emitted from plant even during maintainace period.
- Signage and warning boards all buildings and treatment units shall be provided with sign boards indicating the name and function of these. Necessary signage and warning boards shall be erected The signboards shall be partially reflective flex type on SS Grade 304 minimum 1.2 mm thick supported with frame of aluminum channels / double back channels minimum 3 mm thick through aluminum rivets. The signboards shall be subsequently attached to the post(s) through steel bolts. The posts shall be 75 mm diameter galvanized steel with welded top cap in case the signboard is supported on one post only, however, if two posts are used to support the signboard the diameter of each shall be minimum 40 mm and thickness 1.6 mm. The steel posts shall be embedded in RCC footing of size. The total height of the post shall be 1800 mm + size / depth of the signboard. 14 All The signboards displaying name of the technical units and directions shall be written in Marathi and Engilish.
- Contractor should design the plant in such a manner that the Vehicular approach shall be provided from entry and exist point of Sewage treatment plant up to the centrifuge building, Blower Room for execution and Operation and maintenance point of View and for Fire Fighting System, movement of Tools & Tackles for handling of equipment during maintenance.
- The contractor shall provide proper Odour Control system for the whole unit shall be designed and provided.

(d.) Operation and Maintenance

- Receiving Raw Inlet Sewage at site and discharge of treated Effluent into river and reuse in nearby garden and landscaping.
- Submission of Operation and Maintenance Manuals

- Fifteen Years Operation and Maintenance of Sewage Treatment Plant from the date of successful completion of the Works.
- The Contractor should note that the Sewage Collection System and STPs will be constructed under single contract. The Contractor shall familiarize himself with the schedule for the Sewage Collection System conveying wastewater to that STP and monitor the progress on a regular basis. All components of the plant shall be adequately secured, protected, maintained, and exercised according to manufacturers' instructions during contract period.
- Providing Training Services to Employer's Personnel.
- Preparation and Submission of As-Built drawings for all Civil, Mechanical, Electrical, Instrumentation, SCADA Works.
- Store room shall be constructed as per need of the project and as instructed by engineer In charge.
- Working of STP should be such as to meet the required effluent quality parameters given below
- Record, documentation & reports (equipments maintenance including PLC or SCADA, daily logbook for analysis performed)
- Real time monitoring of all required parameters of STPs and online analysis of effluent parameters shall be available with the help of relevant technology to the MCGM officers through mobile app as directed by engineer-in-charge.
- Day to day and periodic maintenance of all the equipment's shall be done
- List of working Staff at STP along with the organization chart shall be given.
- Safety rules, regulations and arrangements shall be followed by the contractor as per the standard safety guidelines.
- Contractor shall keep plant area clean and maintained.
- Regular (Weekly or as and when required) testing of parameters (BOD, COD, DO, TDS, pH, TSS etc.) shall be done from NABL accredited laboratory.
- Instruments calibration and testing shall be done.
- The cost of water, chemicals shall be bear by the Contractor.
- Contractor is responsible for taking all clearance required for execution of project.
- Contractor shall submit Contractor's All Responsibility (CAR) and other required policy documents.
- Transportation and disposal of Grit/sludge as instructed by Engineer In charge after appropriate sludge treatment required as per standards, at his own cost.

- Operation & Maintainance work for all 10 interceptors is included and scope of O&M of STPs, it shall be for 15 years including DLP. Daily routine maintance of Screen shall be conducted. In case of any blockage, immediate clearance using required Mecanical equipment is mandatory.
- It shall be the responsibility of contractor to meet the desired parameters of effluent as per the standard procedure of testing prescribed by NABL or any other government agency.
- It shall be the responsibility of contractor to control the odour by installing adequate odour control mechanism during entire operation period and maintain dB level during entire operation period as per the relevant government circular.
- Openable MS/GRP screen shall be installed at every inspection chambers of laterals.
- It is contractors responsibility to maintain flow in laterals and periodical cleaning of inspection chambers as per directions of Engineer in charge by using mechanical means.

STP DETAILS		
STP	**LOCATION**	**CAPACITY (MLD)**
STP:1A	Kranti Nagar-1A	1.5
STP:1B	Kranti Nagar-1B	2
STP:2	Appapada Kurar Nagar, Gokul Nagar	4
STP:3	Muslim cemetry near kurar culvert, Durga Nagar	3.5
STP:4	Mahindra Green Gate	1.5
STP:5	Thakur parking plot samatanagar nalla (4 MLD) Asha Nagar Nalla (4 MLD)	8
STP:6	Near poisar subway, Gaon devi, Bihari Tekdi	4
STP:7	Opp. Poisar Gymkhana, Tulaskar wadi	3
STP:8	Irani Wadi	4
STP:9	Laljipada kandiwali west, Sanjay Nagar	2
	Total	**33.5**

Desired River discharge Parameters –

Sr.no.	Parameters	Unit	Quality Parameters of Treated Water
1	Bio chemical Oxygen Demand (BODs)	mg/l	< 3
2	Chemical Oxygen demand (COD)	mg/l	< 50
3	Total Suspended Solids (TSS)	mg/l	< 10
4	Colour		Courless
5	Total Nitrogen (TN)	mg/l	< 10
6	Total Phosphorus	mg/l	< 1.0
7	pH		6.5-8.5
8	Oil and Grease	mg/l	<10
9	Fecal Coliform	MPN/ 100 ml	Below Detectable Level
10	Odour		No noticeable offensive odour
11	Temperature	^{o}C	Ambient

(Source: CPHEEO Manual on Sewerage and Sewage Treatment, NGT Standards & MPCB/CPCB Norms as approved by TAC of MCGM)

Inlet Parameters -

The Inlet parameters for proposed STP locations are given below;

(It is recommended to consider Minimum BOD as 250 mg/lit wherever found less than 250 mg/lit.)

Wastewater Sample Test Reports

Influent Parameters for Poisar River										
Sr No	**Location**	**Parameters**								
		O & G (mg/lit)	**TSS (mg/lit)**	**TDS (mg/lit)**	**BOD (mg/lit)**	**COD (mg/lit)**	**TKN (mg/lit)**	**Phosphates (mg/lit)**	**Nitrates (mg/lit)**	**FC (CFU/100 ml)**
1	Kranti Nagar (Ramgad Nagar)	25	192	626	200	440	15.68	0.37	0.12	$4x10^8$
2	Appapada Kurar Nagar,Gokul Nagar	7	180	256	239	526	16.52	0.33	0.40	$12x10^8$
3	Muslim Cemetry near Kurar Culvert, Durga Nagar (Hanuman Nagar)	7	220	660	210	462	18.76	0.50	0.29	$3x10^8$
4	Nallah behing Mahindra & Mahindra Green Gate	9	956	326	258	568	15.96	0.33	0.38	$2x10^8$
5	Near Poisar Subway, Gaon Devi Bihari Tekdi	9	96	434	258	568	17.64	0.33	0.12	$4x10^8$
6	Asha Nagar Nallah	3	120	364	239	526	21.84	5.80	0.24	$1x10^8$
7	Tulaskar Wadi, Gowardhan Nagar, Kamla Nehru Nallah	12	280	224	258	568	18.48	4.14	0.30	$5x10^8$
8	Irani Wadi, Hemu Kalani Nallah	4	132	440	191	420	16.52	4.31	0.17	$4x10^8$
9	Laljipada Kandivali West, Sanjay Nagar	21	496	840	84	185	5.32	2.90	0.26	$2x10^8$
10	Patankar Wadi Samarth Wadi Nallah	10	156	370	307	675	16.80	3.73	0.36	$3x10^8$
11	Madina Nallah	12	108	446	220	484	16.24	5.38	0.34	$3x10^8$
12	Narsi Pada (Nallah behind Mahindra & Mahindra Yellow Gate)	9	260	524	346	761	19.88	3.73	0.32	$4x10^8$

DISCLAIMER – The wastewater quality reports are indicative only and MCGM does not guarantee any parameters. The bidder shall conduct his own tests and design his facilities accordingly by considering the average peaks and shock loads.

PART B – SEWERAGE COLLECTION SYSTEM

These works have following Scope of work:

1) Detailed Survey by Total station coupled with. DGPS and automatic levels ,
2) Safe Barricading the work site,
3) Excavations in all types of soil / rock/ Asphalt layers/ Paver Block,
4) Providing shoring in the trenches,
5) Providing and laying rubble Soling and/or PCC,
6) Providing and Laying Intercepting sewer line/ house service connection of Stoneware/HDPE and / or RCC NP 3 Class pipes as the case may be with instructions of engineer in charge,
7) Connecting the proposed Intercepting sewer line to the existing sewer line wherever possible
8) Providing approppriate Grade Concrete Encasement as perv approved design ,
9) Construction of Sewer Manholes, Chambers, drops & Vent Shafts,
10) Pipe Testing / Line Testing in presence of S. P. Department as per industry practice and codes
11) Construction of interceptors to all the polluting drains or outfalls and connecting it to the proposed sewer line wherever possible
12) Leaving shoring and Filling in trenches wherever required
13) Backfilling of Trenches as per approved designs
14) Reinstatement of excavated trenches including road restoration. As per approved designs
15) Submitting completion drawing in soft (Auto cad & PDF) and physical format.
16) Laying of Trunk Sewer line by HDD method, in any type of ground (i.e soft soil, murum, with boulders, hard rock , varying ground condition, mixed face condition etc.)
17) The complete installation of reinforced cement concrete pipeline pipes or other HD pipes by Microtunneling/HDD(Horizontal Directional drilling) & pipe jacking method, including fittings or specials as specified and as approved by the Engineer.

18) Excavation of jacking & receiving shafts including utility shifting, proper barricading as per circular No.MGC/F/6342 dated 5.5.2018 with adequate reflectors including shoring/Sheet piling/RCC meter piling, soil stabilization/Rock anchoring etc as per approved designs.
19) Boring tunnel by laser guided Microtunneling machine (slurry shield) / HD Machine / Manual boring Machine in any type of ground. (i.e soft soil, murum, with boulders, hard rock , varying ground condition, mixed face condition etc.)
20) Transferring of existing working connections & providing new connections by appropriate enabling arrangements without unduly affecting the functioning of the existing sewer. The work may require trenchless technology/ Microtunneling or convention open excavation for laying such connections.
21) Construction of shafts of required diameter for laser guided microtunneling.

PART C– NALLA INTERCEPTOR

These works have following Scope of work:

1) Excavation and boring or cutting of existing RCC nalla walls for nalla interceptors
2) Construction of intercepting chambers in RCC
3) Construction of interceptors at 10 locations.
4) Connecting the DWF from interceptors to the nearby manhole with HDPE pipe having dia. Equal to the dia. of sewer line.

PART D – ROADSIDE DRAIN

These works have following Scope of work:

1) Construction of road side drain with RCC, RCC slab covering and single water entrance.
2) Providing M. S. Grating and frame for water entrance with Hume Pipe of 300 mm Dia.
3) Raft/walls /slab to be constructed in R.C.C in M 30/M30/M35 respectively
4) Any unforeseen work, if arises, related to catchment area /Beat no. (ongoing work)
5) Contractor has to make arrangements for own dumping plot.
6) Road side drain to be constructed in RCC
7) H.Y.S.D. Steel bars (Fe-415) to be used in RCC works.
8) Use of R.M.C. for all concrete works.

Epoxy coating paint for existing RCC retaining walls (Excluding the walls constructed in on-going projects)

PART E – SERVICE ROAD

These works have following Scope of work:

1. Development width of 6m consists of earthwork in excavation and embankment (with compaction level of 97%) and subgrade (with compaction level of 100%) for full width with required camber as per MORTH / IRC specifications and as directed by Engineer in charge.
2. The provision of GSB Grade II layer shall be extended till the embankment side slope to act as drainage layer and drain out the surface water to the roadside drains.
3. Other pavement layers such as GSB Grade II, WMM, DBM and BC shall be laid as per tender drawings and as per MORTH / IRC provisions.
4. Pavement crust shall be constructed for minimum traffic loading of 10 MSA with design period of minimum 15 years. Required design input such as design CBR shall have to be ascertained by contractor subjected to minimum CBR of 8% as per IRC standards.
5. RCC utility duct and allied works shall be constructed as per tender drawings/ approved designs and as per MORTH / IRC provisions.
6. Other provisions such as placing kerb channel, water table, kerb stone, selected earth fill, horticulture and roadside furniture shall be laid as per tender drawings and as per MORTH / IRC provisions.

Note:

1. All the workings contained in the scope of work shall be carried out strictly as per the relevant specifications applicable as attached or referred in Volume 3 of this e - tender document.
2. The Contractor can suggest better specification of any item during execution which shall be vetted by MCGM through IIT Bombay. However any non adherence to specification shall attract penalty of 20% of quoted rate in BOQ of that item.
3. The above mentioned details are general description of the scope of work & actual work shall be governed as per Bill of Quantities and as directed by the Engineer.

4. Applicable MCGM‟s USOR The Unified Schedule of Rates-2018 (R-2) is applicable. Which are available on MCGM Portal http://portal.mcgm.gov.in

Municipal Corporation of Greater Mumbai						
Underground Sewerage System- Poisar River						
Summary						
Sr. No.	**Area**	**No of Manholes**	**Manhole no.**		**Length (m)**	**Diameter (mm)**
			From	**To**		
1	Ramgad Nagar	7	1	7	142.40	300
2	Kranti Nagar	6	8	13	158.20	300
3	Ramgad Nagar	9	14	22	250.70	300
4	Kranti Nagar	10	23	32	262.80	300
5	Appapada	14	33	46	393.10	300
6	Gokul Nagar	15	47	61	426.70	300
7	Durga Nagar	10	62	74	214.50	300
8	Durga Nagar	3	71	73	81.30	300
9	Durga Nagar	13	75	102	373.40	300
10	Appapada	15	82	96	366.90	300
11	Hanuman Nagar	32	103	134	781.60	300
12	Narsi pada	7	135	141	159.70	300
13	Hanuman Nagar	27	142	168	675.10	300
14	Mahindra Yellow Gate	3	169	171	90.20	300
15	Bihari Tekdi	12	172	183	268.30	300
16	Gaodevi	43	184	226	1,080.30	300
17	Fateh Baug	7	227	233	170.20	300
18	Jay Bhim Sanjay Nagar	7	234	240	171.80	300
19	Kandivali Police Line	7	241	248	159.90	300
20	Kandivali Police Line	1	247	248	30.20	300
21	MG Road 1	7	249	255	192.60	300
22	Tulaskar Wadi	7	256	262	194.30	300
23	Hemu Kalani	7	263	269	181.60	300
24	Ambedkar Nagar	18	270	287	423.90	300
25	Rd 4, Irani wadi	2	288	289	58.40	300
26	Rd 4, Irani wadi	10	290	299	260.60	300
27	Irani Wadi	25	300	324	655.00	300
28	Lalji pada	9	325	333	242.90	300
29	Buffer Line	9			200.00	300
Total		**342**			**8,666.60**	

RECAP SHEET FOR ROAD SIDE DRAIN (RSD)					
Stage	**Description**	**FROM**	**TO**	**Length of Stretch (m)**	**Total length of Road Side Drain (m)**
1	Appapada P/North ward to Kurar Culvert	-250	1000	1250	2,693
2	Kurar Culvert to Akurli Road Culvert	1000	1950	950	1,465
3	Akurli Road Culvert To Western Express Highway	1950	2450	500	158
4	Western Express Highway to Western Railway	2450	4550	2100	1,908
5	Western Railway to Dahanukar Wadi Bridge	4550	6850	2300	1,113
6	Dahanukar Wadi Bridge to Link Road	6850	8050	1200	1,594
7	Link Road to Creek	8050	8285	235	280
	Total			**8995**	**9210**

RECAP SHEET FOR SERVICE ROAD (SR)					
Stage	**Description**	**FROM**	**TO**	**Length of Stretch (m)**	**Total length of Proposed Service Road (m)**
1	Appapada P/North ward to Kurar Culvert	-250	1000	1250	1777
2	Kurar Culvert to Akurli Road Culvert	1000	1950	950	696
3	Akurli Road Culvert To Western Express Highway	1950	2450	500	0
4	Western Express Highway to Western Railway	2450	4550	2100	417
5	Western Railway to Dahanukar Wadi Bridge	4550	6850	2300	0
6	Dahanukar Wadi Bridge to Link Road	6850	8050	1200	0
7	Link Road to Creek	8050	8285	235	263
	Total			**8995**	**3153**

SECTION 8

BILL OF QUANTITIES

Name of Work: **- Designing, Providing, Constructing and commissioning modernized and fully automated package/modular Sewage Treatment Plants based on MBR technology along Poisar river on Design Build Operate (DBO), along with 15 years of Operation and Maintenance and Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains on either banks of Poisar River for interception & diversion of sewage.**

A. For Kranti Nagar (1.5 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 1.5 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 1.5 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per specification	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4^{th} to 15^{th} year (Including asset replacement cost)	12	x	Year	x
Total (I) Rs					

B. For Kranti Nagar (2 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 2 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 2 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per	1	x	Job	x

3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (II) Rs				

C. For Appapada Kurar Nagar, Gokul Nagar (4 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 4 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 4 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per specification	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (III) Rs				

D. For Muslim cemetry near kurar culvert, Durga Nagar (3.5 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 3.5 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 3.5 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				

a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (IV) Rs				

E. For Mahindra Green Gate (1.5 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 1.5 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 1.5 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per specification	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (V) Rs				

F. For Thakur parking plot (8 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 8 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 8 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				

a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (VI) Rs				

G. Near poisar subway, Gaon devi, Bihari Tekdi (4 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 4 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 4 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per specification	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (VII) Rs				

H. For Opp. Poisar Gymkhana, Tulaskar wadi (3 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 3 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 3 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x

b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (VIII) Rs				

I. For Irani Wadii (4 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 4 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 4 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per specification	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x
b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (IX) Rs				

J. For Laljipada kandiwali west, Sanjay Nagar (2 MLD) STP:

Sr. No.	Item	Quantity	Rate	Unit	Amount (Rs)
1	Designing and constructing civil structures (including wet well, tanker filling point) for Sewage Treatment Plant of capacity 2 MLD as per specification	1	x	Job	x
2.	Designing and constructing Treatment Facility of capacity 2 MLD (Including Instrumentation, Analyzing Sensors, Monitoring System, wet well pumping, hybrid power and surveillance) as per	1	x	Job	x
3	O & M for 15 years as mentioned in Scope of Work				
a.	Upto DLP Period (3 years) Only operation cost	3	x	Year	x

b.	CSMC for 4th to 15th year (Including asset replacement cost)	12	x	Year	x
	Total (X) Rs				

Sr No	Item	Quantity	Rate	Unit	Amount (Rs)
K.	**Sewer Network**				
	Providing and laying of sewer network as per the BOQ Given in Section 8, Part (K)	1	X	Job	X
L.	**Intercepting Chamber**				
	Providing, fixing and construction of Intercepting Chamber as per the BOQ Given in Section 8, Part (L)	1	X	Job	X
M.	**Road side Drains**				
	Providing and construction of Road side Drains as per the BOQ Given in Section 8, Part (M)	1	X	Job	X
N.	**Service Road**				
	Construction of Service Road as per the BOQ Given in Section 8, Part (N)	1	X	Job	X

The expected Quantity of electrical consumption to be filled by the bidder.

For Evaluation Purpose Only:

STP	Item	Quantiy (To be filled by bider) KwH	Rate	Unit	Amount (Rs)
STP A Kranti Nagar 1.5 MLD	Guaranteed maximum Electric consumption required for Operation and Maintenance of entire Sewage Treatment Plant carried out in the plant and measured through SCADA. This Item shall directly be paid by MCGM to electric supply agency. This item shall be used only for Financial Evaluation Purpose where the electrical charges shall be calculated at Rupees: 7.00 INR per KWH	**x**	**Rs 7 per KwH**	**KwH KwH**	x
STP B Kranti Nagar 2 MLD		**x**			x
STP C Appapada 4 MLD		**x**			**x**
STP D Muslim Cemetry 3.5 MLD		**x**			**x**
STP E Mahindra Green Gate 1.5 MLD		**x**			**x**
STP F Thakur Parking Plot 8 MLD		**x**			**x**
STP G Near Poisar Subway 4 MLD		**x**			**x**
STP H Opp. Poisar Gymkhana 3 MLD		**x**			**x**
STP I Irani Wadi 4 MLD		**x**			**x**
STP J Laljipada 2 MLD		**x**			**x**
Total Electricity Charges (Rs)					
Total Life Cycle cost of STP (Rs) (I+II+III+IV+V+VI+VII+VIII+IX+X)					

Note: The Payment of electricity charges during operations of STP and associated infrastructures like pumping etc. shall be directly paid to the respective Power Distribution Company by the MCGM

The BOQ design and drawings are provided in the tender are for reference purpose only. The bidders are required to carry out their own due diligence as per the condition of contract and the quote. MCGM reserves all rights to ask for the deviation statement and the breakup of the cost in the tender while quoting. The detailed design and drawing of all components shall be worked out by the bidder and get approved from MCGM.

Details of K, L, M & N are for reference only.

K. For Sewer Network

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
1	R2-RW-7-37	SURVEY:- To carry out total station survey of the road with reference to existing coordi- nate system by establishing control sta- tions by establishing temporary bench mark from permanent bench mark, marking centre line of the road by nails, carrying out detailed levelling, plotting cross sections longitudinally at 20 mtr. intervals with levels at every 4 mtr. cross distance, preparing drawings on Auto cad to the scale of 1:500 and supplying 2 hard copies and 1 soft copy in C.D. form.. etc. complete upto 18.30 mtr. wide road.	17.43	Upto 500 mtr	20,182.50	3,51,780.98		
2	R2-SE-1-1, Pg-1	Excavation in **all types of soils (for sewerage works)**,such as Earth, Marine clay, Marshy land, Running sand, Garbage, Slush, Murum, Rock boulders etc as directed by the engineer. The rate includes **dewatering**, **backfilling**, removing the rank vegetation and removing the excavated materials within a lead of 150M as directed including levelling, ramming,etc complete, and measured from the edge of cutting including all lifts and stacking in layers and removing the surplus excavated materials as directed for lift upto depths given below{Records to be	0.00			-		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		maintained properly}.The rate also includes supporting public utilities such as cables,drains,pipe water mains, but shall not include the cost of shoring etc as specified and directed. 1) The rate includes the handling/supporting the existing utilities such as cables, drains, pipes, water mains etc. 2) It also **includes** the **royalty** and other **taxes** if any. **-do-do- for lift from**						
	R2-SE-1-1-a	0 to 2 m	15469.527	cum	468.00	72,39,738.58		
	R2-SE-1-1-b	2 to 2.5 m	2573.63	cum	638.00	16,41,975.94		
	R2-SE-1-1-b	2.5 to 4 m	2605.17	cum	638.00	16,62,098.46		
	R2-SE-1-1-c	4 to 6 m	1272.56	cum	868.00	11,04,582.08		
	R2-SE-1-1-d	6 to 8 m	263.74	cum	1,036.00	2,73,234.64		
3	R2-SE-1-1-j, Pg-1	Extra over above for item no. SE-1-1 to SE-1-1-i **for relevant lift** of excavation in **soft/ disintegrated rock**, road carriageway,sand stone, stiff clay, gravel, cobblestone, hard laterite, water bound macadam, wet mix macadam, asphalt mix carpet of any type, pitching, **soling**, paths and hardcore, lime concrete, plain cement concrete, stone masonry and all types of brick/ block masonry below ground level**.** **(Soft rock + Road crust)**	2573.63	cum	429.00	11,04,087.27		
4	R2-SE-1-1-u	Extra over above for item no. SE-1-1 to SE-1-1-i for relevant lift of excavation in hard rock and reinforced concrete by **chiseling for sewerage works by manual** operations, pneumatic breaker, hammer, driller, compressor breaker, etc.	2070.72	cum	2,100.00	43,48,512.00		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		including dressing/trimming the sides, leveling of bottoms, **(50% of Total Hard Rock)**						
5	R2-SE-1-1-ae	Extra over above for item no. SE-1-1 to SE-1-1-i for relevant lifts of excavation in hard rock and reinforced concrete by **splitter machine** **(50% of Total Hard Rock)**	2070.72	cum	4,970.00	1,02,91,478.40		
6	R2-SE - 1 - 4-b	Providing and removing close shoring and strutting in the trenches/ pits for all depths as per specifications/ drawings and or as directed by Engineer-in-charge by including walling, struts, open poling boards, horizontal sheeting, runners, dog spikes by using timber etc. complete.	495.51	cum	8,586.00	42,54,448.86		
7	R2-SE - 1 - 5-a	Leaving shoring in trenches. (New or old) including dog spikes.	99.12	cum	15,561.00	15,42,406.32		
8	R2-SWD-16-A	Providing and laying **RMC (Ready Mixed Concrete) M-15 grade** Plain cement concrete in full encasement, cradle sides, haunches and/or block coping including boxing, curing by any means, etc. complete as specified and/or as directed by Engineer-in-Charge. **(For Pipe Encasing)**	2388.76	cum	8,026.00	1,91,72,187.76		
9	R2-SE-2-6	Providing & laying M 15 c.c. in sides and haunches and/or in block coping complete as specified and as directed.	145.00	Lumsum (Cum)	8,067.00	11,69,715.00		
10	R2-CS-MW-2-c	Brick work with common burnt clay modular bricks of class designation 7.5 in foundation and plinth in: Cement Mortar 1:6 (1 cement : 6 coarse sand).	145.00	Lumsum (Cum)	5,171.00	7,49,795.00		
11	R2-CS-MW-2-a	Brick work with common burnt clay modular bricks of class designation 7.5 in foundation and plinth in: Cement mortar 1:3 (1 cement : 3 coarse sand)	145.00	Lumsum (Cum)	5,565.00	8,06,925.00		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
12	R2-CS-MW-18	Uncoursed rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand).	58.00	Lumsum (Cum)	4,326.00	2,50,908.00		
13	R2-SE-4-4	Providing 20 mm thick cement plaster in cement mortar 1:2 including neat cement rendering.(with water proofing compound).	290.00	Lumsum (Sq. m)	389.00	1,12,810.00		
14	R2-SE-4-6	Providing 25 mm thick cement plaster in cement mortar 1:2 including neat cement rendering.(with water proofing compound).	174.00	Lumsum (Sq. m)	520.00	90,480.00		
15	R2-SWD-25	**RCC:-** Providing and placing in position controlled cement Ready Mix Concrete of M-25 grade in raft slab by using ordinary Portland cement including curing by any means,as specified & as directed by Engineer in Charge.	290.00	Lumsum (Cum)	6,979.00	20,23,910.00		
16	R2-CS-CW-35-b	Providing and fixing in position steel bars reinforcement of various diameters for R.C.C. pile, pile caps, footings,raft,retaining walHYSD steel bars (Fe 415) l,shear wall, lift wall,foundations, slabs, beams, columns, canopies,staircases, newels, chajjas, lintels, pardies,coping, fins, arches, etc. as per detailed designs,drawings and bar bending schedules,including straightening, cutting, bending, hooking the bars, binding with wires or tack welding, supporting as required etc. all complete at all levels.	22.765	Lumsum (MT)	73,279.00	16,68,196.44		
17	R2-SE-14, Pg-28	**HORIZONTAL DIRECTIONAL DRILLING AND PIPE INSTALLATION** Providing, Laying and Jointing	0.00			-		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		of **(OD) HDPE pipe (PN 6 Class-PE 80 grade**: IS 14333) to correct grade and alingnment from **3m upto 5m depth** including boring, Pilot inclined dilling from exisitng ground level upto required depth (invert level) on rig side of proposed gravity sewer line (i.e. entry side) and Final inclined boring from exisitng ground level upto required depth (invert level) or vicecversa on pipe side (i.e. exit side) of proposed gravity sewer line using Horizontal Directional Drilling method in any type of ground including soft soil, mixed ground and soft/hard rock. Length of gravity sewer line between inner faces of two consecutive proposed manholes will be considered for measurement. **Dia in mm**						
	R2-SE-14-1-b	355	7075.30	m	58,606.00	41,46,55,031.80		
	R2-SE-14-1-c	400	178.50	m	59,875.00	1,06,87,687.50		
18	R2-SE-14-3, Pg-28	Providing, Laying and Jointing of dia (OD) **HDPE pipe (PN 6 Class-PE 80** grade: IS 14333) to correct grade and alingnment above **5m upto 8m depth** including boring, Pilot inclined dilling from exisitng ground level upto required depth (invert level) on rig side of proposed gravity sewer line (i.e. entry side) and Final inclined boring from exisitng ground level upto required depth (invert level) or vicecversa on pipe side (i.e. exit side) of proposed gravity sewer line using	0.00			-		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		Horizontal Directional Drilling method in any type of ground including soft soil, mixed ground and soft/hard rock. Length of gravity sewer line between inner faces of two consecutive proposed manholes will be considered for measurement.						
	R2-SE-14-3-b	355	1212.80	m	63,377.00	7,68,63,625.60		
19	R2-SE-6-1, Pg-11	**Manholes (brick masonry):-** Constructing on sewer brick masonry conical manholes **1.2M dia**. at bottom 0.56 M. dia. at top, built in brick masonry in cement mortar 1:3, plastered both inside and outside with 20 mm thick cement mortar 1:2 and neat cement rendering so as to give a smooth surface, including 300 mm thick M.15 cement concrete in foundation and in haunches and channels finished smooth with 20mm thick cement plaster in cement mortar 1:1 and providing C.I. steps (weighing 5.4 kg each) staggered at 300 mm. c/c including 75mm wide vata all round the external portion of the manhole and the foundation concrete in cement mortar 1:1 and supporting the incoming pipes with brick masonry wherever necessary including C.I. extra heavy duty (EHD) air-tight circular frame & cover (minimum 230 Kg.) with hinge/chain resting on 30 cm high cement concrete M.20 cap with necessary centering etc. all complete as per standard specifications and directions including finishing the cap with cement plaster on both sides 1:2 and neat	143.00	No.	62,019.00	88,68,717.00		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		cement rendering so as to give a smooth surface in line and level with the brick masonry surface and as per drawing in DyCh.E.(Sewerage) P&D's office without excavation depth upto 1.5						
	R2-SE-6-1, Pg-11	M.(Depth of Manhole measured from top of manhole cover to Invert Extra over above per metre depth above 1.5 M. and upto 2.3 M. depth -do- -do	60.48	m of depth	18,654.00	11,28,193.92		
20	R2-SE-6-2-b, Pg-11	Constructing on sewer brick masonry conical manhole **1.5 M. dia**. at bottom and 0.56 M dia. at top including C.I. Extra.Heavy Duty circular air tight frame and cover etc. complete as per description in item No.SE-6-1 depth upt0 2.3 M.	151.00	No.	90,305.00	1,36,36,055.00		
	R2-SE-6-2-c, Pg-11	Extra for above manhole per metre depth above 2.3M and upto 5 M including safety chain and extra C.I. steps on other side of benchingdo-do-	301.20	m of depth	34,099.00	1,02,70,618.80		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
21	R2-SE-7-1, Pg-18	**Drainage Drops:-** Providing 150 mm dia stoneware pipes of SP2 class in vertical drop of 0.6M including 150 mm dia stone ware pipe fixed in brick masonary of the manhole at required level & providing 150 mm dia stone ware right angled bend, 150 mm x 150 mm x 150 mm S.W. double tee junction including cutting, jointing & filleting as per detailed specifications, encased in half brick thick masonary in cement mortar (1:3) all round the pipes double tee, bend and extra brick work below bend upto the foundation of the manhole and tapering portion of the manhole, plastering the exposed surfaces after raking out the joints ofthe masonary to a depth of 20 mm in C.M. (1:2) 20 mm thick and neat cement rendering so as to give a smooth surface, including plugging the openings etc. complete as directed and as per drawing in Dy.Ch.E.(S.P.) P&D's office.	101.00	No.	4,220.00	4,26,220.00		
	R2-SE-7-1-a	Extra over above per additional metre depth -do- -do- as per above item.	136.18	m.depth	3,234.00	4,40,406.12		
	R2-SE-7-3	Do- -do- 300 mm dia stone ware pipe of SP2 class in vertical drop of 0-6m -do- -do- as per item SE-7-1	18.00	No.	18,198.00	3,27,564.00		
	R2-SE-7-3-a	Extra over above per additional metre depth -do- -do- as per aboveitem.	30.62	m.depth	6,211.00	1,90,180.82		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
22	R2-SE-8-6	Constructing brick masonary inspection chamber rectangular 0.9M x 0.6M and 0.6M deep on sewer with 230mm brick walls in cement mortar 1:3 plastered both inside & outside with 20 mm thick cement mortar 1:2 and neat cement rendering so as to give a smooth surface including 230mm cement concrete bedding (M 15) and cement concrete (M 15) in haunches and channels finished smooth with 20 mm thick cement mortar(1:1) including M 20, 30 cm thick cap c.c. Bedding & including SFRC extra heavy duty frame and cover complete as per description in item No. SE-8-5 etc. all complete as specified and directed	342.00	No	19,654.00	67,21,668.00		
	R2-SE-8-6-a	Extra over above for every additional metre depth upto 2.5M -do- -do .	542.54	m.depth	16,173.00	87,74,499.42		
23	R2-SE-5-1-a	Providing & laying stoneware pipes of SP2 class including jointing with CM(1:1), filleting etc. complete as specified & directed.	0.00					
		150 mm dia	25650.00	m	657.00	1,68,52,050.00		
24	R2-SE-9-1, Pg-22	Providing **R.C.C. Spun vent shaft** 7.3M in height embedded in M15 cement concrete Including flue chamber etc.complete without excavation.The height of the vent shaft to be measured from its bottom upto the top as per the drawing and as specified and directed	58.00	No.	52,114.00	30,22,612.00		
25	R2-SE-5-9	HDPE Pipes for vent shaft	0.00					
		Providing,LayingandJointingHDPEpipesofPE-80gradeandPN-6class with butt joints etc.complete as specified and directed	0.00					

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
	R2-SE-5-9-a	160 mm dia (OD)	290.00	M	983.00	2,85,070.00		
26	R2-SE-13-1	**MICROTUNNELING AND PIPE JACKING** Excavate in tunnel by micro tunnel boring machine for installing 600mm diameter sleeve or carrier for sewer line or water main to correct grade and alignment using slurry or mixed shields in any type of strata including marshy land, soft clay, murum, soft/hard rock and/ or boulders of any strength and hardness, dewatering, etc. but excluding muck disposal from shaft site complete as per specifications and as directed by the Engineer.	200.00	m	87,678.00	1,75,35,600.00		
27	R2-SE-13-2	Approved 600mm diameter reinforced concrete pipe conforming to jacking pipe standards like JSWAS A-6, ASTM C-76 SS 183 or AS 1342 but not less than NP4 class under IS 458; supplied, jointed and installed to correct line and grade by pipe jacking works etc. complete as per specifications and as directed by the Engineer	200.00	m	38,142.00	76,28,400.00		
28	R2-SWD-181-A	Excavation of Extra ordinary Hard Igneous Rock having minimum Scratch Hardness-Mhos scale : 5, minimum Water Absorption :2.0% by using modern machinery (Poclain wih Rock breaker) in river beds having width more than 40 m and in inter tidal zone under water with necessary arrangement of access and coffer dam and dewatering upto any depth including stacking the excavated rock as directed by Engineer in Charge. This item shall be executed with specific	20.00	cum	7,152.00	143040.00		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		sanction of Director (E.S. & P.) including removal of access and coffer dam after the completion of work.						
Total Estimation cost of Collection System						**65,83,16,510.71**		
29	R2-RW-1-18	Levelling, watering & rolling by vibratory roller IDD-22 weighing not less than 10 tonnes & preparing the ground to the required grade & camber (only to be used for reinstatement of trench in road works) as per prevailing MCGM specifications for Roadworks.	395.68	Sqm.	19.00	7,517.92		
30	R2-RW-2-21	Providing & laying, spreading & compacting specified crushed stone in granular subbase course including premixing the material in mechanical mixer (pug mill or approved type), spreading of mixed material in uniform layer of 100 mm to 75 mm (compacted thickness each) with motor grader or paver on prepared murum surface & compacting with 10 tonne vibratory roller to achieve desired density including all material, labour, machinery, lighting, barricading to all lifts & lead, maintenance of diversion etc. complete (metal gradation from 75mm to 75 micron as per prevailing MCGM specifications for Roadworks clause no.210).	24.29	Cum	2547.00	61,866.63		
31	R2-RW-2-20	Providing & laying, spreading & compacting graded crushed stone aggregate to wet mix macadam to the satisfaction of Engineer including premixing the material with water to OMC in mechanical mix (pug mill) carriage of mix material by	36.48	Cum	2937.00	1,07,141.76		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		tipper to site, laying in uniform layer of 75 mm to 100 mm (compacted thickness each) with sensor paver finisher on prepared subbase & compacting with vibratory roller (10 tonne) to achieve desired density including lighting, guarding barricading & maintenance of diversion etc. as directed by the Engineer, (Rebate for not using sensor paver should be taken,(metal gradation from 53 mm to 75 micron as per prevailing MCGM specifications for Roadworks clause no.240).						
32	R2-RW-5-20	Providing and applying PRIME COAT with CATIONIC BITUMEN EMULSION (SS) @ 7 to 12 Kg. of 10Sqmt over prepared surface to receive bituminous mix by applying PRIMER with mechanical spray bitumen, including cleaning of road surface etc. completed, as directed for Low Porosity surface & the primed surface shall be allowed to cure for at least 24 hours or any other higher period, as is found to be necessary to allow all the moisture or volatiles to evaporate before any subsequent bituminous surface treatment or mix is laid (As per prevailing MCGM specifications for Roadworks Clause No. 313, curing as per 313.5)	364.80	Sqm.	57.00	20,793.60		
33	R2-RW-5-23	Providing and applying TACK COAT with CATIONIC BITUMENEMULSION (RS) @ 0.2 to 0.25 Kg. of Sq.mt over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc. completed, as	406.58	Sqm.	33.00	13,417.14		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		directed For NORMAL BITUMINOUS SURFACES & the tack coat shall be left to cure until all the volatiles have evaporated before any subsequent construction is started, which is indicated by change in colour from brown to black (As per prevailing MCGM specifications for Roadworks Clause No. 314, curing as per 314.3.4)						
34	R2-RW-5-24	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.25 to 0.30 Kg. of Sq.mt over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc. completed, as directed for DRY & HUNGRY BITUMINOUS SURFACES (As per prevailing MCGM specifications for Roadworks Clause No. 314)	364.80	Sqm.	35.00	12,768.00		
35	R2-RW-5-45	P/L hot Premix Dense bituminous macadam with 4.50% bitumen content of grade VG-40 to the required line, level and camber rolling with 10/12 M.T.power, vibratory roller & sensor paver etc. complete as specified and as directed to thickness of 75 mm. with antistripping agent at 1% by weight of bitumen using grading II of "MORTH"(As per prevailing MCGM specifications for Roadworks clause no.354)	364.80	Sqm.	676.00	2,46,604.80		
36	R2-RW-5-40	P/L hot premix Bituminous concrete with 6.00% of bitumen grade VG-40, surface coat by mix design as per MORTH to the compacted thickness of 40 mm, using new material to the required line, level and camber rolling with power vibratory roller & sensor paver, etc. Complete as	406.58	Sqm.	450.00	1,82,961.00		

Sr. No	Reference MCGM DSR 2018	Description	Quantity	Unit	Rate	Amount (Rs.)	Rate in Rs. (to be filled by contractor)	Bid Amount in Rs
		specified and as directed with lime filler 2% by weight and antistripping agent @ 1% of bitumen by weight etc.complete (As per prevailing MCGM specifications for Roadworks clause no.364)						
37	R2-RW-10-28	Supply & filling sand metal, GRAVELLY SAND, corresponded to CLASS II/ CLASS III GRADING of TABLE 100.1 of MCGM road specifications for roadworks in trenches upto required depth & watering, ramming etc. complete as directed.	91.09	Cum	1905.00	1,73,526.45		
		cost of road restoration				**8,26,597.30**		
		Total Estimation Cost				**65,91,43108.01**		

L. For Interceptor

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		Excavation										
1	It.no. R2-SE-1-1, Pg-1	Excavation in **all types of soils (for sewerage works)**,such as Earth, Marine clay, Marshy land, Running sand, Garbage, Slush, Murum, Rock boulders etc as directed by the engineer. The rate includes **dewatering**, **backfilling**, removing the rank vegetation and removing the excavated materials within a lead of 150M as directed including levelling, ramming,etc complete, and measured from the edge of cutting including all lifts and										

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		stacking in layers and removing the surplus excavated materials as directed for lift upto depths given below{Records to be maintained properly}.The rate also includes supporting public utilities such as cables,drains,pipe water mains, but shall not include the cost of shoring etc as specified and directed. 1) The rate includes the handling/supporting the existing utilities such as cables, drains, pipes, water mains etc. 2) It also **includes** the **royalty** and other **taxes** if any. **-do-do- for lift from**										
		Net Volume of Excavation										

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
	R2-SE-1-1-a	**0-2 m**						432.45	468.00	**2,02,386.60**		
	R2-SE-1-1-b	**2-4 m**						432.45	638.00	**2,75,903.10**		
2	R2-SWD-36	Cutting down completely RCC slab, walls, beams , columns, arches, piles, pile caps of any thickness and or size of any height / depth by any means below or above ground level including cutting down steel reinforcement, removing and stacking them properly as directed etc.complete, as specified & as directed by Engineer in Charge.										
								103.995	1588.00	**1,65,144.06**		
		RCC SLAB										

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
	R2-SWD-17-A	Providing and laying RMC (Ready Mixed Concrete) M-25 grade RCC (Reinforced Cement Concrete) work in dhapas, beams and slabs, etc. with reinforcement between 0.8% to 1%, including curing by any means, providing, placing, removing, launching, cleaning, stripping the form work,finished with cement sand plaster 12 mm thick in 1:2 proportion, etc. complete as directed by Engineer in Charge.						34.38	16195.00	**5,56,784.10**		
3	It.no.R2-SE-1-1-j, Pg-1	Extra over above for item no. SE-1-1 to SE-1-1-i **for relevant lift** of excavation		Cum				432.45	429.00	**1,85,521.05**		

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		in **soft/ disintegrated rock**, road carriageway ,sand stone, stiff clay, gravel, cobblestone, hard laterite, water bound macadam, wet mix macadam, asphalt mix carpet of any type, pitching, **soling**, paths and hardcore, lime concrete, plain cement concrete, stone masonry and all types of brick/ block masonry below ground level.										
4	R2-SWD-45	Supplying and providing blue trap stones of approved quality and laying hand set dry **rubble packing** 25 cm. thick to required level and grade, camber including filling in the		Cum				90.11	846.00	**76,233.06**		

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		interstices with 60 mm. metal and small stone chips, etc. and thoroughly rammed, consolidated, etc.as specified & as directed by Engineer in Charge.										
5	R2-SE-2-4	**PCC Bedding:-** Providing & laying M 15 c.c. For foundation/ bedding including boxing, curing etc. complete as specified and as directed.		Cum				54.07	7335.00	**3,96,603.45**		
6	R2-SE-2-1	Providing and laying **M 20 c.c.** In foundations For foundation/ bedding including boxing, curing etc. complete as specified and as directed.		Cum				103.995	6122.00	**6,36,657.39**		
7	Quotation	**Flush bottom type C.I Sluice Gate** Flush bottom type C.I. Sluice gate (Size A x B mtr.)										

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		and wall thimble complete with Electrical actuator & other accessories for the screen chamber										
			1.00	Nos.		2.00	2.00			**14,47,052.74**		
			1.00	Nos.		2.00	2.00			**14,47,052.74**		
			1.00	Nos.		3.00	2.00			**20,24,780.93**		
			1.00	Nos.		2.00	2.00			**14,47,052.74**		
			1.00	Nos.		2.00	2.00			**14,47,052.74**		
			1.00	Nos.		2.00	2.00			**14,47,052.74**		
			1.00	Nos.		3.00	3.00			**28,91,373.23**		
			1.00	Nos.		3.00	2.50			**24,58,077.08**		
			1.00	Nos.		2.50	1.50			**13,74,836.71**		
			1.00	Nos.		9.50	4.00			**1,12,68,432.05**		
			1.00	Nos.		4.00	2.00			**26,02,509.13**		
			1.00	Nos.		3.00	4.00			**37,57,965.52**		
			1.00	Nos.		8.00	3.00			**72,24,334.69**		

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
8	Quotation	**Manual screens with accessories** Manually cleaned trash screens of size A mtr x B mtr in SS 316 material complete with accessories guide channels for the screen chamber										
		Nalla Details for Screen Chamber (Nala chamber)										
1				Nos.	1.00	2.00	2.00	1.00		**3,27,029.64**		
2				Nos.	1.00	2.00	2.00	1.00		**3,27,029.64**		
3				Nos.	1.00	3.00	2.00	1.00		**4,65,462.87**		
4				Nos.	1.00	2.00	2.00	1.00		**3,27,029.64**		
5				Nos.	1.00	2.00	2.00	1.00		**3,27,029.64**		
6				Nos.	1.00	2.00	2.00	1.00		**3,27,029.64**		
7				Nos.	1.00	3.00	3.00	1.00		**4,65,462.87**		
8				Nos.	1.00	3.00	2.50	1.00		**4,65,462.87**		
9				Nos.	1.00	2.50	1.50	1.00		**3,96,246.26**		

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
10				Nos.	1.00	9.50	4.00	1.00		**13,65,278.86**		
11				Nos.	1.00	4.00	2.00	1.00		**6,03,896.10**		
12				Nos.	1.00	3.00	4.00	1.00		**4,65,462.87**		
13				Nos.	1.00	8.00	3.00	1.00		**11,57,629.01**		
9	R2-SE-5-10	Providing, Laying and Jointing HDPE bends/tees of PE-80 grade and PN-6 class with butt joints etc.complete as specified and directed										
		355 mm dia (OD)	8.00	m	15.00			120.00	4386.00	**5,26,320.00**		
	R2-SE-5-9-g	400 mm dia (OD)	12.00	m	15.00			180.00	5655.00	**10,17,900.00**		
10	R2-SE-5-10	Providing, Laying and Jointing HDPE bends/tees of PE-80 grade and PN-6 class with butt joints etc.complete as specified and directed										
		355 mm dia (OD)	8.00	Nos.				8.00	13924.00	**1,11,392.00**		

Item No.	References	Item/Description	No.	Unit	Length	Breadth	Depth	Quantity	Rate	Amount (Rs.)	Rate in Rs (to be filled by contractor)	Bid Amount in Rs
		400 mm dia (OD)	12.00	Nos.				12.00	18910.00	**2,26,920.00**		
		Total Cost								**5,22,35,387.76**		

M. For Road Side Drain

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
		Exacavtion						
1	SOR SWD 2018 Ref-note 19 , R2-CS-EW-1	Excavation for foundations, substructures, basements, tanks, sumps, walls, chambers, manholes, trenches, poles, pits & general building works in **all types of soils,** vegetable earth, soft murum, running sand, shingle, turf clay, loam, peat, ash, shale, slag, chalk, garbage, muddy/ marshy/ slushy soil, marine clay, reclaimed land etc. for depths/lifts upto 1.5M measured from the ground level, including dressing/ trimming the sides, leveling and ramming of bottoms, manual dewatering, removing rank vegetation, backfilling in layers not more than 200mm thickness, watering, consolidating, compacting to achieve not less then 97% Modified Proctor density conforming to relevant IS, stacking the selected material in measurable heaps for future use within owners space or disposing within an initial lead of 150m as directed, loading, unloading, leveling excluding shoring, strutting etc. complete as directed by Engineer-in-Charge Note: 1) The rate includes the handling/supporting the existing utilities such as cables, drains, pipes, water mains etc. 2) It also includes the royalty and other taxes applicable if any. For more details refer General Notes.	Cum	34150.00	307.00	1,04,84,050		
2	R2-CS-EW-2-a	Extra over above item CS-EW-1 for lift from 1.5m to 3.0m.	Cum	4620.00	71.00	3,28,020		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
3	SOR SWD 2018 Ref-note 19 , R2-CS-EW-4	Excavation by chiseling by manual operations, pneumatic breaker, hammer, drilling, compressor breaker, jack hammer etc. for foundations, substructures, basements, tanks, sumps, walls, chambers, manholes, poles, pits & general building works in hard rock, reinforced concrete, Bituminous macadam for depths/lifts upto 1.5M, including dressing/trimming the sides, leveling of bottoms, manual dewatering, removing rank vegetation, backfilling in layers not more than 200mm thickness, watering, consolidating, compacting to achieve not less then 97% Modified Proctor density conforming to relevant IS, stacking in measurable heaps for future use within owners space or disposing within an initial lead of 150m as directed, unloading, leveling excluding shoring, strutting etc. complete as directed by Engineer-in-Charge, loading.Note: 1) The rate includes the handling/supporting the existing utilities such as cables, drains, pipes, water mains etc. 2) It also includes the royalty and other taxes if any.	Cum	0.00		-		
		Extra over the items for lift from 1.5m to 3.0m. (Provision 15 % considered)	Cum	750.00	1054.00	7,90,500		
		Rubble Soling						
4	R2-SWD-45	Supplying and providing blue trap stones of approved quality and laying hand set dry rubble packing 25 cm. thick to required level and grade, camber including filling in the interstices with 60 mm. metal and small stone chips, etc. and thoroughly rammed, consolidated, etc.as specified & as directed by Engineer in Charge.	Cum	4580.00	846.00	38,74,680		
		PCC -M-15						

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
5	R2-SWD-15 - A	Providing and laying RMC (Ready Mixed Concrete) M-15 grade Plain cement concrete in foundation including boxing,curing by any means, etc. complete as specified and/or as directed by Engineer in Charge.	Cum	2770.00	6764.00	1,87,36,280		
		RCC WORKS						
		RCC RAFT						
6	R2-SWD-26	Providing and placing in position controlled Ready Mix Concrete of M-30 grade in raft slab by using ordinary Portland cement including curing by any means, as specified & as directed by Engineer in Charge. (Reinforcement and form work will be paid separately).	Cum	2444.00	7245.00	1,77,06,780		
		RCC WALL						
7	R2-SWD-31	Providing and placing in position controlled Ready Mix Concrete of M-30 grade in walls, deck slab above or below ground level at any height/depth by using ordinary Portland cement including curing by any means, as specified & as directed by Engineer in Charge. (Reinforcement and form work will be paid separately).	Cum	2969.00	9001.00	2,67,23,969		
		RCC SLAB						
8	R2-SWD-32	Providing and placing in position controlled Ready Mix Concrete of M-35 grade in walls, deck slab above or below ground level at any height/depth by using ordinary Portland cement including curing by any means, as specified & as directed by Engineer in Charge. (Reinforcement and form work will be paid separately).	Cum	1738.00	9267.00	1,61,06,046		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
		Steel bars reinforcement						
9	R2-CS-CW-35-e	Providing and fixing in position steel bars reinforcement of various diameters for R.C.C. pile, pile caps, footings,raft,retaining wall,shear wall, lift wall,foundations, slabs, beams, columns, canopies,staircases, newels, chajjas, lintels, pardies,coping, fins, arches, etc. as per detailed designs,drawings and bar bending schedules,including straightening, cutting, bending, hooking the bars, binding with wires or tack welding, supporting as required etc. all complete at all levels(90 kg /cum considered) Corrosion Resistant Steel (500 CRS D)	MT	648.00	82356.00	5,33,66,688		
		Centering and shuttering						
10	R2-CS-CW-30	Centering and shuttering of steel plates with M.S. Angles including strutting, propping etc. and removal of form for	Sqm	0.00		-		
	R2-CS-CW-30-a	Foundations, footings, bases of columns, rafts, pilecap	Sqm	3000.00	300.00	9,00,000		
11	R2-CS-CW-30-b	Walls (any thickness) including attached butteresses, ,retaining wall, shear wall, diaphragm wall etc	Sqm	38680.00	558.00	2,15,83,440		
12	R2-CS-CW-30-f	Stairs (waist slab), folded slab, inclined slab	Sqm	12160.00	483.00	58,73,280		
		MS Grating For Water Entrance						

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
13	R2-SWD-175	Supply of 0.60m X 0.50m clear internal size of M.S. Galvanised hinged type grating and frame (weighing minmum 71 kg) of grade HD20, with minimum 75 microns zinc coating by hot dipped galvanising the MS grating and frame as per IS 2629. (The contractor shall furnish the certificate of galvanising from the Galvaniser.) incuding testing ,inspection of material sample and finished product as per IS standards and as per Standard Specification no SP-SWD-3 and as per drawing (Dwg No. MCGM/SWD/2013-03), etc complete as specified & as directed by Engineer in Charge.	Each	1890.00	9328.00	1,76,29,920		
		Weep Holes-Hume Pipe-300 mm						
14	R2-SWD-74	Providing and laying 300mm dia NP2 Class R.C.C. hume pipes with Collar joints conforming to IS 458:2003 and laid on approved bedding as per IS 783:1985 (reaff. 2010) including jointing the pipes and filleting with hemp and stiff mix of cement mortar 1:2, including testing of pipes at contractors costs (in presence of munipal staff) as per IS 3597 etc. complete as specified & as directed by Engineer in Charge. (excluding necessary earthwork & bedding	MTR	1280.00	1180.00	15,10,400		
		Cutting of Retain Wall for outfall						
15	R2-SWD-36	Cutting down completely RCC slab, walls, beams , columns, arches, piles, pile caps of any thickness and or size of any height / depth by any means below or above ground level including cutting down steel reinforcement, removing and stacking them properly as directed etc.complete, as specified & as directed by Engineer in Charge	Cum	55.00	1588.00	87,340		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
		Epoaxy Coating Paint For Existing Retaining Wall						
16	R2-BW-5-3-c	Providing and applying epoxy base paint to RCC piers, columns, beams, girders, diaphragms, slabs, parapets etc. including cleaning the surfaces thoroughly so as to remove deposited salts, oil, grease, tar, moisture etc. from the surface, preparing the surface, applying putty consisting of epoxy base paint and steolite powder, to render the concrete surfaces smooth by covering small irregularities and applying one coat of epoxy paint including scaffolding etc. complete as specified and directed.(2 coats epoxy + primer)	Sqm	6800.00	412.00	28,01,600		
		Road Restoration						
17	R2-RW-2-20	Providing & laying, spreading & compacting gradedcrushed stone aggregate to wet mix macadam satisfaction including premixing the material with water to OMC in mechanical mix (pug mill) carriage of mix material by tipper to site laying in uniform layer of 75mm to100mm(compacted thickness each)with sensor paver finisher on preparedsubbase & compacting with vibratory roller (10 tonne) to achieve desired density including lighting, guarding barricading & maintenance of diversion etc. as directed by the Engineer, (Rebate for not using sensor paver should be taken,(metal gradation from 53mm to 75mm micron as per prevailing MCGM specification for Roadworks clause no.240).	Cum	237.00	2937.00	6,96,069		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
18	R2-RW-2-21	Providing & laying, spreading & compacting specified crushed stone in granular subbase course including premixing the material in mechanical mixer (pug mill or approved type), spreadingof mixed materialin uniform layer of 100mm to 75mm (compacted thickness each) with motor grader or paver on prepared murum surface & compacting with 10 tonne vibratory roller to achieve desired density including all material, labour, machinery, lighting barricading to all lifts & lead maintenance of diversion etc. complete (metal gradation from 75mm to 75 micron as per prevailing MCGM specification for Roadworks clause no.210).	Cum	190.00	2547.00	4,83,930		
						-		
19	R2-RW-10-50	Providing and fixing of cement concrete Kerb Stone of various grades of size: 500mm width x 325 height x 165mm thick (Half Batter, Bull Nose / Full Batter) manufactured in wet press vacuum dewatering technology plant / equivalant with face pimple finish for high visibility with excellent quality and finish and edges perfect and sharp. Grade – M-25. Including excavation in any soil except rock, laying a leveling course of M 15 grade RMC 100mm. thick, to required slope (inclusive of form work) jointing in C.M.1:2 proportion flush to concrete surface, painting exposed surface with one coat of primer and two coats of 1st grade road marking paint in the yellow/white/black or any shade as directed.(Kerbstones shall be procurred from MCGM registered agencies).	Rmt	1154.00	1116.00	12,87,864		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
20	R2-RW-5-20	Providing and applying PRIME COAT with CATIONIC BITUMEN EMULSION (SS) @ 7 to 12 Kg. of 10Sqmt. over prepared surface to receive bituminous mix by applying PRIMER with mechanical spray bitumen, including cleaning of road surface etc.completed, as directedFor Low Porosity surface & the primed surface shall be allowed to cure for at least 24 hours or any other higher period, as is found to be necessary to allow all the moisture or volatiles to evaporate before any subsequent bituminous surface treatment or mix is laid (As per prevailing MCGM specification for RoadworksClause No. 313, curing as per 313.5)	Sqm	947.00	57.00	53,979		
21	R2-RW-5-23	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.2 to 0.25 Kg. of Sq.mt. over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc.completed, as directedFor NORMAL BITUMINOUS SURFACES & the tack coat shal be left to cure until all the volatiles have evaporated before any subsequent construction is started, which is indicated by change in colour from brown to black (As per prevailing MCGM specification for Roadworks Clause No. 314, curing as per 314.3.4)	Sqm	947.00	33.00	31,251		
22	R2-RW-5-25	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.25 to 0.30 Kg. of Sq.mt. over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc.completed, as directed For GRANULAR SURFACES Treated with PRIMER (As per prevailing MCGM specification for Roadworks Clause No. 314)	Sqm	947.00	35.00	33,145		

Sr. No.	Item No	Item Description	Unit	TOTAL QUANTITY	RATE IN Rs.	AMOUNT	Rate in Rs (to be fillled by contractor)	Bid Amount
23	R2-RW-5-43	P/L hot PremixDense bituminous macadam with 4.50%bitumen content of grade VG-40 to the required line,level,and camber rolling with 10/12 M.T.power ,vibratory roller & sensor paveretc. complete as specified and as directed to thickness of 65 mm. with antistripping agent at 1%by weight of bitumen using grading II of "MORTH"(As per prevailing MCGM specification for Roadworksclause no.354)	Sqm	947.00	586.00	5,54,942		
24	R2-RW-5-40	P/L hot premix Bituminous concrete with6.00% of bitumen grade VG40,surface coat by mix design as per MORTH to the compacted thickness of 40 mm ,using new material to the required line, level and camber rolling with power vibratory roller & sensor paver,etc. Complete as specified\ and as directed with lime filler 2%by weight and antistripping agent @ 1% of bitumen by weight etc.complete.per prevailing MCGM specification for Roadworks clause no.364)	Sqm	947.00	450.00	4,26,150		
		Total cost for Road Side Drain in Rs				**20,20,70,323**		

N. For Service Road

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
1	R2-CS-EW-15	Excavation over areas for basements, roads, land/plot developement in all types of soils, vegetable earth, soft murum, running sand, shingle, turf clay, loam, peat, ash, shale, slag, chalk, garbage, muddy/ marshy/ slushy soil, marine clay, reclaimed land etc. for all depths/lifts including manual dewatering, filling the selected excavated earth at the locations as directed, in layers not more than 200mm thickness, watering, consolidating, compacting to achieve not less then 97% Modified Proctor density conforming to relevant IS, stacking the selected material in measurable heaps for future use within owners space or disposing within an initial lead of 150m as directed, loading, unloading, leveling excluding shoring, strutting etc. complete as directed by Engineer-inCharge. Note: 1)The rate includes the handling/supporting the existing utilities such as cables, drains, pipes, water mains etc. 2) It also includes the royalty and other taxes if any.	Cu.Mt.	226.00	12,280.00	27,75,280.00		
2	R2-RW-10-55	Excavation in Reinforced OR pavement grade concrete M-20 & above by using modern machinery (poclain with rock	Cu.Mt.	1,525.00	290.00	4,42,250.00		

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
		breaker, etc.) including with stacking of excavated material within 150 m radius etc compalete upto any depth as specified & as directed, by the Engineer.						
3	R2-RW-1-05	Levelling, watering and rolling to 95% Standard Proctor Density with a power roller weighing not less than 10 tonnes and preparing the ground to the required grade and camber as specified as directed by the Engineer.	Sq.Mt.	9.27	15,480.00	1,43,499.60		
4	R2-RW-2-20	Providing & laying, spreading & compacting gradedcrushed stone aggregate to **wet mix macadam** satisfaction including premixing the material with water to OMC in mechanical mix (pug mill) carriage of mix material by tipper to site laying in uniform layer of 75mm to100mm(compacted thickness each)with sensor paver finisher on preparedsubbase & compacting with vibratory roller (10 tonne) to achieve desired density including lighting, guarding barricading & maintenance of diversion etc. as directed by the Engineer, (Rebate for not using sensor paver should be taken,(metal gradation from 53mm to 75mm micron as per prevailing MCGM specification for Roadworks clause no.240).	Cu.Mt.	2,937.00	4,070.00	1,19,53,590.00		

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
5	R2-RW-2-21	Providing & laying, spreading & compacting specified crushed stone in **granular subbase course** including premixing the material in mechanical mixer (pug mill or approved type), spreadingof mixed materialin uniform layer of 100mm to 75mm (compacted thickness each) with motor grader or paver on prepared murum surface &compacting with 10 tonne vibratory roller to achieve desired density including all material, labour, machinery, lighting barricading to all lifts & lead maintenance of diversion etc. complete (metal gradation from 75mm to 75 micron as per prevailing MCGM specification for Roadworks clause no.210).	Cum	2,547.00	3,270.00	83,28,690.00		
6	R2-RW-10-50	Providing and fixing of cement concrete Kerb Stone of various grades of size: 500mm width x 325 height x 165mm thick (Half Batter, Bull Nose / Full Batter) manufactured in wet press vacuum dewatering technology plant / equivalant with face pimple finish for high visibility with excellent quality and finish and edges perfect and sharp. Grade – M-25. Including excavation in any soil except rock, laying a leveling course of M 15 grade RMC 100mm. thick, to required slope (inclusive of form	Rmt .	1,116.00	3,430.00	38,27,880.00		

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
		work) jointing in C.M.1:2 proportion flush to concrete surface, painting exposed surface with one coat of primer and two coats of 1st grade road marking paint in the yellow/white/black or any shade as directed.(Kerbstones shall be procurred from MCGM registered agencies).						
7	R2-RW-5-20	Providing and applying PRIME COAT with CATIONIC BITUMEN EMULSION (SS) @ 7 to 12 Kg. of 10Sqmt. over prepared surface to receive bituminous mix by applying PRIMER with mechanical spray bitumen, including cleaning of road surface etc.completed, as directedFor Low Porosity surface & the primed surface shall be allowed to cure for at least 24 hours or any other higher period, as is found to be necessary to allow all the moisture or volatiles to evaporate before any subsequent bituminous surface treatment or mix is laid (As per prevailing MCGM specification for RoadworksClause No. 313, curing as per 313.5)	Sqm	57.00	16,180.00	9,22,260.00		
8	R2-RW-5-23	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.2 to 0.25 Kg. of	Sqm	33.00	16,180.00	5,33,940.00		

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
		Sq.mt. over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc.completed, as directedFor **NORMAL BITUMINOUS SURFACES** & the tack coat shal be left to cure until all the volatiles have evaporated before any subsequent construction is started, which is indicated by change in colour from brown to black (As per prevailing MCGM specification for Roadworks Clause No. 314, curing as per 314.3.4)						
9	R2-RW-5-25	Providing and applying TACK COAT with CATIONIC BITUMEN EMULSION (RS) @ 0.25 to 0.30 Kg. of Sq.mt. over prepared surface to receive bituminous mix by applying TACK COAT with mechanical spray bitumen, including cleaning of road surface etc.completed, as directed **For GRANULAR SURFACES Treated with PRIMER** (As per prevailing MCGM specification for Roadworks Clause No. 314)	Sqm	35.00	16,180.00	5,66,300.00		

Sr.No.	Item Code No.	Description	Unit	Rate	Total Qty.	Amount	Rate in Rs (to be filled by contractor)	Aomount in Rs
10	R2-RW-5-43	P/L hot PremixDense bituminous macadam with 4.50%bitumen content of grade VG-40 to the required line,level,and camber rolling with 10/12 M.T.power ,vibratory roller & sensor paveretc. complete as specified and as directed to thickness of 65 mm. with antistripping agent at 1%by weight of bitumen using grading II of "MORTH"(As per prevailing MCGM specification for Roadworksclause no.354)	Sqm	586.00	16,180.00	94,81,480.00		
11	R2-RW-5-40	P/L hot premix Bituminous concrete with6.00% of bitumen grade VG40,surface coat by mix design as per MORTH to the compacted thickness of 40 mm ,using new material to the required line, level and camber rolling with power vibratory roller & sensor paver,etc. Complete as specified\ and as directed with lime filler 2%by weight and antistripping agent @ 1% of bitumen by weight etc.complete.per prevailing MCGM specification for Roadworks clause no.364)	Sqm	450.00	16,180.00	72,81,000.00		
			Total Amount			**4,62,56,169.60**		

SECTION 9

GENERAL CONDITIONS OF CONTRACT

General Conditions of Contract

A. General

1. Definitions

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

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.

The Contract Data defines the documents and other information which comprise the Contract.

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.

The **Bidder** is 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.

The Contractor's Bid is the completed bidding document submitted by the Contractor to the Employer.

The "**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 lump sum 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.

The "Contract Cost" means the Contract Sum plus Price Variation. This cost shall be included in the letter of acceptance.

A Defect is any part of the Works not completed in accordance with the Contract.

The Defects Liability Certificates the certificate issued by the Engineer, after the Defect Liability Period has ended and upon correction of Defects by the Contractor.

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.

The Authority shall mean Municipal Corporation of Greater Mumbai (MCGM)

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.

The Engineer in-charge shall mean the Executive Engineer in executive charge of the works and shall include the superior officers of the Engineering department i.e. Dy.Ch.Eng/Ch.Eng. and shall mean and include all the successors in MCGM

The Engineer's Representative shall mean the Assistant Engineer, Sub. Engineer/Jr. Engineer indirect charge of the works and shall include Sub Eng./ Jr. Eng of Civil section/ Mechanical section/Electrical section appointed by MCGM.

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.

Contractor's Equipment means all appliances and things of what so ever nature required for the execution and completions of the Works and the remedying of any defects there in but does not include plant material or other things intended to form or forming part of the Permanent Works.

The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.

The Intended Completion Date is the date on which it is intended that the Contractor shall complete the construction works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works and works of routine maintenance.

Plant is any integral part of the Works that shall have a mechanical, electrical, electronic, chemical, or biological function.

Routine Maintenance is the maintenance of activities of the competed structure for five years as specified in the Contract Data.

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.

Site Investigation Reports are those that were included in the bidding documents and are reports about the surface and subsurface conditions at the Site.

"Specification" shall mean the specification referred to in the tender and any modification thereof or addition or deduction there to as may from time to time be furnished or approved in writing by the Engineer.

The Start Date /Commencement Date is given in the Contract Data. It is the date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A Nominated Sub-Contractor is a person or corporate body who has a Contract with the Contractor to carry out a part of the construction work and/or routine maintenance in the Contract, which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

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.

The Works, as defined in the Contract Data, are what the Contract requires the Contractor to construct, install, maintain, and turn over to the Employer. Routine maintenance is defined separately.

Jurisdiction: 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.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about these Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following documents: (1) Agreement, (2) Letter of Acceptance, (3) Notice to Proceed with the Work , (4) Contractor's Bid, (5) Contract Data, (6) Special Conditions of Contract Part (7) General Conditions of Contract Part I, (8) Specifications, (9) Drawings, (10) Bill of Quantities, and (11) Any other document listed in the Contract Data.

3. Engineer's Decisions

3.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer. However, if the Engineer is required under the rules and regulations and orders of the Employer to obtain prior approval of some other authorities for specific actions, he will so obtain the approval, before communicating his decision to the Contractor.

3.2 Except as expressly stated in the Contract, the Engineer shall not have any authority to relieve the Contractor of any of his obligations under the contract.

4. Delegation

4.1 The Engineer, with the approval of the Employer, may delegate any of his duties and responsibilities to other person(s), except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.

5. Communications

All certificates, notices or instructions to be given to the Contractor by Employer/ Engineer shall be sent on the address or contact details given by the Contractor of Bid. The address and contact details for communication with the Employer/ Engineer shall be as per the details given in Contract Data. Communications between parties that are referred to in the conditions shall be in writing. The Notice sent by facsimile (fax) or other electronic means shall be effective on confirmation of the transmission. The Notice sent by Registered post or Speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service.

6. Subcontracting

6.1 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.

6.2 The Contractor shall not be required to obtain any consent from the Employer for:

a. The sub-contracting of any part of the Works for which the Subcontractor is named in the Contract;
b. The provision for labour, or labour component.
c. The purchase of Materials which are in accordance with the standards specified in the Contract.

6.3 Beyond what has been stated in clauses 6.1 and 6.2, if the Contractor proposes sub contracting any part of the work during execution of the Works, because of some unforeseen circumstances to enable him to complete the works as per Terms of the Contract, the Employer will consider the following before according approval:

a. The Contractor shall not sub-contract the whole of the Works.
b. The permitted subletting of work by the Contractor shall not establish any contractual relation- ship between the sub-contractor and the MCGM and shall not relieve the Contractor of any responsibility under the Contract.

6.4 The Engineer should satisfy himself before recommending to the Employer whether

a. the circumstances warrant such sub-contracting; and
b. The sub-Contractor so proposed for the Work possesses the experience, qualifications and equipment necessary for the job proposed to be entrusted to him.

7. Other Contractors

7.1. The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the Contract Data. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

7.2. The Contractor should take up the works in convenient reaches as decided by the Engineer to ensure there is least hindrance to the smooth flow and safety of traffic including movement of vehicles and equipment of other Contractors till the completion of the Works.

8. Personnel

8.1. The Contractor shall employ for the construction work and routine maintenance the key personnel including technical personnel named in the Contract Data or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of technical personnel only if their relevant qualifications and abilities are substantially equal to those of the personnel stated in the Contract Data.

8.2. The Contractor's personnel shall appropriately be qualified, skilled and experienced in their respective trades or occupations. The Engineer shall have authority to remove, or cause to be removed, any person employed on the site or works, who carries out duties incompetently or negligently and persists in any conduct which is prejudicial to safety, health or the protection of the environment.

8.3. If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the Works in the Contract.

8.4. The Contractor shall not employ any retired Gazetted officer who has worked in the Engineering Department of the MCGM /State Government and has either not completed two years after the date of retirement or has not obtained MCGM/State Government's permission to employment with the Contractor.

9. Employer's and Contractor's Risks

9.1. The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

10. Employer's Risks

10.1. The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot, commotion or disorder (unless restricted to the Contractor's employees) and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

11. Contractor's Risks

11.1. All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks, referred to in clause 11.1, are the responsibility of the Contractor.

12. Insurance

12.1. The Contractor at his cost shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

a) Loss of or damage to the Works, Plant and Materials;

b) Loss of or damage to Equipment;

c) Loss of or damage to property (other than the Works, Plant, Materials, and Equipment) in connection with the Contract; and

d) Personal injury or death.

12.2. Insurance policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

12.3. Alterations to the terms of insurance shall not be made without the approval of the Engineer.

12.4. Both parties shall comply with any conditions of the insurance policies.

12.5. If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid, from payments otherwise due to the Contractor or if no payment is due, the payment of premiums shall be debt due.

13. Site Investigation Reports

13.1. The Contractor, in preparing the Bid, may rely, at his own risk, on any Site Investigation Reports referred to in the Contract Data, supplemented by any other information available to him, before submitting the bid.

14. Queries about the Contract Data

14.1 The Engineer will clarify queries on the Contract Data.

15. Contractor to Construct the Works and Undertake Maintenance (if specified in the tender)

15.1. The Contractor shall construct, and install and maintain the Works in accordance with the Specifications and Drawings and as per instructions of the Engineer.

15.2. The Contractor shall construct the works with intermediate technology, i.e., by manual means with medium input of machinery required to ensure the quality of works as per specifications. The Contractor shall deploy the equipment and machinery as required in the contract.

15.3. The Contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and byelaws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in future by the State or Central Government or the local authority. Salient features of some of the major laws that are applicable are given below:

- The Water (Prevention and Control of Pollution) Act, 1974, this provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.
- The Air (Prevention and Control of Pollution) Act, 1981, this provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.
- The Environment (Protection) Act, 1986, this provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the inter- relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

- The Public Liability Insurance Act, 1991, This provides for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

16. The Works and Routine Maintenance to be completed by the Intended Completion Date

16.1. The Contractor may commence execution of the Works on the Start Date and shall carry out the Works and Routine Maintenance, if specified in the tender, in accordance with the Programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.

17. Approval by the Engineer

17.1. The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, who is to approve them if they comply with the Specifications and Drawings.

17.2. The Contractor shall be responsible for design and safety of Temporary Works

17.3. The Engineer's approval shall not alter the Contractor's responsibility for design and safety of the Temporary Works.

17.4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

17.5. All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before their use.

18. Safety

18.1. The Contractor shall be responsible for the safety of all activities on the Site. He shall comply with all applicable safety requirements and take care of safety of all persons entitled to be on the site and the works. He shall use reasonable efforts to keep the site

and the works, both during construction and maintenance, clear of unnecessary obstruction so as to avoid danger to the persons and the users.

- Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.
- Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- The area should be barricaded or cordoned off by suitable means to avoid mishaps of any kind. Power warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.
- The workers engaged for cleaning the manholes/sewers should be properly trained before allowing working in the manhole.

18.2. Safety Programs:-

I. Have adequate safety supervision in place to ensure that safety programs set up by the firms/agencies are in compliance with prevalent laws and regulations.
II. Review safety programs developed by each of the trade firms, prepare and submit a comprehensive safety program.
III. Monitor day to day implementation of safety procedures.

18.3. First Aid Facilities: -

i. At every work place there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 contract labour or part thereof ordinarily employed.
ii. The first-aid box shall be distinctly marked with a red cross on white back ground.
iii. Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.
iv. Nothing except the prescribed contents shall be kept in the First-aid box.
v. The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

vi. A person in charge of the First-aid box shall be a person trained in First-aid treatment, in the work places where the number of contract labour employed is 150 or more.

19. Discoveries

19.1. Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

20. Possession of the Site

20.1. The Employer shall handover complete or part possession of the site to the Contractor 7 days in advance of construction programme. At the start of the work, the Employer shall handover the possession of at-least 75% of the site free of all encumbrances, the remaining 25 % of the possession as per contractor's construction programme.

21. Access to the Site

21.1. The Contractor shall allow access to the Site and to any place where work in connection with the Contract is being carried out, or is intended to be carried out to the Engineer and any person/persons/agency authorized by: a. The Engineer b. The Employer or authorized by the Employer.

22. Instructions

22.1. The Contractor shall carry out all instructions of the Engineer, which comply with the applicable laws where the Site is located.

22.2. The Contractor shall permit the appointed and/or authorized persons to inspect the Site and/or accounts and records of the Contractor and its subcontractors relating to the performance of the Contract, and to have such accounts and records audited by auditors appointed, if so required. The Contractor's attention is invited to Clause of 'Fraud and Corruption', which provides, inter alia, that acts intended to materially impede the

exercise of the inspection and audit rights provided for under the Clause & constitute a obstructive practice subject to contract termination.

22.3. 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.

B. Time Control

23. Programme

23.1. Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme, including Environment Management Plan showing the general methods, arrangements, order, and timing for all the activities in the Works, along with monthly cash flow forecasts for the construction of works.

After the completion of the construction works, the programme for the Routine Maintenance Work, showing the general methods, arrangements, order and timing for all the activities involved in the Routine Maintenance will also be submitted by the Contractor to the Engineer for approval if specified in the tender. The programme for Routine Maintenance will be submitted in each year for the period of Maintenance.

23.2. The Contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/ equipments being placed in field laboratory and the location of field laboratory along with the Programme. The Engineer shall cause these details to be verified at each appropriate stage of the programme.

23.3. An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

23.4. The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

23.5. The Engineer's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Engineer again at any time. A revised Programme shall show the effect of Variations and Compensation Events.

24. 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.

25. Delays Ordered by the Engineer

25.1. The Engineer may instruct the Contractor to delay the start or progress of any activity within the Works. Delay/delays totalling more than 30 days will require prior written approval of the DMC/AMC.

26. Management Meetings

26.1. The Engineer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the plans for progress of the Works.

26.2. The Engineer shall record the business of management meetings and provide copies of the record to those attending the meeting. The responsibility of the parties for actions to be taken shall be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all those who attended the meeting.

C. Quality Control

27.1. 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.

27.2. 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 incharge 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 contractors 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

27.3. Works to be executed in accordance with specifications / drawings / orders etc. :

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.

27.4. Ready Mix Concrete/ Asphalt Mix

i. The contractor shall have to arrange Ready Mix concrete (RMC)/Asphalt from RMC/ASPHALT producing plants registered with MCGM

ii. The contractor shall, within 7 days of award of the work, submit a list of at least three RMC/Asphalt producers with details of such plants including details and number of transit, mixers & pumps etc. to be deployed indicating name of owner/company, its location, capacity, technical establishment.

The Engineer-in-charge will reserve right to inspect at any stage and reject the concrete if he is not satisfied about quality of product at the user 's end.

iii. The Engineer-in-charge reserves the right to exercise control over the:-

a) Calibration check of the RMC/Asphalt plant.

b) Weight and quantity check on the ingredients, water and admixtures added for batch mixing for RMC plants

c) Time of mixing of concrete/grade of asphalt.

d) Testing of fresh concrete/asphalt mix, recording of results and declaring the mix fit or unfit for use. This will include continuous control on the work ability during production and taking corrective action, if required.

e) For exercising such control, the Engineer-in-charge shall periodically depute his authorized representative at the RMC/Asphalt plant. It shall be responsibility of the contractor to ensure that all necessary equipment, manpower & facilities are made available to Engineer-in-charge and or his authorized representative at RMC/Asphalt plant.

f) All required relevant records of RMC/Asphalt mix shall be made available to the Engineer-in-charge or his authorized representative. Engineer-in-charge shall, as required, specify guidelines & additional procedures for quality control & other

parameters in respect of material production& transportation of concrete mix which shall be binding on the contractor & the RMC/Asphalt plant. Only concrete as approved in design mix by Engineer- in-charge shall be produced in RMC plant and transported to the site.

g) The contactor shall have to produce a copy of chalan receipts/SCADA reports/VTS reports as issued by the RMC/Asphalt plant as a documentary proof in lieu of supply of RMC/Asphalt mix before releasing payment.

28. Identifying Defects

28.1. The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

28.2. The Contractor shall permit the Employer's technical person(s) to check the Contractor's work and notify the Engineer and Contractor if any defects that are found.

29. Tests

29.1. For carrying out mandatory tests as prescribed in the specifications, the Contractor shall establish field laboratory at the location decided by Engineer. The field laboratory will have minimum of equipments as specified in the Contract Data. The contractor shall be solely responsible for:

a. Carrying out the mandatory tests prescribed in the Specifications, and

b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.

29.2. If the Engineer instructs the Contractor to carry out a test not specified in the Specification/ Quality Assurance Handbook to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a compensation event.

When required by the Engineer-in-charge the contractor(s) shall supply for the purpose of testing samples of all materials proposed to be used in the works. Samples submitted either to govern bulk supplies or required for testing before use shall be in suitable packages to contain them and shall be provided free of charge by the contractor. The cost of testing shall be borne by the contractor even if the result of the sample confirm or do not confirm to the relevant BIS code specifications.

i. All expenditure required to be incurred for taking the samples conveyance, packing shall be borne by the contactor himself.

ii. The failed material shall be removed from the site by the contractor at his own cost within a week time of written order of the Engineer-in-charge.

29.3. **Setting of Site Laboratories:**

Contractors shall set up a laboratory at site before commencement of work at their cost for performing various tests and at least the following machines and equipment's shall be provided therein –

1. Set of Sieves as per I.R.C. /I.S.
2. Compressive Testing Machine (For new works)
3. Oven, Electrically Operated
4. Weighing Balance (20 kg capacity)
5. 3 m straight edge
6. Sieve shaker
7. First Aid Box
8. Measuring Jar (for silt content)
9. Other Machines/apparatus as may be directed by the Engineer
10. Vernier Caliper
11. Level / Theodolite

All the test records shall be maintained in the site office and made available as and when required. The laboratory must be established within 15 days from the date of receipt of the orders from Engineer In charge. On failure to do so, a penalty of Rs 1000/- per day shall be imposed.

The contractor shall install testing equipment at site. The contractor shall ensure and certify the calibration of the equipment so installed and shall maintain the same in working order throughout the period of construction. The contractor shall also provide necessary technically qualified experienced trained staff for carrying out such tests for using such equipment. The tests shall be carried out under the supervision of the Engineer-in-charge. The calibration shall be checked every twelve months as directed by Engineer-in-charge.

30. Correction of Defects noticed during the Defects Liability Period.

30.1. (a) The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and ends after five years. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

(b) 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.

(c) 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.

31. Uncorrected Defects and Deficiencies

31.1. If the Contractor has not corrected a Defect pertaining to the Defect Liability Period under clause and deficiencies in maintenance, to the satisfaction of the Engineer, within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect or deficiency corrected, and the Contractor shall pay this amount, on correction of the Defect or deficiency by another agency.

D. Cost Control

32. Variations

The Engineer shall, having regard to the scope of the Works and the sanctioned estimated cost, have power to order, in writing, Variations within the scope of the

Works he considers necessary or advisable during the progress of the Works. Such Variations shall form part of the Contract and the Contractor shall carry them out and include them in updated Programmes produced by the Contractor. Oral orders of the Engineer for Variations, unless followed by written confirmation, shall not be taken into account.

33. Payments for Variations

33.1. If rates for Variation items are specified in the Bill of Quantities, the Contractor shall carry out such work at the same rate.

33.2. The rate for Extra/Excess shall be governed by clause 10.A of Standard General Condition of Contract

34. Cash Flow Forecasts

When the Programme is updated, the Contractor shall provide the Engineer with an updated cash flow forecast.

35. Payment Certificates

The payment to the Contractor will be as follows for construction work:

a) A bill shall be submitted by the Contractor monthly or before the date fixed by the Engineer In-charge for all works executed in the previous month, and the Engineer In-charge shall take or cause to be taken requisite measurement for the purpose of having the same verified and the claim, so far as it is admissible, shall be adjusted, if possible, within 10 days from the presentation of the bill. If the contractor does not submit the bill within the time fixed as aforesaid, the Engineer In-charge may depute a subordinate to measure up the said work in the presence of the contractor or his duly authorized agent whose counter signature to the measurement list shall be sufficient warrant, and Engineer In-Charge may prepare a bill from such list which shall be binding on the contractor in all respects.

b) The Engineer shall check the Contractor's fortnightly/monthly statement within 14 days and certify the amount to be paid to the Contractor.

c) The value of work executed shall be determined, based on measurements by the Engineer.

d) The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

e) The value of work executed shall also include the valuation of Variations and Compensation Events.

f) The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

g) The contractor shall submit all bills on the printed forms at the office of Engineer In- charge. The charges to be made in the bills shall always be entered at the rates specified in tender.

36. Payments

36.1. Payments shall be adjusted for deductions for advance payments, retention, security deposit, other recoveries in terms of the Contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 15 days of the date of each certificate.

36.2. All sums payable by a contractor by way of compensation under any of these conditions, shall be considered as a reasonable compensation to be applied to the use of MCGM without reference to the actual loss or damage sustained and whether any damage has or has not been sustained.

36.3. 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 therefore 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.

37. **The** Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor for not having given early warning or not having cooperated with the Engineer.

38. **Tax**

G.S.T and other state levies/cess which are not subsumed under GST will be applicable. The tenderer shall quote inclusive of all taxes. It is clearly understood that MCGM will not bear any additional liability towards payment of any Taxes & Duties.Wherever the Services to be provided by the Tenderers fall under Reverse Charge Mechanism, the Price quoted shall be exclusive of GST, but inclusive of Taxes/Duties/Cess other than GST, if any.Rates accepted by MCGM 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.

"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 recipient by way of commensurate reduction in prices'

Accordingly, the contractor should pass on the complete benefit accruing to him on account of reduced tax rate or additional input tax credit, to MCGM.

39. Further, all the provisions of GST Act will be applicable to the quotation. **Currencies**

All payments will be made in Indian Rupees.

40. **Liquidated Damages**

Employers have all rights to decide the liquidated damages.

41. Cost of Repairs

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at his cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

42. Completion of Construction and Maintenance

42.1. The Contractor shall request the Engineer to issue a certificate of completion of the construction of the works, and the Engineer will do so upon deciding that the works is completed. This shall be governed as per clause no.8(g) of Standard General Conditions of Contract.

43. Taking Over

43.1. The Employer shall take over the works within seven days of the Engineer issuing a certificate of completion of works. The Contractor shall continue to remain responsible for its routine maintenance during the maintenance period if specified in the contract.

44. Final Account

Final joint measurement along with 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.no.	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	UptoRs. 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 has 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 next 15 days i.e. upto 30 days	Equal to 5% of bill amount
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 within 45 days from the date of completion/ R.A. bill	Bill will not be admitted for payment.

45. Operating and Maintenance Manuals

45.1. If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

45.2. If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

46. Termination

46.1. The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

46.2. Fundamental breaches of Contract shall include, but shall not be limited to, the following:

a) The Contractor stops work for 30 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Engineer;

b) The Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;

c) The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer;

d) The Contractor does not maintain a Security, which is required;

e) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in relevant clause.

f) The Contractor fails to provide insurance cover as required under relevant clause.

g) If the Contractor, in the judgment of the Employer, has engaged in the corrupt or fraudulent practices as defined in GCC in competing for or in executing the Contract.

h) If the Contractor fails to set up a field laboratory with the prescribed equipment, within the period specified in the Contract Data; and

i) Any other fundamental breaches as specified in the Contract Data.

j) If the Contractor fails to deploy machinery and equipment or personnel as specified in the Contract Data at the appropriate time.

46.3. When either party to the contract gives notice of a breach of contract to the Engineer for a cause other than those listed above, the Engineer shall decide whether the breach is fundamental or not.

46.4. Notwithstanding the above, the Employer may terminate the Contract for convenience.

46.5. If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

47. Payment upon Termination

47.1. If the Contract is terminated 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 less liquidated damages, if any, less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Contract Data. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered from the security deposit, and performance security. If any amount is still left un-recovered it will be a debt due from the Contractor to the Employer

47.2. If the Contract is terminated at the Employer's convenience, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due

in terms of the Contract, and less taxes due to be deducted at source as per applicable law.

48. Property

48.1. All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer for use for completing balance construction work if the Contract is terminated because of the Contractor's default, till the Works is completed after which it will be transferred to the Contractor and credit, if any, given for its use.

49. Release from Performance

If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of the Employer or the Contractor, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

A) Other Conditions of Contract

50. Labour

50.1. The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

50.2. The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the number of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Engineer may require.

51. Compliance with Labour Regulations

a) During continuance 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 the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority.

b) Furthermore, 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. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including his amount of performance guarantee. The Employer/Engineer 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.

c) The Contractor shall require his employees to obey all applicable laws, including those concerning safety at work.

d) 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.

52. Drawings and Photographs of the Works

52.1. The Contractor shall do photography/video photography of the site firstly before the start of the work, secondly mid-way in the execution of different stages of work as required by Engineer In-charge and lastly after the completion of the work. No separate payment will be made to the Contractor for this.

52.2. The Contractor shall not disclose details of Drawings furnished to him and works on which he is engaged without the prior approval of the Engineer in writing. No

photograph of the works or any part there of or plant employed thereon, except those permitted under above clause, shall be taken or permitted by the Contractor to be taken by any of his employees or any employees of his sub-Contractors without the prior approval of the Engineer in writing. No photographs/ Video photography shall be published or otherwise circulated without the approval of the Engineer in writing.

53. The Apprentices Act, 1961

The Contractor shall duly comply with the provisions of the Apprentices Act 1961 (III of1961), the rules made there under and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so, he shall be subject to all liabilities and penalties provided by the said Act and said Rules.

54. Contract Document

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) Tender Document
6) The Bill of Quantities:
7) The Specification:
8) Detailed Engineering Drawings
9) Standard General Conditions of Contracts (GCC)
10) All correspondence documents between bidder/contractor and MCGM.

55. Conflict of Interest

The Applicant shall not have a conflict of interest (the "Conflict of Interest") that affects the Bidding Process. Any Applicant found to have a Conflict of Interest shall

be disqualified. An Applicant shall be deemed to have a Conflict of Interest affecting the Bidding Process, if

1. A constituent of such Applicant is also a constituent of another Applicant; or
2. Such Applicant has the same legal representative for purposes of this Application as any other Applicant; or
3. Such Applicant, or any Associate thereof has a relationship with another Applicant, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Application of either or each other; or
4. The Applicant shall be liable for disqualification if any legal, financial or technical adviser of the Authority in relation to the Project is engaged by the Applicant, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to the Project. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Applicant, its Member or Associate in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this TENDER. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.

56. Applications and costs thereof

No Applicant shall submit more than one Application for the Project. An applicant applying individually shall not be entitled to submit another application either individually. The Applicant shall be responsible for all of the costs associated with the preparation of their Applications and their participation in the Bid Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

57. Acknowledgment by Applicant

It shall be deemed that by submitting the Application, the Applicant has:

a) made a complete and careful examination of the tender;
b) received all relevant information requested from the Authority;
c) accepted the risk of inadequacy, error or mistake in the information provided in the tender or furnished by or on behalf of the Authority relating to any of the matters referred; and
d) Agreed to be bound by the undertakings provided by it under and in terms hereof.

"The Authority" shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the TENDER or the Bidding Process, including any error or mistake therein or in any information or data given by the Authority.

58. Right to accept or reject any or all Applications/ Bids

Notwithstanding anything contained in this TENDER, "The Authority" reserves the right to accept or reject any Application and to annul the Bidding Process and reject all Applications/ Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore. In the event that the Authority rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

"The Authority" reserves the right to reject any Application and/ or Bid if:

a) at any time, a material misrepresentation is made or uncovered, or
b) the Applicant does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the Application.

In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of subsistence thereof including the concession thereby granted by "The Authority", that one or more of the pre-qualification conditions have not been met by the Applicant, or the Applicant has made material misrepresentation or has given any

materially incorrect or false information, the Applicant shall be disqualified forthwith if not yet appointed as the Successful Bidder either by issue of the LOA (Letter of Approval) or entering into of the Agreement, and if the Applicant has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this TENDER, be liable to be terminated, by a communication in writing by "The Authority" to the Applicant, without the Authority being liable in any manner whatsoever to the Applicant and without prejudice to any other right or remedy which the Authority may have under this TENDER, the Bidding Documents, the Concession Agreement or under applicable law.

"The Authority" reserves the right to verify all statements, information and documents submitted by the Applicant in response to the TENDER. Any such verification or lack of such verification by the Authority shall not relieve the Applicant of its obligations or liabilities hereunder nor will it affect any rights of the Authority there under.

59. The bid shall be rejected if the bidder- (Refer SCC 116)

a. Stipulates the validity period less than 180 days.
b. Stipulates own condition/conditions.
c. Does not fill and (digital) sign undertaking forms, which are incorporated, in the document.

60. Clarifications

Applicants requiring any clarification on the tender may notify "the Authority" in writing or by fax or e-mail. They should send in their queries before the date specified in the header data. "The Authority" shall Endeavor to respond to the queries within the period specified therein. The responses will be sent by fax and/or e-mail. The Authority will forward all the queries and its responses thereto, to all purchasers of the TENDER without identifying the source of queries.

"The Authority" shall Endeavour to respond to the questions raised or clarifications sought by the Applicants. However, the Authority reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this

Clause shall be taken or read as compelling or requiring the Authority to respond to any question or to provide any clarification, but not later than the date provided in header data.

"The Authority" may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Applicants. All clarifications and interpretations issued by the Authority shall be deemed to be part of the tender. Verbal clarifications and information given by Authority or its employees or representatives shall not in any way or manner be binding on the Authority.

61. Amendment of tender

At any time prior to the deadline for submission of Application, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by an Applicant, modify the tender by the issuance of Addendum.

Any Addendum thus issued will be sent in writing/ Fax/ Email to all those who have purchased the tender.

In order to afford the Applicants a reasonable time for taking an Addendum into account, or for any other reason, the Authority may, in its sole discretion, extend the Application Due Date.

Preparation and Submission of Application

62. Language

The Application and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Applicant with the Application may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Applicant. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Application, the English language translation shall prevail.

63. Format and signing of Application

The Applicant shall provide all the information sought under this TENDER. The Authority will evaluate only those Applications that are received in the required

formats and complete in all respects. Incomplete and /or conditional Applications shall be liable to rejection.

The Applicant will upload bid in One Folder in electronic form which shall contain the scanned certified copies of the documents given below and the documents uploaded has to be digitally signed by the bidder. These copies shall be certified by Practicing Notary approved by the Govt. of Maharashtra or Govt. of India with his stamp, clearly stating his name & registration number, except where original documents are demanded

64. Marking of Applications

The Applicant shall submit the Application in the format specified at Appendix-I, together with the documents, upload in folder as "VENDOR" together with their respective enclosures

Applications submitted by fax, telex, telegram shall not be entertained and shall be rejected outright.

65. Late Applications

Applications received by the Authority after the specified time on the Application Due Date shall not be eligible for consideration and shall be summarily rejected.

66. Confidentiality

Information relating to the examination, clarification, evaluation, and recommendation for the short-listed qualified Applicants shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising the Authority in relation to or matters arising out of, or concerning the Bidding Process. The Authority will treat all information, submitted as part of Application, in confidence and will require all those who have access to such material to treat the same in confidence. The Authority may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert

any right or privilege of the statutory entity and/ or the Authority or as may be required by law or in connection with any legal process.

67. Clarification Of Financial Bids

To assist in the examination, evaluation and comparison of Bids, the Engineer may, at his discretion, ask any bidder for clarification of his Bid, including breakdown of unit rates. The request for clarification and the response shall be in writing or by post/facsimile/e- mail. No Bidder shall contact the Engineer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. Any effort by the Bidder to influence the Engineer in the Engineer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidder's bid.

68. Inspection of site and sufficiency of tender:

1. 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.
2. The Employer may 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.

3. 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.
4. 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 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 of any instruction which the Engineer may issue to the Contractor in connection there with, 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. <u>Office for the Engineer (Works costing upto Rs.50 Lakhs)</u>

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.

6. <u>Office for the Engineer (Works costing above Rs.50 lakhs)</u>

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.

7. <u>Permission for provision and removal of office on completion of work:</u>

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 fulfil requirements of Environmental Authorities. The location of such office shall be finalized and got approved from the Engineer before erection/commencement work.

8. 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.

69. 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.

70. Subsequent Legislation:

If on the day of submission of bids for the contract, there occur changes to any National or State stature, 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, 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. MCGM reserve the right to take decision in respect of addition/reduction of cost in contract.

71. 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.

72. Payments, Tax and Claims:

i. 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.

ii. **No interest for delayed payments due to disputes, etc:**

It is agreed that the Municipal Corporation of Greater Mumbai 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.

73. Settlement of Disputes:

iii. **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.

iv. 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 or arising out of the Contract or 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.

74. 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.

(refer revised circular MCG/F/8659 Dt. 07.09.2019)

75. 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, 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 works.

76. 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.

77. Proprietary data

All documents and other information supplied by the Authority or submitted by an Applicant to the Authority shall remain or become the property of the Authority. Applicants are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Application. The Authority will not return any Application or any information provided along therewith.

78. Correspondence with the Applicant

Save and except as provided in this TENDER, the Authority shall not entertain any correspondence with any Applicant in relation to the acceptance or rejection of any Application.

79. Price Variation Clause

The Contractor shall be reimbursed or shall refund to the Corporation as he 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 A 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.

   ii. 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'.

   iii. 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:

$$VL = \frac{(0.88R) \times 30}{100} \times \frac{(I - IO)}{IO}$$

b)Formula for Material component :

$$VM = \frac{(0.88R \times 70 - C)}{100} \times \frac{(W - WO)}{WO}$$

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

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 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, 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 (b) 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. Pricing Schedule : Contract Price Adjustments (Operation Service)

i. **Definitions**

For the purpose of this Clause E:

"Final Index Figure" shall mean any index figure appropriate to Section ii not stated in the noted publications as provisional;

"Base Index Figure" shall mean the appropriate Final Index Figure applicable at the Base Date. In respect of quarterly published indices, monthly interpolation between indices shall not be permitted;

(c) "Current Index Figure" shall mean the appropriate Final Index Figure to be applied in respect of any certificate issued or due to be issued by the Employer's Representative of the Conditions of Contract and shall be the appropriate Final Index Figure applicable to the date 30 days or, in the case of quarterly indices, the last index issued prior to the earlier of:

(i) the date stated by the Employer's Representative as being the date on which the Contractor shall cease the operation of the Works; or

(ii) the last day of the period to which the certificate relates.

(d) The "Effective Value" in respect of the Operation Service shall be the payment for the Operation Service established in accordance with Conditions of Contract and this Schedule of Payments, but excluding any amounts in respect of work instructed which is valued using prices or quotations valid at the time of instruction.

ii. **Selected Indices**

(1) The amount payable by the Employer to the Contractor in respect of the Operation Service in an interim payment or in the Final Certificate shall be increased or decreased if there are any changes in the following published Indian indices:

(a) **the All India Consumer Price Index Number for Industrial Workers (CPI- IW);**

(b) **the Wholesale Price Index for Chemicals and Chemical Products Index Number (Group III, Sub-Group H);**

(c) **the Wholesale Price Index for Electricity Index Number (Group II, Sub- Group C); and**

(d) **the Wholesale Price Index for High Speed Diesel Oil Index Number (Group II, Sub-Group B, Commodity High Speed Diesel Oil).**

iii. **Price Adjustment Formula: Operation Service excluding the Asset Replacement Fund**

(1) The price adjustment formula shall be as follows:

$$PAF_n = \left(F + \left(a\,x\,\frac{A_n}{A_b}\right) + \left(b\,x\,\frac{B_n}{B_b}\right) + \left(c\,x\,\frac{C_n}{C_b}\right) + \left(d\,x\,\frac{D_n}{D_b}\right)\right) - 1$$

	PAF_n		Price Adjustment Factor to be applied to the Effective Value (excluding any payments to or from the Asset Replacement Fund) for current quarter.

	F		Non-adjustable portion as determined by Section iv.
	a, b, c, d		Coefficients determined in Section iv.
	A_n, B_n, C_n,D_n		Current Index Figure value for current month for the indices given in Sections ii(1)(a), ii(1)(b), ii(1)(c), and ii(1)(d), as applicable.
	A_b, B_b, C_b, D_b		Base Index Figure value for the indices given in Sections ii(1)(a), ii(1)(b), ii(1)(c), and 11.2(1)(d), as applicable.

(2) For the purposes of this Section iii, the "Price Adjustment Factor" shall mean the amount determined in accordance with Section iii(1). The increase or decrease in the amounts otherwise payable to the Contractor pursuant to this Section iii shall be calculated by multiplying the Effective Value by the Price Adjustment Factor.

(3) If at any time a Current Index Figure (for the ten days prior to the submission of an application) is unavailable, a provisional index equal to the latest available index shall be used, subject to subsequent correction of the amounts certified when the Current Index Figure is available.

iv. **Price Adjustments Proportions: Operation Service excluding the Asset Replacement Fund**

(1) For the purpose of calculating the Price Adjustment Factor referred to in Section iii, the proportions shall unless otherwise agreed (irrespective of the actual constituents of the work) be as provided in the Table iv.1 – Price Adjustment Proportions (Operation Service).

(2) The intention is that the proportions shall reflect the actual anticipated cost base spread of the Contractor at the time of Tender Submission. If the Contractor included its own proportions in Pricing Schedule B1 and such proportions are included in the Tender Submission Extracts such proportions shall apply. Where no alternative proportions are stated in the Tender Submission Extracts, then the "Default Value" proportions set out shall apply.

(3) The Employer and the Contractor will review the proportions in use

during the Contract at annual intervals to determine if they remain an appropriate representation of the Contractor's cost spread across the indices. If they are found by the Employer to be inappropriate, the Employer shall not be bound to, but may, in its sole discretion, make an adjustment to these proportions, provided that the Employer shall do so in order to better reflect the variations in the Contractor's overall costs with the indices listed in Table iv.1.

Table iv.1 - Price Adjustment Proportions (Operation Service)

Coefficient	Proportions	Description of Index
	Default Values	
a	0.25	Labour Index defined in Section 11.2(1)(a)
b	0.20	Chemicals Index defined in Section 11.2(1)(b)
c	0.40	Electricity Index defined in Section 11.2(1)(c)
d	0.05	Auto diesel Index defined in Section 11.2(1)(d)
F	0.10	In respect of all other costs which shall not be subject to any adjustment
Total	1.00	

v. **Price Adjustment Formula: Asset Replacement Fund Only**

(1) The price adjustment formula for payments to or from the Asset Replacement Fund shall be as follows:-

$$PAF_{ARFn} = \frac{B_n}{B_b} - 1$$

Where:	PAF_{ARFn}	=	Price Adjustment Factor to be applied to the Asset Replacement Fund payments for current quarter.
	B_n	=	Current Index Figure value for current month for the index in v(2).
	B_b		Index figure at the Base Date for the index in v(2).

(2) The Indian Wholesale Price Index for Manufactured Products Index Number

(Group III) shall be used as the index applicable to this Section v.

(3) The increase or decrease in the amounts otherwise payable to the Contractor pursuant to this Section 11.5 shall be calculated by multiplying the payment due under the Asset Replacement Fund payment by the Price Adjustment Factor as derived from the price adjustment formula given above.

(4) If at any time a Current Index Figure (for the ten days prior to the submission of an application) is unavailable, a provisional index equal to the latest available index shall be used, subject to subsequent correction of the amounts certified when the Current Index Figure is available.

80. Maximum Price Variation (during construction) shall be as follows:

Time Period of Project	Maximum limit of Price Variation
Up to 12 months	No variation allowed
Above12 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.**

Note: 1) The extension in time period for the projects originally estimated including monsoon results in ch ange of price variation slabs as mentioned above i.e. from first slab to second slab or from second slab to third slab, then the maximum limit of original slab will prevail.

2) Operative period shall mean original or extended time period of contract.

For example:

Extension of Time period	Maximum Price Variation
If original period of 11 months including monsoon extends to 16. The operative period will be 11+5 months.	No variation allowed
If original period of 11 months excluding monsoon extends to 16. The operative period will be 11+5 months.	Maximum 5% variation allowed

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 clause8(l)(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 clause8(l)(a)(i) and (ii) of standard GCC.

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(l)(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.

81. Payment: Interim Payment :

i. 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 bill s verified by taking or causing to be taken, where necessary, the requisite measurement of work.

ii. 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.

iii. On request, the contractor will be paid up to 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.

iv. No interim payment will be admitted until such time the Contractor have fully complied with the requirement of the Condition no.8 (g) and 8 (h) concerning submission and approval of Network Schedule for the works, as detailed in Condition 8 (h). 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.

v. 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.

82. Banning/De-Registration of Agencies of Construction works in MCGM

vi. The regulations regarding Demotion/ Suspension Banning for specific period or permanently / De-Registration shall be governed as per the respective condition in Contractor Registration Rules of MCGM.

83. JOINT VENTURE

In case if Joint Venture is allowed for the Project, the guidelines for JV as follows shall be incorporated in the Tender Document:

a) Joint Venture should be allowed only when the number of identifiable different works is more than one and/or the estimated cost of tender is more than Rs.100 Crores. JV shall also be allowed for complex technical work below Rs.100 Crores with the approval of concerned AMC

b) Separate identity/name shall be given to the Joint Venture firm.

c) Number of members in a JV firm shall not be more than three in normal circumstances, if the work involves only one discipline (say Civil or Electrical). If number of members in JV is required to be more than three,

then approval of concerned AMC needs to be sought.

d) A member of JV firm shall not be permitted to participate either in individual capacity or as a member of another JV firm in the same tender.

e) The tender form shall be purchased and submitted in the 'name of the JV firm or any constituent member of the JV.

f) Normally EMD shall be submitted only in the name of the JV and not in the name of constituent member. However, EMD in the name of lead partner can be accepted subject to submission of specific request letter from lead partner stating the reasons for not submitting the EMD in the name of JV and giving written confirmation from the JV partners to the effect that the EMD submitted by the lead partner may be deemed as EMD submitted by JV firm.

g) One of the members of the JV firm shall be the lead member of the JV firm who shall have a majority (at least 51%) share of interest in the JV firm. The other members shall have a share of not less than 20% each in case of JV firms with up to three members and not less than 10% each in case of JV firms with more than three members. In case of JV firm with foreign member(s), the lead member has to be an Indian firm with a minimum share of 51%.

h) A copy of Letter of Intent or Memorandum of Understanding (MoU) executed by the JV members shall be submitted by the JV firm along with the tender. The complete details of the members of the JV firm, their share and responsibility in the JV firm etc. particularly with reference to financial technical and other obligation shall be furnished in the agreement.

i) Once the tender is submitted, the agreement shall not be modified/altered/terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be forfeited. In case of successful tenderer, the validity of this agreement shall be extended till the currency of the contract expires.

j) Approval for change of constitution of JV firm shall be at the sole discretion of the MCGM. The constitution of the JV firm shall not be allowed to be modified after submission of the tender bid by the JV firm except when modification becomes inevitable due to succession laws etc. and in any case

the minimum eligibility criteria should not get vitiated. In any case the Lead Member should continue to be the Lead Member of the JV firm. Failure to observe this requirement would render the offer invalid.

k) Similarly, after the contract is awarded, the constitution of JV firm shall not be allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and in any case the minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract condition.

l) On award of contract to a JV firm, a single Performance Guarantee shall be required to be submitted by the JV firm as per tender conditions. All the Guarantees like Performance Guarantee, Bank Guarantee for Mobilization advance, machinery Advance etc. shall be accepted only in the name of the JV firm and no splitting of guarantees amongst the members of the JV firm shall be permitted.

m) On issue of LOA, an agreement among the members of the JV firm (to whom the work has been awarded) has to be executed and got registered before the Registrar of the Companies under Companies Act or before the Registrar / Sub-Registrar under the Registration Act,1908. This agreement shall be submitted by the JV firm to the MCGM before signing the contract agreement for the work. (This agreement format should invariably be part of the tender condition). In case the tenderer fails to observe/comply with this stipulation, the full Earnest Money Deposit (EMD) shall be forfeited and other penal actions due shall be taken against partners of the JV and the JV. This joint venture agreement shall have, inter-alia, following clauses:-

i. **Joint and several liability** - The members of the JV firm to which the contract is awarded, shall be jointly and severally liable to the Employer (MCGM) for execution of the project in accordance with General and Special conditions of the contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the MCGM during the course of execution of the contract or due to no execution of the contract or part there- of.

ii. **Duration of the Joint Venture Agreement -It** shall be valid during the

entire period of the contract including the period of extension if any and the maintenance period after the work is completed.

iii. **Governing Laws -** The Joint Venture Agreement shall in all respect be governed by and interpreted in accordance with Indian Laws.

iv. **Authorized Member** -Joint Venture members shall authorize one of the members on be- half of the Joint Venture firm to deal with the tender, sign the agreement or enter into con- tract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said ten- der/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV firm.

No member of the Joint Venture firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the employer in respect of the said tender/contract.

n) Documents to be enclosed by the JV firm along with the tender:

i. In case one or more of the members of the JV firm is/are partnership firm(s), following documents shall be submitted:

a. Notary certified copy of the Partnership Deed,

b. Consent of all the partners to enter into the Joint Venture Agreement on a stamp paper of appropriate value (in original).

c. Power of Attorney (duly registered as per prevailing law) in favor of one of the partners to sign the MOU and JV Agreement on behalf of the partners and create liability against the firm.

ii. In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed:

a. Affidavit on Stamp Paper of appropriate value declaring that his Concern is a Proprietary Concern and he is sole proprietor of the Concern OR he is in position of "KARTA" of Hindu Undivided Family and he has the authority, power and consent given by other partners to act on behalf of HUF.

iii. In case one or more members is/are limited companies, the following

documents shall be submitted:

a. Notary certified copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement, authorizing MD or one of the Directors or Managers of the Company to sign MOU, JV Agreement, such other documents required to be signed on behalf of the Company and enter into liability against the company and/or do any other act on behalf of the company.
b. Copy of Memorandum and articles of Association of the Company.
c. Power of Attorney (duly registered as per prevailing law) by the Company authorizing the person to do/act mentioned in the para (a) above.

o) All the members of the JV shall certify that they have not been black listed or debarred by MCGM from participation in tenders/contract in the past either in their individual capacity or the JV firm or partnership firm in which they were members / partners.

p) Credentials & Qualifying criteria: Technical and financial eligibility of the JV firm shall be adjudged based on satisfactory fulfilment of the following criteria:

Technical eligibility criteria: In case of Work involving single discipline, the Lead member of the JV firm shall meet at least 35% requirement of technical capacity as stipulated in tender document.

OR

In case of composite works (e.g. works involving more than one distinct component such as Civil Engineering works, Mechanical & Electrical works, Electrical works, etc. and in the case of major bridges, substructure and superstructure etc.), at least one member should have satisfactorily completed 35% of the value of any one component of the project work so as to cover all the components of project work or any member having satisfactorily completed 35% of the value of work of each component during last seven financial years.

In such cases, what constitutes a component in a composite work shall be clearly defined as part of the tender condition without any ambiguity.

Financial eligibility criteria: The average annual contractual payments received by the JV firm or the arithmetic sum of average annual contractual payments received by all the members of JV firm in proportion to their share in last three financial years shall be at least 30% of the estimated value of the work as mentioned in the tender.

84. 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:

vii. Completion period for projects (originally stipulated or as extended) not exceeding 6 months : to the extent of maximum 1 percent per week.

viii. Completion period for projects (originally stipulated or as extended) exceeding 6 months and not exceeding 2 years: to the extent of maximum ½ percent per week.

ix. Completion period for projects (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.

85. 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 general condition of contract in section 9 of tender document (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 above clause is summarized to make it easy to understand as follows:

1. The Engineer-in-charge shall issue notice to the contractor for rectifying the defects or redoing of the work if necessary, within specific time to achieve the desired quality and quantity of the work and this should be governed by clause 8.f and 9.b of Standard General Conditions of Contract.
2. If the contractor fails to comply the same, only then, the contractor shall be liable to pay compensation at the same rate as under clause 8.e of the Standard General Condition of Contract (for Compensation for delay) for this default.
3. If the penalization amount exceeds the maximum limit, then the contractor will be liable for being banned/ deregistered from business dealings with

MCGM and this shall be governed by relative provision in Registration Rules of MCGM and Standard General Conditions of Contract

4. This penalization shall be levied only on account of delay in work, unsound, imperfect or unskilful 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 quality inferior to that contracted for or otherwise not in accordance with the con- tract.

86. 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.

87. 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.

88. Contractor to supply plant, ladder, scaffolding, etc and is liable for damages arising from non provision of lights, fencing, etc.

The Contractor shall supply at his own cost all material, plant, tools, appliances, implements, ladders, cordage, tackle scaffolding and temporary works requisite or proper for the proper execution of the work, whether, in the original altered or substituted form and whether included in the specification of other documents forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with the requirements of the Eng-In-Charge as to any matter as to which under these conditions is entitled to be satisfied, or which is entitled to require together with the carriage therefore to and from the work.

The Contractor shall also supply without charge, the requisite number of person with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurements of examination at any time and from time to time of the work or materials, failing which the same may be

provided by the Engineer In-charge at the expense of the contractor and the expenses may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or offers sufficient portion thereof.

The contractor shall provide all necessary fencing and lights required to protect the public from accident and shall also be bound to bear the expenses of defence of every suit, action or other legal proceedings, that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit action or proceedings to any such person or which may with the consent of the contractor be paid for compromising any claim by any such person.

89. Prevention of Fire :

The contractor shall not set fire to any standing jungle, trees, brushwood or grass without a written permit from the Engineer In-charge. When such permit is given, and also in all cases when destroying cut or dug up trees brushwood, grass, etc., by fire, the contractor shall take necessary measure to prevent such fire spreading to or otherwise damaging surrounding property. The Contractor shall make his own arrangements for drinking water for the labour employed by him.

90. Compensation f or 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.

91. In the case of Tender by partners, any change in the constitution of the firm shall be forthwith, notified by the contractor through the Engineer In-charge for his information.

92. Action where no specifications :

In the case of any class of work for which there is no such specifications, such works shall be carried out in accordance with the specifications and in the event of there being no such specifications, then in such case, the work shall be carried out in all respects in accordance with all instructions and requirements of the Engineer In-charge.

93. Safety and medical help :

i. The Contractor shall be responsible for and shall pay the expenses of providing medical help to any workmen who may suffer a bodily injury as a result of an accident. If such expenses are incurred by MCGM, the same shall be recoverable from the contractor forthwith and be included without prejudice to any other remedy of MCGM from any amount due or that may become due to the Contractor.

ii. The contractor shall provide necessary personal safety equipment and first-aid box for the use of persons employed on the site and shall maintain the same in condition suitable for immediate use at any time.

iii. The workers shall be required to use the safety equipments so provided by the contractor and the contractor shall take adequate steps to ensure the proper use of equipments by those concerned.

iv. When the work is carried on in proximity to any place where there is risk or drawing all necessary equipments shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any person in danger.

94. No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land or in the case of clearance of works, on account of ant delay in according to sanction of estimates.

95. Anti-malaria and other health measures:

Anti-Malaria and other health measures shall be taken as directed by the Executive Health Officer of MCGM. Contractor shall see that mosquitogenic conditions are created so as to keep vector population to minimum level. Contractor shall carry out anti-malaria measures in the area as per the guidelines issued by the Executive Health Officer of MCGM from time to time.

In case of default, in carrying out prescribed anti-malaria measures resulting in increase in malaria incidence, contractor shall be liable to pay MCGM on anti-malaria measures to control the situation in addition to fine.

SECTION 10

SPECIAL CONDITIONS OF CONTRACT

Part A

SPECIAL CONDITIONS OF CONTRACT

(For Sewage Treatment Plant)

1) Permissions :

1.1 The contractors will have to obtain permission from the traffic police department well in advance either for closing down the road partially/fully or for diversion of traffic for execution of the work. The work may be required to be executed in phases as per traffic police permission. The contractors should therefore consider this factor while quoting.

2.2 The contractor shall have to obtain all the necessary permissions of the concerned authorities required for carrying out the work at his own cost. Only recommendatory letters will be issued by MCGM.

2) The contractors will be given 12 mm. dia. or 20 mm. dia. (as per the conditions of H.E.) water connection for drinking purposes for each site office at the cost of contractor, in the event of non-availability of MCGM water connection, the contractors shall make arrangement for drinking water at his own cost. The contractor shall make suitable arrangement for adequate supply of water by any means at his own cost for construction as well as Operation and Maintainance purpose. The water used for construction as well as Operation and Maintainance purpose must conform to I.S.-456 amended up to date. Extra water required for construction purposes will have to be brought by the contractors at his own cost and no extra claims on this behalf will be entertained.

3) Methodology of the work, safety manual and quality assurance plan shall be submitted before commencement of the work with copy at each site office.

4) Before starting the work, contractor shall consult with the Site Engineer and shall take actual measurements on the site for procurement of material.

5) i) All material required for the work can be stacked near the site of work in such manner so as not to cause any inconvenience to the pedestrian and vehicular traffic. If no space is available on site then e - Tenderer shall make his own arrangement for stacking of material etc. No extra payment will be made on this account.

ii) The surplus excavated material from the site shall be removed to the dumping ground within 24 hours, as directed. The necessary tipping charges upto the dumping

ground, as applicable, shall be borne by the contractor.

iii) The royalty charges in respect of excavated material shall be paid by the contractors to the collector.

iv) 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.

v) The site shall be cleared by removal of surplus material on or before 15th of May every year.

vi) "MCGM will not make any payments towards transportation / removal/ disposal of excavated surplus earth from construction site to either Municipal dumping ground (if available) or contractors own dumping facility. Contractors shall quote accordingly."

6) Concrete Works: All concrete works shall be carried out by Ready Mix Concrete only.

7) The contractors shall make necessary arrangement for adequate lighting during night time. No extra claims will be entertained for the same.

8) It is the responsibility of the contractor to provide healthy accommodations to all construction labours who will be deputed at subject site of work. Proper hygienic condition shall be provided by the contractor at his own cost.

9) In Completion of the work, the contractors shall furnish free of cost 2 sets of final completion drawings in Auto CAD/ PDF format in CD and physical copy on Reproducible Tracing Film (50 microns, both sides matt, Technova brand or similar quality,) duly signed by the Engineer to the Ch.E. (S.O.) within a period of two months from the date of completion of the work failing which a rebate of Rs 1,000/- (One thousand) as well as a penalty of Rs 5,000/- per drawing (Five thousand) will be recovered from the contractor. The payment of final bill shall be made to the contractors after receipt of above sets.

10) List of approved Banks etc. has been attached to this document. However, M.C.G.M. reserves right to modify these lists.

11) The RMC/Asphalt works required to be done under the captioned contract shall be got executed with RMC/Asphalt plant registered with MCGM

12) Any work not metioned in the scope of work but required to carry out succesfull commissioning of work shall be carried out by the contractor at his own cost.

13) Traffic Management:-

20.2 The contractor shall have to provide adequate number of wardens as per requirement of Traffic Police Deptt. at the contractor's cost.

20.3 Traffic signs – Temporary traffic and construction signs are to be provided during construction and maintenance operations for traffic diversion and pedestrian safety as per Traffic Diversion Plan approved by the Engineer.

20.4 The contractor shall display the boards stating information of the name of the work, date of starting, date of completion, name of the Deptt. and contact telephone nos. of Contractor‘s Engineer.

20.5 The contractor should note that the work is required to be carried out in phases as permit- ted by the Traffic Police Dept. The contractor will have to obtain permission from Traffic Police Deptt. well in advance for closing down the road or part thereof for the execution of the work. The work will have to be carried out in stages depending upon the permission granted by the Traffic Police for closure of the road or part thereof. The contractors should therefore take this into account while quoting:-

a. The contractor shall obtain specific permission or approval through the engineer wherever required. Only recommendatory letters will be issued by M.C.G.M. The Contractor shall be responsible for obtaining permissions from traffic police, PWD, M.M.R.D.A., forest dept., Railway authorities or any other concerned authority outside M.C.G.M., with due regard to the method of work and detailed designs involved. The contractor shall be responsible for submission of the detailed designs and clarification on time to the concerned authorities.

14) The full time services of the Personnel Team of the contractor mandatory during the entire period of the project. Daily Attendance register of Contractor's staff shall be maintained and got checked from MCGM staff from time to time.

15) Before redoing of culvert work, the design of R.C.C. / Structural work shall Be obtained from licensed Structural Engineer at the cost of tenderer.

16) The contractor which expression shall include any person or group of person’s rep resenting the contractor who are 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 other Manual Workers (Regulation of employment and 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 Contractors.

17) Any amount of Dewatering required for crossing nalla/culvert/S. W. drains, crossing of sewer lines etc. and also for construction of the proposed Sewage Treatment Plant shall be done free of cost. No payment will be made on that account. Contractor shall note the same and quote accordingly.

18) On receipt of the work order, an amount equivalent to 1/2% (half percent) of contract cost or Rs10,000/-, whichever is less, shall have to be deposited on demand by Ward Office where the work site is situated, towards deposit for removal of debris from the site. This amount will be adjusted towards the debris which has not been removed from the site by the contractors in time and removed by the Ward Staff.

19) a. The successful bidder are liable to pay cess to the Government as per the Notification issued by Industry, Energy and labour department is applicable from time to time and challan of amount remitted shall be submitted to the department.

b. If applicable, the tenderer are directed to submit the scanned copy of the certificates of registration under E.P.F. & M.P. Act 1952 and E.S.I.C. Act 1948.

20) Where the excavation is required to be done across the road or along the part of a road where there is high volume of traffic, the Engineer may direct the contractor, to execute the work in more than one shift, so as to complete the work, in least required time, so as to reduce the inconvenience caused to the free flow of traffic. Arrangement will have to be made by the contractor to provide additional lights, sign boards etc. as required by the Engineer and traffic police. The contractor will have to provide M.S. plates of sufficient thickness, including stiffer plates for strengthening with supporting joints, if required, to cover the open trenches during the day time for smooth flow of traffic during the progress of the work and till the trench is backfilled. No extra payment will be made for this arrangement. The program of the work to be done in additional shifts shall be submitted to the Engineer and got approved before starting the work, so that the work can be completed in a time bound manner.

21) It should be clearly understood that for the purpose of determination of the contract period, the monsoon period will be taken only as from 10th June to 30th September, and all works shall be recommenced on 1st of October, irrespective of whether there are intervening festivals and/or rains etc.

22) No material will be supplied by M.C.G.M. Stores.

23) The contractors are particularly directed to observe from the specifications what is to be included in the rates.

24) The e-tenderers should furnish list of plants and equipments in their possession and which they intend to bring on site for the particular work.

25) Time is the essence of the contract.

26) The whole work shall be finished in a workmanship like manner as per specification and to the entire satisfaction of the Municipal Commissioner.

27) It is incumbent on the Contractors to remove all "Pardis" put up by them during the progress of sewer work so as to obviate the necessity of such removal after the sewer is put into commission while handing over charge of such sewers to the respective Department. If any such "Pardi" is found after the Sewer is put into commission the cost of breaking and removing the same will be recovered from the Contractors.

28) The e- tenderer should visit the site of work before quoting their rates. It should be noted that even though the work sites are approachable there is no regular means of access to the work sites. The e-tenderers will have to make necessary access up the work sites for transporting material and machinery at their own cost. No extra payment will be entertained on this account.

29) If the part of the excavation is to be done in the creek area and some portion is to be done in existing natural water courses the tenderer should note that no extra payment will be paid for diverting the flow whenever and wherever necessary and/or for the excavation in marshy land.

30) MCGM reserves the rights to reduce the scope of the work during the execution of the work for any reason. For the reduction in the scope of the work no claims whatsoever of nature by the contractor will be entertained.

31) During progress of work, the successful tenderer/contractor shall get identified the soil/rock strata jointly from Ch.E. (S.O.) and Dy.Ch.E.(S.O.) Civil. Further, the contractor will also take sample of soil/rock strata, in presence of site-In-charge, at every site and as directed by Site-In-charge and send it for testing to Govt. recognized Laboratory viz. I.I.T. Mumbai/ V.J.T.I./ S.P.C.E. Andheri(W) at his risk and cost to ascertain the crushing strength of the sample. The test results of the same shall be furnished to the office of the Chief Engineer (S.O.). However, if engineer in

charge/Ch.E.(S.O.) feels to carryout testing on additional samples same shall be carried out at no extra cost to MCGM.

32) Firms/Tenders not eligible to submit Tender

I) (a) Tenderer/ Contractual Agency not eligible to participate in tender process.

(i) Any Tenderer/ Contractual agency which is Debarred, Blacklisting, Demotion, Suspension, De-registration etc., as on date of invitation of tender by the MCGM/ Govt./ Semi-Govt./ Public Undertaking Agency shall not be eligible for participating in the bidding process of the present tender.

(ii) Any Tenderer/ Contractual agency which is Debarred, Blacklisting, Demotion, Suspension, De-registration etc., as on date of invitation of tender by the World Bank, JICA or any other International Financing Institution, shall not be eligible for participating in the bidding process of the present tender.

(iii) Any Tenderer/ Contractual agency having failed to perform on any contract as on last date of submission of the tender as evidenced by imposition of a penalty by an arbitral or judicial Employer or a judicial pronouncement or arbitration award against the Tenderer/ Contractual Agency as the case may be. Non performance/ failure to perform shall be base on all information on fully settled dispute or litigation that 322 has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all the appeal instances available to the Tenderer/ Contractual agency have been exhausted.

(iv) As on last date of submission of tender, any Tenderer/ Contractual agency OR any of the JV Technology Provider associating with any Tenderer/ Contractual agency that has been expelled from any project or contract by any public entity.

(v) As on last date of submission of tender, any Tenderer/ Contractual agency OR any of the JV Technology Provider associating with any Tenderer/ Contractual agency that has or had any contract terminated by any public entity for breach by such Tenderer/ Contractual agency or any Party constituting the Tenderer/ Contractual agency.

(vi) Tenderer/ Contractual agency OR any of the JV Partners OR Technology Provider associating with any Tenderer/ Contractual agency shall not have been Debarred, Blacklisting, Demotion, Suspension, De- registration etc. as i and ii above.

(b) Government entities shall be eligible only if they can establish that

(i) They are legally and financially autonomous and

(ii) They operate under commercial law, and

(iii) They are not a dependent agency of the Employer

II) The Tenderer/ Contractual agency shall mandatory to submit a notarized undertaking on Rs. 500/- stamp paper regarding I (a). If Tenderer/ Contractual agency having action under I(a) above submits a tender by hiding these facts or providing incorrect information then they shall be liable for forfeiture of EMD and disqualification including other actions as per provisions of law.

33) "G.S.T and other state levies/cess which are not subsumed under GST will be applicable.

The tenderer shall quote inclusive of all taxes. It is clearly understood that MCGM will not bear any additional liability towards payment of any taxes & duties.

Whatever the services to be provided by the tenderers, falls under Reverse Change Mechanism, and the price quoted shall be exclusive of GST, but inclusive of Taxes /Duties/Cess other than GST, if any.

Rates accepted by MCGM shall hold good till completion of work and no additional individual claim shall be admissible on account of fluctuations in market rates.

As per circular u/No. CA/F/Project/City/19 Dt. 15.09.2017, Tenderer shall submit the Irrevocable Undertaking on Rs.500/- stamp paper as per **Annexure-1** as attached.

34) Joint Venture is allowed for this bid.

35) The representative of the Engineer for this work will be from the offices of respective Dy. Chief Engineer (S.O.)W.S.

36) The Tenderer(s) should simultaneously work at number of places or more and complete the work within contract period.

37) The contract period is including period required for mobilization, procurement of material, traffic permission, NOC from Land owning authorities for works, also other required permission viz. erection of site office etc. and shall be reckoned from the date of issue of work order.

38) The contractors will have to obtain permission from the land owner/Land owning authorities etc, well in advance before commencement of work through their premises for execution of the work by displaying appropriate boards. The work may be required to be executed in phases as per respective authority permission.

The contractors should therefore take this factor into account while quoting.

39) Program of work: If at any stage the previously approved Program is required to be modified the contractors shall do so immediately as directed by the Engineer. If it is necessary to close some phase of the work and start a new phase as directed the tenderer(s) do so without claiming any extra payment. The Program shall be reviewed periodically and rescheduled as directed.

40) All material required for the work can be stacked near the site of work in such manner so as not to cause any inconvenience to the pedestrian and vehicular traffic. If no space is available on site then tenderer(s) shall make his own arrangement for stacking of material etc. No extra payment will be made on this account.

41) The Tenderer(s) shall maintain smooth flow of River/ S.W.D throughout contract period by way of desilting as directed by Engineer-in-charge for which no extra payment will be made.

42) The Tenderer(s)/ Tenderer(s) shall note that first class quality of material & workmanship is expected.

43) The Tenderer(s) shall procure all material required for the work form manufacturers with (ISI) certificates and according to M.C.G.M. specifications wherever applicable. Tenderer(s) shall submit manufacture's test certificate accordingly.

44) The contactors will have to work during night time also if required with prior permission, no extra claims in this regard will be entertained.

45) For minor details of R.C.C. work and whenever any modification is desired same have to be done according to the R.C.C. code of the M.C.G.M./ I.S. code and as directed by the Engineer- in-Charge.

46) The successful tenderer(s) will have to make his own arrangement at his cost for the Electric power supply required for the work either by taking connection from Adani/ M.S.E.B. / B.E.S.T. / TATA or arrange his own generators.

47) Contract Labour (Regulation and Abolition act 1970): The Tenderer(s) should specifically note that the successful tenderer(s) shall have to strictly comply with the entire statutory requirement under the provision of the Contract Labour (Regulation and Abolition) Act 1970 and with the Maharashtra State Contract Labour (Regulation and Abolition) Rules 1970 and indemnify the Corporation against any claim(s) whatsoever. Successful Tenderer(s) should obtain Registration Certificate from Labour

Commissioner.

48) The Noise level shall be maintained within the permissible limit in silent zone area during construction activities by the Tenderer(s) as per the notification dated 14/01/2000 issued by the Ministry of Environment and Forests. (Condition is included as per circular u/no. C.E/PD/7788/I dated 07/11/2008).

49) The full time services of the Personnel Team of the Tenderer(s) is mandatory during the entire period of the project.

50) The site shall be cleared by removing all surplus material/silt/earth/debris periodically or as directed by engineer-in-charge.

51) If the Tenderer(s) excavates certain portion of the road and fails to reinstate the same within the stipulated time limit, as per the Program and or before 31st of May, the reinstatement will be got carried out at contractor's risk and cost through other agency in addition to further penal action.

52) The work will be treated as completed only after cleaning the site in all respect after completion of the work.

53) Tenderer(s) should maintain the asphalt road stretches after reinstatement in traffic worthy conditions during monsoon free of cost by using asphalt mixes during the course of work.

54) The contractors shall display the boards giving information of name of the work, date of starting completion, Name of the department and contact telephone numbers. Non-compliance of this condition, a penalty of Rs. 1000/- per day per site shall be imposed on contractor.

55) The Tenderer(s) shall take photographs of site as and when directed by Engineer. 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. The register should be duly signed by site-in-charge and Tenderer(s) fortnightly. Failure to abide this condition of Rs. 1000/- per photograph copy will be recovered from the contractor`s bill.

56) If barricading is not provided as directed in circular U/No.MGC/F/6342 dated 5.5.2018 a penalty of Rs. 2000/- per day per meter will be imposed.

57) Tenderer(s) should note since the work is to be completed expeditiously. The work should be in progress at several points along the length of the nalla. The Tenderer(s) should put in sufficient resources so as to ensure that the work is completed within the

prescribed time period. Time is the essence of the contract. For this purpose, the tenderer(s) may be required to submit a PERT CHART showing the proposed schedule on which basis they intend to execute the work within the prescribed time period. The Tenderer(s) will have to submit BAR CHART, PERT Chart within 15 days from the issue of work order failing which a penalty of Rs. 2000/- per day will be imposed to the contractors.

58) Tenderer(s) should remove cofferdams constructed along/across the nalla before 15th May or as and when directed by engineer to keep the flow of storm water in the nalla unobstructed. No separate payment will be made for this.

59) The contractors are also required to reconstruct the cofferdam if required/directed by the Engineer to complete the balance work.

60) BARRICADING:

- It will be entirely responsibility of the contractor to provide and install secure barricades on work sites; **wholly at his risk and cost as per circular u/no MGC/F/6342 Dtd 05/05/2018**. The specification and Drawing of the barricades is attached herewith as annexure – E and F.
- Installing secure and continuous barricading is to ensure the safety of the road users/residents of vicinity etc. For all the excavations having depth more than one foot; exclusively metro barricades i.e. as per Annexure-E shall be provided. For lesser depth of excavations, if allowed by the engineer; the barricades as per the Annexure-F shall be installed. 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 contractors and contractor's engineer will be liable for consequent action.
- Details of the work shall be prominently displayed in central panel of the barricades in following format

  Name of work _____
  Contract Cost Date of _____
  starting Time Period _____
  _____
  Contractors Engineer Name
  Mobile Number _____

61) No dumping ground will be made available by M.C.G.M. for disposal of desilted

/excavated /surplus earth material from SWD. The tenderer(s) shall have to make their own arrangement for disposal of desilted / excavated / surplus earth materials. Please note that obtaining N.O.C. from Plot Owner for disposal of desilted / excavated / surplus earth materials on designated private dumping ground and dealing with all the consequences which may arise out of it's utilization shall be the sole responsibility of the tenderer(s). All the necessary charges including payment of Toll fees, Royalty (if any), etc shall have to be borne by the tenderer(s).

Any disputes / litigation regarding removal, transportation and dumping on site shall be sole responsibility of tenderer(s) and M.C.G.M. shall not be party for that in any case. Tenderer(s) shall indemnify M.C.G.M. and all its officers regarding any litigation and or issues that may arise out of ownership / NOC / Permission of said dumping site/s as well as removal / transportation / disposal of excavated surplus earth including desilted material. The indemnity bond stating the same shall be submitted in e-Packet B.

62) Maximum care should be taken to the satisfaction of the Engineer to provide and maintain adequate protection to all electrical and mechanical installations. No extra payment will be made on this account under any circumstances.

63) 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. The possibility of high water table should be kept in mind while quoting the percentage.

64) While excavating the trenches for foundation utmost care shall be taken that the foundation of adjoining structures will not be disturbed.

65) Materials brought on the site or debris will not be allowed to be stacked in passages or in the car park area.

66) After completion of the waterproofing work, the leakage test shall be carried out after impounding the water and plugging the openings at least for ten days, without any extra cost.

67) Plumbing and sanitary works will have to be carried out through licensed plumber.

68) The centering shall be provided only in M.S. plates and M.S. pipe props.

69) Engineer-in-charge reserves the right to delete any item, alter / reduce the scope of the work, no extra claim in this respect will be allowed.

70) On receipt of the work order the contractor will have to erect ready-made site Chowky and Godown in form of porta cabin/container cabin. Before erecting the Chowky and

Godown, he shall have to obtain permission from the concerned Assistant Commissioner and the Assistant Commissioner shall approve the site of the Chowky and Godown proposed by the Engineer or may allot another suitable site. The porta cabin/ container shall preferably ad measure 12.20 m x 2.50 m with two doors and proper ventilation. It should have toilet facility.

71) The contractor have to provide for site office as per requirement either on his/ her owned place or rented/ leased place. Cost for this may be charged to MCGM by incorporating in the offer. No separate payment may 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 have to make their own arrangement on hire/ lease for site office.

72) Waterproofing treatment layer should not be removed manually, the layer have to be removed by battery operated cutter only. No extra payment will be made.

73) Staircase will not be allowed for transport of materials and contractor will have to provide mechanical lift or pulley at their own cost. No extra payment will be made for this arrangement.

74) 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.

75) The Contractor shall appoint/avail the services of structural Engineer/consultant registered with MCGM to supervise/periodical supervise the work and submit his consent along with his licensed certificate before starting the work.

76) The cost of all sampling tests and inspections conducted by employer or third party or statutary organization shall be borne by contractor.

77) The Contractor shall carry out periodic medical check up of employees working under him.

78) One Four wheller passenger vehicles and 2 nos. of two wheelers along with driver, fuel and maintance etc. should be made available for the project during the entire contract period by the contractor at his own cost.

79) Any solid waste generated while cleaning the screen chambers shall be handed over to routine SWM works carried out by MCGM.

80) The Contractor has to maintain a log book at every plant for all O&M works carried out.

81) The contractor has to provide Diversion/bypass arrangement for STPs at wetwell with isolation valve incase of shut down of plant.

82) Unscheduled down time of maximum 2 hours will be allowed incase on plant shut down beyond which penalty will be applied as directed by engineer in charge as per penalty clauses.

83) The contractor has to provide list of manpower that will be deployed at each plant.

84) The contractor has to submit biometric attendance of each plant to MCGM every month which shall be in accordance with the manpower deployment list provided for each plant.

85) Any unauthorised dumping of solid waste in the STP premises and CCTV sanctioned location must be reported to the concerned ward officer or engineer incharge through electronic medium, with proofs.

86) Outside the STP premise CCTV must be installed at all 13 Nos of interceptor and wetwell locations.

87) <u>PENALTY CLAUSES :-</u>

<u>Penalties</u>:

a) If the succesfull bidder fails to start the work within 60 days of signing the agreement, Rs 100,000/- per day will be levied except delay due to force majeure.

b) If the succesfull bidder fails to maintain the effluent standards (95 percentile of the smples should adeher to the prescribed standards in ccompliancce with testing procedures of CPCB) as specified in tender document then penalty of Rs. 75000/- per day will be deducted from the contractors bill.

c) The Engineer not below the rank of Assistant Engineer is entitled to impose a penalty of Rs. 2500/- per day for each defective work/lapse, disobedience of orders of the officer not below the rank of Site Engineer. Penalty amount will be recovered from contractors running bill.

d) This penalty is over and above Penalty mentioned under G.C.C.

e) If it is observed that, the Tenderer(s) carrying out the work fails to comply with the instructions given by the authorities at the A.M.C./M.C.'s level during execution of work twice, the work will be terminated and will be carried out at the risk and cost of the Tenderer(s) and penal action will be taken against them. This

decision will not be arbitrable at all.

f) The dumpers carrying the surplus excavated material shall be covered with Tarpaulin sheets during transportation in accordance with MSW 2000 rules and no separate payment shall be made for the same. If the tarpaulin cover is not provided on vehicle or is torn out or small one, a penalty of Rs.5000/- per trip for that vehicle will be imposed.

g) All the vehicles transporting surplus excavated material, earth, rock etc to dumping ground shall be provided with a board showing "On Municipal Duty". If the board showing that the vehicle is "On Municipal Duty", is not provided a penalty of Rs.1000/- will be imposed for per vehicle per trip.

h) In the event of any delay on part of the Tenderer(s) to adhere to the contract, M.C.G.M. shall be entitled, at its option to recover from the Tenderer(s) as agreed, liquidated damages which shall not by way of a penalty but shall be a genuine pre- estimate of the losses that M.C.G.M. shall incur, a sum of 0.5% of the price of the total Contract Cost for each work or part thereof, by which the work has been delayed, subject however to a limit of 10% of the Total contract Cost, without prejudice to M.C.G.M.'s other rights mentioned in the Contract.

i) Tenderer(s) are requested to take cognizance of the child labour act and to take precaution not to deploy child labourers on the work. If child labourers are found deployed on the work, a penalty of Rs. 5,000/- on the spot will be imposed on the defaulting contractor and further action as deemed fit will be taken.

j) If the site office with the necessary requirements is not provided within 15 days from the receipt of work order, penalty of Rs.2000/- per day will be imposed.

k) The contractors shall provide proper safety gears to their staff, labors. 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 labor for the entire Contract period.

l) The above mentioned condition will be in addition to the provision of relevant condition in the General Condition of contract.

88) Tenderer(s) shall note that no extra payment shall be made for carrying out filling / carrying out preparatory works like excavation, dewatering, compaction, access road, working platform etc. in / adjacent to nalla / river to facilitate implementation of piling

works / construction of side walls and the quoted rates of tenderer(s) shall be deemed to include carrying out all temporary works etc. and removal of all temporary works after completion of construction to the entire satisfaction of the Engineer-in-charge or before 15th May, whichever is earlier.

89) It is required to prepare drawings/soil investigations/structural drawing and design, of the nalla retaining wall / R.C.C. work as per the site conditions or as directed by Engineer-in-charge. Contractors shall have to appoint licensed Surveyor/Soil investigation consultant/Structural Engineer/ R.C.C. Consultant at his own cost to prepare the drawings/soil investigation reports/structural drawings and designs based on tender items conditions and get the design approval from the department of M.C.G.M. The expenditure on this account will be deemed to have been considered in the rates quoted by the tenderer(s) and no extra payment shall be paid to the contractor.

90) The tenderer(s) shall carry out subsoil exploration / investigations at the site at his own cost wherever required and as per the directions of Site in-charge. Expenditure on this account will be deemed to have been considered in the rate quoted by the tenderer(s) .

91) Any recommendation / alteration in the work as per decision of Competent Authority of M.C.G.M. shall have to be executed under the same tender conditions.

92) No claim shall be entertained on account of delay in removal of encroachment.

93) It is observed that Contractors carrying out the work fail to comply with the instructions given by the A.M.C./M.C. during execution of work twice, the work shall be deemed to have been terminated and will be carried out at the risk and cost of the Contractors and penal action will be taken against them. This decision shall not be arbitrable at all.

94) The above condition will be in addition to the relevant conditions in General Conditions of Contract regarding cancellation of full or part of the work, finality of the decisions on the disputes, differences or claims raised by the Contractors relating to any matter arising out of the contract.

95) If concrete surface Finish of work is not as per specified class of finish (i.e F1, F2, etc.) and honeycombing is observed in the surface, penalty of Rs. 5000/- per Sq.m. will be imposed.

96) Any recommendation / alteration in the work as per decision of Competent Authority of M.C.G.M. shall have to be executed under the same tender conditions.

97) The tenderer(s) should note that the work shall be carried out preferably during day

time i.e. from 09.00 am to 05.00 pm only.

98) If the structures/encroachments including utilities coming in the alignment of the proposed work, the contractor shall have to arrange for the carrying out detail total station survey of the structures/encroachments at his own risk and cost and the tenderer(s) have to quote accordingly while bidding for the work. No separate payment will be made.

99) The contractors shall get the structures demolished from concerned Asst. Commissioner of ward for necessary working place to be made available for the subject work.

100) Even though the Tenderer(s) takes all the precautionary measures and by chance any workman is injured or dies due to negligence or otherwise, the Tenderer(s) will be responsible for the claims of damages by the workman or his legal heirs.

101) Web Connectivity: The Tenderer(s) shall provide web connectivity to all above monitoring system. Web connectivity shall have minimum 10 MBPS Internet speed & 100% availability. Software should be intelligent. In case of connectivity failure it should maintain the pending files and send them as soon as it is connected. The Tenderer(s) shall make sure that the entire software and hardware solution is virus free.

102) Tenderer(s) shall pay building & other building worker welfare Cess @ 1% of construction cost as per Maharashtra State building & other building welfare Cess act 1996 to the M.C.G.M. in consultation with C.A. (Finance).

a) Tenderer(s) should note that, there are only few access points in each Proposed work of this tender from where Machinery can be lowered for desilting work/ concreting work.

b) Tenderer(s) should note that, for inaccessible portion of proposed work of this tender the same shall be desilted manually by engaging adequate labour force and desilted material shall be conveyed up to loading point by head load.

c) If the contractor engages any machinery for collecting, carrying for lifting the silt from the Proposed work of this nalla system bed and if any damage appears to the nalla system bed or Retaining walls or any structure belongings to anybody due to impact of machines or due to any reasons the contractors will have to make good or such damages without any extra cost to M.C.G.M.

103) Since the work under reference is time bound the work will have to be carried out beyond the normal specified working hours. (09.00 am to 5.00 pm) the tenderer(s) should make specific provisions for this contingency.

104) The successful tenderer(s) shall provide lorries/dumpers & machineries as per prevailing norms of Mumbai RTO dept.

105) The silt must be transported within 48 hours to the specified dumping ground. However, in case of main roads, the silt will be transported by deploying vehicles immediately. The said vehicles shall be water tight. The wet silt shall not be allowed to drip out on the road during transportation.

106) If the tenderer(s) is lowest in more than one bid, independently qualifies the PQ criteria of corresponding bid where he is lowest and has sufficient bid capacity to bid then in such cases more than one tender can be awarded to such bidder. However, final decision in this regards shall be with Municipal Commissioner

107) Cost of Tendering-

The tenderer(s) shall bear all costs associated with the preparation, submission and uploading of his Tender, and the M.C.G.M. will in no case be responsible and liable for those costs.

108) Work Records: -All specified up to date site record should be maintained by the contractors. If the Tenderer(s) fails to comply with this condition, the penalty of Rs.1000/- per day per record will be imposed on the contractors.

List of Registers	
Sr. No.	**Name of Register**
1.	Inventory Register
2.	Correspondence file
3.	External & internal utility remarks file
4.	File containing drawings
5.	Daily Progress Register
6.	Instruction Register
7.	Level Book
8.	Mix design file
9.	Materials Testing Result file
10.	Photograph file
11.	Excavation Register (Asphalt , rock, soil etc)
12.	Filling/Embankment Register
13.	Granular Sub-base / K.T.R.Register
14.	Wet mix Macadam ./ Water Bound Macadam .Register
15.	Sand Metal Filling Register
16.	Misc work register
17.	M 15 CC Register

List of Registers	
Sr. No.	**Name of Register**
18.	M 20 CC Register
19.	M 40 CC Register
20.	M15,M20, M35/M40 Cube & Beam registers
21.	Ready Mix Concrete Challan file
22.	Cement Variation Register
23.	Cement Register
24.	Asphalt macadam (mixes) register
25.	Dense Bituminous Macadam Register
26.	Asphalt concrete /Seal coat Register
27.	Asphalt challan file
28.	Penalty Register.
29.	Steel register
30.	Visual/ video recordings in form of CD's
31.	Form work shuttering register
32.	Precast register
33.	Any other register as per directions of Engineer in Charge.
NOTE :	**From above list the registers applicable for the specified work shall be maintained.**

109) **Minimum** 2 security guards round the clock shall be provided on every worksite. A penalty of Rs 500/- per security guard per shift will be levied if the same is not provided.

110) **Pre-bid meeting – (Applicable for tenders costing above Rs.25 Crores) :-**

a) The tenderer(s) or his authorized representative is invited to attend a pre-bid meeting as per the date, time and venue mentioned in the tender notice/header data.

b) The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

c) Any tenderer(s) requiring any clarification of the tender document and/or the works may submit his questions in writing to reach the office of **Chief Engineer (SO)** at least 2 days before the meeting.

d) The text of the questions rose (without identifying the source of enquiry) and the response given will be circulated/informed vide addendum on M.C.G.M. portal /displayed on Notice board of respective Zonal office within 7 days. Any modification of the tendering documents, which may become necessary as

a result of the pre-bid meeting, shall be made by the M.C.G.M. exclusively through the issue of an Addendum and not through the minutes of the pre-bid meeting.

e) Non-attendance at the pre-bid meeting will not be a cause for disqualification of tenderer(s).

111) Payment Schedule:

Upto 80% payment of completed work will be released for respective month to the contractor as per actual measurement. Remaining 20% or more will be retained and will be released after successful trial run and commissioning of work. Further Breakup schedule for individual Mile stone shall be submitted by Contractor. The following schedule is only for the reference purpose for contractor and successful bidder to submit his own schedule of construction sequencing program i.e. PERT and CPM etc. and Payment break up as per his own schedule for execution and payment purpose shall be submitted to Engineer incharge for approval.

For Kranti Nagar (1.5 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(A)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(A)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %

Milestone III(A)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals) , 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(A)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Kranti Nagar (2 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(B)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(B)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in	From 4th to 16th month	35%	A. 30 %

	GA Drawings.			
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(B)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(B)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Appapada Kurar Nagar, Gokul Nagar (4 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(C)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(C)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 2 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(C)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals)10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(C)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %

	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Muslim cemetry near kurar culvert, Durga Nagar (3.5 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(D)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(D)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(D)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %

Milestone IV(D)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Mahindra Green Gate (1.5 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(E)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(E)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(E)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %

	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(E)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Thakur parking plot (8 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(F)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(F)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %

Milestone III(F)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(F)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Near poisar subway, Gaon devi, Bihari Tekdi (4 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(G)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(G)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %

	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(G)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(G)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Opp. Poisar Gymkhana, Tulaskar wadi (3 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(H)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %

Milestone II(H)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(H)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(H)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Irani Wadii (4 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(I)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %
	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %

	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(I)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(I)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(I)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

For Laljipada kandiwali west, Sanjay Nagar (2 MLD) and related infrastructure				
Milestones	**Description**	**Schedule**	**Weightage %**	**Breakdown of Weightage**
Milestone I(J)	A. Submission of detailed Survey and soil investigation report	First 3 months	2%	A. 20 %

	B. Process Design, NOCs and approval of STPs and all engineering components.			B. 70 %
	C. Getting design third party vetting from IIT/ NEERI (Fees of IIT/ NEERI shall be borne by the MCGM for design)			C. 10 %
Milestone II(J)	A. A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals), with 1 no of interceptors and reinstatement of road/trench as shown in GA Drawings.	From 4th to 16th month	35%	A. 30 %
	B. Construction of STP platforms and wet wells as per approved design			B. 70 %
Milestone III(J)	A. Providing and laying approx. 2% of Sewer line length along with house connections (laterals), 10% of service road length , 10% of Road side drain length and reinstatement of road/trench as shown in GA Drawings.	From 17th to 28th month	35%	A. 35 %
	B. Construction of STP superstructures and installation of STP equipments/instruments.			B. 65 %
Milestone IV(J)	A. Providing and laying approx. 4% of Sewer line length along with house connections (laterals) and reinstatement of road/trench as shown in GA Drawings.	From 29th to 36th month	28%	A. 40 %
	B. Implementation, Commissioning and testing of Automation / scada and control system.			B. 60 %

The payment to the Contractor will be as follows for construction work:

A bill shall be submitted by the Contractor as per approved milestones for all works

executed. Engineer In-charge shall take or cause to be taken requisite measurement for the purpose of having the same verified and the claim, so far as it is admissible, shall be adjusted, as per MCGM procedure.

The payment to the Contractor will be as follows for O&M work:

A bill shall be submitted by the Contractor monthly for O&M works. Engineer In-charge shall take or cause to be taken requisite measurement/documentation for the purpose of having the same verified and the claim, so far as it is admissible, shall be adjusted, as per MCGM procedure.

112) MCGM reserves right to split the tender in two or more contractors.

113) Contractor has to test samples from each STP **weekly and as an when required** from **NABL** accredited laboratory at his own cost.

114) For "INTERNAL GRIEVANCE REDRESSAL MECHANISM" refer circular No. D.M.C./CPD/3217 of 02.03.2019.

115) **Performance Guarantee -**

A) Construction Work:

The contractor shall submit a performance guarantee equivalent to 2% of work cost in the form of cash/DD/Pay order/Bank Guarantee from MCGM approved bank in the prescribed format as per MCGM procedure. The performance guarantee for the work shall be returned after successful completion of Defect Liability Period (5 years) from the date of commissioning of the plant.

B) O&M:

The contractor shall submit performance guarantee at 2% of operation cost for 3 years in the DLP period and further Operation & comprehensive maintainance cost of three years of the schedule. The performance guarantee can be paid in the form of cash/DD/Pay order/ Bank Guarantee from MCGM approved bank in the prescribed format as per MCGM procedure. The performance guarantee shall be refunded to the contractor after successful completion of work for those three years and submission of **Performance guarantee for next 3 years.**

The bank Guarantee for succeeding three years shall be submitted before 15 days of the completion of work of current period of three years.

The final performance guarantee shall be refunded after satisfactory completion of work for the period or handing over of machines or finalization (payment) of final bill

whichever is later. If the bank guarantee is not renewed before starting of next consecutive year, it shall be forfeited by MCGM.

Performance Guarantee is applicable over and above the clause of Security Deposit. Performance Guarantee will have to be paid as one complete B.G. & 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 receipt of Letter of acceptance.

116) Refer this as GCC claue no 59:

The bid shall be rejected if the bidder-

a. Stipulates the validity period less than 180 days.

b. Stipulates own condition/conditions.

c. Does not fill and (digital) sign undertaking forms, which are incorporated, in the document.

d. If it is revealed (notwithstanding the Technical bid evaluation) that the Technical Bidding Forms of the Bidder(s)fails substantially to meet the provisions in the Bidding Documents, such bids shall be treated as non-responsive and rejected.

If a Financial Bidding Form is not substantially responsive or not conforming with Technical Bidding Forms submitted by Bidder or technical or financial criteria set by Authority, it will be rejected by Authority, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

117)

a) Online analyzers and instruments used to monitor critical control points, treatment processes, and water quality parameters shall be calibrated and checked for proper functioning at prescribed intervals based on manufacturer recommendations.

b) The purveyor shall develop an equipment and instrumentation record-keeping policy that includes maintenance and calibration history, analytical results, process control system set points and alarms, and training records. Records should be maintained for a period of not less than 5 years.

c) A documented procedure to respond to alarms and events shall be developed, implemented, and maintained. Process control monitoring and CCP set points,

alarms, and event and other identified process control system functions shall be established to ensure the treatment system is reliably meeting performance goals and must allow adequate response time.

d) Practical operability, regulatory limitations, response time and monitoring resolution, and data validation should be considered while establishing set points and critical limits. The set points will include levels at which the downstream treatment facility operators must be notified of a significant change in water quality.

118) The Bidder whose Bid is adjudged as responsive in terms technical and financial requirements of this tender and who's assessed Bid Price is the lowest, shall be declared as the selected Bidder (the "Selected Bidder – L1").

a. In case of Equal Rate 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 done by IT department in MCGM's SRM system. Till such development is made; 'Sealed Bids' shall be called from the bidders quoting the same rates i.e. L1.

b. 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 Ch.Eng.

c. In the event that the lowest Bidder withdraws or is not selected for any reason in the first instance (the "First Round of Bidding"), the Authority may invite all the remaining Bidders to revalidate or extend their respective Earnest Money Deposit, as necessary, and invite Second lowest bidder-L2 match the Bid of the aforesaid lowest Bidder-L1 (the "Second Round of Bidding"). If in the Second Round of Bidding, Second lowest Bidder-L2 matches the lowest Bidder-L1, it shall be the Selected Bidder.

d. In the event that Second lowest Bidder-L2 reject the offers to match the lowest Bidder-L1 in the Second Round of Bidding as specified in Clause 3.c the Authority may, in its discretion, invite fresh Bids (the "Third Round of Bidding") from all Bidders except lowest Bidder-L1 of the First Round of Bidding, or annul the Bidding Process, as the case may be.

119) Maintenance Retention fund

During the Operation Service Period, a Maintenance Retention Fund shall be created by deducting five percent (5%) from the value of each interim payment, determined

by the Employer's Representative, due to the Contractor, commencing with the first payment following the issue of the Commissioning Certificate, and continuing until the last Interim Payment Certificate is issued or until the amount in the Maintenance Retention Fund has reached to the value of 10% of capital cost , whichever is the earlier. If the Contractor so chooses, the Maintenance Retention Fund may be replaced by a Maintenance Retention Guarantee in a form and with an entity approved by the Employer. However, the value of the Guarantee shall not exceed the maximum amount of the Maintenance Retention Fund stated in the Contract Data. The Contractor shall ensure that the Maintenance Retention Guarantee remains valid and in force until the issue of the contract completion certificate.

If the maintenance required under the Contract has not been carried out, the Employer may, after giving due Notice to the Contractor, carry out such maintenance himself and apply any amounts standing to the credit of the Maintenance Retention Fund in so doing. Where such amounts are insufficient to cover the Employer's whole cost of carrying out the maintenance, the unrecovered costs shall be set off against any payment due to the Contractor under the Contract, or to the extent that no such payment is due, shall become a debt due by the Contractor to the Employer.

Following the issue of the Contract Completion Certificate, all funds remaining in the Maintenance Retention Fund shall be included in the Final Payment Certificate Operation Service and paid to the Contractor with the final payment.

120) Bidders are requested to submit the cost breakup of asset replacement value & replacement schedule (for STP works) in separate sheet attached as **Annexure K**. It shall be sealed and submitted to office of EE Mech. (Sew.) Malad Zone at DN Nagar, Andheri West which will be opened along with Packet 'C' in presence of interested bidders/vendors and Accounts Officer.

121) HANDBACK REQUIREMENTS

121.1 General

At the end of the Operation Service Period the Contractor shall handback the Works to the Employer.

Nine Months before to the end of the Operation Service Period the Contractor shall carry out final repairs to the Works. These shall include repainting as necessary and making good any defects or damage. The Contractor shall replace all spare parts and consumable stores used in the Works.

The Works shall be handed back in a condition which would permit the Works to receive influent, treat and dispose of effluent subsequent to Handback in accordance with the standards required by the performance requirements (assuming that the Works are operated and maintained in accordance with the Operational Specifications and Maintenance Specifications).

The whole of the Works shall be handed back in a clean and maintained state and in full operation and good working order.

The Plant and Materials shall have been maintained in accordance with the Maintenance Management Plan.

121.2 Residual Life and Planned Asset Replacement at Handback

The Contractor shall manage the scheduling of the replacement of assets such that there are no planned replacements (as identified in the Modified Asset Replacement Schedule) during the 2 years following Contract Completion. The Contractor, at the time of bidding, will be responsible to ensure the completeness and adequacy of his Bid Price to fulfill the entire responsibilities as described above. His bid price, as quoted on a yearly basis in the Schedule of Prices, shall include all costs for handing over.

121.3 Notification of Expiry of the Operation Service Period and Joint Inspection

The Employer shall notify the Contractor of the intended date for the expiry of the Operation Service Period not less than12 months before the said date.

Upon receipt of the Employer's notification and in accordance with the Conditions of Contract, the Contractor and the Employer's Representative shall carry out a joint inspection of the Works to identify any defects, damage and plant replacements that may be necessary prior to the expiry of the Operation Service Period.

The Contractor shall provide a programme for making good the defects and damage and replacing items of plant, all as identified in the joint inspection, for approval by the Employer's Representative.

The Contractor, Employer's Representative and engineer in charge along with appointed agencies for the O&M for the same plant on the expiry of the present contract will carry out further joint inspections at intervals not exceeding 3 months. They will assess the Works condition and operation, progress with the implementation of the above measures and identification of any further measures to be implemented.

Shortly before Handback of the Works the Contractor and the Employer's Representative shall carry out a final joint survey of the Works. A schedule of minor defects shall be compiled by the Contractor and submitted to the Employer's Representative. Upon the Employer's Representative being satisfied regarding such final inspection, and subject to the Contractor having successfully completed the Tests Prior to Contract Completion, the Employer's Representative shall issue to the Employer and the Contractor a Contract Completion Certificate stating any minor works remaining to be completed. The Employer shall thereafter be responsible for the care, safety, operation, servicing and maintenance of the Works.

121.4 Tests Prior to Contract Completion

Duties and Responsibilities

All cost for the examination, tests and preparation of any documents of the activities shall be the Contractor's responsibility.

The Contractor shall provide all necessary labour, materials, and fuel required for tests.

- Conduct Joint Inspection Prior to Contract Completion:
  To verify the condition of Works / Facilities at the end of 15 years of operation and maintenance for identifying damaged works, replacements and other works to be carried out to satisfy the requirements of Operation and Maintenance Plan, a joint inspection will be carried out by the Engineer, Employer and contractor.
- Conduct Tests prior to Contract Completion:

To verify the plant condition and performance of plants including pumps, blowers, valves, gates, cranes and other equipment at the end of 15 years of operation and maintenance, Contractor shall conduct all the required Tests prior to Contract Completion. The contractor is responsible to conduct annual inspections of cranes & other lifting equipment, pressure vessels and other equipment as required by law/Govt. of Maharashtra

Specifications

The specification of materials used for repairs shall be the same as have been used in the original work. Specifications for any materials which were not used during construction shall be approved by the Employer's Representative

Table: Items to be examined at the 12 months prior to end of O&M Period

Sr. No	**Items**	**Description**
1	Appearance test /Visual examination (Damage/crack, differential settlement, soil settlement, peel f painting, missing/lost, leakage of water/solution/gas, corrosion, condition of structures, others)	All Civil structures, Bridges, platform, building Including interior/exterior, fence/gate, stairs, others All Mechanical & Electrical equipment/accessories, others All Pipe line valves and gates, others All Instrumentation and Control equipment, others
	Performance examination (Selection of operation mode, selection of facilities,	Check Sequence, or Manual operation includin g water level, pressure sensors/protections, others Check specification of all Mechanical

Sr. No	Items	Description
2	flow/water level, overflow, vibration/noise level, speed of pump/motor,smoothness, gap/spaces, accuracy, setting value, condition of structures, others)	equipment including pressure and water level gauges, pressure relief valves, others Check specification of all Electrical equipment, Others Check specification of all Pipeline including valves, gates, others Check specifications of all Instrumentation and Control equipment, others Check specification of all accrual condition after troubleshooting, others Performance tests of pumps, blowers and other equipment
	Verification of rectified works (System, leakage, crack, damage, soil settlement, corrosion, others)	Check a list of all defect items, history, tendency, repeating, others Check a list of all miss operation and maintenance items, others Check all factors of defect / miss operation , others Verification of action on the take measures, others Verification of all rectified works with the reports and photo, others
3		Check emergency works and its factor, action plan, others Check actual condition after rectified works, others
	Operation skill (Staff member,	Review of summary reports on O&M activities Check time and motion of staff member, others Interview operator regarding troubleshooting, others

Sr. No	Items	Description
4	others)	Paper test (basic knowledge, calculation of chemical dosing, safety, others) Field test (using/put on the safety gear, drill of chlorine leakage accident, others)
5	Waste Water analysis (Sampling and analysis, others)	Location of sampling and time, and date Raw sewage and treated sewage All each process Authorized certificate
		Check inventory list (parts, chemical, reagent, others)
6	O/M Record	Check the quantity of inventory, others Check maintenance tools and equipment, vehicle, others
7	Spare parts and others	Check inventory list (parts, chemical, reagent, others) - Check the quantity of inventory, others Check maintenance tools and equipment, vehicle, others

121.5 Training of the MCGM Staff and Handing over Agency/ Operators

The Contractor shall provide formal training and hands-on experience to the Training of the MCGM Staff and Handing over Agency/ Operators during the last twelve months of the Operation Service Period.

121.6 Sewage Treatment Plant and Terminal Sewage Pumping Station's Ancillary Works

(i) Make gardens and plantation in the campus area green, neat and tidy with removal of shrubs, weeds, grass and unwanted vegetation and make pruning, trimming and cutting of old big trees from the Plant Area along with.

(ii) Reinstate the roads and lighting fixtures and lighting circuits in campus to it original state.

(iii) Make good and in working condition for lighting fixtures and lighting circuits, water supply facilities in Treatment plant, Sewage Pumping Stations, offices and other buildings.

(iv) The Contractor shall carry out ordinary repairs to buildings. The repairs may include but not limited to the following items:

  (a) Easing of doors and windows, monsoon repairs to roofs, attention to drains, rain water spouts, attention to plinth protection.

  (b) External white or color wash, external or internal painting, internal distempering, renewal of approach roads within the campus.

(v) Any faults in the electric installation, leakages, earthing, exposed wire ends and any hazards on this account to the users/inmates of the buildings, should be taken care of suitably, wiring, which is damaged or outlived, should be replaced.

(vi) Damaged sanitary lines should be replaced and choked lines cleared.

(vii) Proper drainage of the area around the building should be ensured to avoid stagnation of rain water/ house effluent, in order to prevent malarial conditions. Where courtyards exist in the buildings, their drainage into the outer drains should be ensured. Any choked drains should be cleared properly.

(viii) Leaking roofs should be attended to immediately with suitable repairs/ treatment, as the case may be. The rain waterspouts should also be cleared of blockages, etc. The roof should be swept clean of leaves, debris, etc., if any.

(ix) The plaster on outer walls of the building, which is exposed to weather, should be repaired before rains in order to prevent dampness inside. Where plinth protection has been provided, it should be checked and the damaged portions, if any, should be repaired before rains.

(x) Damaged flooring should be repaired/ replaced as per requirement, in order to prevent dampness inside the rooms, etc. during rains.

(xi) Repairs of damaged floors, door/window fittings, water taps, water coolers, furniture, desert coolers, electric circuits, must be taken up on complaints using the material of same quality as used during construction.

(xii) Pump House ventilation system to be checked for effective heat dissipation from the Pump Motors and Electrical Equipments.

121.7 ICA Checks to be done during handover after O&M Period for STP and TSPS under this contract

(i) Contractor to provide a test schedule and format to be approved by the engineer before commencing any of the tests.

(ii) Functional Checking of all Laboratory instruments and ICA equipment including flow meters, pressure and level instruments, vibration monitoring instruments, and wireless equipment being used for communication.

(iii) Loop checks will be conducted.

(iv) All instrument cabling shall be inspected for continuity. If found faulty, the same shall be replaced and demonstrated.

(v) All instrumentation cable conduits shall be checked for damage. If found faulty , they should be rectified or replaced and sealed to the satisfaction of the engineer

(vi) Visual operational checks of all the Panels including PLC panel, SCADA system, and interface control panel, and Surge Control Panel.

(vii) Licensing feature of PLC, SCADA software and hardware shall be demonstrated.

(viii) Functional check of set points change at HMI/SCADA and it's downloading to PLC's concerned.

(ix) Hot-standby feature of PLC and hot swappable feature of I/O modules shall be demonstrated. If found to be faulty/non-operational, shall be rectified and if required replaced to normal working condition and demonstrated to the client.

(x) Dual-redundant server feature of SCADA shall be demonstrated. If found to be faulty/non-operational, shall be rectified and if required replaced to normal working condition and demonstrated to the client..??

(xi) Functional check of data received/transmitted from remote stations shall be conducted in conjunction with SCADA.

(xii) Functional check of interface control panel to head office in conjunction with Master SCADA center at head office shall be conducted.

(xiii) Historical archiving of all data shall be demonstrated.

(xiv) Availability of memory for smooth operation of PLC, SCADA machines shall be demonstrated. If found to be in-adequate, the same shall be rectified /archived and demonstrated.

(xv) If any instruments and automation equipment are found to be faulty during the above tests, the same shall be rectified or replaced as necessary.

121.8 Final Documentation

Prior to the commencement of the Tests Prior to Contract Completion the Contractor shall submit minimum 3 sets of softcopies and 3 sets of hard copies of a final version of all the documentation to the Employer's Representative. This shall as a minimum be the documentation as per the Employer's Requirements apart from health and safety documentation required by legislation. It shall include inter alia up to date records of complete facilities.

The hard copies shall be spiral bounded clearly indicating the version/revision submitted. All the contents shall be indexed. The contents of completion documents shall be clearly legible and shall include original manufacturer's literature on a minimum, and in- corporate any changes as per site conditions.

The comprehensive updated operation and maintenance manuals (six sets) shall be submitted at the end of the operation and maintenance period.

Also, revised As-built drawings based on all modifications during O&M Period shall be submitted at the end of O&M period. It shall include all drawings of Interception diversion, Sewer System, Wet-well, Pumping system and treatment units(plan and all necessary sections), utility and ancillary buildings, site layout, and all other mechanical equipment GA drawings and piping, all electrical drawings like Single Line Diagrams, Schematic Diagrams, Control Circuits Equipment Layout, Cable Layout& Cable Schedules, Earthing Layouts and all ICA Drawings like P&ID, System configuration diagram (PLC & SCADA architecture), Instrument installation drawings, Instrument cable schedule, and cable layouts. And all structural drawings.

Six sets of the revised as-built drawings shall be submitted in hardcopies and softcopies (editable form).

Table : Minimum Documents to be handed over at the End of 15 Years O&M Period

Sr. No	Contents	Description
1	Outline	Outline - Summary of project, scope of work, location of project, main component with specification, others
2	Completion Photographs (At acceptance complete inspection, completion inspection and final inspection)	Photographs with short description - Civil (structural, buildings, others) - Mechanical, Electrical and I&C (equipment, Related facilities, others)
3	Inspection summary (At acceptance complete inspection, completion inspection and final inspection)	Piping works Appearance test /Visual/ Performance examination - Table of Summary of test activity based on daily and monthly - List of type of test, date, inspector, evaluation, comments - Civil (name of structure, drawing no., drawings, design dimension, previous dimension, actual dimension, others) - Mechanical (name of facility and equipment, tag no., quantity, others) - Electrical (name of facility and equipment, tag no.,

Sr. No	Contents	Description
		quantity, others) - Instrumentation and Control (name of facility and equipment, tag no., quantity, others)
4	Main inspection data (At construction)	Summary of data with graphic /chart - Civil (plate load bearing test, compressive strength test, compaction water retaining test, field test, road construction works in Treatment Plant, hydrostatic test, others) - Mechanical (disinfection test, others)
		- Electrical (earthing resistance test, others) - Instrumentation and Control
5	Inspection record (At acceptance complete inspection, completion final inspection and inspection)	Appearance test /Visual/ Performance examination/ Verification of rectified works for Civil, Mechanical, Electrical and ICA works
6	Training and commissioning Record	- Summary (Schedule of training and commissioning, attendance rate, impression on training program) - Training attendance list (participants, trainings date, others) - Commissioning daily record (Sewage flow rate of

Sr. No	Contents	Description
	(At first and second training program)	designed and actual, name of operated facility, list of measurement and its time and reading value, raw sewage and treated sewage quality, value of V/A/kW of each equipment, others) - Printed Media Video files (Content , with short description)
7	Sewage quality data (At acceptance Complete inspection, Completion inspection and final inspection)	citification Location of sampling and time, and date Raw sewage and treated sewage All Unit Process Issued from Authorized certificate
8	Operation and Maintenance manual (Civil, Mechanical, Electrical and ICA works)	Updated O&M Manual
9		
		-Sewage quality analysis data and production of electricity for complete O & M Period -Sludge and screenings handling amount -List of O/M record,
		Ledger and operation record -Various types of Ledgers and other plant organization charts and plant management records

Sr. No	**Contents**	**Description**
9	O/M records	-History of troubleshooting -O/M record of a process, unit operation and equipment - Mechanical (name of parts, tag no., quantity, location of stock, others) - Electrical (name of parts, tag no., quantity, location of stock, others) - Pipes & fittings (name of parts, tag no., quantity, location of stock, others)
		- Valve & Gates (name of parts, tag no., quantity, location of stock, others) - Instrumentation & Control (name of parts, tag no., quantity, location of stock, others) - Others (name of parts, tag no., quantity, location of stock, others)
10	Spare parts list	- Mechanical (name of parts, tag no., quantity, location of stock, others) - Electrical (name of parts, tag no., quantity, location of stock, others) - Pipes & fittings (name of parts, tag no., quantity, location of stock, others) - Valve & Gates (name of parts, tag no., quantity, location of stock, others) - Instrumentation & Control (name of parts, tag no.,

Sr. No	Contents	Description
		quantity, location of stock, others) -Safety equipment and devices including for staff and for testing - Others (name of parts, tag no., quantity, location of stock, others)
11	Key list with boxes	quantity Civil - Name of key, location, tag no., , (all related material: reinforcement bar, cement, aggregate, sand ,gravel, asphalt, crashed stone, chemical admixture, water reducing agent, pozzolana, water-tightness sheet, construction equipment, manhole, water-resistant coating, paint, windows, door, others) Mechanical (all related equipment; screens, pumps, blowers, and all sludge management components Chlorinators, scarper, conveyor, hopper, central drive & rotating mechanisms, pipes, valves, gates, pressure gauges, safety valves, safety equipment, flow meters, coating, painting, others) electrica - Electrical (all related equipment: l wire, electrical conduit, motor, control panel, relay, transformer, heater, generator and silencer, timer, breaker, light/lamp, switch, street light, earthing,

Sr. No	Contents	Description
		measurement equipment, air condition, communication equipment, electric pole, coating painting, ventilation fan, air duct, others) - ICA works (all related equipment, others) - Safety equipment - Others
12	Manufacture produced catalogue (Civil, Mechanical,Electrical And Instrumentation & Control)	- Civil (all related material: reinforcement bar, cement, aggregate, sand, gravel, asphalt, crashed stone, chemical admixture, water reducing agent, pozzolana, equipment water-tightness sheet, construction , manhole, water- resistant coating, paint, windows, door, others) Mechanical (all related equipment; screens, pumps, blowers, sludge management components, Chlorinators, scarper, conveyor, hopper, central drive & rotating mechanisms, pipes, valves, gates, pressure gauges, safety valves, safety equipment, flow meters, coating, painting, others) - Electrical (all related equipment: electrical wire, electrical conduit, motor, control panel, relay, transformer, heater, generator and silencer, timer,

Sr. No	Contents	Description
		breaker, light/lamp, switch, street light, earthing, measurement equipment, air condition, communication
		equipment, electric pole, coating painting, ventilation fan, air duct, others) - ICA works (all related equipment, others) - Safety equipment - Others
	Instruction manual	
13	(Civil, Mechanical, Electrical And Instrumentation & Control)	See above (11)
	Factory inspection record or Quality assurance (Civil, , Mechanical Electrical	- Civil (all related material: reinforcement bar, cement, aggregate, sand, gravel, asphalt, crashed stone, chemical admixture, water reducing agent, pozzolana, water-tightness sheet, construction equipment, manhole, water- resistant coating, paint, windows, door, others) - Mechanical (all related equipment; screens, pumps, blowers, sludge management components Chlorinators, scarper, conveyor, hopper, central drive & rotating mechanisms, pipes, valves, gates, pressure gauges, safety valves, safety equipment, flow meters, coating, painting, others) - Electrical (all related equipment: electrical wire,

Sr. No	Contents	Description
14	Instrumentation And Control)	electrical conduit, motor, control panel, relay, transformer, heater, generator and silencer, timer, breaker, light/lamp, switch, street light, earthing, measurement equipment, air - condition, communication equipment, electric - pole, coating painting, ventilation fan, air duct, - others) - Instrumentation & Control (all related equipment, others) - Safety equipment - Others
15	Photograph (During Operation & Maintenance period and joint completion (Civil inspection), Mechanical, Electrical, Instrumentation & Control)	- History of construction - Replacement of defect liability - Civil: construction site before starting - construction, earthwork, arrangement of bar, - cleaning before placing, formwork, concrete mixing work, placing, vibrating, curing, remove of formwork, backfill, al compaction, l field inspection and lab test, others - Mechanical: inspection at factory, receiving inspection, completion inspection, all field inspection and lab. test, others Electrical: inspection at factory, - receiving fiel

Sr. No	Contents	Description
		- inspection, completion inspection, all d - inspection and lab. test, others - Instrumentation and Control: inspection at
		inspection - factory, receiving , completion inspection, all field inspection and lab. test, others
16	Production samples (Civil, Mechanical, and Instrumentation & Control)	All samples for technical approval Attach Analytical instruments name, approved sign of the Engineer.
17	Report	Monthly and Annual report Others

122) INSPECTION, TESTING AND COMMISSIONING REQUIREMENTS

122.1 Inspection and Testing During Manufacture

122.1.1 General

Where relevant and required by Employer's Representative, provisions of this Part shall also be applicable during operation and maintenance of the plant/facilities (both existing and new) during Design Build Period of the contract.

a) All inspection and testing shall be carried out in accordance with the approved documents & Drawings and Specification. In absence of Specification relevant Indian Standard or internationally approved equivalent standard. After award of contract, Contractor shall furnish a QA plan for approval by Employer's representative. QA plan shall include testing for incoming supply of raw materials and bought out items, stage inspections and tests on finished products at manufacturer's works / appropriate testing station. QA plan shall clearly indicate tests which are

intended to be witnessed by the Contractor alone and those by both contractor and Employer.

b) Inspection and tests schedule shall be as follows;

- Manufacture tests
- Acceptance inspection / Quantity checking
- Install /site inspection
- Site acceptance test
- Tests on Completion
- Process Wet Tests (by Raw Sewage)
- Operation Test (Tests After Completion)
- Complete performance tests of Plant after 15-year Operation (Before plant handing over)
- Test furnished as per IS Code/manufacturer QAP

c) The Contractor shall carry out inspection of equipment at the place of manufacture, as per approved QAP.

d) The Employer and/or duly authorized and designated representative(s) shall be entitled to attend the aforesaid inspection and/or tests.

e) The Employer and his duly authorized representative shall have access to the Contractor's premises at all times to inspect and examine the material and workmanship of the mechanical and electrical plant and equipment during its manufacture there. Testing (including testing for chemical analysis and physical properties) shall be carried out by the Contractor and certificates submitted to the Engineer who will have the right to witness or inspect the above mentioned inspection /testing at any stage desired by him. Where inspection or testing is to be carried out at a subcontractor's works, a representative of the Contractor shall be present.

f) Contractor shall provide test procedure, pre-factory test results, and calculation sheet, photo in advance and provide all of test result with necessary document including its data and photo to show Engineer that test is carried out in proper condition and the its test results. Construction material shall be tested by contractor at the approved laboratory.

g) The procedure for the testing and inspection to be carried out during or following the manufacture of the materials to ensure the quality and

workmanship of the materials and to further ensure that they conform to the Contract in whatever place they are specified shall be as described below.

i) The Contractor shall give the Employer at least 21 clear days notice in writing of the date and the place at which any plant or equipment will be ready for inspection/testing as provided in the Contract. Prior to notice, contractor should submit pre factory test results . The Employer or his duly authorised representative shall thereupon at his discretion notify the Contractor of his intention either to release such part of the plant and equipment upon receipt of works tests certificates or of his intention to inspect. The employer shall then give notice in writing to the Contractor, and attend at the place so named the said plant and equipment which will be ready for inspection and/or testing. As and when any plant shall have passed the tests referred to in this section, the Engineer shall issue to the Contractor a notification to that effect after obtaining clearance from the consultants/engineer's representative.

ii) The Contractor shall forward to the Employer 6 duly certified copies of the test certificates along with characteristics performance curves/tables if any for all equipment obtaining dispatch clearance from the consultants/Engineer's representative.

iii) If the Engineer(s) fails to attend the inspection and/or test, or if it is agreed between the parties that the Engineer(s) shall not do so, then the Contractor may proceed with the inspection and/or test in the absence of the Engineer and provide the Employer with a certified report of the results thereof as per (ii) above.

iv) If any materials or any part of the works fails to pass any inspection / test, the Contractor shall rectify or replace such materials or part of the works and shall repeat the inspection and/or test upon giving a notice as per (i) above. Any fault or shortcoming found during any inspection or test shall be rectified to the satisfaction of the Engineer before proceeding with further inspection of that item. Any circuit previously tested, which may have been affected by the rectification work, shall be re- tested.

v) Where the plant and equipment is a composite unit of several individual pieces manufactured in different places, it shall be assembled and tested as one complete working unit, at the manufacturer's works.

vi) Neither the execution of an inspection test of materials or any part of the works, nor the attendance by the Engineer (s), nor the issue of any test certificate pursuant to (iii) above shall relieve the Contractor from his responsibilities under the Contract.

vii) The test equipment, meters, instruments etc., used for testing shall be calibrated at recognized test laboratories at regular intervals and valid certificates shall be made available to the Engineers at the time of testing. The calibrating instrument used as standards shall be traceable to National/International standards. Calibration certificates or test instruments shall be produced from a recognised/Laboratory for the Engineer's consent in advance of testing and if necessary instruments shall be recalibrated or substituted before the commencement of the test.

viii) Items of plant or control systems not covered by standards shall be tested in accordance with the details and program agreed between the Engineer and Contractor's Representative. If such materials or works are found to be defective or not conforming to the Contract requirements, due to the fault of the Contractor or his sub-contractors the Contractor shall defray all the expenses of such inspection and/or test and of satisfactory reconstruction.

ix) Tests shall also be carried out such that due consideration is given to the Site conditions under which the equipment is required to function. The test certificates shall give all details of such tests.

x) The Contractor shall establish and submit a detailed procedure for the inspection of materials or any part of the works to the Employer for approval within the date indicated in the Programme Details. The detailed procedure shall indicate or specify, without limitation, the following :

- Applicable code, standard, and regulations.

- Fabrication sequence flow chart indicating tests and inspection points.
- Detailed tests and inspection method, indicating the measuring apparatus to be used, items to be measured, calculation formula, etc.
- Acceptance criteria.
- Test report forms and required code certificates and data records. Method of sampling, if any sampling test to be conducted.
- Contractor's or Employer's witness points.

xi) The Contractor shall not pack for shipment any part of the Plant until he has obtained from the Employer or his authorised representative his written approval to the release of such part for shipment after any tests required by the Contract have been completed to the Employer's satisfaction.

xii) The following Inspection and Testing procedures shall be carried out for the equipment as per approved QAP.

The detailed procedure shall indicate or specify, without limitation, the following:

- Raw Material
- Visual Inspection/Appearance.
- Chemical and Mechanical property tests Dimension Checking
- Dynamic balancing for all rotating parts Stage inspection
- Hydrostatic / Leak testing for all pressure parts, Pneumatic Leak Test wherever applicable
- Repair procedure Operation check
- Procedure Qualification Record (PQR); Welding Procedure Qualification (WPQ) and Welders Qualification Report (WQR)
- Material Test
- Assembly/Connection Documentation

h) The Contractor shall maintain proper identification of all materials used, along with reports for all internal / stage inspection work carried out, based

on the specific job requirement and or based on the datasheets / drawings / specifications.

i) The All expenses incurred by the Engineer or his representative or persons nominated by the Engineer including third party in attending inspection/ re-inspection and tests of Plant carried out within India and abroad shall be borne by the contractor. Maximum two persons from Employer side will witness the Inspection and testing along with the contractor's representative. The expenses incurred during inspection shall include, all expenses but not be limited to all travelling, boarding, lodging including visa charges etc. Cost of inspection when material or any part of the facilities is not ready at the time specified by the Contractor for inspection or when re-inspection is necessitated by prior rejection shall also be borne by the Contractor

j) Witnessed testing may be waived on standard types of equipment such as small motors made by approved manufacturers, individual standardised instruments, small mass produced components used in the manufacture of Plant items, small bore pipework and fittings and minor installation materials. In order to remove doubt this shall not relieve the Contractor of his obligation under the Contract to ensure that all Plant is tested at the manufacturer's works prior to delivery to Site.

k) As a guide to the Contractor the Employer reserves the right to witness testing of the following but not limited to the following Plant items:

a) Electrical:

- o HT & LT Transformers
- o HT Metal enclosed switchboards & Switchgears.
- o 415 V Metal enclosed switchgears (PCC / MCC)
- o HT and LT Power capacitor and control panel
- o Uninterrupted power supply system
- o Battery, battery charger and DC Distribution Board
- o Variable Frequency Drives
- o Non Segregated Bus Duct o Power & control cables
- o Lighting System

- o Earthing and lightning system
- o Electrical Motors

b) Mechanical:

- o Storage and process vessels Clarifier and thickener bridges, drives, and sludge/scum mechanisms
- o Chemical dosing systems complete with pumps, Valves & tanks
- o Mixers, pumps and blowers including their motors ,Valve and penstock actuators
- o Valves o Pipes
- o Sluice Gates
- o Expansion/Dismantling Joints. o Weir Gates
- o Screens
- o Grit removal system
- o Sludge Management components and associated plant o Screw Pumps
- o Biogas Engine (If any)
- o Hydrolysis System (If any)
- o Fine Bubble Diffuser systems
- o Complete Disinfection System
- o Process Air Blowers
- o EOT Cranes and Hoists
- o MBR Equipment and Associated Plant.
- o Heat Exchangers
- o Hot water Boilers
- o Biogas scrubbers
- o Gas Flare Assembly , valves and safety Devices

c) Instrumentation and Control:

- o Level Measuring System
- o Pressure Gauges
- o Pressure Transmitter
- o Flow Measuring System
- o DO analyzer

o ORP analyzer
o Temperature Measuring System
o Residual Chlorine Measuring System
o Instrumentation and Control Cables
o Instrument Control Panel
o Programmable Logic Controller
o SCADA / HMI System
o Uninterruptible Power Supply System
o Wireless GPRS gateway testing
o FAT & SAT for complete ICA system

2. l) All destructively tested samples shall be replaced with new.
3. m) The Employer reserves the right to be present during the testing and inspection of all Plant items.

122.1.2 Materials, Plant, and Equipment

The Contractor shall submit the detailed technical and its drawings from the approved manufacturer and the procedure of submission, review and revision shall be as specified herein below.

The Contractor shall inform the Employer about the likely dates of manufacturing, testing, and dispatching of any material and equipment to be incorporated into the Permanent Works. The testing and approval for dispatching shall not absolve the Contractor from his obligations for satisfactory performance of the plant.

Dispatch Clearance

All mechanical/electrical/instrumentation equipment shall be tested at their respective factory which will be witnessed by parties (viz.Contractor, Client/ Consultant inspecting team) in line with approved QAP and Equipment Data sheet.

The test observation sheets, material tests certificates (chemical and mechanical test at laboratory) and joint inspection report shall be signed by the Contractor, Client/Consultant officials after successfully completion of tests.

Contractor shall forward all original reports to Client and copy to Consultant for verification and issuances of Dispatch Clearance Certificates as per clause **122.**1.1 g (ii).

122.1.3 Factory Acceptance Test (FAT) Document

Twenty One (21) days prior to commencement of inspection of each Plant item / equipment the Contractor shall supply a Factory Acceptance Test (FAT) Document for approval. This shall comprise two copies of the following:

- Details of the inspection and test procedures to be carried out.
- Pre-factory test results and its photos.

The FAT Plan shall provide comprehensive details of the tests to be carried out, the purpose of each test, the equipment to be used in carrying out the test and the methods to be adopted in carrying out the tests. The FAT shall provide space within the documentation for results of the tests to be added and for each test and for the FAT as a whole to be signed off by the Contractor and the Engineer.

On completion of the tests the Contractor shall provide two copies of all test certificates, curves etc. for the inspected Plant item. To remove doubt, test certificates shall be provided for the Plant item as a whole plus certificates for the relevant component parts such as:

- Motors;
- Mixers, pumps and Blowers; Instruments;
- Gear boxes;
- Electrical switchgear
- Integral control and switchgear panels;
- Valve gear;
- Castings.
- Actuators
- Cranes and Hoists
- Screens
- Grit Removal System

- Diffusers
- Storage and process vessels
- Pumps /blowers
- Air blowers
- Centrifuge Decanters
- Chlorinators
- MBR Equipment, membrane cartridges, all other associated equipment and Plant
- Heat Exchangers
- Hot water Boilers
- Biogas scrubbers
- Gas Flare assembly, valves and safety devices
- Biogas Engine
- Hydrolysis System

122.1.4 Inspection and Testing Program

The Contractor shall submit to the Engineer not later than 21 days prior to the commencement of the first inspection and test during manufacture a program detailing the inspection dates for all Plant. Those items of Plant that the Engineer has specifically identified for witness testing test shall be highlighted in the programThe Contractor shall keep the Engineer informed of any changes to the program. The Engineer shall not be requested to inspect an item of Plant until the Contractor has satisfied himself that the equipment meets all requirements of the Employer's Requirements.

The Contractor shall inform the Engineer in writing at least 21 days in advance regarding readiness for carrying out inspection of equipment/material etc. at manufacturer's works or at places of inspection. The programme for inspection shall be finalised by the Engineer after the receipt of the above case equipment/material etc. is found not to comply with the specification, dates for re-inspection shall be finalised and expenses incurred by the Employer for such visits shall also be recovered from the Contractor.

Contractor's Representatives shall essentially be present during all inspections of Plant items. The following information shall be given in the inspection call letter mentioned above:

- Name of manufacturer/supplier;
- Address of place where inspection is to be carried out;
- Proposed date/s and equipment to be inspected;
- Name/s of contact personnel at manufacturer's/ supplier/s works with their telephone and fax numbers.
- Name of Contractor's Representative who will be present during the inspection.
- Confirmation that internal testing has been completed. Submission of internal testing report for review before visiting the plant

The Contractor shall provide all the necessary instruments, test facility, water / electric power, test piece, samples, engineers/ workers, all cost and others to carry out the tests after assembly. All instruments used for such tests shall be calibrated and certified by and approved by an independent testing authority not more than one year prior to the tests in which they are used. Calibration certificates with expire date and name of authorization agency for instruments used for such tests shall be produced for the approval of the Engineer and if necessary, instruments shall be recalibrated before the commencement of the tests.

No material shall be delivered to the Site without Dispatch clearance certificate having been carried out or waived in writing by the Engineer.

If during or after testing, any item of plant fails to achieve its intended duty or otherwise proves defective, it shall be modified or altered as necessary and retested and re-inspected as required by the Engineer.

122. 2 Tests at Manufacturer's Premises – Mechanical Equipment

As per approved QAP and relevant code.

122.3 Chlorination and Gas Pipeline System

a) All items of plant shall be tested at manufacturer's works and test certificates shall be provided.

b) All chlorine gas piping from chlorine drums to chlorinator shall be pressure tested with dry air/nitrogen to a pressure of 15 kg/sq.cm.

c) The chlorine gas piping from the chlorinators up to injectors shall be pressure/ vacuum tested with dry air/nitrogen to a pressure/vacuum equal to 1.5 times the maximum pressure/vacuum to be encountered during operation.

d) The motive water piping shall be hydrostatically tested for a pressure of 1.5 times the operating pressure or the maximum pump discharge pressure at pump shut off whichever is higher.

e) After the chlorine system has been completely tested as above leak tests shall be conducted admitting chlorine gas. Leakages if any shall be identified using ammonia stick. During this test all chlorine leak detectors shall be in place and all safety procedures shall be adhered to.

f) Gas cylinder shall provide the pressure test certificate issued by authority and manufacture year.

g) Chlorine gas detector sensors shall be tested, and results shall provide to the Engineer.

h) Ventilation system. The ventilation fans shall be tested at manufacturer's works to verify the design flow and pressure.

i) Process Plant Items. All process plant items shall be tested to ensure they meet the Employer's Requirements for inlet and outlet quality of workmanship, construction and system performance.

122.4 Mechanical Equipment Test at Site

All mechanical equipment shall be tested at site as following items in bellow,

a) The test will be verified any damage/missing part, No. of equipment to be installed, material, location as specified in drawing, levelling, centerline, solid installation and condition of installation to be fit in levelling of pipeline and valves.

b) Testing run will be conducted for verifying rotation direction, vibration, noise, and stability and any leakage, if possible.

c) The test will be verified to check maintenance space and ease of equipment maintenance work.

d) The testing shall be performed in full compliance with the latest version of the applicable standard testing protocol. These tests shall be witnessed by

Engineer per procedures set forth for witnessing elsewhere in this document.

122.5 Plant Tests at Site

a) In addition to the progressive supervision and inspection by Engineer, the Contractor shall offer for inspection to Engineer, the completely erected plant/part of Plant on which tests are to be carried out. After such inspection, each equipment/sub-system shall be tested by the Contractor in accordance with the applicable standards in the presence of Engineer. Such tests shall include but not be limited to the tests specified in following clauses.

b) The Contractor shall possess during the entire working period the Electrical Contractor's licence of appropriate class from the concerned statutory authorities governing the area of work place. The Contractor shall fully comply with the relevant statutory rules and regulations. On completion of the installation or at intermediate stages, if required by the statutory authorities, the Contractor shall arrange for inspection and obtain the approval from the concerned statutory authorities. If any fees are to be paid to statutory authorities for testing, inspection and calibration these shall be paid by the Contractor and shall be included in his erection and commissioning charges.

122.6 Pumps, Piping and Valves

a) The erected pipe work shall be subjected to a hydraulic test at 1.5 times the maximum pressure or twice the working pressure whichever is higher to test the soundness of the joints. Provision of the necessary pumps, gauges, blank flanges, tappings etc. for carrying out these tests shall be included in the Contract. All gas piping shall be air tested to twice normal working pressure.

b) Leakage tests shall be carried out on all erected pipework, pumps and valves immediately after erection and where possible before being built in.

c) Operating tests shall be conducted on valves.

d) The pump set shall be tested for satisfactory operation. The vibration and noise level shall be checked to be within the specified limits.

122.7 Motors

Condition of winding insulation be tested and insulation values shall be restored to required level by suitable heating arrangements locally.

122.8 Cranes

The crane and lifting tackle shall be tested to 125% of the safe working load. The Contractor shall arrange the test load. The contractor shall also arrange for the appropriate certificates from the concerned authorities before regular use of the cranes and other lifting equipment.

122.9 Screens and Grit Removal System

After erection, all screens and Grit removal system shall be tested for smooth operation and capability to handle typical wastewater solids and grits including stringy materials. Clearance between the dead plate and tines shall be checked as applicable.

122.10 Gates and Penstocks

a) Leakage test shall be performed by the Contractor after installation of all Gates.
b) Under the design seating head and unseating head the leakage shall not exceed the limit specified in applicable IS/ International codes, for shop testing.

122.11 Laying and Joining of Reinforced Cement Concrete Pipes

a) After laying and jointing of RCC pipes is completed the pipe line shall be washing out with sufficient water and be tested at work site as per the Employer's Requirements and as directed by the Engineer. All equipment for testing at work site shall be supplied and erected by contractor. Water for testing of pipes shall be arranged by him. Damage during testing shall be contractor's responsibility and shall be rectified by him to full

satisfaction of the Engineer. Water used for the test shall be removed from pipes and not released to the excavated trenches.

b) After the joints have thoroughly set and have been checked by the Engineer and before back filling the trenches, the entire section of the sewer or storm water drain shall be proved by the contractor to be water tight by filling in pipes with water to the level of 1.50m above the top of the highest pipe in the stretch and heading the water up for a period of one hour.

c) The apparatus used for the purpose of testing shall be approved by the Engineer. Contractor if required by the Engineer shall dewater the excavated pit and keep it dry during the period of testing. The loss of water over a period of 30 minutes should be measured by adding water from a measuring vessel at regular 10 minutes intervals and noting the quantity required to maintain the original water level. For the approval of this test the average quantity added should not exceed 1 litre/ hour/100 linear metres / 10mm of nominal internal diameter. Any leakage including excessive sweating which causes a drop in the test water level will be visible and the defective part of the work should be removed and made good.

d) In case of pressure pipeline, the completed stretch of pipeline shall be tested for site test pressure. The site test pressure should not be less than the maximum operating pressure plus the calculated surge pressure, but in no case should it exceed the hydrostatic test pressure as specified in IS:458.

122.12 Laying and Joining of Steel Cylinder Pipes and Specials

a) After laying and jointing of steel cylinder pipes and specials with concretelining and coating is completed the pipeline shall be washing out with sufficient water and be tested at work site as per the following Employer's Requirements and as directed by the Engineer. All equipment for testing at work site shall be supplied and erected by Contractor. Water for testing of pipes shall be arranged by him. Damage during testing shall be Contractor's responsibility

and shall be rectified by him to the full satisfaction of the Engineer. Water used for test shall be removed from pipes and not released to the excavated trenches.

b) Each section of the pipe line shall be slowly filled with clean water and all air shall be expelled from the pipeline. The pressure in the pipeline should then be raised and maintained by means of pump to the test pressure. The test pressure should not be less than 1 1/2 times the working pressure at the lowest point or the static head pressure, whichever is higher. Under the test pressure no leak or sweating shall be visible at the welded joints. The duration of test shall be not less than 24 hours. The exposed joints shall be carefully examined and all such joints showing visible leaks shall be rewelded. Any cracked or defective pipes and specials in consequences of this pressure test shall be removed and replaced by sound material by Contractor and the test shall be repeated to the satisfaction of the Engineer.

c) Hydrostatic shop test for pipes and fittings shall be as per code/standard requirement. After erection at site, complete pipes and fittings shall be hydrostatically tested for a pressure of 1.5 times operating pressure.

d) Where directed by the Engineer welded joints on pipes larger than 675 mm diameter shall be subject to a nitrogen gas test after welding.

e) A tapped hole (approximately 6 mm diameter) shall be made in the socket end of each pipe by the Contractor and shall be fitted with a suitable non-return valve. Nitrogen, at 400 kPa pressure, shall then be pumped into the annular space between the spigot and socket and the pump disconnected.

f) If no drop in pressure occurs over the ensuing period of 30 minutes the test shall be deemed to be successful. If the test pressure cannot be maintained for 30 minutes all defects in the weld shall be cut back and rewelded and the test reapplied until successful. The cost of initial and subsequent testing of defective welds shall be at the Contractor's own expense.

g) The Contractor shall provide all items necessary for the nitrogen tests including compressor, valves, gauges and tubing.

122.13 Laying and joining of Cast Iron, Ductile Iron Pipes and Fittings

a) After the pipes and fittings are laid, jointed and the trench partially backfilled except at the joints the stretch of pipe line as directed by Engineer shall be subjected to pressure test and leakage test after washing the pipe line out with sufficient water.

b) Where any section of the pipeline is provided with concrete thrust blocks or anchorages, the pressure test shall not be made until at least five days have elapsed after the concrete was cast. If rapid hardening cement has been used in these blocks or anchorages, the tests shall not be made until at least two days have elapsed.

c) Each section of the pipe line shall be slowly filled with water and all air shall be expelled from the pipe by tapping at points of highest elevation before the test is made and plugs inserted after the tests have been completed. The specified test pressure based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge shall be applied by means of a pump connected to the pipe as directed by the Engineer.

d) The duration of test shall not be less than 5 minutes. The exposed joints hall be carefully examined and all such joints showing visible leaks shall be recaulked until water tight. Any cracked or defective pipes and fittings in consequence of this pressure test shall be removed and replaced by sound material by Contractor at no extra cost to the Engineer and the test shall be repeated to the satisfaction of the Engineer.

e) After the satisfactory completion of pressure test, the section of pipe line shall be subjected to leakage test. The duration of test shall be 2 hours. No pipe installation shall be accepted until the leakage is less than the number of cm3 /h as determined by the formula:

Where,

$$qL = \frac{ND\sqrt{P}}{3.3}$$

q L= The allowable leakage in cm^3 /hr

N= Number of joints in the length of the pipeline

D = Diameter in mm, and

P= The average test pressure during the leakage test in Kg/cm2

f) Should any test of pipe laid indicate leakage greater than that specified above, the defective joints shall be repaired by Contractor at no extra cost to the Engineer until the leakage is within the specified allowance.

g) Necessary equipment and water used for testing shall be arranged by Contractor at his own cost. Damage during testing shall be Contractor's responsibility and shall be rectified by him at no extra cost to the Engineer. Water used for testing shall be removed from the pipe and not released in the excavated trenches.

h) After the tests mentioned above are completed to the satisfaction of the Engineer, the backfilling of trenches shall be done as per the Employer's Requirements specified elsewhere.

122.14 Manufacturer's Works Acceptance Tests on Electrical Equipment

The following equipment / items shall be subjected to inspection, routine /acceptance tests as per latest edition of relevant Indian / International standards in the presence of Employer/ his Engineer

a) HT and LT Transformers
b) HT Metal enclosed switchboards & Switchgears.
c) 415 V metal enclosed switchgears (PCC / MCC)
d) Power capacitor and control panel
e) Uniterruptable Power Supply system
f) attery, battery charger and DC Distribution Board
g) Variable Frequency Drives
h) Non Segregated Bus Duct
i) Power & control cables
j) Cable carrier system
k) Lighting system
l) Earthling and lightning protection systems

Copies of test Certificates for the type tests and Special tests not later than 5 years conducted as per relevant Indian / International Standards for all the equipment

/items of above shall be furnished for the perusal of Employer / his Engineer. If type tests and special tests have not been conducted on any of these items, the same shall be carried out in the presence of owner/ Engineer at no extra cost.

122.15 Manufacturer's Works Acceptance Tests on ICA Equipment

A. Instrumentation:

Inspection, Testing and Setting to Work:

General

Each item of plant shall be subjected to the manufacturer's own tests which shall be certified.

Each item of plant and its installation shall be subject to inspection and testing at the place of manufacture.

The Contractor shall be responsible for the provision of all necessary test equipment. The Contractor shall demonstrate to the Engineer, the correct operation of any item of plant and the Engineer may witness any test. Tests which, in the opinion of the Engineer, were failed or not performed correctly shall be repeated.

Calibration tests for field instruments and analytical instruments should be conducted on site after installation and the same should be witnessed by the Engineer.

Before any test is made, the Contractor shall submit to the Engineer a full list of test equipment & test procedures (method statements) to be used. Each item of test equipment shall have a standard of accuracy better than that stated by the manufacturer of the item to be tested. The Contractor shall provide evidence of the condition and performance of any item of test equipment, in the form of test certificates issued by an appropriate authority independent of the Contractor and manufacturer, or as otherwise directed by the Engineer. Test equipment shall be checked frequently during the period of the tests.

The Contractor's staff responsible for supervising and carrying out tests shall be fully conversant with the various items of equipment of other manufacturers and if necessary the Contractor shall arrange for his personnel to attend suitable training courses on his own expense.

Any fault or shortcoming found during any inspection or test shall be rectified to the satisfaction of the Engineer before proceeding with further inspection or testing of that item. Any circuit previously tested, which may have been affected by the rectification work, shall be re-tested.

Preliminary Inspection and Testing at the Place of Manufacture Field-mounted instruments

After the successful completion of the manufacturer's own inspection and testing of instruments supplied under the Contract, similar tests shall be carried out in the presence of the Engineer and the Contractor. Such tests shall include a demonstration that an increase or decrease of the measured value at several points over the full range of the instrument produces a corresponding increase or decrease in the instrument output signal. These tests shall include checks on the specified accuracy of the instrument at all points.

Instrument Panels, Enclosures and Mounting Boards

The manufacturer shall not present instrument panels, enclosures and mounting boards (assemblies) for inspection and testing until the manufacturer's own tests and inspection has been completed. A preliminary inspection and test of these assemblies may then be witnessed by the Engineer. The Contractor shall give not less than 7 days' Prior notice in writing that he has completed.

His tests and inspection and is ready for the witnessed tests and inspection. Where this notice period is different in the Conditions of Contract this shall take precedent.

The witnessed inspection and testing shall include the following:

a) A visual inspection of the panel assembly to show that the design, construction and finish are satisfactory and in accordance with the Specification;
b) A check that equipment is securely mounted, accessible for removal or calibration without damage to or undue disturbance of other components, wiring or piping;
c) That all engraving and labels are correctly positioned, fixed and designated in accordance with the Specification;
d) Panel power-distribution circuits have the correct breaker/fuse rating coordination and designation;
e) Power-isolation facilities meet the Specification;
f) The main incoming supply voltage, frequency and/or pneumatic supply pressure is within the required limits, these being checked at the beginning and end of the test and the results recorded on test certificates;

g) The output of all power supply units again at the beginning and end of the testing with results being recorded;

h) The power supply voltage or air pressure of all component instruments of the assembly(s), these voltages/pressures being recorded on the test certificate;

i) The insulation resistance of all circuits except sensitive electronic equipment which is liable to damage by application of the test voltage, such circuits being disconnected before making the insulation resistance tests and these tests being carried out in accordance with IEE Wiring Regulations;

j) That the clean earth bar is isolated from main frame of the panel.

Internal lighting and anti-condensation heaters and associated thermostats, isolators, limit switches and wiring shall be checked for compliance with the Specification.

Spare capacity within the panel(s) shall be checked to see that it complies with the Specification. This shall include future equipment space, spare terminals, space in wiring trunkings and provision for additional cable entry.

Functional Testing at the Place of Manufacture <u>General Requirements</u>

Once the preliminary inspection and testing is complete to the satisfaction of the Engineer, functional testing shall commence. The purpose of the functional tests are to demonstrate that instrument panels enclosures and mounting boards (assemblies) conform with requirements of the Specification.

Not less than 30 days before the commencement of functional tests, the Contractor shall submit to the Engineer, for approval, two copies of comprehensive test procedural documents detailing each test to be carried out. The document shall include results forms on which the results of each test will be entered. The forms shall include spaces for numerical values, where necessary, and witness signatures. All applicable drawings and data shall be provided at the place of inspection by the Contractor. The Contractor shall provide all test instruments and equipment necessary to test the assemblies in their entirety.

The following is a typical list of the equipment required:

- Switch boxes;
- Indicator light boxes;

- Analogue signal sources; Dummy loads;
- Meters;
- Simulators;
- Desk-top computers;
- Programmers for DCS or outstations;
- Insulation test equipment

B. Programmable Logic Controller (PLC) and SCADA

The Contractor shall carry out specified tests as follows in addition to any tests stated or implied by the foregoing sections of this clause.

The tests shall be carried out on the fully assembled control panel containing the PLC and associated equipment in order to demonstrate correct functional operation of the hardware and software systems.

Factory Acceptance Test (FAT)

The Contractor shall conduct a full program of tests of the PLC & SCADA system at the Contractor's testing facility in the presence of the Engineer to verify that all features of the system have been provided, are operating correctly and are in full compliance with the Specification. FAT shall include PLC based SCADA system for STP and PLC based control system with panel mounted HMI with wireless communication system for the all of the above. Unless otherwise specified or agreed by the Engineer, the entire PLC & SCADA system shall be assembled and tested together as an integrated system, including all master station equipment, all operators' consoles, all outstations and telemetry equipment all instrumentation panels and uninterruptible power supplies included in this Specification. The scheduled date for the factory acceptance test shall be as agreed by the Contractor and the Engineer at least four weeks before the test. FAT shall be conducted with a hardwired simulation panel connected to the PLC based SCADA system. Contractor shall note the importance of the requirement. No software based simulation testing shall be accepted or allowed.

Not less than one month before the scheduled factory acceptance test, the Contractor shall submit to the Engineer for approval two copies of a comprehensive manual detailing each test to be conducted. The manual shall

include a results form on which the results of each test will be entered, including spaces for numerical values where appropriate and witness signatures.

Not less than 7 days before the scheduled factory acceptance test, the Contractor shall give written notification to the Engineer that a complete dry-run of the factory acceptance test has been performed successfully and that, in the opinion of the Contractor, the system exhibits stable operation and is ready for the formal factory acceptance test.

The factory acceptance test will be considered successfully completed only when the system has successfully passed all factory tests. The system shall not be delivered to Site until the successful completion of the factory acceptance test is certified by the Engineer or unless otherwise approved by the Engineer. Delay in the delivery of the system due to failure of the factory acceptance test shall not constitute an unavoidable delay. If the system fails the factory acceptance test, the test shall be extended or rescheduled at the discretion of the Engineer.

All hardware to be used in the testing of the system shall have passed an agreed preliminary hardware performance test to ensure known hardware operability before software testing begins.
After successful completion of the factory acceptance test, no software changes shall be made to the system without written authorisation by the Engineer. Any changes to the system which effect the system software documentation, such as input scale modifications or changes to the control logic, shall be entered into the system documentation before delivery of the system to Site.

Factory Acceptance Test Procedures General

The scope of the tests shall include the proving of every aspect of hardware and software operation and functions as detailed below.

Hardware Tests

a) Verify the correct inventory of hardware including cables and printed circuit boards;

b) Demonstrate that all spare-memory, disk-capacity and system-expansion requirements have been met;
c) Demonstrate all hardware and software diagnostics;
d) Verify all power supply voltages are within tolerance;
e) Verify proper earth connections and isolation of instrumentation earth for all equipment;
f) Demonstrate operation of test simulation and indication equipment and its Suitability for adequate functional testing of all system functions.

Software Tests

a) Demonstrate the editing of all system parameters including set-points, timers and the like;
b) Demonstrate system configuration capabilities including the addition and deletion of input and output points, outstations, and all data base parameters;
c) Demonstrate the addition, deletion and modification of mimic displays and report formats;

Functional Tests

The functional tests shall verify proper operation of every specified system function as an integrated system. These tests shall be conducted in conjunction with functional tests of instrumentation and control panels as specified elsewhere. All failures or discrepancies found shall be documented in the test manual.

Following a failure of any functional test, should software or hardware modifications be required it shall be the decision of the Engineer whether the factory acceptance test is to continue, re-start or be aborted. If testing is allowed to continue, any changes which are required shall be described in a system modification document, signed by both Contractor and Engineer and be incorporated into the final factory acceptance test documentation. The failed test shall be re-conducted and the Engineer may require the retest of functions which may be affected by the modification.

The functional tests shall include, as a minimum, the following:

a) Demonstration that the system meets the requirements of the Specification for response time and speed of screen update;

b) Verification of the accuracy of all analogue input points in the system. The procedure shall include applying the appropriate signal to each analogue input at a minimum of three points within the range of the input, checking for expected numerical results, and verifying appropriate update of related mimic displays. Proper sensing and action by the system to high and low out-of-range inputs shall also be verified;

c) Verification of the proper logic sense, pulse accumulation and rate computation where appropriate, of all digital inputs and verifying appropriate update of related mimic displays;

d) Verification of all control and sequencing operations and proper operation of all digital and analogue outputs. The procedure shall include simulation of all related process variables for both normal and abnormal conditions, including instrument and component failure, and demonstration of fail-safe response of the system. System outputs shall be indicated with appropriate lamps and indicators;

e) Simulation of outstation communications errors and failures and demonstration of error detection and handling, failure detection and handling, and appropriate changes to control actions as designed and specified;

f) Verification of fault detection and diagnostics by inducing a sufficient variety of fault conditions in the system to ensure that detection processes and fail-safe operation are adequately tested;

g) Demonstration of proper operation of all mimic displays, help pages, reports, operator procedures and historical data accumulation;

h) Demonstration of proper operation of all outstations following a simulated master station central processor failure;

i) Demonstration of proper operation of all equipment during both a system wide or isolated power failure, and following power restoration. The procedure shall include the demonstration of battery backup of both master station and outstation for the full length of time specified, and proper operation of power fail, low voltage warning and all associated alarms.

Reliability Test

The test shall be passed if no system function is lost or no hardware or software failure occurs. Hardware failure is defined for this test as the loss of a major component such as the computer, an outstation, a VDU or a peripheral device. Non-repetitive mechanical failures of loggers, push-buttons and the like are excluded.

During this test, the system shall be exercised with simulated inputs and conditions in a manner which approximates the on-site operational environment. Unstructured testing by the Engineer shall be included during this test. Upon any system failure during this period, it shall be the decision of the Engineer whether the reliability test is to continue or be aborted. If testing is allowed to continue any changes to the system which are required shall be described in a system-modification document, signed by both Contractor and Engineer and the document shall be incorporated into the final factory acceptance test documentation.

Factory Acceptance Test Documentation

As a minimum, the following information shall be included in the Factory Acceptance Test manual for each test:

- Test identification number; Test name and description;
- List of all equipment to be tested including any special test equipment required; Description of the test procedure broken down into logical steps;
- Description of the expected system response verifying the completion of each logical step;

- Space for recording the results of the test and the time and date of the test; Space for signatures of the Contractor and the Engineer.

In addition, the Contractor shall provide a method for recording and tracing all problems, discrepancies, queries and suggestions regarding the system and software, and for formalized control of any modifications to the system.

Pre-commissioning Tests

The Contractor shall perform pre-commissioning, or preliminary, testing of the SCADA system in accordance with that specified for instrumentation. The purpose

of pre-commissioning tests is to confirm readiness of the system for commissioning.

The scope of pre-commissioning tests shall be generally as specified for factory acceptance tests but real field inputs and final control elements shall be used wherever practical to provide inputs to the system and to confirm proper outputs.

Where this is impractical, simulation signals shall be injected as near as possible to their ultimate sources so as to include in the tests as much of the cabling system as possible.

Each process system shall be set to work under manual control and the system tested to confirm proper operation. After proper operation of manual control mode has to be verified, tests of automatic controls of each process system shall be conducted wherever practical.

Commissioning

Site Acceptance Tests (SAT)

The Contractor shall submit all relevant draft operating manuals for the PLC & SCADA System to the Engineer for approval prior to commissioning tests.

Any faults or failures of the system detected during the previous tests shall be noted and corrected to the satisfaction of the Engineer before commissioning is allowed to commence.

During this period, the system will perform the normal functions according to the procedures described in the SAT documentation approved by the Engineer.

The system shall have passed the SAT if all major components have been free from fault or failure and exhibit full error-free functionality for 100 % of the total duration of the test, unless otherwise agreed by the Engineer. Major components include all master station equipment, outstations, communications facilities and instrument panel components, excluding push-buttons, switches and lamps and any equipment not supplied by the Contractor.

During SAT, no modifications to the system shall be made by the Contractor without the written approval of the Engineer. Erroneous functioning which requires software modifications or re-configuration to correct, other than set-point or parameter changes, shall constitute a failure of the availability test. Any changes to the system which are required and

approved shall be described in a system- modification document, signed by both Contractor and Engineer and the document shall be incorporated into the final test documentation. The test shall be restarted after corrections have been made.

122.16 Manufacturer's Works Acceptance Tests on Uninterruptible Power Supplies

The Contractor shall carry out further specified tests as follows in addition to any tests stated or implied by the foregoing sections of this clause.

The tests shall be carried out on the fully assembled unit utilizing the batteries that are to be supplied with the unit.

The Contractor shall demonstrate the following:

a) Change-over from full load with mains present to full load on battery supply

b) Carry out a discharge test on the system at full load and for the specified duty bridging time period.

c) Carry out recharge test after operation for the specified duty bridging time at full load. The UPS shall supply the full load during the recharge cycle.

122.17 Inspection at Site

During erection of the Plant the Engineer will inspect the installation from time to time in the presence of the Contractor's Supervisor to establish conformity with the requirements of the Specification. Any deviations found shall be corrected as instructed by the Engineer.

122.18 Plant Protection on Site

Factory finished plant shall be adequately protected both before and during installation against damage to finished surfaces, fitted components, and the ingress of dust. It may be necessary for structural finishing operations to be carried out in the vicinity of installed plant before it is taken over and the Contractor shall take this into consideration in complying with the requirement of this clause.

122.19 Erection Staff

The Contractor shall provide at least two approved senior English speaking working erectors to supervise the erection of all Plant in the Contract and in each

case to act as the Contractor's Representative as set out in Clause 13 of the general conditions of contract.

In the case of a foreign firm based overseas the Contractor's Representative shall be thoroughly conversant with the manufacturer's Plant and equipment, and its erection and shall be an expatriate.

The Contractor shall also provide sufficient erectors skilled in electrical, mechanical and instrument engineering, with such skilled, semi-skilled and unskilled labor as are necessary to ensure completion of the various sections of the Contract in the time required. The Contractor shall not remove any supervisory staff or labor from the site without the prior approval of the Engineer.

The Engineer will give the Contractor at least one month's notice in writing of the date on which the erection staff will be required on site, and the Contractor shall confirm the date of arrival in writing to the Engineer. The Contractor shall make all the necessary arrangements to ensure that sufficient plant has been or is about to be delivered to site, so that there shall be no delay to the start of erection.

It shall be the responsibility of the contractor to obtain necessary License / Authorization/ Permit for work from the Licensing Boards of the Locality/State where the work is to be carried out. The persons deputed by the Contractor’s firm should also hold valid permits issued or recognized by the Licensing Board of the Locality/State where the work is to be carried out.

122.20 Erection and Building-in

The installation work shall comply with the latest applicable Standards, Regulations, Electricity Rules and Safety Codes of the locality where the installation is to be carried out. Nothing in this specification shall be construed to relieve the Contractor of this responsibility.

It will be the Contractor’s responsibility to obtain approval/clearance from local statutory authorities including Electrical Inspector, wherever applicable for conducting of any work or for installation carried out which comes under the purview of such authorities.

The Contractor shall carry out the complete erection of all plant, including the provision of all necessary skilled and unskilled labor, material, transportation,

supplies, power and fuel, Contractor's Equipment and appurtenances necessary, for the complete and satisfactory erection of the Plant.

The Contractor shall have a separate cleaning gang to clean all equipment under erection and as well as the work area and the project site at regular intervals to the satisfaction of the employer. In case the cleaning is not up to the employer's satisfaction, he will have the right to carry out the cleaning operations and any expenditure incurred by the employer in this regard will be to the Contractor's account.

Erectors

The Contractor's employees shall include skilled erection staff in sufficient number, who shall arrive on the site on or before the respective dates set out in the approved work programmed and prior to delivery of any item of Plant to the Site. The Engineer will not entertain any claim by the Contractor in respect of delayed erection due to a delay in the delivery of any items of Plant to the site.

Contractor's Equipment, materials and appurtenances

The Contractor shall have available on the Site sufficient suitable equipment and machinery, as well as all other materials and appurtenances required by him, of ample capacity to ensure the proper erection of Plant and to handle any emergencies such as may normally be expected in work of this character.

The Contractor shall be responsible if any installation materials are lost or damaged during installation. All damages and thefts of equipment/component parts, after takeover by the Contractor, till the installation is taken over by Employer shall be made good by the Contractor to the satisfaction of Engineer.

Workmanship

Plant shall be erected in a neat and workmanlike manner on the foundation and at the locations and elevations shown on the approved drawings and other Engineering documents. Unless otherwise directed by the Engineer the Contractor shall adhere strictly to the aforesaid drawings and no departures there from will be permitted.

All plant shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that the proper and satisfactory connection can be made

readily between the various units and pipe work and equipment installed under the Contract. The mounting arrangements for pump sets and blowers shall be such that the alignment offset between motors and the driven equipment shall be well within 0.1 mm.

Building-in

Erection of Plant shall be phased in such a manner so as not to obstruct the work being done by other contractors. Before commencing any erection work, the Contractor shall check the dimensions of structures where the various items of plant are to be installed, and shall bring any deviations from the required positions, lined or dimensions to the notice of the Engineer and shall take such measures as are necessary for their correction.

The Contractor shall take particular care for the correct positioning and alignment of all puddle pipes which are required through concrete structures prior to, and during the pouring of concrete. The Contractor shall pin and plug in the holes prepared, all small clips, plugs, screws, nails, sleeves, inserts, etc., required for fixing electric wires and conduits, small pipe work and all other apparatus.

The Contractor shall align all equipment and holding down bolts and shall inform the Engineer before proceeding with grouting-in the item or item concerned. The Contractor shall ensure that all equipment is securely held and remain in correct alignment before, during and after grouting- in.

The Contractor shall properly bed in cement grout each item of plant or its supporting base resting on foundations, and shall grout-in where required holding down bolts placed in the holes prepared in the foundations. The materials and workmanship used in grouting shall be such as will result in a solid anchoring of foundation bolts and complete filling of the gaps between the Plant or its base and the foundations, without shrinkage or cracking.

During erection of the Plant the Employer will inspect the installation from time to time in the presence of the Contractor's Site representative to establish conformity with the requirements of the Specification. Any deviations and deficiencies found or evidence of unsatisfactory workmanship shall be corrected as instructed by the Employer.

All plant shall be installed in accordance with the recommendations or instructions of the manufacturer, for the particular application. Each mounting position shall be chosen to give correct operation of the equipment, ease of operation, access for maintenance and servicing and freedom from any condition which could have adverse affects.

Precautions

The approval by the Engineer of the Contractor's proposals for rigging and hoisting of any item of plant into its final position shall not relieve the Contractor from his responsibility for avoiding damage to completed structures, parts or members thereof or other installed equipment. He shall at his own cost make good, repair or replace any damaged or injured items whether structural, mechanical, electrical, architectural, or of any other description, promptly and effectively to the satisfaction of the Engineer.

No plant or other loads shall be moved across the floors of structures without first covering the floors with timber of sufficient size so that applied loads will be transferred to floor beams and girders of steel or concrete. If it is required to reduce bending stresses or deflection, the beam and girders shall be provided with temporary supports. Any movement of Plant and other loads over the floor structures shall be subject to the prior approval of the Engineer.

122.21 Civil Inspection (Water Leakage Test)

122.21.1 Tanks and Basins

Refer Volume 2A – Hydraulic Testing of Water Retaining Structures.

122.21.2 Field Control Inspection

Contractor shall be conduct periodic field control inspection to prevent any field accident.

The Engineer shall joint field inspect or conduct unannounced inspections.

122.21.3 Inspection after Erection

After the erection of any item of Plant and its associated equipment has been completed, it shall be offered to the Engineer for inspection in its static state prior to commissioning the item.

Completion of erection and procedure prior to setting to work.

The mechanical completion of plant under erection shall be deemed to occur if all the units/systems of the Works are structurally and mechanically complete as noted below:

All rotary, static, structural equipment, piping, electrical/instrumentation and other equipment under the scope of the Contract have been erected, installed and grouted and are as per the specifications.

All systems have been washed/flushed/drained/boxed up where necessary.

All system testing including pressure, vacuum and nondestructive tests, no load tests and such other tests are completed with safety valves/relief valves set to operating conditions installed in position.

All panels, local control desks erected with power/control cable terminations with all continuity checks, insulation checks and other installation checks are carried out.

Prior to pre-commissioning checks, the Contractor shall erect the entire Plant and ensure readiness of civil works to the satisfaction of Employer, so that the Works are physically ready to undergo pre- commissioning checks. Pre-commissioning checks will include checks like no-load running of machinery, checks on instruments and electrical including calibration and loop checks, functional checks, inter-lock checks etc.

At the stage of mechanical completion of erection, the Contractor shall ensure that all the physical, aesthetic and workmanship aspects are totally complete and the Plant is fit and sound to undergo pre- commissioning checks.

The following documentation shall be completed before the Contractor notifies Mechanical

Completion of Erection to the Employer

a) All shop inspection records compiled and bound in 4 (four) copies.
b) All erection and commissioning procedures duly approved.
c) All instruction manuals in draft form - with each sheet bearing a stamp to indicate "DRAFT FOR REVIEW ONLY" submitted in 4 (four) copies.

Upon achieving mechanical completion, the Contractor shall notify the Employer of such completion of section/units/systems and readiness for inspection for acceptance of mechanical completion of erection. The Employer/ Engineer shall

proceed with inspection of such sections/units/systems within 10 days of such notice.

Consequent to inspection, the Employer will inform the Contractor a list of deficiencies for rectification and the Contractor shall complete the rectification work within a jointly agreed period prior to start of pre- commissioning tests. The erection period allowed by the Contractor shall include all activities of mechanical completion as noted above.

122.22 Site Acceptance Test Document

Twenty one (21) days prior to commencement of Tests on Completion the Contractor shall supply a Site Acceptance Test (SAT) Document for approval. This shall comprise two copies of the details of the inspection and test procedures to be carried out in testing the Works.

The SAT Plan shall provide comprehensive details of the tests to be carried out, the purpose of each test, the equipment to be used in carrying out the test and the methods to be adopted in carrying out the tests. The SAT shall provide space within the documentation for results of the tests to be added and for each test and for the SAT as a whole to be signed off by the Contractor and the Engineer.

The SAT shall categorise tests as follows:

a) Dry tests : Dry tests are those tests carried out without process fluid being present.

b) Wet tests which can be further sub-divided into

- Hydraulic tests: Hydraulic wet tests are those tests carried out with potable water in order to prove the hydraulic capability of the Works.
- Process tests /System tests : Process wet tests are those tests carried out with raw Sewage as the feed stock to prove the process capability of the Works.

The Contractor shall make his own arrangements for water supply, chemical, electric power, fuel, instrument and labour during hydraulic wet tests.

It shall be assumed that the co-operation of other contractors in the carrying out of Tests on Completion will not be unreasonably withheld.

122.23 Tests on Completion

122.23.1 Report submissions

Prior to the commencement of Tests On Completion the Contractor shall submit for approval the following:

- Site Acceptance Test Documents
- As-Built Drawings
- Operation and Maintenance Manuals
- Site test results / data sheet and photo

Tests on Completion shall not be commenced until the aforementioned documents are approved.

The initial charges of oil, grease, electrolyte, generator fuel / oil, chemical, disposal of cake, electricity etc. necessary for Tests on Completion shall be provided by the Contractor. Raw Sewage required for Tests on Completion will be provided by the Employer free of charge. If necessary, Contractor shall create design loading conditions for testing purposes by testing fewer than the total number of installed units of process tanks or equipment at a time. In such cases, multiple tests shall be conducted to ensure that all installed units are tested. The Contractor shall provide adequate notice (this notice period shall be determined by the normal lead time for locally purchased chemicals plus at least

28 days) of his chemical requirements prior to commencement of the Tests on Completion involving their use. The cost of chemicals used for the Tests on Completion shall be met by the Contractor.

The inspection and tests procedure which will be carried out are provided under the general conditions of contract and shall also consist of the following:

122.23.2 Manual Commissioning Tests (Clause i)

Manual Commissioning Tests shall be such preliminary trials, tests and retests on individual items of Plant or complete systems as required by the Employer's Representative in order to demonstrate that the Plant as a whole is ready to undergo the Manual Operation Tests and that these will take place with minimum interruption.

The Manual Commissioning Tests shall demonstrate not only the items of Plant under normal operation, but also their response to abnormal and emergency conditions.

The Employer's Representative will notify the Contractor which items of Plant will be tested and the extent to which they will be tested in order to fulfill the requirements of the Specification.

Leakage tests at 1.5 times the maximum working pressure shall be carried out on all erected pipe work prior to the Manual Commissioning Tests.

Pump curves shall be available for the Manual Commissioning Tests and all instruments essential for the tests shall have been calibrated.

122.23.3 Manual Operation Tests (Clause ii)

When the Manual Commissioning Tests have been completed so that the items of Plant have been demonstrated to the satisfaction of the Employer's Representative, the Contractor shall commence the Manual Operation Tests.

These tests shall demonstrate the correct operation of the whole Plant whilst using the minimum automatic control and monitoring equipment.

The Plant will be required to demonstrate satisfactory operation at all design flow rates. The tests shall be of seven consecutive days' duration; if the supply of process fluids (wastewater) should fail or other matters interfere outside the Contractor's control, the tests may be of such number of broken days as the Employer's Representative considers is the equivalent.

The exact date of commencement shall be subject to the approval of the Employer's Representative and shall be dependent on the following conditions having been met

- All relevant items of Plant in approved working order
- All items of Plant correctly identified with labels

122.23.4 Automatic Commissioning Tests (Clause iii)

The Automatic Commissioning Tests shall be such preliminary trials, tests and retests on individual items of Plant or complete system as are required by the Employer's Representative in order to demonstrate that the Plant as a whole is ready to undergo the Tests on Completion and that these will take place with a minimum of interruption.

At least one week before the commencement of these tests, the Employer's Representative will notify the Contractor which items of Plant will be tested and the extent to which they will be tested in order to fulfill the requirements of the specification.

The Tests on Completion shall not be carried out until the completion of the above tests.

- All pipe work shall be hydrostatically tested at site to a pressure equal to 1.5 times the maximum working pressure likely to be encountered in the system.
- The Contractor shall carry out all tests on the Plant and shall supply four copies of all test results to the Engineer
- All tests shall be to the approval of the Employer's Representative who may require them to be repeated, prolonged or modified as may be necessary to ensure that any or all items of Plant conform to the Contract.
- The Employer's Representative shall be permitted to inspect all Plant which is undergoing tests and may himself conduct the tests.

If any item of plant fails during or after testing to achieve its intended duty or otherwise proves defective, it shall be modified or altered as necessary and re-tested and re-inspected as required by the Employer's Representative.

Vibration/noise level tests shall be carried out at site which will form basis for acceptance of the equipment. If the Contractor is not in a position to meet the requirements given below as per ISO 10816 – 1995, the equipment may either be rejected or the Contractor shall carry out all necessary modifications to keep vibrations within the acceptable limits specified here in Table below.

Table : Vibration limits

Equipment	Noise Level (dBA at 1.86 m from equipment)	Velocity of vibration (mm/sec)
All rotating equipment not having reciprocating parts with motor kW less than or equal to 15 kW	85	1.12
All rotating equipment not having reciprocating parts with motor kW more than 15 kW and less than or equal to 75 kW	85	1.8
All rotating equipment not having reciprocating parts with motor kW greater than 75 kW	85	2.8
All equipment having reciprocating parts viz. compressors, dosing pumps sampling pumps	85	-

The Contractor shall have a minimum of three commissioning engineers, one for process and plant and the others for mechanical/electrical/instrumentation works on site during all tests in order to both demonstrate the Plant and to correct any faults which may occur.

122.23.5 Dry Test Requirements

As a minimum requirement the following dry tests shall be carried out as a general requirement:

- A general inspection to check for correct assembly and quality of workmanship
- A check on the presence of lubricant, cooling medium, electrolyte, etc.
  A check on adequacy and security of Plant fixing arrangements.

- A general check to ensure that all covers, access ladders, water proofing, guard railings etc are in place.
- A check on damp-proofing, rust-proofing and vermin-proofing and particularly the sealing of apertures between building structures, chambers etc and the outside.

4. Civil and Building Works

As a minimum requirement the following dry tests shall be carried out on the civil engineering and building works:

- Check for the presence of foreign bodies in pipe work and structures.

B. Mechanical Works

As a minimum requirement the following dry tests shall be carried out on the mechanical systems

- Carry out preliminary running checks as far is permitted by circumstances in order to ensure smooth operation of Plant.

C. Electrical Works

As a minimum requirement the following dry tests shall be carried out on the electrical systems:

- Check phasing and polarity.
- Carry out point to point check on all cables. Check on security of cable terminations.
- Check on completeness and adequacy of earthing systems.
- Check setting on protection relays, sizes of fuses and motor overload settings.
- Carry out checks on cabling systems in accordance with the requirements of the relevant standards.
- Check operation of main circuit breakers by secondary injection methods. Check rotational direction of Plant.
- Check instrument loop integrity, functionality and calibration.
- Check operation of standby generator installation and mains / generator changeover procedures; a 4 hour load test (using the normal load of the Works) shall be carried out on the generator when the load is available.
- Check plant functionality.
- Check functionality of the central MMI and its power supply.

All process plant items / equipment shall be tested to ensure they meet the Employer's Requirements for quality of workmanship, construction and performance.

122.23.6 Hydraulic Wet Test Requirements

Hydraulic wet tests shall be carried out on completion of dry tests.

Clear Water shall be used for hydraulic wet tests. The purpose of the tests is to prove the hydraulic performance of the Works. In order to demonstrate this, the Contractor shall ensure that each part of the Works is hydraulically loaded to its rated throughput for a period of at least four hours.

In order to ensure sufficient supply of water to carry out these tests the Contractor shall provide all required facilities, including but not limited to any temporary facilities that may be required for storage and recycle of Clear Water or facilities for the disposal of the water off Site in an approved manner.

The following tests inter alia shall be carried out:

- Pressure testing of all piped systems laid direct in ground in accordance with the relevant standards.
- Fill all structures and check for leaks.
- Filling of all storage vessels to check for leaks and distortion. Running of all pumped systems in order to check for.
    - Correct functionality.
    - Absence of leaks.
    - Correct running temperatures.
    - Smoothness of running and the absence of undue vibration or stress.
    - Check drive running currents.
- Carry out calibration of instruments where appropriate.

- Carry out valve operation, diversions etc. to fully hydraulically load each process element (or where there is a requirement to withstand an over load), overload each process element.
- Demonstrate correct functionality of electrical, control and instrumentation systems.

The Contractor shall simulate the conditions that will prevail when operating as a process in order to demonstrate the correct functionality of process control loops etc. during these tests a check on the performance of Plant shall be made to compare its site performance with the factory test data and to identify any constraints on performance due to site conditions.

122.23.7 Safety Audit

After satisfactory completion of hydraulic wet tests and prior to introduction of process fluid to the plant a safety audit shall be carried out to ensure compliance with the necessary requirement for safety and for operation of Plant. The safety audit shall be documented. The safety audit document shall be approved by the Employer's Representative prior to commencement of Plant commissioning.

122.23.8 Process Wet Tests (with Raw Sewage)

On approval by the Employer's Representative the Contractor shall carry out process wet tests.

Raw Sewage shall be used as the main feed stock for process wet tests. These tests shall be carried out to demonstrate the process performance of the Works. In order to demonstrate this, the Contractor shall ensure that each part of the Works is loaded to its rated throughput (including a period of overload if required in order to demonstrate compliance with the Employer's Requirements) for a continuous stable operating period of not less than 48 hours. If necessary, Contractor shall create design loading conditions for testing purposes by testing fewer than the total number of installed units of process tanks or equipment at a time. In such cases, multiple tests shall be conducted to ensure that all installed units are tested.

The Contractor shall provide all required facilities for the disposal off Site in an approved manner.

The following tests inter alia shall be carried out:

- Check for leaks on vessels, structures, pumps and pipe work.
- Running of all pumped systems in order to check for.
- Correct functionality.
- Absence of leaks.
- Correct running temperatures.
- Smoothness of running and the absence of undue vibration or stress.
- Check drive running currents where the solution pumped is different from that pumped during hydraulic wet tests.
- Carry out calibration of instruments.

- Carry out valve operation, diversions etc. to fully hydraulically load each process element (or where there is a requirement to withstand an over load), overload each process element.
- Demonstrate correct functionality of electrical, control and instrumentation systems not checked during dry or hydraulic wet tests or which may have changed as a result of the different operating conditions now prevailing.

On completion of the tests on the various parts of the works the Contractor shall run the plant as a whole in order to demonstrate the full functionality and performance of the Works at various throughput rates for a continuous period of not less than 30 days.

During the various process tests the Contractor shall perform sampling and analysis of all the process streams (locations) and parameters listed in the "Sampling/Analysis Locations and Frequencies" table provided in the "Tests after Completion" Section below. The frequencies listed in this table shall be followed for the Tests after Completion. However, for the Process Wet Tests performed as part of the Tests on Completion, the sampling frequency for all locations and all parameters shall not be less than once every hour. The Contractor shall demonstrate to the Employer's Representative that the Works is functioning in accordance with the Employer's Requirements. Each sample shall comprise two

1 litre (minimum) quantities and shall be labelled to identify the contents, where taken and time and date. The flow recorded at the time of sampling shall also be indicated in the log book or record. One sample shall be used by the Contractor for his analysis; the other shall be handed over to the Employer's Representative.

The Employer's Representative reserves the right to take additional samples and to carry out his own tests or to check the samples taken by the Contractor.

The Employer's Representative shall be given reasonable access to the premises where analysis is taking place in order to check on working practices and the procedures being adopted.

122.23.9 Stress Testing the Treatment Plant Units

Each treatment step in the Treatment Plant, such as screening, degritting, sedimentation, biological process, filtration etc. is carried out through multiple units, which function together to treat the design flow and load. As the Treatment Plant is constructed for horizon year 2035 and as the entire catchment is not sewered at the time of commissioning for various reasons, the initial flow and load would be less than the design values, and hence, if all the treatment units are operated together during commissioning, the treatment units would be under-loaded and it would be difficult to ensure that the Treatment Plant will perform in future when the design flow and load are received. To avoid such ambiguity about the Treatment Plant capacity and performance, it is essential to test each unit of a treatment step for its design capacity through stress testing.

122.23.9.1 Methodology of Stress Testing

For each treatment step, stress testing is performed by limiting the number of operating units such that each of the operating unit, except maximum of one operating unit, receives its design flow and load. The inlet gates / valves on all the operating units except one are kept fully open so that the incoming flow is evenly distributed among the operating units, and only one operating unit may receive less flow than the other units at peak flow conditions. Some process units, such as feed channels, screens, grit, sedimentation tanks are governed by hydraulic design

criteria, whereas some process units such as bioreactor, final sedimentation tanks are governed by pollution load. The stress testing methodology shall be developed such that the operating units receive the design flows and/ or loads to establish the unit performance. Typical procedures for stress testing of the major process units (PST, Bioreactor and FST) are given below as guidelines. The Contractor shall submit the methodology and detailed procedures for stress testing of each process unit, and get the same approved before starting the pre-commissioning and commissioning trials.

122.23.9.2 Peak Flow (Hydraulic) Stress Testing Considerations

The purpose of stress testing is to evaluate the hydraulic performance characteristics and demonstrate that there are no hydraulic bottlenecks. The information generated through stress testing allows confirmation of successful implementation of design strategies for achieving the guaranteed hydraulic performance.

For example, capacity of primary sedimentation tanks (PST) as an individual unit operation is typically evaluated based on surface overflow rate (SOR) and biochemical oxygen demand (BOD) removal criteria. PST performance is dependent on SOR and sludge withdrawal rates. Performance expectations are tied to the process capacity of the subsequent biological systems and primary sludge handling systems.

Final sedimentation tank (FST) performance is more complex to test because it is dependent upon SOR and several other factors such as solids flux (mixed liquor suspended solids, RAS ratio), bioreactor performance etc. Slug dye tests and the solids distribution/flow pattern tests can be carried out during the stress tests in an effort to better assess the hydraulic characteristics of the sedimentation tank.

A desktop review or hydraulic calculation check (typically computer based) helps to assess typical limitations such as: approach velocities, recycle rates, diurnal peak considerations and freeboard limitations.

For stress testing of the primary sedimentation tanks the following methodology shall be used:

- Hydraulic review to identify any hydraulic limitations.
- Sampling of the PST influent and effluent at specified time intervals for the following analysis:
- Each sample is analyzed for total suspended solids (TSS); every third sample is analyzed for BOD. Typically the samples are collected every twenty minutes.
- The grab samples are used to determine the settleable solids (SS) in the PST influent and effluent. Typically these are collected every hour.
- If the desired BOD and TSS removals are not demonstrated through the above sampling, then the Contractor shall perform dye testing of the PST to see if any short circuiting is occurring.
- The sludge blanket level is measured with a suitable, pre-approved instrument every hour at five locations along the PST cross section to monitor the change in the sludge blanket profile during the test.
- The supernatant from the effluent settleable solids sample is used to determine the dispersed solids (DSS) in the PST effluent. The DSS concentration represents the minimum TSS concentration achievable with an infinite sedimentation tank.

The data from these tests shall be used to calculate the removal efficiency achieved as a function of flow. A graph of flow versus TSS removal efficiency should be produced to determine the point of failure. The Contractor shall prepare a complete report documenting the methodology, sampling, analysis results and performance calculations and submit the same for approval to the Employer's Representative.

For the final sedimentation tank, the following procedures apply:

- Desktop analysis conducted to identify any hydraulic limitations.
- Samples of the FST effluent are collected typically every 20 minutes. Every sample is analyzed for TSS and along with every third sample is filtered to analyse soluble BOD or measured for BOD. The data enable the determination of FST performance as a function of hydraulic loading and allow for

calculation of the suspended solids in the effluent for a true measure of clarifier performance.

- The sludge blanket level is measured with electronic sludge blanket measuring device (or a sludge judge) at five locations along the clarifier cross section every hour to determine the changes in blanket level profile during the test. These readings may be taken ahead of the suction arms or rakes to allow for the highest blanket levels for the most accurate readings. The depth of the sludge blanket at the peak hydraulic flow periods can have significant impact, since fluid velocity can re-suspend settled solids causing spikes in effluent TSS.
- A grab sample of the FST influent (mixed liquor) is collected every hour to determine the mixed liquor TSS concentration, stirred sludge volume index (SSVI), and initial settling velocity (ISV).

The data from these tests are used to calculate the removal efficiency achieved as a function of flow. A graph of flow versus TSS removal efficiency should be produced to determine the point of failure. The Contractor shall prepare a complete report documenting the methodology, sampling, analysis results and performance calculations and submit the same for approval to the Employer's Representative.

122.23.9.3 Peak Load (Biological) Stress Testing Considerations (Secondary Process)

Peak load stress tests are carried out to determine the performance of a bioreactor tank and the final sedimentation tank. The bioreactor stress testing allows confirmation of adequacy of the aeration system and mixed liquor recycle system. Stress testing of the final sedimentation tank is in terms of effluent suspended solids concentration for a variety of operating conditions. Effluent suspended solids concentration is examined against parameters such as: SOR, solids loading rate (SLR), return sludge suspended solids concentration, return activated sludge (RAS) flow rate, sludge settling characteristics, dissolved suspended solids (DSS) concentration, and sludge blanket depth. The secondary process stress testing shall be started only after the secondary process has been in operation for a duration longer than three times the sludge retention time (3 x SRT).

For bioreactor stress testing, the following procedure shall apply:

- Daily composite sampling of the bioreactor influent for a period covering at least one SRT, and the parameters tested are COD, BOD, TSS, VSS, TKN, Ammonia and TP.
- Grab sampling of the bioreactor influent every hour during the peak flow period (typically 4 hr/day) and parameters analysed are BOD, TKN and
- VSS
- Grab sampling of the bioreactor liquor during the peak flow period to measure MLSS and MLVSS
- Continuous online monitoring of the aeration tank DO
  Continuous online monitoring of the anoxic tank DO

The above information is used to calculate the diurnal load peaking factor and to check the adequacy of the aeration system through DO monitoring at peak load.

For the final sedimentation tanks, the MLSS and flow measurements, in conjunction with the measurements given earlier for hydraulic stress testing are used to calculate the peak hour solids loading flux, and the 'state point analysis' shall be performed to determine the load capacity of the FST. The Contractor shall prepare a complete report documenting the methodology, sampling, analysis results and performance calculations and submit the same for approval to the Employer's Representative.

122.23.10 Effluent Quality Criteria for Passing the Tests On Completion

The Works shall be considered to have achieved the required effluent quality standards for passing Tests On Completion if all samples taken during a 30 day continuous operational period comply with the criteria set down for passing the Tests After Completion. This includes criteria relating to the reliability of the plant.

The effluent quality testing during Tests On Completion shall not be commenced until all tests associated with the civil/building, electrical and mechanical works

and individual process tests have been completed to the satisfaction of the Employer's Representative.

122.24 Dry Test Requirements

As a minimum requirement the following dry tests shall be carried out as a general requirement:

1) A general inspection to check for correct assembly and quality of workmanship
2) A check on the presence of lubricant, cooling medium, electrolyte, etc.
3) A check on adequacy and security of Plant fixing arrangements.
4) A general check to ensure that all covers, access ladders, water proofing, guard railings etc are in place.
5) A check on damp-proofing, rust-proofing and vermin-proofing and particularly the sealing of apertures between building structures, chambers etc and the outside.

a) **Civil and Building Works**

As a minimum requirement the following dry tests shall be carried out on the civil engineering and building works:

- Check for the presence of foreign bodies in pipe work and structures.

b) Mechanical Works

As a minimum requirement the following dry tests shall be carried out on the mechanical systems:

- Carry out preliminary running checks as far is permitted by circumstances in order to ensure smooth operation of Plant.

c) Electrical Works

As a minimum requirement the following dry tests shall be carried out on the electrical systems:

- Check phasing and polarity.
- Carry out point to point check on all cables. o Check on security of cable terminations.
- Check on completeness and adequacy of earthing systems.

- Check setting on protection relays, sizes of fuses and motor overload settings.
- Carry out checks on cabling systems in accordance with the requirements of the relevant standards.
- Check operation of main circuit breakers by secondary injection methods. o Check rotational direction of Plant.
- Check instrument loop integrity, functionality and calibration.
- Check operation of standby generator installation and mains / generator changeover procedures; a 4 hour load test (using the normal load of the Works) shall be carried out on the generator when the load is available.
- Check plant functionality.
- Check functionality of the central MMI and its power supply.

122.25 Process Plant Item / Equipment

All process plant items / equipment shall be tested to ensure they meet the Employer's Requirements for quality of workmanship, construction and performance.

122.26 Hydraulic Wet Test Requirements

Hydraulic wet tests shall be carried out on completion of dry tests.

Clear Water shall be used for hydraulic wet tests. The purpose of the tests is to prove the hydraulic performance of the Works. In order to demonstrate this, the Contractor shall ensure that each part of the Works is hydraulically loaded to its rated throughput for a period of at least four hours.

In order to ensure a sufficient supply of water to carry out these tests the Contractor shall provide all required facilities, including but not limited to any temporary facilities that may be required for storage and recycle of Clear Water or facilities for the disposal of the water off Site in an approved manner.

The following tests inter alia shall be carried out:

1. Pressure testing of all piped systems laid direct in ground in accordance with the relevant standards.
2. Fill all structures and check for leaks.
3. Filling of all storage vessels to check for leaks and distortion.
4. Running of all pumped systems in order to check for.
   - o Correct functionality.
   - o Absence of leaks.
   - o Correct running temperatures.
   - o Smoothness of running and the absence of undue vibration or stress. o Check drive running currents.
5. Carry out calibration of instruments where appropriate.
6. Carry out valve operation, diversions etc. to fully hydraulically load each process element (or where there is a requirement to withstand an over load), overload each process element.
7. Demonstrate correct functionality of electrical, control and instrumentation systems.

The Contractor shall simulate the conditions that will prevail when operating as a process in order to demonstrate the correct functionality of process control loops etc.

During these tests a check on the performance of Plant shall be made to compare its site performance with the factory test data and to identify any constraints on performance due to site conditions.

122.27 Safety Audit

After satisfactory completion of hydraulic wet tests and prior to introduction of process fluid to the plant a safety audit shall be carried out to ensure compliance with the necessary requirement for safety and for operation of Plant. The safety audit shall be documented. The safety audit document shall be approved by the Engineer prior to commencement of Plant commissioning.

122.28 Process Wet Tests (with Raw Sewage)

On approval by the Engineer the Contractor shall carry out process wet tests.

Raw Sewage shall be used as the main feed stock for process wet tests. These tests shall be carried out to demonstrate the process performance of the Works. In order to demonstrate this, the Contractor shall ensure that each part of the Works is loaded to its rated throughput (including a period of overload if required in order to demonstrate compliance with the Employer's Requirements) for a continuous stable operating period of not less than 48 hours. If necessary, Contractor shall create design loading conditions for testing purposes by testing fewer than the total number of installed units of process tanks or equipment at a time. In such cases, multiple tests shall be conducted to ensure that all installed units are tested.

The Contractor shall provide all required facilities for the disposal off Site in an approved manner.

The following tests inter alia shall be carried out:

1. Check for leaks on vessels, structures, pumps and pipe work.

2. Running of all pumped systems in order to check
   for.
   - o Correct functionality.
   - o Absence of leaks.
   - o Correct running temperatures.
   - o Smoothness of running and the absence of undue vibration or stress.
   - o Check drive running currents where the solution pumped is different from that pumped during hydraulic wet tests.

3. Carry out calibration of instruments.
4. Carry out valve operation, diversions etc. to fully hydraulically load each process element (or where there is a requirement to withstand an over load), overload each process element.
5. Demonstrate correct functionality of electrical, control and instrumentation systems not checked during dry or hydraulic wet tests or which may have changed as a result of the different operating conditions now prevailing.

On completion of the tests on the various parts of the works the Contractor shall run the plant as a whole in order to demonstrate the full functionality and performance of the Works at various throughput rates for a continuous period of not less than 30 days.

During the various process tests the Contractor shall perform sampling and analysis of all the process streams (locations) and parameters listed in the "Sampling/Analysis Locations and Frequencies" table provided in the "Tests after Completion" Section below. The frequencies listed in this table shall be followed for the Tests After Completion. However, for the Process Wet Tests performed as part of the Tests On Completion, the sampling frequency for all locations and all parameters shall not be less than once every hour. The Contractor shall demonstrate to the Engineer that the Works is functioning in accordance with the Employer's Requirements. Each sample shall comprise two 1 litre (minimum) quantities and shall be labelled to identify the contents, where taken and time and date. The flow recorded at the time of sampling shall also be indicated in the log book or record. One sample shall be used by the Contractor for his analysis; the other shall be handed over to the Engineer.
The Engineer reserves the right to take additional samples and to carry out his own tests or to check the samples taken by the Contractor.

The Engineer shall be given reasonable access to the premises where analysis is taking place in order to check on working practices and the procedures being adopted.

122.29 Effluent Quality Criteria for Passing the Tests On Completion

The Works shall be considered to have achieved the required effluent quality standards for passing Tests On Completion if all samples taken during a 30 day continuous operational period comply with the criteria set down for passing the Tests After Completion. This includes criteria relating to the reliability of the plant.

The Effluent quality Tests On Completion shall not be commenced until all tests associated with the civil/building, electrical and mechanical works and individual process tests have been completed to the satisfaction of the Engineer.

122.30 Co-operation with other Contractors in the Execution of their Tests

The Contractor shall, where required, assist other contractors in carrying out their tests on completion and or tests after completion.

Where this assistance does not constitute part of the Contractors own work associated with Tests on Completion or Tests after Completion the Contractor shall be reimbursed at the rates approved by the Engineer.

122.31 Tests after Completion

On successful completion of "Test on Completion" the Contractor shall carry out over a period of time not exceeding six months two separate 30 days operational tests. These tests shall be used to prove the operation of the Works at varying flows and with varying raw Sewage quality. During these tests Effluent produced by the Works will be entering the disposal system. These tests after completion shall be undertaken in accordance with Clause 11 of the General Conditions of Contract.

The timing of the tests shall be determined by the Employer who shall give notice to the Contractor in accordance with Sub-clause 11.1 of the General Conditions of Contract. The total time for carrying out the tests shall not be less than six calendar months. One of the tests for each part shall be carried out in a period of high raw Sewage BOD and suspended solids.

On commencement of each 30-Days test the Employer shall allocate a continuous period of not greater than 60 days to complete the test. Any failure to perform during the 60 days period shall restart the '30 day clock'. If the part of the Works fails to pass the test in the 60 days period the test shall be deemed as a failure and the Contractor shall carry out any necessary remedial work to the satisfaction of the Engineer before the Contractor restarts the test.

During the tests the Contractor shall take samples to demonstrate that the part of the Works is performing in accordance with the Employer's Requirements. The procedure for taking the samples shall follow the pattern adopted for Test on Completion. Samples shall be taken at locations and intervals detailed below. The results of the Tests after Completion shall be compared and evaluated by the Employer and Contractor.

The Contractor will not be held responsible for interruptions to the sewage treatment process as a result of Grid power failures (unless as a result of a Plant failure) interruptions in the raw Sewage supply etc. which are out of his control. However, the Contractor shall be required to demonstrate that the Works can cope with these inevitable interruptions in an orderly fashion and recover to a normal operational state with the minimum of manual intervention.

All consumables needed for operation of the Works shall be provided by the Contractor. The Contractor shall provide all facilities and equipment not supplied under the contract and which are deemed necessary for the Contractor to carry out and monitor the Tests after Completion.

Sampling and Analysis

Sampling and analysis shall be performed to measure the parameters indicated in the Table below, at the locations and frequencies indicated in the table. In case of multiple units (such as multiple aeration basins or clarifiers), the indicated sampling and analyses shall be performed for each individual module.

Table : Sampling/Analysis Locations and Frequencies

Location and Parameters to be Measured	**Frequency**	**Sampling Method**
Plant Effluent: All parameters specified under the as mentioned in	Daily	Flow-weighted 24-

the tender		hour composite
Dewatered Sludge: As mentioned in the tender	Daily	Composite of samples from each container or vehicle filled during the day
Raw Sewage Influent, Plant Effluent, Primary Sludge, RAS, WAS, Thickened Sludge, Dewatering Influent, Plant Recycles: Flow	Continuous	Continuous instantaneous flow from recorder
Raw Sewage Influent, Primary Effluent, and Secondary Effluent: TSS, VSS, Temperature, pH	Daily	Flow-weighted 24-hour composite

Raw Sewage Influent, Primary Effluent, and Secondary Effluent: BOD, COD, TKN, Ammonia-N, Nitrite-N, Nitrate-N, Alkalinity, Total Phosphorus, Soluble Phosphorus, Fecal coliforms (MPN/100ml Sample)	3 times per week	Flow-weighted 24-hour composite
Aeration Basins: MLSS, MLVSS, Temperature, SVI	Daily	Grab
Aeration Basin Zone Profiles (Anaerobic, Anoxic, Aerobic): Ammonia-N, Nitrite-N, Nitrate-N, pH, Soluble	times per week	Grab

Phosphorus, VFAs, RBCOD		
PSL, RAS, WAS, Thickened Sludge, Digested Sludge, Dewatered Sludge Management Components : TSS, VSS	Daily	Grab
Chemicals/Scum/Screenings/Grit: Specific weight, volume, weight, Chemical consumption	3 times per week	 Grab

All costs associated with the taking and analysis of samples shall be met by the Contractor.

The analysis shall be carried out by certified laboratory approved by the Engineer, and shall be performed in strict compliance with appropriate analytical methods published in Indian Standards or EPA. The Contractor shall submit to the Engineer a comprehensive report of the above sampling and analysis, including details of each analytical test as well as a summary of all the data and results in a Microsoft Excel spreadsheet.

Part B

SPECIAL CONDITIONS OF CONTRACT

(For Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains)

1) This contract envisages P/L RC NP 3 Class, S.W., HDPE (DWC) Sewer Line.

2) Permissions :

2.1 The contractors will have to obtain permission from the traffic police department well in advance either for closing down the road partially/fully or for diversion of traffic for execution of the work. The work may be required to be executed in phases as per traffic police permission. The contractors should therefore consider this factor while quoting.

2.2 The contractor shall have to obtain all the required permissions of the concerned authorities outside M.C.G.M. required for carrying out the work. Only recommendatory letters will be issued by MCGM.

3) The contractors will be given 12 mm. dia. or 20 mm. dia. (as per the conditions of H.E.) water connection for drinking purposes for each site office at the cost of contractor, in the event of non-availability of MCGM water connection, the contractors shall make arrangement for drinking water at his own cost. The contractor shall make suitable arrangement for adequate supply of water by any means at his own cost for construction purpose. The water used for construction purpose must conform to I.S.-456 amended up to date. Extra water required for construction purposes will have to be brought by the contractors at his own cost and no extra claims on this behalf will be entertained.

4) Methodology of the work, safety manual and quality assurance plan shall be submitted before commencement of the work with copy at each site office.

5) Quantities of all items provided in the B.O.Q. may not be required to be executed depending upon the site conditions. The e - 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.

6) i) All material required for the work can be stacked near the site of work in such manner so as not to cause any inconvenience to the pedestrian and vehicular traffic. If

no space is available on site then e - Tenderer shall make his own arrangement for stacking of material etc. No extra payment will be made on this account.

ii) The surplus excavated material from the site shall be removed to the dumping ground within 24 hours, as directed. The necessary tipping charges upto the dumping ground, as applicable, shall be borne by the contractor.

iii) The royalty charges in respect of excavated material shall be paid by the contractors to the collector as and when asked for.

iv) 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.

v)The site shall be cleared by removal of surplus material on or before 15th of May every year.

vi) "MCGM will not make any payments towards transportation / removal/ disposal of excavated surplus earth from construction site to either Municipal dumping ground (if available) or contractors own dumping facility. Contractors shall quote accordingly."

7) Concrete Works: All concrete works shall be carried out by Ready Mix Concrete only.

8) The contractors shall make necessary arrangement for adequate lighting during night time. No extra claims will be entertained for the same.

9) It is the responsibility of the contractor to provide healthy accommodations to all construction labours who will be deputed at subject site of work. Proper hygienic condition shall be provided by the contractor at his own cost.

10) In Completion of the work, the contractors shall furnish free of cost 2 sets of final completion drawings in Auto CAD/ PDF format in CD and physical copy on Reproducible Tracing Film (50 microns, both sides matt, Technova brand or similar quality,) duly signed by the Engineer to the Dy. Ch. E. (S.P.) P & D within a period of two months from the date of completion of the work failing which a rebate of Rs 1,000/- (One thousand) as well as a penalty of Rs 5,000/- per drawing (Five thousand) will be recovered from the contractor. The payment of final bill shall be made to the contractors after receipt of above sets. Also, after the completion of work of sewer line shall be handed over to S.P. Department and the same shall be

updated in SUMC's network in consultation with S.P. Department. In case of for which 5% amount of contract cost shall be withheld.

11) The work should be started from downstream and shall be handed over and commissioned in part as per the progress of the works. DLP of the part handed over sewer line will be counted from the date of handing over.

12) The sewer line laid shall be tested for various tests in presence of representative of S.P. department during the progress of the work.

13) List of approved Banks etc. has been attached to this document. However, M.C.G.M. reserves right to modify these lists.

14) The RMC/Asphalt works required to be done under the captioned contract shall be got executed with RMC/Asphalt plant registered with MCGM

15) All the Frame & covers required for the works to be carried out under the captioned contract shall be procured from the specified manufacturers registered with M.C.G.M. only and also the interlocking paver blocks shall have BIS registration.

16) Traffic Management:-

16.1. The contractor shall have to provide adequate number of wardens as per requirement of Traffic Police Deptt. at the contractor's cost.

16.2. Traffic signs – Temporary traffic and construction signs are to be provided during construction and maintenance operations for traffic diversion and pedestrian safety as per Traffic Diversion Plan approved by the Engineer.

16.3. The contractor shall display the boards stating information of the name of the work, date of starting, date of completion, name of the Deptt. and contact telephone nos. of Contractor"s Engineer.

16.4. The contractor should note that the work is required to be carried out in phases as permit- ted by the Traffic Police Dept. The contractor will have to obtain permission from Traffic Police Deptt. well in advance for closing down the road or part thereof for the execution of the work. The work will have to be carried out in stages depending upon the permission granted by the Traffic Police for closure of the road or part thereof. The contractors should therefore take this into account while quoting:-

a. The contractor shall obtain specific permission or approval through the engineer wherever required. Only recommendatory letters will be issued by M.C.G.M. The

Contractor shall be responsible for obtaining permissions from traffic police, PWD, M.M.R.D.A., Railway authorities or any other concerned authority outside M.C.G.M., with due regard to the method of work and detailed designs involved. The contractor shall be responsible for submission of the detailed designs and clarification on time to the concerned authorities. The M.C.G.M. shall arrange to pay for the way leave charges, supervision charges or any requisite charges only, as demanded by the concerned authorities.

17) While constructing/improving footpath, provision for slopping ramp of at least 1.00 m width or as directed, shall be made at every carriage entrance, junctions, bus stops etc., for convenience of physically challenged persons.

18) The full time services of the Personnel Team of the contractor mandatory during the entire period of the project. Daily Attendance register of Contractor's staff shall be maintained and got checked from MCGM staff from time to time.

19) Diameter of the pipe and sizes of manholes provided in the bill of Quantities of the Tenders are tentative and are likely to change at the time of execution according to the site conditions. Contractors shall have to carry out such extra items in S.W.D. works as per contract shall be procured from the specified manufacturers registered with M.C.G.M. only and also the interlocking paver blocks shall have BIS registration.

20) (i) All the works shall be started from existing manhole at the downstream end of the proposed work so that the line laid will be put to use immediately.

(ii) All the existing street connections / cross sewer lines shall be transferred to the proposed sewer line with no extra cost, if any.

(iii) The work may involves laying of upsized sewer on narrow Gaothan Street Having existing utility such as SWD, Sewers, and Water mains. At some Location existing utilities are clashing sewer alignment hence, proposed sewer work is required to be carried out by dismantling existing cross drain (S.W.D), water mains, service connections etc and redo the same. It is likely that the new sewer will be laid on existing sewer alignment by isolating the same. The bidder has to desilt the existing sewer drain wherever required at their own cost. No extra dewatering charges in excess of BOQ quantity will be paid.

(iv) Before redoing of culvert work, the design of R.C.C. / Structural work shall Be obtained from licensed Structural Engineer at the cost of tenderer.

21) The Contractors may be called upon to execute additional work of laying small portion of sewers in the vicinity of the present work under the proposed Contract. This fact should be taken into consideration while quoting the percentages or rates for the tender of the work.

22) The contractor which expression shall include any person or group of person's rep resenting the contractor who are 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 other Manual Workers (Regulation of employment and 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 Contractors.

23) Any amount of Dewatering required for crossing nalla/culvert/S. W. drains, crossing of sewer lines etc. and also for making connection of the proposed sewer lines to the existing sewer line in surcharge conditions should be done free of cost. No payment will be made on that account. Contractor shall note the same and quote accordingly. The item of the constructing body manhole over functioning / non Functioning sewer of any diameter will be paid in regular manhole item which includes the cost of breaking of concrete and pipe, desilting of sewer line, dewatering of sewer line, etc. The contractor should quote their rates accordingly.

24) The contractors will have to make connections to the existing manhole including plugging, diverting or pumping the existing flow or accumulated water, making holes of any size in the masonary, breaking the existing cement concrete haunches, making sand plaster, constructing new channels and haunches with M 150. C. C. finished smooth with 20 mm. (3/4") thick cement mortar 1:1, deplugging and desilting the manhole on upstream side and downstream including passing disc in the length complete as directed (for this item no payment will be given to the contractors).

25) e- Tenderers should note that if the site of work is near the filled up creek close to the sea, it is likely that abnormal quantity of water will be required to be pumped out from the trenches during the course of execution. No extra payments for excessive pumping shall be separately made on this account. The e-tenderers should therefore quote their rates accordingly, at the time of filling the tenders.

26) e- Tenderes 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.

27) On receipt of the work order, an amount equivalent to 1/2% (half percent) of contract cost or Rs10,000/-, whichever is less, shall have to be deposited on demand by Ward Office where the work site is situated, towards deposit for removal of debris from the site. This amount will be adjusted towards the debris which has not been removed from the site by the contractors in time and removed by the Ward Staff.

28) a. The successful bidder are liable to pay cess to the Government as per the Notification issued by Industry, Energy and labour department is applicable from time to time and challan of amount remitted shall be submitted to the department.

b. If applicable, the tenderer are directed to submit the scanned copy of the certificates of registration under E.P.F. & M.P. Act 1952 and E.S.I.C. Act 1948.

29) Where the excavation is required to be done across the road or along the part of a road where there is high volume of traffic, the Engineer may direct the contractor, to execute the work in more than one shift, so as to complete the work, in least required time, so as to reduce the inconvenience caused to the free flow of traffic. Arrangement will have to be made by the contractor to provide additional lights, sign boards etc. as required by the Engineer and traffic police. The contractor will have to provide M.S. plates of sufficient thickness, including stiffer plates for strengthening with supporting joints, if required, to cover the open trenches during the day time for smooth flow of traffic during the progress of the work and till the trench is backfilled. No extra payment will be made for this arrangement. The program of the work to be done in additional shifts shall be submitted to the Engineer and got approved before starting the work, so that the work can be completed in a time bound manner.

30) It should be clearly understood that for the purpose of determination of the contract period, the monsoon period will be taken only as from 10th June to 30th September, and all works shall be recommenced on 1st of October, irrespective of whether there are intervening festivals and/or rains etc.

31) Contractor will make arrangement to inspect R.C. pipe / H.D.P.E. pipe manufacturer's site to carry out three edge bearing tests, water tightness test.

32) No material will be supplied by M.C.G.M. Stores.

33) The per cent above or below quoted in this schedule shall hold good for all works done under this contract without reference to location of works or quantities.

34) The contractors are particularly directed to observe from the specifications what is to be included in the rates for the several portions of the works and frame all their per cent above or below accordingly.

35) Detailed specifications are available on M.C.G.M. portal and plans, contract forms, etc. will be available for inspection during office time in the Office of Dy.Chief Engineer (SWD) WS, Andheri SWD office, greenwoods Society Chakala.

36) The e-tenderers should furnish list of plants and equipments in their possession and which they intend to bring on site for the particular work.

37) Time is the essence of the contract.

38) The whole work shall be finished in a workmanship like manner as per specification and to the entire satisfaction of the Municipal Commissioner.

39) It is incumbent on the Contractors to remove all "Pardis" put up by them during the progress of sewer work so as to obviate the necessity of such removal after the sewer is put into commission while handing over charge of such sewers to the respective Department. If any such "Pardi" is found after the Sewer is put into commission the cost of breaking and removing the same will be recovered from the Contractors.

40) The e- tenderer should visit the site of work before quoting their percentage above or below. It should be noted that even though the work sites are approachable there is no regular means of access to the work sites. The e-tenderers will have to make necessary ac- cess up the work sites for transporting material and machinery at their own cost. No extra payment will be entertained on this account.

41) If the part of the excavation is to be done in the creek area and some portion is to be done in existing natural water courses the tenderer should note that no extra payment will be paid for diverting the flow whenever and wherever necessary and/or for the excavation in marshy land.

42) After completing the work, the whole of the work should be handed over to E.E.(Mech) M.S. of the respective zone i.e user S.O. department for maintenance. A copy of the memo acknowledging the taking over of the work should be handed over to

the Ex-Engineer in charge of the work and a copy of the same along with the completion plan shall be sent to the Dy. Chief Engineer (S.P.) Planning & Design.

43) In respect of Filling in trenches with Municipal earth materials etc. in layers not exceeding 25cm. in loose thickness, watering etc. compacting by means of plate vibrator or a power roller to a depth not exceeding 2m. etc. complete as per New Road Specifications / trench guidelines effective from 01.02.2015. and as amended from time to time.

44) The e- tenderer should note that the sewer connections are to be made to the existing manholes which may be in surcharge condition and no extra claim of any sort will be entertained for plugging, desilting, diverting the flow or pumping out water from the existing sewer line as well as from the trench, to any extent, and contractors should quote their rates accordingly

45) Permission for laying/ replacement of utilities, pipe line works, cables shall be granted only during fair season starting from 1st October till 15th April. The backfilling of the trench shall be completed upto 30th April so that reinstatement of trenches including asphalting work can be completed prior to 10th May (MDB/4259 of 14.3.2005 & Ch.E/4754/Rds of 29.9.2005)

46) MCGM reserves the rights to reduce the scope of the work during the execution of the work for any reason. For the reduction in the scope of the work no claims whatsoever of nature by the contractor will be entertained.

47) Scope of Work includes minor changes in alignment due to site difficulties, if arises. Con- tractors are liable to carry out the sewer work as instructed by the Engineer of Contract.

48) During progress of work, the successful tenderer/contractor shall get identified the soil/rock strata jointly from Dy.Ch.E.(SP)Const. and Dy.Ch.E.(SP) P&D. Further, the contractor will also take sample of soil/rock strata, in presence of site-In-charge, at every 30 mtr centre to centre distance or less as per site condition and as directed by Site-In-charge and send it for testing to Govt. recognized Laboratory viz. I.I.T. Mumbai/ V.J.T.I./ S.P.C.E. Andheri(W) at his risk and cost to ascertain the crushing strength of the sample. The test results of the same shall be furnished to the office of the Chief Engineer (S.P.) and the quantities of the item such as excavation in the strata like soft rock, hard rock and relevant items like shoring, leaving wood work in sewer line etc. will be paid accordingly. How- ever, if engineer in charge/Ch.E.(S.P.)

feels to carryout testing on additional samples same shall be carried out at no extra cost to MCGM.

49) For detailed description of items, rates, and units of respective schedules in force at the time of invitation of tender, shall be referred to and be applicable.

50) Firms/Tenders not eligible to submit Tender

I) (a) Tenderer/ Contractual Agency not eligible to participate in tender process.

(i) Any Tenderer/ Contractual agency which is Debarred, Blacklisting, Demotion, Suspension, De-registration etc., as on date of invitation of tender by the MCGM/ Govt./ Semi-Govt./ Public Undertaking Agency shall not be eligible for participating in the bidding process of the present tender.

(ii) Any Tenderer/ Contractual agency which is Debarred, Blacklisting, Demotion, Suspension, De-registration etc., as on date of invitation of tender by the World Bank, JICA or any other International Financing Institution, shall not be eligible for participating in the bidding process of the present tender.

(iii) Any Tenderer/ Contractual agency having failed to perform on any contract as on last date of submission of the tender as evidenced by imposition of a penalty by an arbitral or judicial Employer or a judicial pronouncement or arbitration award against the Tenderer/ Contractual Agency as the case may be. Non performance/ failure to perform shall be base on all information on fully settled dispute or litigation that 322 has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all the appeal instances available to the Tenderer/ Contractual agency have been exhausted.

(iv) As on last date of submission of tender, any Tenderer/ Contractual agency OR any of the JV Technology Provider associating with any Tenderer/ Contractual agency that has been expelled from any project or contract by any public entity.

(v) As on last date of submission of tender, any Tenderer/ Contractual agency OR any of the JV Technology Provider associating with any Tenderer/ Contractual agency that has or had any contract terminated by any public entity for breach by such Tenderer/ Contractual agency or any Party constituting the Tenderer/ Contractual agency.

(vi) Tenderer/ Contractual agency OR any of the JV Partners OR Technology Provider associating with any Tenderer/ Contractual agency shall not have been Debarred, Blacklisting, Demotion, Suspension, De- registration etc. as i and ii above.

(b) Government entities shall be eligible only if they can establish that

(i) They are legally and financially autonomous and

(ii) They operate under commercial law, and

(iii) They are not a dependent agency of the Employer

II) The Tenderer/ Contractual agency shall mandatory to submit a notarized undertaking on Rs. 500/- stamp paper regarding I (a). If Tenderer/ Contractual agency having action under I(a) above submits a tender by hiding these facts or providing incorrect information then they shall be liable for forfeiture of EMD and disqualification including other actions as per provisions of law.

51) "G.S.T and other state levies/cess which are not subsumed under GST will be applicable.

The tenderer shall quote inclusive of all taxes. It is clearly understood that MCGM will not bear any additional liability towards payment of ant taxes & duties.

Whatever the services to be provided by the tenderers, falls under Reverse Change Mechanism, and the price quoted shall be exclusive of GST, but inclusive of Taxes /Duties/Cess other than GST, if any.

Rates accepted by MCGM 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.

As per circular u/No. CA/F/Project/City/19 Dt. 15.09.2017, Tenderer shall submit the Irrevocable Undertaking on Rs.500/- stamp paper as per **Annexure-1** as attached at the end.

52) Joint Venture is allowed for this bid.

53) The Tenderer(s) shall note that this contract envisages following works in general -

a)	Construction/Re-Construction/Training/Widening of existing SWD/ New Nallas/SWD/ Nallas as per the alignment shown in typical Drawing. However the same may vary in accordance with the site condition and as directed by the site–in- charge.
b)	Construction of Access road/pathway abutting to nalla/SWD if required.
c)	Construction / Remodelling of existing culverts if required
d)	Reconstruction of collapsed existing Nalla/SWD walls, etc.
e)	Contractor has to make arrangements for cofferdam wherever required since the site is affected by tidal effect for which no separate payment will be made.
f)	Contractor has to carry out the desilting of nalla/SWD and transportation of desilted material throughout the contract period.
g)	The trees affected in the alignment of SWD/Retaining Wall and Pathway shall be removed/ Transplanted by the contractor by obtaining permission from tree authority. The successful tenderer(s) has to deposit the requisite amount with Tree authority for faithful compliance of permission from Tree Authority.
h)	Contractor has to make arrangement for own dumping plot to dump desilted / excavated material at his own risk and cost
i)	Diversion of existing SWD flow if required shall be carried out by contractor on his own cost. No separate charges will be paid to the contractor
j)	The Contractor shall maintain smooth flow of storm water in nalla/ S.W.D throughout contract period by way of desilting etc. as directed by Site Incharge

54) The representative of the Engineer for this work will be from the offices of respective **Dy. Chief Engineer (SP/SWD).**

55) Detailed plans will be available for inspection in the office of respective Deputy Chief Engineer (SP/SWD).

56) The Tenderer(s) should simultaneously work at number of places or more and complete the work within contract period.

57) The contract period is including period required for mobilization, procurement of material, traffic permission, NOC from Land owning authorities for works, also other required permission viz. erection of site office etc. and shall be reckoned from the date of issue of work order.

58) The contractors will have to obtain permission from the land owner/Land owning authorities etc, well in advance before commencement of work through their premises for execution of the work by displaying appropriate boards. The work may be required to be executed in phases as per respective authority permission. The contractors should therefore take this factor into account while quoting.

59) Program of work: If at any stage the previously approved Program is required to be modified the contractors shall do so immediately as directed by the Engineer. If it is necessary to close some phase of the work and start a new phase as directed the tenderer(s) do so without claiming any extra payment. The Program shall be reviewed periodically and rescheduled as directed.

60) All material required for the work can be stacked near the site of work in such manner so as not to cause any inconvenience to the pedestrian and vehicular traffic. If no space is available on site then tenderer(s) shall make his own arrangement for stacking of material etc. No extra payment will be made on this account.

61) The Tenderer(s) shall maintain smooth flow of storm water in nalla/ S.W.D throughout contract period by way of desilting as directed by Engineer-in-charge for which no extra payment will be made.

62) No extra payment shall be admissible for dewatering the trenches, carrying the material by head load transport or approaches to the work site.

63) The contractors will have to obtain water connection for drinking purposes as per conditions in G.C.C. Extra water required for construction purposes will have to be brought by the contractors at his own cost and no extra claims on this behalf will be entertained.

64) The Tenderer(s)/ Tenderer(s) shall note that first class quality of material & workmanship is expected.

65) Quantities of all items provided in the B.O.Q. may not be required to be executed depending upon the site conditions. The tenderer(s) shall not be entitled for any compensation on this account. Before starting the work Tenderer(s) shall consult with the Site Engineer and shall take actual measurements on the site for procurement of material.

66) The Tenderer(s) shall procure all material required for the work form manufacturers with (ISI) certificates and according to M.C.G.M. specifications wherever applicable. Tenderer(s) shall submit manufacture's test certificate accordingly.

67) The contactors will have to work during night time also if required no extra claims in this regard will be entertained.

68) For minor details of R.C.C. work and whenever any modification is desired same have to be done according to the R.C.C. code of the M.C.G.M./ I.S. code and as directed by the Engineer- in-Charge.

69) Tenderer(s) should note that the measurements for the excavation items will not be taken for whole quantity of the excavation from the ground level up to the depth specified but will be taken for the quantity excavated between the specified depths only.

70) The successful tenderer(s) will have to make his own arrangement at his cost for the Electric power supply required for the work either by taking connection from Reliance energy Ltd./ M.S.E.B. / B.E.S.T. / TATA or arrange his own generators.

71) Tenderer(s) shall have to obtain all the permissions of the concerned authorities outside the M.C.G.M. required for carrying out the work. Only recommendatory letters will be issued by M.C.G.M.

a) If required, the contractor shall appoint liaison officer for pursuing matters with the MMRDA, MCZMA, MRDPA, concerned Dy. Collector (Encroachment), concerned Municipal authorities, City Survey office, Reliance Energy, Tata power, Traffic Police or any other concerned offices for expediting encroachment / hurdles removal work from the alignment of Nalla system.

b) Tenderer(s) shall have to obtain all the relevant permissions/ NOC from MCZMA, or any environmental and forest authority if the construction site falls under coastal Regulation zone or affected due to CRZ, the tenderer(s) has to get it done by approaching / liaison officer for pursuing the same .Only recommendation letters will be issued by the Corporation. The construction work affected due to CRZ will be allowed to be continued subject to clearance of environmental point of view.

72) Contract Labour (Regulation and Abolition act 1970): The Tenderer(s) should specifically note that the successful tenderer(s) shall have to strictly comply with the entire statutory requirement under the provision of the Contract Labour (Regulation and Abolition) Act 1970 and with the Maharashtra State Contract Labour (Regulation and Abolition) Rules 1970 and indemnify the Corporation against any claim(s) whatsoever. Successful Tenderer(s) should obtain Registration Certificate from Labour Commissioner.

73) The Noise level shall be maintained within the permissible limit in silent zone area during construction activities by the Tenderer(s) as per the notification dated 14/01/2000

issued by the Ministry of Environment and Forests.(Condition is included as per circular u/no. C.E/PD/7788/I dated 07/11/2008).

74) List of approved Banks/ Paver block manufacturers/ Asphalt Plants/ R.M.C. Plants etc. have been attached to this document. However, M.C.G.M. reserves right to modify these lists.

a) All the asphalt works required to be done under the captioned contract shall be got executed with the specified asphalt mixes manufactured in M.C.G.M. approved asphalt plants only.

b) All the Paver blocks/ Kerb stones/ Water tables/ Frame & covers required for the works to be carried out under the captioned contract shall be procured from the specified manufacturers registered with M.C.G.M. only.

c) The R.M.C. works required to be done under the captioned contract shall be got executed with the specified R.M.C. mixes supplied by M.C.G.M. approved R.M.C. plants.

d) The Mastic Asphalt work will be got done through the specialized agencies having expertise in Mastic Asphalt work.

75) While constructing/improving footpath, provision for slopping ramp of at least 1.00 m width or as directed by engineer-in-charge, shall be made at every carriage entrance, junctions, bus stops etc., for convenience of physically challenged persons.

76) The full time services of the Personnel Team of the Tenderer(s) is mandatory during the entire period of the project.

77) The site shall be cleared by removing all surplus material/silt/earth/debris periodically or as directed by engineer-in-charge.

78) If the Tenderer(s) excavates certain portion of the road and fails to reinstate the same within the stipulated time limit, as per the Program and or before 31st of May, the reinstatement will be got carried out at contractor's risk and cost through other agency in addition to further penal action.

79) All the excavated material belongs to the Municipal Corporation of Greater Mumbai and therefore shall be the property of Municipal Corporation of Greater Mumbai. It will be mandatory on the part of contractor to use this material in the execution of works under the instant contract or on any other sites of other

contracts of M.C.G.M. as directed by the Engineer-in-charge; if the quality of material is as per the specification. If any excavated material is used on construction sites then the remainder surplus earth OR if no excavated material is utilized on Municipal works then the entire surplus excavated earth / material including de-silted material shall be removed / transported from sites by the contractor within 24 hours; for which no separate payment will be made. If Municipal dumping grounds are not available for removal of surplus earth then the contractors shall make his own arrangements for removal / transportation / disposal of excavated surplus earth at his own risk and cost. It shall be distinctly noted that M.C.G.M. will not make any payment towards removal / transportation / disposal of surplus excavated earth including desilted material from construction site to either any Municipal dumping ground (If made available) or to contractors own dumping facility. The contractors shall take into account the fact while quoting.

80) The Tenderer(s) should note that during the execution of the work, debris etc, dumped on the public streets / places will have to be removed periodically or as per direction of Engineer-in-charge the failing which the same will be got removed at their risk and cost.

81) The work will be treated as completed only after cleaning the site in all respect after completion of the work.

82) Tenderer(s) should maintain the asphalt road stretches after reinstatement in traffic worthy conditions during monsoon free of cost by using asphalt mixes during the course of work.

83) The contractors shall display the boards giving information of name of the work, date of starting completion, Name of the department and contact telephone numbers. Non-compliance of this condition, a penalty of Rs. 1000/- per day per site shall be imposed on contractor.

84) The Tenderer(s) shall take photographs of site as and when directed by Engineer. 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. The register should be duly signed by site-in-charge and Tenderer(s) fortnightly. Failure to abide this condition of Rs. 1000/- per photograph copy will be recovered from the contractor`s bill.

85) On Completion of the work, the contractors shall furnish free of cost 2 sets of final completion drawings in AutoCAD along with the soft copy in CD, showing all the

details checked and signed by the Engineer within 2 months of completion of works. The payment of final bill shall be made to the contractors after receipt of above sets. 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 Tenderer(s) along with the penalty of Rs. 5,000/- per drawing (applicable for only identified works.)

86) All trenches taken in connection with the work should be sufficiently barricaded, as specified.

87) If barricading is not provided as directed in circular U/No.MGC/F/6342 dated 5.5.2018 a penalty of Rs. 2000/- per day per meter will be imposed.

88) Tenderer(s) should note since the work is to be completed expeditiously. The work should be in progress at several points along the length of the nalla. The Tenderer(s) should put in sufficient resources so as to ensure that the work is completed within the prescribed time period. Time is the essence of the contract. For this purpose, the tenderer(s) may be required to submit a PERT CHART showing the proposed schedule on which basis they intend to execute the work within the prescribed time period. The Tenderer(s) will have to submit BAR CHART, PERT Chart within 15 days from the issue of work order failing which a penalty of Rs. 2000/- per day will be imposed to the contractors.

89) (a) The quantities mentioned in the Bill of Quantities have been worked out by adding the estimated quantities for each individual work mentioned in the tender document.

(b) Any excess or saving in any item will be considered on total quantities included in the Bill of Quantity of that item in the tender documents.(Refer to circular in force for excess/saving)

(c) Tenderer(s) will have to arrange for unforeseen diversion of utility services during execution at his risk and cost.

90) The contractors should carry out if required any minor works pertaining to S.W.D. works, as may be decided by the Engineer-in-charge anywhere in the ward limit where the work is in progress under contract at the rates included in the Bill of Quantities of the above work with his percentage quoted.

91) The payment for excavation shall be made on cross sectional basis. Before starting the work initial levels will be taken at every 5 m or less depending on site conditions along the entire length of the proposed work levels at every 1.50 m minimum would be taken along the width of the section. The excavation quantity would be computed on the basis of levels thus taken by resorting the Prismoidal Formula or as directed by the Engineer-in-charge in case of encroachment and other structures. For establishing the datum line the average of the two end points of the ultimate cross-section required for excavation work will be considered.

92) Tenderer(s) should remove cofferdams constructed along/across the nalla before 15th May or as and when directed by engineer to keep the flow of storm water in the nalla unobstructed. No separate payment will be made for this.

93) The contractors are also required to reconstruct the cofferdam if required/directed by the Engineer to complete the balance work.

94) R.C.C. pipes to have used on site shall be as per specifications mentioned in the Tender and shall be procured from the Company Registered with M.C.G.M.

95) BARRICADING**:**

- It will be entirely responsibility of the contractor to provide and install secure barricades on work sites; **wholly at his risk and cost as per circular u/no MGC/F/6342 Dtd 05/05/2018**. The specification and Drawing of the barricades is attached herewith as annexure – E and F.
- Installing secure and continuous barricading is to ensure the safety of the road users/residents of vicinity etc. For all the excavations having depth more than one foot; exclusively metro barricades i.e. as per Annexure-E shall be provided. For lesser depth of excavations, if allowed by the engineer; the barricades as per the Annexure-F shall be installed. 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 contractors and contractor's engineer will be liable for consequent action.
- Details of the work shall be prominently displayed in central panel of the

barricades in following format

Name of work _____
Contract Cost Date of _____
starting Time Period _____
_____
Contractors Engineer Name
Mobile Number _____

96) As per Circular No. D.M.C./CPD/3217 dated. 02.03.19 "**INTERNAL GRIEVANCE REDRESSAL MECHANISM"** : M.C.G.M. has formed a Internal Grievance Redressal Mechanism for redressal of grievances. Any Bidder or prospective Bidder aggrieved that any decision, action or omission of the procuring entity being contrary to the provisions of the tender or any rules or guidelines issued therein, in Packet "A","B"&"C" can make an application for review of decision of responsiveness in Packet "A","B"&"C" within a period of 7 days or any such other period ,as may be specified in the Bid document . While making such an application to procuring entity for review ,aggrieved bidders or Prospective bidders shall clearly specify the ground or grounds in respect of which he feels aggrieved . Provided that after declaration of a bidder as a successful in Packet „A" (General Requirements), an application for review may be filed only by a bidder who has participated in procurement proceedings and after declaration of successful bidder in Packet „B" (Technical Bid), an application for review may be filed only by successful bidders of Packet „A". Provided further that, an application for review of the financial bid can be submitted, by the bidder whose technical bid is found to be acceptable / responsive. Upon receipt of such application for review, M.C.G.M. may decide whether the bid process is required to be suspended pending disposal of such review. The M.C.G.M. after examining the application and the documents available to him, give such reliefs, as may be considered appropriate and communicate its decision to the Applicant and if required to other bidders or prospective bidders, as the case may be. M.C.G.M. shall deal and dispose off such application as expeditiously as possible and in any case within 10 days from the date of receipt of such application or such other period as may be specified in pre-qualification document, bidder registration document or bid documents, as the case may be. Where M.C.G.M. fails to dispose off the application within the specified period or if the bidder

or prospective bidder feels aggrieved by the decision of the procuring entity, such bidder or prospective bidder may file an application for redressal before the „Internal Procurement Redressal Committee‟ within 7 days of the expiry of the allowed time or of the date of receipt of the decision, as the case may be. Every such application for internal redressal before Redressal Committee shall be accompanied by fee of Rs.25,000/- fee shall be paid in the form of D.D. in favour of M.C.G.M. 1st Appeal by the bidder against the decision of C.E./HoD/Dean can be made to concerned D.M.C/Director who should decide appeal in 7 days. If not satisfied , 2nd Appeal by the bidder can be made to concerned A.M.C.for decision .

Grievance Redressal Committee (GRC) is headed by Concerned D.M.C/Director of particular department for the first appeal / Grievances by the bidder against the decision for responsiveness / 44

Non-Responsiveness In Packet „A‟,Packet „B‟ or Packet „C‟ and if not satisfied,Concerned A.M.C. will take decision as per second appeal made by the bidder. This Grievance Redressal Committee (GRC) will be operated through DMC (CPD) office where appeals of aggrieved bidder will be received with fee of Rs.25000/-from aggrieved bidder.The necessary correspondence in respect of said applications to the aggrieved bidder & concerned department ,issuing notices, arranging of Grievance Redressal Committee(GRC) with D.M.C. and further proceeding will be carried out through registrar appointed by MCGM. No application shall be maintainable before the Redressal Committee in regard of any decision of the M.C.G.M. relating to following issues: Determination of need of procurement The decision of whether or not to enter into negotiations. Cancellation of a procurement process for certain reasons. On receipt of recommendation of the Committee, It will be communicate his decision thereon to the Applicant and to the Committee within 10 days or such further time not exceeding 20 days, as may be considered necessary from the date of receipt of the recommendation and in case of non-acceptance of any recommendation, the reason of such non-acceptance shall also be mentioned in such communication. Additional Municipal Commissioner and/or Procurement Redressal Committee, if found, come to the conclusion that any such complaint or review is of vexatious, frivolous or malicious nature and submitted with the intention of delaying or defeating any procurement or causing loss to the procuring entity or any other bidder, then such complainant shall be punished with fine, which may extend to Five

Lac rupees or two percent of the value of the procurement, whichever is higher.

97) No dumping ground will be made available by M.C.G.M. for disposal of desilted /excavated /surplus earth material from SWD. The tenderer(s) shall have to make their own arrangement for disposal of desilted / excavated / surplus earth materials. Please note that obtaining N.O.C. from Plot Owner for disposal of desilted / excavated / surplus earth materials on designated private dumping ground and dealing with all the consequences which may arise out of it's utilization shall be the sole responsibility of the tenderer(s). All the necessary charges including payment of Toll fees, Royalty (if any), etc shall have to be borne by the tenderer(s).

Any disputes / litigation regarding removal, transportation and dumping on site shall be sole responsibility of tenderer(s) and M.C.G.M. shall not be party for that in any case. Tenderer(s) shall indemnify M.C.G.M. and all its officers regarding any litigation and or issues that may arise out of ownership / NOC / Permission of said dumping site/s as well as removal / transportation / disposal of excavated surplus earth including desilted material. The indemnity bond stating the same shall be submitted in e-Packet B.

98) <u>PENALTY CLAUSES :</u>

<u>Penalties</u> :

a) If the succesfull bidder fails to start the work within 60 days of signing the agreement, Rs 100,000/- per day will be levied except delay due to force majeure.

b) The Engineer not below the rank of Assistant Engineer is entitled to impose a penalty of Rs. 2500/- per day for each defective work/lapse, disobedience of orders of the officer not below the rank of Site Engineer. Penalty amount will be recovered from contractors running bill.

c) This penalty is over and above Penalty mentioned under G.C.C. clause No. 100.

d) If it is observed that, the Tenderer(s) carrying out the work fails to comply with the instructions given by the authorities at the A.M.C./M.C.'s level during execution of work twice, the work will be terminated and will be carried out at the risk and cost of the Tenderer(s) and penal action will be taken against them. This decision will not be arbitrable at all.

e) The above mentioned condition will be in addition to the provision of relevant condition in the General Condition of contract.

Penalties

a) The stacked surplus excavated materials shall be removed immediately, failing which a penalty of Rs.**5000**/- per day per spot will be imposed.

b) The dumpers carrying the surplus excavated material shall be covered with Tarpaulin sheets during transportation in accordance with MSW 2000 rules and no separate payment shall be made for the same. If the tarpaulin cover is not provided on vehicle or is torn out or small one, a penalty of Rs.**5000/-** per trip for that vehicle will be imposed.

c) All the vehicles transporting surplus excavated material, earth, rock etc to dumping ground shall be provided with a board showing "On Municipal Duty". If the board showing that the vehicle is "On Municipal Duty", is not provided a penalty of Rs.**1000**/- will be imposed for per vehicle per trip.

d) In the event of any delay on part of the Tenderer(s) to adhere to the contract, M.C.G.M. shall be entitled, at its option to recover from the Tenderer(s) as agreed, liquidated damages which shall not by way of a penalty but shall be a genuine pre- estimate of the losses that M.C.G.M. shall incur, a sum of 0.5% of the price of the total Contract Cost for each work or part thereof, by which the work has been delayed, subject however to a limit of 10% of the Total contract Cost, without prejudice to M.C.G.M.'s other rights mentioned in the Contract.

e) The contractor shall have to take photographs. Failure to abide this condition, aPenalty of Rs. 1000/- per photograph copy will be recovered from the contractor's bill.

f) Tenderer(s) are requested to take cognizance of the child labour act and to take precaution not to deploy child labourers on the work. If child labourers are found deployed on the work, a penalty of Rs. 5,000/- on the spot will be imposed on the defaulting contractor and further action as deemed fit will be taken.

g) If the site office with the necessary requirements is not provided within 15 days from the receipt of work order, penalty of Rs.**2000**/- per day will be imposed.

h) The contractors shall provide proper safety gears to their staff, labors. 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 labor for the entire Contract period.

i) If 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

99) If a registered Tenderer(s) (a firm, partnership or company) is deregistered, then any other registered Tenderer(s)(a firms partnership or company), with any partner or shareholder who is also a partner or shareholder or a "spouse" of such partner or shareholder of the deregistered Tenderer(s) shall also stand automatically deregistered.

100) Demotion shall be restricted to one class immediately below the existing class of registration, Demotion from the lowest class of registration will amount to deregistration.

101) Demotion and deregistration shall apply to all the classes, categories and disciplines under which the Tenderer(s) is registered and will be valid for the remaining period of the contractors current period or registration or the period specified in the order of demotion, deregistration/ whichever is longer.

102) A deregistered Tenderer(s) shall not be entitled to be issued any tender document / or quotations for any M.C.G.M. works. Such contractors shall also not be entitled to apply and be considered for renewal of registration or fresh registration at the expiry of period of deregistration. Similarly a demoted Tenderer(s) shall not be entitled to apply and be considered for renewal / fresh registration in a class higher than that to which he was demoted.

103) Temporary huts for the labourer's huts for the S.W.Drains work may be permitted on work site in consultation with the respective Assistant Commissioners and subject to the following conditions or any other condition imposed by the Asstt. Commissioner.

a) The labourer's hutments will be completely isolated from the public by providing a tin sheet fencing around them.

b) They will be specifically identified by M.C.G.M. staff by numbering them suitably.

c) Adequate toilet and bathing facilities will be provided for them inside this fencing.

d) The contractors will strictly observe that labourers will use these toilets and bathing facilities and no unhygienic conditions are created at site.

e) In case, any of the above conditions is violated such hutments will be removed by the Assistant Commissioner without giving any notice to the Tenderer(s) in consultation with the Executive Engineer in charge of the work.

f) The labourers hutments will be removed by the contactors within 7 days or the completion of the work or the last day of the month of May whichever is earlier.

The Tenderer(s) has to check health of all the labours employed by him at every fortnight and take precautionary measures and treatments as per advice of medical officer. If record is not maintained, penalty of Rs.1000/- per labour will be imposed.

104) Tenderer(s) shall note that no extra payment shall be made for carrying out filling / carrying out preparatory works like excavation, dewatering, compaction, access road, working platform etc. in / adjacent to nalla / river to facilitate implementation of piling works / construction of side walls and the quoted rates of tenderer(s) shall be deemed to include carrying out all temporary works etc. and removal of all temporary works after completion of construction to the entire satisfaction of the Engineer-in-charge or before 15th May, whichever is earlier.

105) If the mangroves are required to be removed during execution of the work under the scope of the tender, the same shall be removed, as per directives of Hon.'ble High Court and as per prevailing Government Directions for which no extra payment shall be paid to the contractor.

106) It is required to prepare drawings/soil investigations/structural drawing and design, of the nalla retaining wall / R.C.C. work as per the site conditions or as directed by Engineer-in-charge. Contractors shall have to appoint licensed Surveyor/Soil investigation consultant/Structural Engineer/ R.C.C. Consultant at his own cost to prepare the drawings/soil investigation reports/structural drawings and designs based on tender items conditions and get the design approval from the department of M.C.G.M. The expenditure on this account will be deemed to have been considered in the rates quoted by the tenderer(s) and no extra payment shall be paid to the contractor.

107) The tenderer(s) shall carry out subsoil exploration / investigations at the site at his own cost wherever required and as per the directions of Site in-charge. Expenditure

on this account will be deemed to have been considered in the rate quoted by the tenderer(s) .

108) Any recommendation / alteration in the work as per decision of Competent Authority of M.C.G.M. shall have to be executed under the same tender conditions.

109) No claim shall be entertained on account of delay in removal of encroachment.

110) If the alignment of nalla retaining wall is affected by mangroves. The orders in cases pending in various courts in regard shall be binding on the contractors. The tenderer(s) cannot claim any damages / compensation etc. for delay or cancellation of the work or part thereof. This fact shall be kept in mind while quoting for tender.

111) It is observed that Contractors carrying out the work fail to comply with the instructions given by the A.M.C./M.C. during execution of work twice, the work shall be deemed to have been terminated and will be carried out at the risk and cost of the Contractors and penal action will be taken against them. This decision shall not be arbitrable at all.

112) The above condition will be in addition to the relevant conditions in General Conditions of Contract regarding cancellation of full or part of the work, finality of the decisions on the disputes, differences or claims raised by the Contractors relating to any matter arising out of the contract.

113) If concrete surface Finish of work is not as per specified class of finish (i.e F1, F2, etc.) and honeycombing is observed in the surface, penalty of Rs. 5000/- per Sq.m. will be imposed.

114) Any recommendation / alteration in the work as per decision of Competent Authority of M.C.G.M. shall have to be executed under the same tender conditions.

115) The Tenderer(s) 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 per personnel shall be imposed.

116) The contractors will have to obtain permission from the traffic police department well in advance either for closing down the road stretch or for diversion of traffic for execution of the work by displaying appropriate boards. The work may be required to be executed in phases as per traffic police permission. The contractors should therefore take this factor in to account while quoting.

117) The guide wall of iron channels / brick masonry wall of sufficient section height shall be constructed to guide touch piles/meter panels for which no extra

payment shall be made. If longitudinal alignment of the touch pile/meter panel differ more than 50 mm a penalty of Rs.5000/- per meter depth of pile / meter panel will be imposed.

118) The tenderer(s) should note that the work shall be carried out preferably during day time i.e. from 10.00 am to 05.00 pm only.

119) If the structures/encroachments including utilities coming in the alignment of the proposed work, the contractor shall have to arrange for the carrying out detail total station survey of the structures/encroachments at his own risk and cost and the tenderer(s) have to quote accordingly while bidding for the work. No separate payment will be made.

120) The contractors shall get the structures demolished from concerned Asst. Commissioner of ward for necessary working place to be made available for the subject work.

121) Even though the Tenderer(s) takes all the precautionary measures and by chance any workman is injured or dies due to negligence or otherwise, the Tenderer(s) will be responsible for the claims of damages by the workman or his legal heirs.

122) The Tenderer(s) has to check health of all the labourers employed by him at every fortnight and take precautionary measures and treatment as per the advice of Medical Officer. If record is not maintained by the Contractor, penalty of Rs. 1000/- per labour will be imposed.

123) The design of R.C.C. / structural work shall be obtained from Licensed Structural Engineer at the cost of the Tenderer(s).

124) Web Connectivity: The Tenderer(s) shall provide web connectivity to all above monitoring system. Web connectivity shall have minimum 1 MBPS Internet speed & 100% availability. Software should be intelligent. In case of connectivity failure it should maintain the pending files and send them as soon as it is connected. The Tenderer(s) shall make sure that the entire software and hardware solution is virus free.

125) Quantities of all items provided in the B.O.Q. may not be required to be executed depending upon site conditions. M.C.G.M. reserves right to make any changes in scope of work / reduction of part or whole work. The tenderer shall not be entitled to claim any damages/compensation etc. for less quantity executed or cancellation of whole work or part thereof.

126) The tenderer(s) shall note that during execution of work silt, excavated material, debris etc dumped on the public streets/places will have to be removed immediately as per direction of the Engineer-in-Charge, failing which the same will be got removed at their risk and cost.

127) The contractors shall provide proper safety gears to their staff, labors. Failure to provide safety gears as per above clause a penalty of Rs.1000/- per labour per day shall be imposed. The Tenderer(s) will be fully responsible towards the safety of staff and labors for the entire Contract period.

128) M.C.G.M. will appoint a consultant / Third party audit for quality/quantity audit, during execution period. Boards of size 4' x 3' showing all the necessary details should be displayed at each and every nalla site. For non-compliance of this condition, penalty of Rs.1000/- per day per site will be imposed on the contractors.

129) Tenderer(s) shall pay building & other building worker welfare Cess @ 1% of construction cost as per Maharashtra State building & other building welfare Cess act 1996 to the M.C.G.M. in consultation with C.A. (Finance).

a) Tenderer(s) should note that, there are only few access points in each Proposed work of this tender from where Machinery can be lowered for desilting work/ concreting work.

b) Tenderer(s) should note that, for inaccessible portion of proposed work of this tender the same shall be desilted manually by engaging adequate labour force and desilted material shall be conveyed up to loading point by head load.

c) If the contractor engages any machinery for collecting, carrying for lifting the silt from the Proposed work of this nalla system bed and if any damage appears to the nalla system bed or Retaining walls or any structure belongings to anybody due to impact of machines or due to any reasons the contractors will have to make good or such damages without any extra cost to M.C.G.M.

130) Since the work under reference is time bound the work will have to be carried out beyond the normal specified working hours. (10.00 am to 5.00 pm) the tenderer(s) should make specific provisions for this contingency.

131) The successful tenderer(s) shall provide lorries/dumpers & machineries as per prevailing norms of Mumbai RTO dept.

132) All the necessary precautions, safety measures etc. for the contractors staff at the work site shall be the responsibility of the successful tenderer(s). The successful

tenderer(s) shall also be liable for any injury to the life & damage to private, municipal or government properties if any caused by them during the operations connected with this work. In this if any legal issues arise in any term the contractors will be solely responsible for such kind of legal issues/disputes and M.C.G.M. will not be a party in this matter.

133) All the tenderer(s) are advised to visit the site of work so as to ascertain the scope of work required for effective execution of work & also to ascertain difficulties of accesses/approach road, traffic restrictions on account of tidal conditions etc.

134) The tenderer(s) shall take utmost care while transporting the wet silt/earth to dumping ground. The wet silt shall be transported in water tight vehicles to ensure that wet silt does not spill on the road and cause any accident in case of any such accident it will be the entire responsibility of the contractors to bear all the damage, claims, any untoward incidents if happened.

135) The contractor shall make proper arrangement of lighting / focus during night hours at his risk and cost at site.

136) The wood generated from tree cutting shall be deposited in the store of concern ward Horticulture Assistant / JTO & take acknowledgement for the same.

137) The contractors shall carryout tree cutting / transplantation / work in consultation with ward Horticulture Assistant / JTO & obtain necessary completion certificate for the same.

138) The silt must be transported within 48 hours to the specified dumping ground. However, in case of main roads, the silt will be transported by deploying vehicles immediately. The said vehicles shall be water tight. The wet silt shall not be allowed to drip out on the road during transportation.

139) Tenderer(s) are hereby directed to take out C.A.R. (Contractors All Risk) Policy and Janta Policies as directed under the General Conditions of Contract for civil works.

140) The tenderer(s) shall carry out the entrusted work as per BOQ and specification meticulously.

141) The successful tenderer(s) shall take jointly the bed / bank / service road initial levels at every 5.0 mt distance for the starting point of group allotted to the tenderer(s) before starting the work and submit the cross section as well as longitudinal section as per the directions of the Engineer In-charge free of cost. After completion of widening,

deepening, cutting work again the successful tenderer(s) shall take jointly the bed / bank / service road final levels at every 5.0 mt. distance from the starting point of group allotted to the tenderer(s) and submit the cross section as well as longitudinal section as per the directions of the engineer In-charge free cost. The successful tenderer(s) shall provide necessary survey instruments for the survey work free of cost.

142) No separate payment for any kind of transportation from site will be made for the work.

143) Tenderer(s) should take cognizance of the same while quoting the bid.

144) The royalties, taxes, charges, etc. for excavated material i.e. earth, rock, etc.will be borne by the contractors. As per revised policy of M.C.G.M., in case of municipal dumping, Contractors will be charged for tipping excess earth / material @ the rate of prevailing charges during execution of work. However, tipping charges including weighing the same shall have to be borne by the tenderer(s) for which no payment / reimbursement will be made. Considering these charges, tenderer(s) shall quote their percentage accordingly.

145) All the directives regarding new policy for governing extra/ excess as per circular no.Dir./ES&P/324 dated 15.07.2015, shall be followed.

146) Responsibility of observance of terms & conditions of the contract and authenticity of inputs given and documents submitted shall be solely of the contractors. The staff / engineers shall not be held responsible for any lapse / mischief that may be observed during the course of execution.

147) It is proposed to allow the tenderer(s) maximum upto 2 (two) private plots for dumping / unloading the desilted material/silt as per the work proposed.

148) For transportation of excavated material no vehicular tracking system will be insisted since the item of transportation will not be paid.

149) The tenderer(s) quoting/bidding for more than one work with respect to e-tender notice and intends to pay A.S.D. as specified in the tender then the tenderer(s) shall pay separate A.S.D. for each bid online before end date and time of bid submission. In case the A.S.D. submitted is more than the percentage quoted by the bidder, then the percentage quoted shall prevail.

150) If the tenderer(s) is lowest in more than one bid, independently qualifies the PQ criteria of corresponding bid where he is lowest and has sufficient bid capacity to bid then in such cases more than one tender can be awarded to such bidder. However,

final decision in this regards shall be with Municipal Commissioner

151) One Tender per Tenderer(s) –Each tenderer(s) shall submit online only one tender for one work. Tenderer(s) who submits more than one bid for one work, individually will cause all the proposals with the tenderer(s) participation to be disqualified.

a) Firms with common proprietors/ partners connected with one another either financially or as principal agent or as master and servant or with proprietor/partners closely related with each other such as minor son/daughter and minor brother/sister shall not tender separately under different names for the same contract.

b) If it is found that firms described vide above clause have tendered separately under different names for the same contract, all such tenders shall stand rejected and tender deposits shall be forfeited. Any contract entered into under such conditions will also be liable to be cancelled at any time during its currency and penal action including black listing of such firms will be taken.

152) Cost of Tendering-

The tenderer(s) shall bear all costs associated with the preparation, submission and uploading of his Tender, and the M.C.G.M. will in no case be responsible and liable for those costs.

153) **<u>Work Records</u>**: -All specified up to date site record should be maintained by the contractors. If the Tenderer(s) fails to comply with this condition, the penalty of Rs.1000/- per day per record will be imposed on the contractors.

<u>List of Registers</u>	
Sr. No.	**Name of Register**
1.	Inventory Register
2.	Correspondence file
3.	External & internal utility remarks file
4.	File containing drawings
5.	Daily Progress Register
6.	Instruction Register
7.	Level Book
8.	Mix design file

List of Registers	
Sr. No.	**Name of Register**
9.	Materials Testing Result file
10.	Photograph file
11.	Excavation Register (Asphalt , rock, soil etc)
12.	Filling/Embankment Register
13.	Granular Sub-base / K.T.R.Register
14.	Wet mix Macadam ./ Water Bound Macadam .Register
15.	Sand Metal Filling Register
16.	Misc work register
17.	M 15 CC Register
18.	M 20 CC Register
19.	M 40 CC Register
20.	M15,M20, M35/M40 Cube & Beam registers
21.	Ready Mix Concrete Challan file
22.	Cement Variation Register
23.	Cement Register
24.	Asphalt macadam (mixes) register
116	Dense Bituminous Macadam Register
26.	Asphalt concrete /Seal coat Register
27.	Asphalt challan file
28.	Penalty Register.
29.	Steel register
30.	Visual/ video recordings in form of CD's
31.	Form work shuttering register
32.	Precast register
33.	Any other register as per directions of Engineer in Charge.
NOTE :	**From above list the registers applicable for the specified work shall be maintained.**

154) **Minimum** 2 security guards round the clock shall be provided on every worksite. A penalty of Rs **1000/-** per security guard per shift will be levied if the same is not provided.

155) **Pre-bid meeting – (Applicable for tenders costing above Rs.25 Crores) :-**

f) The tenderer(s) or his authorized representative is invited to attend a pre-bid meeting as per the date, time and venue mentioned in the tender notice/header data.

g) The purpose of the meeting will be to clarify issues and to answer questions on

any matter that may be raised at that stage.

h) Any tenderer(s) requiring any clarification of the tender document and/or the works may submit his questions in writing to reach the office of **Chief Engineer (SWD)/Ch.E (S.P)** at least 2 days before the meeting.

i)The text of the questions raised (without identifying the source of enquiry)and the response given will be circulated/informed vide addendum on M.C.G.M. portal /displayed on Notice board of respective Zonal office within 7 days. Any modification of the tendering documents, which may become necessary as a result of the pre-bid meeting, shall be made by the M.C.G.M. exclusively through the issue of an Addendum and not through the minutes of the pre-bid meeting.

j)Non-attendance at the pre-bid meeting will not be a cause for disqualification of tenderer(s).

156) Any affected party / tenderer(s) may appeal before Director (E.S. & P)/ AMC as per circular no. CA/FRD-I/5 dated 10.05.2016 regarding their grievances pertaining to the tender under reference. The affected party may approach Procurement Redressal Committee (PRC) later on only after hearing conducted before Director (E.S.& P)/AMC initially.

157) A responsive tender is one, which confirms to all the terms, conditions and specifications of the tendering documents, without material deviation or reservation a material deviation or reservation is one-

a) Which affects in any way the scope, quality or Performance of the work.

b) which limits in any way, the employer's rights or the tenderer(s) obligation under the contract and inconsistent with tendering documents.

c) Whose rectification would affect unfairly the competitive position of other tenderer(s) presenting responsive tenders.

158) **Dumping Grounds**– Mention of the Municipal dumping sites in tender document does not cast any responsibility upon M.C.G.M. to make the same available to successful bidder. It all depends on availability of the dumping grounds. M.C.G.M. does not claim to make the Municipal dumping sites available to the successful contractor.

a) The dumping sites may change at the discretion of Engineer at short

notice, without any financial liability on M.C.G.M.

b) M.C.G.M. does not assume any responsibility for providing sites for dumping ground for removal and transportation of surplus excavated earth including de-silted material. In the event of Municipal dumping ground not available; the successful bidder shall have to make his own suitable arrangements for disposal of excavated surplus earth/ material / desilted material at his own risk and cost.

c) **"M.C.G.M. will not make any payment towards transportation/ removal/ disposal of excavated surplus** earth/ material / desilted material **from construction site to either Municipal dumping ground (if available) or contractors own dumping facility. Contractors shall quote accordingly".**

d) Nevertheless, M.C.G.M. reserves its rights to use surplus excavated materials for its own use anywhere in M.C.G.M. limits and the contractor will have to dump the material at any sites as decided and directed by the engineer in charge; no extra payment will be made on this account.

e) However, the successful contractor shall submit the debris management plan along with particulars of land where the surplus earth is proposed to be removed for approval. If dumping is allowed on Municipal Dumping ground the required tipping charges will be reimbursed on submission of detailed documents.

Note: The contractor appointed for Municipal works shall make his own arrangement for disposal / unloading C&D waste, silt, excavated earth generated at the time of carrying out municipal work either on the abandoned quarry / land in Mumbai city/Thane or New-Mumbai or on a private land, where the permission is granted by the concerned authority. This C&D waste will not be permitted to unload at MSW dumping ground unless it is required by the operator and permitted by A.M.C(City). On the basis of this condition the Contractor shall get the Debris- Management plan approved prior to the commencement of actual work. In case of non-abiding with said condition, heavy penalty will be imposed as per the Greater Mumbai Cleanliness and Sanitation Byelaws 2006, which may finally lead to termination of contract (Condition imposed as per circular U/no. Dy.Ch.E/2591/SWM/Project dtd 03/02/2008).

159) If the site is affected due to Tidal effect and to facilitate construction activity Coffer Dams will have to be constructed by the tenderer(s) and also tenderer(s) have to construct temporary road, F.O.B, etc while constructing the Nalla

for which no extra payment will be made. Tenderer(s) need to consider this aspect at the time of quoting the Bid.

160) Above all any new guidelines or changes in existing system regarding keeping a check on the transportation of vehicles to private dumping ground will be binding on contractors and no extra payment what so ever will be made to the tenderer(s) in lieu any changes made or fresh guidelines issued.

161) It is required to prepare drawings/soil investigations /Total Station Survey drawings/Structural drawing and design, of the nalla retaining wall/ RCC work as per the site conditions or as directed by Engineer –in –charge. Contractors shall have to appoint Licensed Surveyor/Soil Investigation Consultant/RCC design Consultant at this own cost to prepare the drawings/soil investigation reports/Total Station Survey drawings/ RCC structural drawings and designs based on tender item conditions and get the design approval from the department of MCGM. The expenditure on this account will be deemed to have been considered in the rates quoted by the tenderer and no extra payment shall be paid to the contractor.

162) Tenderers shall have to follow the New Guidelines & Modalities for execution of Engineering Works circulated by Ch.E.(Vigilance) department u/no. ChE/Vig /1581/B dated 21.09.2016.

163) Methodology of the work, safety manual and quality assurance plan shall be submitted before commencement of the work with copy at each site office.

164) **Concrete Works:**

All concrete works shall be carried out as per item description or by Ready Mix Concrete only.

165) The work should be started from downstream and shall be handed over and commissioned in part as per the progress of the works. DLP of the part handed over SWD/ sewer line/ service road will be counted from the date of handing over.

166) Diameter of the pipe and sizes of manholes provided in the bill of Quantities of the Tenders are tentative and are likely to change at the time of execution according to the site conditions. Contractors shall have to carry out such extra items in Sewer Line/Water mains works as per respective Schedule rates of M.C.G.M. prevailing at the time of execution of work adjusted by rebate/premium quoted by the contractors and no fair rate will be admissible for the same.

167) a) The Mix Design for Concrete shall invariably include details of source

material including tests carried out at source (Quarry/Cement Manufacturer's lab).

b) The contractors should carry out if required, any minor works such as raising/lowering of manhole, attending to bad spots, bad patches etc. as may be decided by the Engineer-in charge anywhere within the concerned ward limit where the work is in progress under contract at the rates included in the Bill of Quantities of the above work with his percentage quoted.

168) i) All the specifications laid down by IRC and as detailed in the relevant clauses of MoRTH- (2001) Manual on Specifications for Road and Bridge Works in respect of Construction of Drainage Layer, Wet Mix Macadam, Dry Lean Concrete should be strictly followed.

ii) All the works for thin/ ultra thin white topping shall be carried out as per IRC – SP - 76.

169) It will be the responsibility of the contractors to arrange for a joint inspection in every quarter of the year after completion of the work till the expiry of defect liability period and also 4 weeks before expiry of the defect liability period. Further, if the contractor fails to do so, the observations made by the staff during site inspection will be considered for the purpose of noting the defects.

170) (i)All the works shall be started from existing manhole at the downstream end of the proposed work so that the line laid will be put to use immediately.

(ii) All the existing street connections / cross sewer lines shall be transferred to the proposed/existing sewer line, if any.

(iii) The work may involves laying of augmentation of storm water line on narrow Gaothan street having existing utility such as Sewers, Water mains. At some location, proposed storm work will required to be carried out by dismantling existing sewer line and redo the same. It is likely that the new storm water line will be laid on existing alignment by isolating the same. The bidder has to desilt the existing storm water drain wherever required at their own cost.

(iv) Before redoing of culvert work, the design of R.C.C./ Structural work shall be obtained from licensed Structural Engineer at the cost of tenderer.

171) The Contractors may be called upon to execute additional work of laying small portion of storm water line/ sewer line in the vicinity of the present work under the proposed Contract. This fact should be taken into consideration while quoting the

percentages or rates for the tender of the work.

172) The contractor which expression shall include any person or group of person's rep- resenting the contractor who are 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 other Manual Workers (Regulation of employment and 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 Contractors.

173) Any amount of Dewatering required for crossing nalla/culvert/S. W. drains, crossing of sewer lines etc. and also for making connection of the proposed SWD/sewer lines to the existing sewer line in surcharge conditions should be done free of cost. No payment will be made on that account. Contractor shall note the same and quote accordingly.

174) The item of the constructing body manhole over functioning / non-functioning SWD/sewer of any diameter will be paid in regular manhole item which includes the cost of breaking of concrete and pipe, desilting of SWD/sewer line, dewatering of SWD/sewer line, etc. The contractor should quote their rates accordingly.

175) The contractors will have to make connections to the existing manhole including plugging, diverting or pumping the existing flow or accumulated water, making holes of any size in the masonry, breaking the existing cement concrete haunches, making sand plaster, constructing new channels and haunches with M 15 C. C. finished smooth with 20 mm. (3/4") thick cement mortar 1:1, de-plugging and desilting the manhole on upstream side and downstream including passing disc in the length complete as directed (for this item no payment will be given to the contractors).

176) Where the excavation is required to be done across the road or along the part of a road where there is high volume of traffic, the Engineer may direct the contractor, to execute the work in more than one shift, so as to complete the work, in least required time, so as to reduce the inconvenience caused to the free flow of traffic. Arrangement will have to be made by the contractor to provide additional lights, sign boards etc. as required by the Engineer and traffic police. The contractor will have to provide M.S. plates of sufficient thickness, including stiffer plates for strengthening with supporting joints, if required, to cover the open trenches during the day time for smooth flow of

traffic during the progress of the work and till the trench is backfilled. No extra payment will be made for this arrangement. The program of the work to be done in additional shifts shall be submitted to the Engineer and got approved before starting the work, so that the work can be completed in a time bound manner.

177) It should be clearly understood that for the purpose of determination of the contract period, the monsoon period will be taken only as from 10th June to 30th September, and all works shall be recommenced on 1st of October, irrespective of whether there are intervening festivals and/or rains etc.

178) Contractor will make arrangement to inspect R.C. pipe / H.D.P.E. pipe manufacturer's site to carry out three edge bearing tests, water tightness test.

179) No material will be supplied by M.C.G.M. Stores.

180) The per cent above or below quoted in this schedule shall hold good for all works done under this contract without reference to location of works or quantities.

181) The contractors are particularly directed to observe from the specifications what is to be included in the rates for the several portions of the works and frame all their per cent above or below accordingly.

182) It is incumbent on the Contractors to remove all "Pardis" put up by them during the progress of storm water work so as to obviate the necessity of such removal after the storm water is put into commission while handing over charge of such storm water line to the respective Department. If any such "Pardi" is found after the Storm water line is put into commission the cost of breaking and removing the same will be recovered from the Contractors.

183) After completing the work, completion plan shall be sent to the Dy. Chief Engineer (SWD) City & after verification & acceptance, the whole of the work should be handed over to E.E. (O&M) SWD (Mech.) of the respective zone for maintenance. A copy of the memo acknowledging the taking over of the work should be handed over to the Ex-Engineer in charge of the work.

184) In respect of Filling in trenches with Municipal earth materials etc. in layers not exceeding 25cm. in loose thickness, watering etc. compacting by means of plate vibrator or a power roller to a depth not exceeding 2m. etc. complete as per New Road Specifications / trench guidelines effective from 01.02.2015.

185) Scope of Work includes minor changes in alignment due to site difficulties, if arises. Contractors are liable to carry out the SWD/sewer work as instructed by the

Engineer of Contract.

186) Tenderer shall have to provide an air-conditioned site office admeasuring about 20 sq.m. (Minimum) with at least two windows and with all the security kits and safety measures for labourers shall be provided by the tenderers along with the conditions mentioned in Clause no.68. 5. and 68. 6. of GCC of this document. Also Digital camera with minimum 16 Mega Pixel lenses shall be provided for the tendered work.

187) Tenderer shall note that there will be no any separate payment for empty bore in piling work and they shall quote percentage accordingly.

188) **<u>TESTING OF MATERIALL FOR SERVICE ROAD</u> –**

Contractors are required to send at least one sample per day up to 50 M.T. and at the rate of one sample for every additional 50 M.T or part thereof per day for Asphalt Macadam/ Seal Coat/Asphalt Concrete and other asphalt mixes to the laboratory for testing. The ntractor shall note that, 50% payment of the bitumen work will be withheld till the results are received.

The test of samples of asphalt macadam, asphaltic concrete, mastic asphalt, used in the work shall be carried out at municipal laboratory or approved laboratory as directed by engineer in-charge.

The site laboratory shall be used for testing of sub-base, GSB, base course, WBM, concrete cubes (7 days, 14 days) and other materials as necessary and directed engineer in-charge.

The charges for testing of construction materials and asphalt mixes 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.

i. 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.
   a. Name of the Work, Work Code No. if any
   b. Type of material and tests desired (i.e. grade of cement, date of consignment)
   c. 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.)

d. Name and full postal address of the officer to whom the results must be sent.
e. Date of sampling (i.e. date of laying asphalt mix, Sr.No. of load casting concrete or taking cement samples.)
f. Name of the tenderer carrying out the work.
g. Any other information, which is specified by the user department.

ii. Samples must also bear the identification mark and signature of site in charge/ officer taking the samples. In case of samples of asphalt mixes sent in polythene bags a legible duplicate tag should be stapled from outside.

iii. Quantity of sample for testing must be adequate as shown in the schedule.

iv. For issuing additional copies or duplicate copies of test results at Municipal Testing Lab. Rs. 25/- will be charged for each copy. Request for additional /duplicate copy should be made in writing by site in charge or higher officers of the user department.

v. Field Density test shall be taken in Asphalt concrete Carpet for any thickness. The Contractor shall obtain the intimation letter from Engineer-in-charge & furnish the same to A. E. (Soil Mech.) or as directed by the Engineer within 7 days from the date of laying of asphalt concrete for carrying out the field density test. For any neglect or delay on the part of the contractor to intimate the same within seven days period, the additional charges as penalty would be recovered from the Contractor up to Rs. 200/- per test per week at the time of submission of intimation to A. E. (Soil Mech.)'s office.

vi. Samples of bitumen cut back, emulsions shall be forwarded in wide mouthed metal containers with label pasted on the lid.

vii. 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.

viii. Samples that are sent for testing for natural moisture content, shall be forwarded in wax coated packing or sealed airtight bags.

ix. Undisturbed samples sent in sampling tube shall be wax coated on both open ends.

x. The samples thus taken shall sent to the Testing Laboratory within 4 days from the date of laying, of Asphalt mix on site. In case of delay, additional testing charges as penalty would be recovered from the Contractor at the following rates.

A)	From the 5th day to 7th day from date of laying of asphalt mix on site	Rs. 10,000/-
B)	From the 8th day to 14th day from date of laying of asphalt mix on site	Rs. 20,000/-

The above charges i.e. (A) & (B) shall be paid by the contractors at time of submitting the samples in Municipal Laboratory.

If the samples of the Asphalt mixes are not sent for testing within 14 days, payment for the corresponding quantity of those samples shall not be made. Charges would be recovered from the respective bills payable to the contractor by respective department and credited to XV- Traffic Operations, Roads and Bridges, H - Material Testing Laboratory.

xi. In case of failure of asphalt mix sample testing in Municipal Laboratory in various tests the following penalties will be imposed.

a) Rs.500/- for each gradation failure as per result of asphalt macadam, seal coat and asphaltic concrete and Rs.1,000/- for each gradation failure in mastic asphalt.

b) For failure on more than 3 gradations in any asphalt mix. 50% of the cost of the work represented by the failed sample will not be paid to the contractors.

c) Rs.1,000/- each for failure in flow value/Bulk density/Void ratio/marshal stability in a asphaltic mix beyond permissible limit as mentioned in the test report.

d) In case of excess % of bitumen in the bitumen mix beyond specified limit, a penalty of Rs.60/- per MT of AM/SC/AC having excess bitumen for 50MT or thereafter as applicable for which representative

sample was taken will be imposed on C/s.

e) In case of less percentage of bitumen in the bitumen mix, than the specified limit, 50% of the cost of day's work represented by the sample will be recovered as penalty.

f) In case of failure of field density of Asphalt mix, the area represented by the sample has to be removed and redone.

The test of samples of asphalt macadam, asphaltic concrete, mastic asphalt, paver blocks, concrete cubes (28 days) flexural beams used in the work shall be carried out at municipal laboratory or approved laboratory as directed by engineer in-charge.

The site laboratory shall be used for testing of sub-base, GSB, base course, WBM, concrete cubes and other materials as necessary and directed engineer in-charge.

The charges for testing of construction materials and asphalt mixes 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.

xii. Cement samples should be forwarded in sealed airtight container with one opening on top not less than 10 cm. in diameter.

xiii. Moulds of concrete cubes/beams taken on hire shall be returned in clean, oiled condition with all nuts and accessories in proper position.

1.1. i) All the specifications laid down by IRC and as detailed in the relevant clauses of MoRTH- (2001) Manual on Specifications for Road and Bridge Works in respect of Construction of Drainage Layer, Wet Mix Macadam, Dry Lean Concrete should be strictly followed.

ii) All the **works for thin/ ultra thin white topping** shall be carried out as per **IRC – SP – 76** & as per detail specifications at **5.42.**

1.2. <u>Paver Blocks</u> -

All paver blocks shall be sound and free of cracks or other visual defects which will interfere with the proper paving of the unit or impair the strength or performance of

the pavement constructed with the paver blocks.

The test criteria and material requirements for Paver blocks should adhere to IS-15658: 2006. The salient features are as given below -

Physical Requirements -

a) All paver blocks shall be sound and free of cracks or other visual defects which will interfere with the proper paving of the unit or impair the strength or performance of the pavement constructed with the paver blocks.
b) When two layer paver blocks are manufactured there shall be proper bonding between the layers. Delamination between the layers shall not be permitted. The compressive strength of the two layer blocks shall meet the specified requirements.
c) When paver blocks with false joints, surface relief or projections are supplied, the same shall be specified. Also, the surface features shall be well formed and be devoid of any defects.
d) The mix design for paver blocks shall be obtained from manufacturers and shall be submitted before commencement of the work.
e) In case of failure of samples, the corresponding area of paver blocks shall be removed & replaced and samples of replaced lot shall be tested.
f) Octroi receipt will not be insisted if paver blocks are procured within Mumbai Limit, subject to the submission of documentary evidence.

Thickness of Wearing Layer -

When paver blocks are manufactured in two layers, the wearing layer shall have minimum thickness as specified in the IS. The thickness of the wearing layer shall be measured at several points along the periphery of the paver blocks. The arithmetic mean of the lowest two values shall be the minimum thickness of the wearing layer.

Water Absorption -

The water absorption, being the average of three units, when determined in the manner described in the IS, shall not be more than 6 percent by mass and in individual samples, the water absorption should be restricted to 7 percent.

Tensile Splitting Strength Test

Sr. No.	Thickness of Paver blocks	Grade of concrete	Minimum Tensile Splitting strength in Mpa	
			Individual	Average
i	50	30	≥ 2.1	≥ 2.2
ii	60	35	≥ 2.6	≥ 2.8
iii	80	45	≥ 3.6	≥ 3.9
iv	100	50	≥ 4.1	≥ 4.5
v	120	55	≥ 4.6	≥ 5.2

Abrasion Test -

Abrasion resistance for classes of H & I mark Paver blocks is ≤ 20,000 mm^3 /5000 mm^2 (Individual) and ≤ 18000 mm^3 / 5000 mm^2 (Average) , respectively.

The required number of test for abrasion resistance shall be 1 test for a quantity of 2,00,000 paver blocks.

Sampling

The required number of blocks shall be sampled from each batch of the consignment of blocks up to a quantity of 25,000 blocks.

Sr. No.	Property	Number of Paver Blocks for Test
i)	Water absorption	3
ii)	Compressive strength	8
iii)	Tensile splitting strength	8
Iv)	Abrasion resistance	8

Compressive Strength

Compressive Strength of paver blocks shall be determined as per the method given in the IS. Paver block strength shall be specified in terms of 28 days compressive strength. In case the compressive strength of paver blocks is determined for ages other than 28 days, the actual age of testing shall be reported. The average 28 days compressive strength of paver blocks shall meet the specified requirement. Individual paver blocks strength shall not be less than 85 percent of the specified strength. In case blocks of age less than 28 days are

permitted to be supplied, correlation between 28 days strength and the strength at specified age for identified batch/mix of blocks shall be established.

Maintenance Works -

1. During the Contract period (including intervening monsoon) the contractor shall maintain the project roads in motorable and traffic worthy condition at his own cost. The contractor shall attend and repair the damaged portion of the project road and the said work shall be done within **24** hours from intimation as directed by Engineer. The contractor shall not be entitled for any additional cost for such work undertaken.
2. a) The defect liability period for the improved roads shall be as per Annexure 'A'.
   The contractor shall be liable to maintain the road during the defect liability period, which shall include any repairs, rectification of any part or portion of the project road immediately without waiting for any notice or intimation and shall include:
   a. Maintaining roads signs, road markings, arrow marking etc. throughout the year.
   b. Maintaining the kerbs, dividers, with proper painting twice in a year preferably before and after monsoon, jointing etc.
   c. All road side furniture shall be inspected, restored/painted d. Surface deteriorations shall be rectified.
   d. Paver blocks- the undulations in the paver blocks settlement blocks shall be rectified/replaced as directed.
   e. The contractors shall not allow any trenches on the project road, stretch without due permission from concerned authority of MCGM.
   f. Cleaning and maintaining of laterals and water entrances of storm water drains including replacing missing/broken covers.
   g. The contractor shall not be entitled for any additional cost such works undertaken.

   b) Contractor shall maintain the following after expiry of Defect liability period of respective items as mentioned in ANNEXURE-A till completion of DLP of the work, as directed by Engineer In charge, for which payment will be made with quoted percentage of this tender as per prevailing schedule rates at the time of execution with the quoted percentage of this work.

   i) Maintaining roads signs, road markings, arrow marking, pedestrian crossings etc.

ii) Maintaining the kerbs, dividers, with proper painting etc.

iii) All road side furniture shall be inspected, restored/painted to original condition

3. Prescribed period for completing the maintenance works shall be as under:

a) Deteriorated surfaces in Asphalt, Paver Blocks that affect the movement of traffic shall be repaired /rectified within 24 hrs. of notice of such defects by the contractor or in his default when brought to his notice by concerned staff of M.C.G.M.

b) All other maintenance work like Road signs, Lane marking, railing etc. if found defective, shall be started within 7 days of notice of such defects by the contractors and completed within a reasonable period of 4 weeks or period as directed by Engineer whichever is earlier.

c) Filling of potholes or patching up should be taken and completed with 24hrs. of issue of instructions to do so.

4. Penalty of Rs. 2500/- per day for every day of delay beyond period prescribed in the tender shall be levied as regards the Maintenance Works.

1.3. <u>Reinstatement of Trenches–</u>

During the Contract period, various agencies including Municipal utilities may be permitted to take trenches. The contractors shall reinstate such trenches as per specifications/ guidelines and restore such portion with original surface treatment as directed. The payment for these items will be as per (2) below. The contractor shall co-ordinate with the Ward Office /trenching utility etc. to start the reinstatement of the trench after receipt of such intimation from Asstt. Commissioner of concerned ward and complete the same as directed. If any unauthorized trenches are taken in the project road stretch, it shall be the responsibility of the contractor to restore the same to original condition as directed. No extra payment towards reinstating such unauthorized trenches shall be made.

The contractors will have to reinstate the trenches excavated on Project Roads during the contract period, as per specifications and guidelines as prescribed in policy guidelines issued under No. MGC/F/1835 dated 17.11.2007 with amendments thereof up-to-date and as cited in the tender OR as per latest circulars issued in this regards. Booklet containing guidelines & circulars is available in respective offices of Dy.Ch.Eng. (Roads) and may be purchased from

Municipal Head Office.

1. The contractors shall be mobilized with sufficient men & machinery for taking up work of this nature at short notice at multiple places on project Roads.
2. The reinstatement of trenches during defect liability period shall be done by concerned contractual agency. The defect liability period of the reinstatement work will be as per Annexure 'A' or balance DLP of the work whichever is later. The reinstatement of trenches carried out on improved roads during defects liability period will be paid as per FMR schedule prevailing at the time of execution of reinstatement work with quoted percentage of this tender.

1.4. It will be the responsibility of the contractors to arrange for a joint inspection in every quarter of the year after completion of the work till the expiry of defect liability period and also 4 weeks before expiry of the defect liability period. Further, if the contractor fails to do so, the observations made by the staff during site inspection will be considered for the purpose of noting the defects.

1.5. In super session of clause 96 of G.C.C., the following conditions shall apply:-
If any dispute, difference or claim is raised by either party relating to any matter arising out of the contract, the aggrieved party within a period of seven days can appeal to the concerned Add. Municipal Commissioner who shall constitute a committee comprising of three officers i.e. the concerned Dy. Municipal Commissioner or Director (E.S.& P.), Chief Engineer other than the Engineer of the Contract and the concerned Chief Accountant. The Committee shall give its decision in writing within 60 days of its formation, after giving at least one hearing to the contractors.

Appeal against the order of the Committee may be referred to the Municipal Commissioner within seven days. Thereafter, the Municipal Commissioner shall constitute a Committee comprising of three Addl. Municipal Commissioners including the Addl. Municipal Commissioners in charge of Finance Department and an expert from outside M.C.G.M. The Committee shall give at least one hearing to the contractors. The decision shall be given within 60 days. The decision given by this Committee shall be final and binding upon the parties.

1.6. The contractor shall maintain soft copy of the following registers during execution of work and it is mandatory to provide Lap Top to the site Engineers for this–

List of Registers

Register Code	Name of Register
1.	Inventory Register
2.	Correspondence file
3.	External & internal utility remarks file
4.	File containing drawings
5.	Daily Progress Register
6.	Instruction Register
7.	Level Book
8.	Mix design file
9.	Material Testing Result file
10.	Photograph file
11.	Excavation Register (Asphalt , rock, soil etc)
12.	Barricading Register
13.	Filling/Embankment Register
14.	Removal Challans
15.	Desilting Register
16.	G.S.B./K.T.R.Register
17.	W.M.M./W.B.M.Register
18.	Sand Metal Filling Register
19.	D.L.C. Register
20.	Duct Pipe /Lateral Register
21.	Steel Register
22.	Form Work Shuttering Register
23.	Pour Card Register
24.	M 10 Register.
25.	M 15 Register
26.	M 20 Register
27.	M 40 Register
28.	M 10, M15,M20, M35/M40 Cube registers
29.	R.M.C. Challan file
30.	Cement Variation Register
31.	Cement Register

32. Joint Cutting Register
33. Precast item register (Paver blocks, Kerb stone etc)
34. Precast item challan register
35. Asphalt macadam (mixes) register
36. D.B.M. Register
37. Asphalt concrete /Seal coat Register
38. Asphalt challan file
39. Penalty Register.
40. Sand Patch test Register.
41. Traffic Amenity Register.
42. Register for inspection during defect liability period.
43. Any other registers required as per description of items for any activity/material/quantity for which payment is made or as instructed by MCGM staff

Site Laboratory

Contractors shall set up two site laboratories of size 3 m X 10 m (about 30 sq. m) minimum, easily accessible from work sites before commencement of work at their cost for performing various tests and at least the following machines and equipments shall be provided therein –

1. Camber Board
2. Electronic thermometer calibrated at least up to 300 degree Celsius and glass thermometer calibrated up to 200 degree Celsius.
3. Field density bottle along with cutting tray, chisel, hammer and standard sand.
4. Set of Sieves.
5. Bitumen Extraction machine / Bitumen core Cutting Machine
6. Laboratory weighing balance of minimum 20 kg. Capacity, with set of standard weights from 1 gm to 5 kg. & Electronic weigh balance with least count of l gm.with electric operated.
7. 3 mtr. Straight edge.
8. Kerosene/ gas stove or electric hot plate / Electric Oven.
9. Curing tank adequate capacities.
10. First Aid Box.
11. Density Gauge - to check the field density of bituminous and sub base layers and soil strata.

12. Flakiness and elongation index Gauges.
13. Compressive strength testing machine (for cube tests) of minimum150 tonne capacity electrically operated and duly calibrated every 6 months. Testing machine should be maintained properly. In case of failure, the same shall be repaired or replaced within 2 days.
14. Aggregate drying equipments, M.S. Tray of 0.6 M x 0.45 M and Kerosene stove or electric hot plate.
15. Equipment for testing of silt content in sand.
16. Infra Red thermometer calibrated upto 250 degree Celsius
17. Sieve shaker.
18. Kadappah stone platform of size 2.5m. x 0.90m. approx.
19. Digital Density Meter for computing In-Situ Density.
20. Other machines as may be directed by the Engineer.

All the test records shall be maintained in the site office and made available as and when required.

The engineer of the contractor shall conduct field density test periodically under the supervision of MCGM staff/ any other consultant/third party quality auditor if appointed by MCGM and maintain the relevant records.

The laboratory must be established within 15 days after issue of work order On failure to do so, a separate penalty of Rs.50,000/- per day shall be imposed. All materials used prior to establishment of lab shall be tested in MTL/other MCGM approved lab.

189) Bidders are requested to submit the cost breakup of asset replacement value & replacement schedule (for STP works) in separate sheet attached as **Annexure K**. It shall be sealed and submitted to office of EE Mech. (Sew.) Malad Zone at DN Nagar, Andheri West which will be opened along with Packet 'C' in presence of interested bidders/vendors and Accounts Officer.

190) The Bidder whose Bid is adjudged as responsive in terms technical and financial requirements of this tender and who's assessed Bid Price is the lowest, shall be declared as the selected Bidder (the "Selected Bidder – L1").

a. In case of Equal Rate 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 done by IT

department in MCGM's SRM system. Till such development is made; 'Sealed Bids' shall be called from the bidders quoting the same rates i.e. L1.

b. 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 Ch.Eng.

c. In the event that the lowest Bidder withdraws or is not selected for any reason in the first instance (the "First Round of Bidding"), the Authority may invite all the remaining Bidders to revalidate or extend their respective Earnest Money Deposit, as necessary, and invite Second lowest bidder-L2 match the Bid of the aforesaid lowest Bidder-L1 (the "Second Round of Bidding"). If in the Second Round of Bidding, Second lowest Bidder-L2 matches the lowest Bidder-L1, it shall be the Selected Bidder.

d. In the event that Second lowest Bidder-L2 reject the offers to match the lowest Bidder-L1 in the Second Round of Bidding as specified in Clause 3.c the Authority may, in its discretion, invite fresh Bids (the "Third Round of Bidding") from all Bidders except lowest Bidder-L1 of the First Round of Bidding, or annul the Bidding Process, as the case may be.

SECTION 11

SPECIFICATIONS & SELECTION OF MATERIAL

SPECIFICATIONS & SELECTION OF MATERIAL

The tender is prepared on the basis of Unified Schedule of Rates and specifications 2013. The specifications of the items of USOR are available on MCGM portal http://portal.mcgm.gov.inunder the Tender tab. Hence the deserving contractor shall either download the same from MCGM 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 Engineer. The Engineer or his representative will accept that the materials are really the best of their kinds, when it is proved be- yond 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 Engineer 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 when- ever 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 Engineer 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 Engineer 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 Engineer 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.

(Please Refer Volume 2 for Civil Specifications &

Please Refer Volume 3 for specifications of STP, Electrical &

Mechanical and Instrumentation)

SECTION 12

DRAWINGS

The drawing is attached pertaining to the works can be inspected in the Office of the Dy. Ch. Engr. Sewerage Project (Planning & Design) during office hours.

GA plans for STP is attached at the end of tender document **(For Reference Only).**

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 relavant

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;

B. "**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 ;

C. **"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;

D. "**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

E. **"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.

F. 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.

G. 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, non-competitive 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 is arranged on _____ at 15.00 Hrs in the conference room of AMC (P), Municipal Head Office, Mahapalika Marg, Fort, Mumbai 400001. A maximum of three representatives of each Applicant shall be allowed to participate on production of authority letter from the Applicant.

During the course of Pre-bid meeting, the Applicants 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.

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 on forced against the said branch of the Bank in case of default by the contractor/supplier furnishing the bankers Guarantee.

List of approved Banks:- (As per CA/FBK/25 dt 30/10/2014)

A	**S.B.I and its subsidiary Banks**
1	State Bank Of India.
~~2~~	State Bank Of Bikaner & Jaipur.
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	**Nationalized Banks**
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.
C	**Scheduled Commercial Banks**
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.
D	**Schedule Urban Co-op Banks**
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.
60	Rupee Co-op Bank Ltd.
61	Sangli Urban Co-op Bank Ltd.
62	Saraswat Co-op Bank Ltd.
63	ShamraoVithal Co-op Bank Ltd.
64	Mahanagar Co-op Bank Ltd.
65	Citizen Bank Ltd.
66	Yes Bank Ltd.
E	**Foreign Banks**
67	ABM AMRO (N.Y.) Bank.
68	American Express Bank Ltd.
69	ANZ Grindlays Bank Ltd.
70	Bank Of America N.T. & S.A.
71	Bank Of Tokyo Ltd.
72	Bankindosuez.
73	Banque Nationale de Paris.
74	Barclays bank.
75	City Bank N.A.
76	Hongkong & Shanghai banking Corporation.
77	Mitsui Taiyokbe Bank Ltd.

78	Standard Chartered Bank.
79	Cho Hung Bank

Note: IDBI Bank Bank Guarantee not acceptable as per Circular CA/FBK/303 dated 17.03.18

SECTION–16

APPENDIX

FORM OF TENDER

To,

The Municipal Commissioner for Greater Mumbai

Sir,

I/ We have read and examined the following documents relating to the construction of _____

_____

_____

i. Notice inviting tender.
ii. Directions to tenderers (General and special)
iii. General condition of contract for Civil Works of the Municipal Corporation of Greater Mumbai as amended up to date.
iv. Relevant drawings
v. Specifications.
vi. Special directions
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 con- tract 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 toRs. _____ (Rs._____ _____)

   I/We have deposited the amount through online payment gateways with the C.E. of the Corporation not to 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 be- fore 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 daysfrom 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 upon to 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 fulfill 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 Municipal Corporation of Greater 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 with- drawn by the Corporation,"

Address Yours faithfully,

…….

……..……

Digital Signature of the Tenderer or the Firm

1.……

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. …….. Vender No.……

AGREEMENT FORM

Tender / Quotation dated ……. 20…

Standing Committee/Education Committee Resolution No…….
……..……. CONTRACT FOR THE WORKS
…….……..……..……
……...…….……
This agreement made this day of …… ……. ……
…… Two thousand…..……..…… Between
……...……...…….……
……..…….…….
inhabitants of Mumbai, carrying on business at…… ……...…….……
……...…….……
in Bombay under the style and name of Messrs ……..
……..……...……
…… (Hereinafter called "the contractor of the one part and Shri ……
…… …….……
the DMC (E) (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 DMC (E) of the second part and the Municipal Corporation of Greater 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 ten- der 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 MCGM

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 Name

Address Contractors

Signed by the DMC (E) in the presence of Ex. .... City/ WS/ ES

_____

_____

DMC (E)

The Common seal of the Municipal Corporation of Greater Mumbai was here unto 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 :

Chief Engineer (_____)

1. The Engineer for this work: Dy.Ch.Eng.(_____)
   Exe.Eng.(_____)

2. Estimated cost of Tender:

3. Earnest Money

4. Time Period
   1. Contract as a whole Period Completion
   2. Part of Groups of Items

i)	i)
ii)	ii)
iii)	iii)

5. Percentage to be charged as supervision charges for the work got executed through other means …….percent.

   The "Actual cost of the work" shall mean in the case of percentage rate contracts the actual cost of the work executed at the rates as mentioned in the Contract Schedule adjusted by the Contractor's percentage rate and cost of extra and excess, but excluding the cost on account of Water Charges and Sewerage Charges if any, payable by the contractor and also excluding cost on account of price variation claims as provided in price variation clause as amended up to date.

6. In case of item rate contracts the actual cost calculated for the work executed at the

rates mentioned in the contract schedule for different items including cost of excess and extra items of the work excluding the cost of water charges and sewerage charges if any, payable by the contractor and excluding cost on account of price variation claims as provided in extra excess conditions as amended up to date.

7. In case of lump sum contract the cost of the work actually carried out as per break up and programme of the work and the schedule of payment included in the contract including cost of any excess and/or extra items, of the work, excluding the cost on account of water charges and sewerage charges and also excluding cost on account of price variation claims as provided in extra excess conditions as amended up to date.

Annexure-B

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 MCGM, 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 MCGM 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 MCGM 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 MCGM 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 ;
2. "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;
3. "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

4. "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, MCGM is entitled to carry out the work allotted to me by any other means at my risk and cost, at any stage of the con- tract.
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

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 MUNICIPAL CORPORATION OF GREATER 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 AGRREMENT WITHNESSES 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 to Rs. _____only and guarantee shall remain in force upto_____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"

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-D

Rate Analysis for STP Works

Item Description

Sr no	Description of rate analysis parameters	Unit	Qty	Rate	Amount
1	Basic Material (Rate should be inclusive of all taxes)				
2	Machinery Hire Charges				
3	Labour Type		(Labour Components)		
4	Total of all components				
5	Overhead & profit 15% on (4)				
6	Total rate 4+5				
7	Per unit rate				

Rate Analysis for Providing and laying of sewer network, provision of Interceptors for diversion of DWF, construction of service road and road side drains

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-9-1	**Providing R.C.C. Spun vent shaft 7.3M in**	**No**			
	Material				
	RCC vent Shaft 7.3m height	No			
	M.S 16 dia bar	No			
	Total For Material				
	Labour				
	Skilled Mason	Day			
	Skilled labour	Day			
	Unskilled labour	Day			
	Total Labour Charges				
A	Total				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Finished items				
	M15 CC bed	cum			
	BM(1:3)	cum			
	Plaster(1:2)CM 20mm thick	sq.m			
	Precast RCC cover	No			
D	Total Cost (A+B+C)				
	Per Unit Cost	No			
R2-SE-8-1	**Constructing brick masonry inspection chamber rectangular 0.9M x 0.45M and0.6M deep on sewer**				
	Finished Items				

Code No	Description	Unit/per	Qty	Rate	Amount
1	Bed Concrete(M15)	cum			
2	CC Cap (M20)	cum			
3	Haunch concrete (M15)	cum			
4	B.M in cement mortar 1:3	cum			
5	20mm plaster in CM 1:2	sq.m			
6	CI frame & cover 0.9M x 0.45M	No			
7	C.I steps	No			
8	Extra for centering & Scaffolding	cum			
9	Vata (1:1)	sqm			
A	Channel Plaster (1:1)				
	Per Unit Cost	Rs/No			
R2-SE-8-1-a	**Extra over above for every additional metre depth upto 2.5M -**				
	Finished Items				
1	B.M in cement mortar 1:3	cum			
2	Plastering-20mm thick(1:2)	sq.m			
3	CI steps(providing and Fixing)	No			
A	Total				
	Per Unit Cost	m			
R2-SE-8-2	**Constructing brick masonary inspection chamber rectangular 0.9M x 0.6M and 0.6M deep -**				

Code No	Description	Unit/per	Qty	Rate	Amount
	Finished Items				
1	Bed Concrete(M15)	cum			
2	CC Cap (M20)	cum			
3	Haunches and Channels in CC (M15)	cum			
4	B.M in cement mortar 1:3	cum			
5	Plastering-20mm thick(1:2)	sq.m			
6	Frame and cover (0.9m x 0.6m)	No			
7	CI steps(providing and Fixing)	No			
8	Vata (1:1)	cum			
9	Channel plaster (1:1)	sqm			
A	Total				
	Per Unit Cost	Rs/No			
R2-SE-8-2-a	**Extra over above for every additional metre depth upto 2.5M -**				
	Finished Items				
1	B.M in cement mortar 1:3	cum			
2	Plastering-20mm thick(1:2)	sq.m			
3	CI steps(providing and Fixing)	No			
A	Total				
	Per Unit Cost	m			
R2-SE-8-5	**Constructing brick masonry inspection chamber rectangular 0.9M x 0.45M and0.6M**				

Code No	Description	Unit/per	Qty	Rate	Amount
	Finished Items				
1	Bed Concrete(M15)	cum			
2	CC Cap (M20)	cum			
3	Haunches and Channels in CC (M15)	cum			
4	B.M in cement mortar 1:3	cum			
5	Plastering-20mm thick(1:2)	sq.m			
6	SFRC Frame and cover	No			
7	Copolymer steps(providing and Fixing)	No			
8	Vata (1:1)	cum			
9	Channel plaster (1:1)	sqm			
A	Total				
	Per Unit Cost	Rs/No			
R2-SE-8-5-a	**Extra over above for every additional metre depth upto 2.5M**				
	Finished Items				
1	B.M in cement mortar 1:3	cum			
2	Plastering-20mm thick(1:2)	sq.m			
3	Copolymer steps(providing and Fixing)	No			
A	Total				
	Per Unit Cost	m			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-8-6	**Constructing brick masonary inspection chamber rectangular 0.9M x 0.6M and 0.6M**				
	Finished Items				
1	Bed Concrete(M15)	cum			
2	CC Cap (M20)	cum			
3	Haunches and Channels in CC (M15)	cum			
4	B.M in cement mortar 1:3	cum			
5	Plastering-20mm thick(1:2)	sq.m			
6	SFRC Frame and cover	No			
7	Copolymer steps(providing and Fixing)	No			
8	Vata (1:1)	cum			
9	Channel plaster (1:1)	sqm			
A	Total				
	Per Unit Cost	Rs/No			
R2-SE-8-6-a	**Extra over above for every additional metre depth upto 2.5M**	**No**			
	Finished Items				
1	B.M in cement mortar 1:3	cum			
2	Plastering-20mm thick(1:2)	sq.m			
3	Copolymer steps(providing and Fixing)	No			
A	Total				
	Per Unit Cost	m			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-6-1	**Constructing on sewer brick masonry conical manholes 1.2M dia. at bottom 0.56 M. dia. at top**				
MA	Material				
i)	Bed Concrete(M15)	cum			
ii)	CC Cap (M20)	cum			
iii)	Haunch concrete (M15)	cum			
iv)	B.M in cement mortar 1:3	cum			
v)	20mm plaster in CM 1:2	sq m			
vi)	C.I steps	each			
vii)	CI frame & cover 0.56m dia (wt-230 Kg)	No			
viii)	Extra for centering & Scaffolding	m			
ix)	Vata (1:1)	cum			
x)	Channel Plaster (1:1)	sq m			
	Per unit Cost	No			
R2-SE-6-1-a	**Extra over above per metre depth above 1.5 M. and upto 2.3 M. depth -do- -do-**				
	Depth: 2.3-1.5=0.8				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d)	Extra for centering & Scaffolding	m			

Code No	Description	Unit/per	Qty	Rate	Amount
	Per Unit Cost	m.depth			
R2-SE-6-2-a	**Constructing on sewer brick masonry conical manhole 1.5 M. dia. at bottom and 0.56 M**				
MA	Material				
i)	Bed Concrete(M15)	cum			
ii)	CC Cap (M20)	cum			
iii)	Haunch concrete (M15)	cum			
iv)	B.M in cement mortar 1:3	cum			
v)	20mm plaster in CM 1:2	sq m			
vi)	C.I steps	each			
vii)	CI frame & cover 0.56m dia (wt-230 Kg)	no			
viii)	Extra for centering & Scaffolding	m			
ix)	Vata (1:1)	cum			
x)	Channel Plaster (1:1)	sq m			
	Per unit Cost	No			
R2-SE-6-2-b	**Extra over above per metre depth above 2.3 M. and upto 5 M. depth -do- -do-**				
	Depth: 5 - 2.3=2.7				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			

Code No	Description	Unit/per	Qty	Rate	Amount
e)	Extra for centering & Scaffolding	m			
f)	Safety Chain	No			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-2-c	**Do- -do- above 5 M & upto 9 M -do- -do-**				
	Depth: 4 m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads@----%				
	Per Unit Cost	m.depth			
R2-SE-6-2-d	**Do- -do- above 9.M & upto 11 M -do- -do-**				
	Depth: 2 m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads@----%				

Code No	Description	Unit/per	Qty	Rate	Amount
	Per Unit Cost	m.depth			
R2-SE-6-2-e	**Do- -do- above 11M & upto 12 M -do- -do-**				
	Depth: 1m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-2-f	**Do- -do- above 12 M and upto 14 M depth - do- do-**				
	Depth: 2				
a	B.M in cement mortar 1:3(SE-3-8)	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-3	**Constructing on sewer brick masonary conical manhole 1.8M dia. at bottom 0.56M dia at top,**				

Code No	Description	Unit/per	Qty	Rate	Amount
MA	Material				
i)	Bed Concrete(M15)	cum			
ii)	CC Cap (M20)	cum			
iii)	Haunch concrete (M15)	cum			
iv)	B.M in cement mortar 1:3	cum			
v)	20mm plaster in CM 1:2	sq m			
vi)	C.I steps	each			
vii)	CI frame & cover 0.56m dia (wt-230 Kg)	no			
viii)	Extra for centering & Scaffolding	m			
ix)	Vata (1:1)	cum			
x)	Channel Plaster (1:1)	sq m			
	Per unit Cost	No			
R2-SE-6-3-a	**Extra over above per metre depth above 2.9 M. and upto 5 M. depth -do- -do-**				
	Depth: 5-2.9=2.1				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
f)	Safety Chain	No			
	Overhead @ ----%				
	Per Unit Cost	m.depth			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-6-3-b	**Do- -do- above 5 M & upto 9 M -do- -do-**				
	Depth: 4 m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads@-----%				
	Per Unit Cost	m.depth			
R2-SE-6-3-c	**Do- -do- above 9.M & upto 11 M -do- -do-**				
	Depth: 2 m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-3-d	**Do- -do- above 11M & upto 12 M -do- -do-**				
	Depth: 1m				

Code No	Description	Unit/per	Qty	Rate	Amount
a	B.M in cement mortar 1:3(SE-3-8)	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads @ ---%				
	Per Unit Cost	m.depth			
R2-SE-6-3-e	**Do- -do- above 12 M and upto 14 M depth - do- do-**				
	Depth: 2				
a	B.M in cement mortar 1:3(SE-3-8)	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overheads @ ---%				
	Per Unit Cost	m.depth			
R2-SE-6-8	**Constructing on sewer brick masonry scraper manhole 1.5M x 1.5 M at bottom and 1.2 M x 0.9M at top,**				
MA	Material				
i)	Bed Concrete(M15)	cum			
ii)	CC Cap (M20)	cum			

Code No	Description	Unit/per	Qty	Rate	Amount
iii)	Haunch concrete (M15)	cum			
iv)	B.M in cement mortar 1:3	cum			
v)	20mm plaster in CM 1:2	sq m			
vi)	C.I steps	each			
vii)	CI frame & cover(MA-SP-13-d)	no			
viii)	Extra for centering & Scaffolding	m			
ix)	Vata (1:1)	cum			
x)	Channel Plaster (1:1)	sq m			
	Per unit Cost	No			
R2-SE-6-8-a	**Extra over above per metre depth above 2.9 M. and upto 5 M. depth -do- -do-**				
	Depth: 5-2.9=2.1				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
f)	Safety Chain	No			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-8-b	**Do- -do- above 5 M & upto 9 M -do- -do-**				
	Depth: 4 m				
a	B.M in cement mortar 1:3	cum			

Code No	Description	Unit/per	Qty	Rate	Amount
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ -----%				
	Per Unit Cost	m.depth			
R2-SE-6-8-c	**Do- -do- above 9.M & upto 11 M -do- -do-**				
	Depth: 2 m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-8-d	**Do- -do- above 11M & upto 12 M -do- -do-**				
	Depth: 1m				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			

Code No	Description	Unit/per	Qty	Rate	Amount
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ---%				
	Per Unit Cost	m.depth			
R2-SE-6-8-e	*Do- -do- above 12 M and upto 14 M depth -do- -do-*				
	Depth: 2				
a	B.M in cement mortar 1:3	cum	17.28		
b	20mm plaster in CM 1:2	sq.m	38.4		
c	CI steps (5.4 kg)	each	6		
d	Extra for foundation concrete (m15)	cum	0.6354		
e)	Extra for centering & Scaffolding	m	2		
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-12	**Constructing brick masonary scraper type manhole on sewer 2.4M x 2.4M at bottom and 1.2M x 0.9M at top**				
MA	Material				
i)	Bed Concrete(M15)	cum			
ii)	CC Cap (M20)	cum			
iii)	Haunch concrete (M15)	cum			
iv)	B.M in cement mortar 1:3	cum			
v)	20mm plaster in CM 1:2	sq m			

Code No	Description	Unit/per	Qty	Rate	Amount
vi)	C.I steps	each			
vii)	CI frame & cover(MA-SP-13-d)	no			
viii)	Extra for centering & Scaffolding	m			
ix)	Safety Chain	No			
x)	Channel Plaster (1:1)	sq m			
xi)	Overhead @ ---% for additional depth				
	Per Unit Cost	No			
R2-SE-6-12-a	**Extra over above per metre depth above 4.5 M. and upto 9 M. depth -do- -do-**				
a	B.M in cement mortar 1:3	cum			
b	20mm plaster in CM 1:2	sq.m			
c	CI steps (5.4 kg)	each			
d	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-12-b	**Do- -do- above 9M & upto 11 M -do- -do-**				
A	B.M in cement mortar 1:3	cum			
B	20mm plaster in CM 1:2	sq.m			
C	CI steps (5.4 kg)	each			

Code No	Description	Unit/per	Qty	Rate	Amount
D	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ -----%				
	Per Unit Cost	m.depth			
R2-SE-6-12-c	**Do- -do- above 11.M & upto 12M -do- -do-**				
A	B.M in cement mortar 1:3	cum			
B	20mm plaster in CM 1:2	sq.m			
C	CI steps (5.4 kg)	each			
D	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ----%				
	Per Unit Cost	m.depth			
R2-SE-6-12-d	**Do- -do- above 12M & upto 14M -do- -do-**				
A	B.M in cement mortar 1:3	cum			
B	20mm plaster in CM 1:2	sq.m			
C	CI steps (5.4 kg)	each			
D	Extra for foundation concrete (m15)	cum			
e)	Extra for centering & Scaffolding	m			
	Overhead @ ----%				
	Per Unit Cost	m.depth			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-1-1	Excavation in all types of soils(for sewerage works),such as Earth,Marine clay, Marshy land, Running sand, Garbage, Slush,Murum, Rock boulders etc as directed by the engineer.	**cum**			
	Details of Cost for 10 cum				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total	Day			
B	Tools and Plants= ---% on A				
C	Total (A+B)				
D	Support of utilities = --- % of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit % on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-a	**-do-do- as per item SE-1-1 but with mechanical dewatering for lift from 2m to 4.0m**	**cum**			
	Details of Cost for 10 cum				
	Lead of 150 m				

Code No	Description	Unit/per	Qty	Rate	Amount
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total	Day			
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =---% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (---%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-b	**-do-do- for lift from 4.0m to6m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			

Code No	Description	Unit/per	Qty	Rate	Amount
	Supervisor	Day			
A	Total				
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =---% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (---%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-c	**-do-do- for lift from 6.0m to8m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges				
B	Tools and Plants=----% on A				
C	Total (A+B)				
D	Support of utilities =----% of C				

Code No	Description	Unit/per	Qty	Rate	Amount
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (----%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-d	**-do-do- for lift from 8.0m to10m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges	Day			
B	Tools and Plants=----% on A				
C	Total (A+B)				
D	Support of utilities =----% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (----%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-1-1-e	**-do-do- for lift from10m to11m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges	Day			
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =----% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (----%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-f	**-do-do- for lift from 11m to12m**				
	Details of Cost for 10 cum				
	Lead of 150 m				

Code No	Description	Unit/per	Qty	Rate	Amount
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges	Day			
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =----% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (----%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-g	**-do-do- for lift from 12m to13m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			

Code No	Description	Unit/per	Qty	Rate	Amount
	Supervisor	Day			
A	Total Labour Charges	Day			
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =---% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (----%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-h	**-do-do- for lift from 13m to14m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges	Day			
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =----% of C				

Code No	Description	Unit/per	Qty	Rate	Amount
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (---%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			
R2-SE-1-1-i	**-do-do- for lift from 14m to15m**				
	Details of Cost for 10 cum				
	Lead of 150 m				
	Hire Charges				
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Labour for Excavation, Backfilling, etc	Day			
	Mistry	Day			
	Supervisor	Day			
A	Total Labour Charges				
B	Tools and Plants=---% on A				
C	Total (A+B)				
D	Support of utilities =---% of C				
	Pumping out of Water(E)	Day			
F	Total (C+D+E)				
G	Overhead and Contractors profit (---%) on C				
	Total Cost (F+G)				
	Per Unit Cost	Rs/cum			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-1-1-j	Extra over above for item no. R2-SE-1-1 to R2-SE-1-1-i for relevant lift of excavation in soft/ disintegrated rock, road carriageway, sand stone, stiff clay, gravel, cobblestone, hard laterite,				
	Hire Charges				
	Pneumatic Breaker with air compressor	Day			
	Labour for Excavation				
	Labour	Day			
A	Total Hire Charge & Labour cost				
B	Tools & Plants ----% on A				
C	Total (A+B)				
D	Overhead & Profit ----% on C				
	Total (C+D)				
	Per unit cost	Rs/cum			
R2-SE-1-1-u	**Extra over above for item no.R2- SE-1-1 to R2-SE-1-1-i for relevant lift of excavation in hard rock and cement concrete by chiselling for sewerage works**				
	Details for 10 Cum				

Code No	Description	Unit/per	Qty	Rate	Amount
	Hire Charges				
	Pneumatic Breaker with air compressor	Day			
	Hire and running charges of tipper	Day			
	Hire and running charges of loader	Day			
	Vibro roller for compaction	Day			
	Dewatering Pump of 5HP	Day			
	Labour for Excavation				
	Excavators	Day			
	Breakers	Day			
	Chisellers	Day			
	Hole Drillers	Day			
	Blacksmith 2nd class	Day			
	Semiskilled Labour	Day			
	Coolie	Day			
A	Total Hire Charge & Labour cost				
B	Tools & Plants --% on A				
C	Total (A+B)				
	Supoorting Utilities ---% of (A+B)				
D	Overhead & Profit -----.% on C				
	Total (C+D)				
	Per unit cost	Rs/cum			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-1-1-ae	**Extra over above for item no. R2-SE-1-1 to R2-SE-1-1-i for relevant lifts of excavation in hard rock and reinforced concrete by splitter machine**				
	Details for 10 Cum				
	Hire Charges				
	Rock Splitter and allied equipments	Day			
	Hire and running charges of tipper	Day			
	Pneumatic breaker	Day			
	Labour for Excavation				
	Splitter operator	Day			
	Labour	Day			
	Hole Drillers	Day			
	Mistry	Day			
A	Total Hire Charge & Labour cost				
B	Tools & Plants ---% on A				
C	Total (A+B)				
D	Overhead & Profit ---% on C				
	Total (C+D)				
	Per unit cost	Rs/cum	A		
R2-SE-1-4	**Providing and removing close shoring and strutting in the trenches**				

Code No	Description	Unit/per	Qty	Rate	Amount
	Details of Cost for : 120.00 Cu.m of supported area and				
	Avg Depth-6m				
	Material :				
	Poling boards	Cum			
	Waling	Cum			
	Struts	Cum			
	Assuming that the above materials can be used ------ times on the same work & also considering the salvage value as ----%				
	i.e. deduct ----% from total material cost				
	Cost of material=------%				
	Add for nails etc. @---%				
	LABOUR :				
	Semi Skilled Labour (Beldar)	Day			
	Carpentar 2nd class	Day			
	Total Labour & Materials				
	Overhead & Profit ----% on A				
	Total (A+B)				
	Per unit cost	Rs/Cu.m.			
R2-SE 1-4-b	**Providing and removing of close and strutting in the trenches/ pits**				

Code No	Description	Unit/per	Qty	Rate	Amount
	Details of Cost for :10 m length and				
	Avg Depth-6m				
	Material :				
	Poling boards	Cum			
	Waling	Cum			
	Struts	Cum			
	Assuming that the above materials can be used ------ times on the same work & also considering the salvage value as ----%				
	i.e. deduct ----% from total material cost				
	Cost of material=------%				
	Add for nails etc. @---%				
	LABOUR :				
	Semi Skilled Labour (Beldar)	Day			
	Carpentar 2nd class	Day			
A	Total Labour & Materials				
B	Overhead & Profit ---% on A				
	Total (A+B)				
	Per unit cost	Rs/cum			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-1-5	**Leaving shoring in trenches. (New or old) including dog spikes.**				
	Details of Cost for : 120 cum of trench				
	Average Depth-8m				
	MATERIAL :				
	Sheathing	Cum			
	Waling	Cum			
	Struts	Cum			
	33% will be taken as the cost of wood to be left				
	Add for nails etc. @----%				
	Total Material				
	LABOUR :				
	Semi Skilled Labour (Beldar)	Day			
	Carpentar 2nd class	Day			
A	Total Labour & Materials				
B	Overhead & Profit ----% on C				
	Total A+B				
	Per unit cost	Rs/Cu.m			
R2-SE-1-5-a	**Leaving shoring in trenches. (New or old) including dog spikes.**				
	Details of Cost for : 120 cu.m of trench				
	Average Depth-8m				

Code No	Description	Unit/per	Qty	Rate	Amount
	MATERIAL :				
	Poling boards	Cum			
	Walling	Cum			
	Struts	Cum			
	% will be taken as the cost of wood to be left				
	Add for nails etc. @----%				
	Total Material				
	LABOUR :				
	Semi Skilled Labour (Beldar)	Day			
	Carpentar 2nd class	Day			
A	Total Labour & Materials				
B	Overhead & Profit ----% on C				
	Total A+B				
	Per unit cost	Rs/cum			
R2-SE-1-6	**Providing and fixing M.S plate shoring in trench consisting of 12mm thick M.S sheet, 1.5m wide MS channel 150x75mm,at 1.5m center to centre including removal after laying sewer**				
	Details of Cost for : 85 Sq.m.				

Code No	Description	Unit/per	Qty	Rate	Amount
	MATERIAL :				
	MS Chequered Plate (12mm thick)	MT			
	1.5 wide MS channels	MT			
	Oxygen cylinder	Nos			
	Gas Cylinder	Nos			
	Welding rod	Nos			
	Total Material				
	Hire Charges				
	Diesel Welding machine with generator, including Fuel,Transport,operator, etc	Day			
	Gas Cutter	Day			
	Hydra Crane	Day			
	LABOUR :				
	Labour	Day			
	Labour (Semi-Skilled)	Day			
	Welder	Day			
	Gas cutter	Day			
A	Total				
B	Overhead & Profit ----% on A				
	Total				

Code No	Description	Unit/per	Qty	Rate	Amount
	Per unit cost	Rs/sqm			
R2-SE-2-5	**-do- -do- M 15 c.c. For full encasement or cradle -do- -do-**	**cum**			
	Material				
	(i) Cement	tonne			
	ii)Sand	cum			
	ii) Coarse Aggregates	cum			
	Total For Material				
	Carriage				
	Lead of 100m				
	i) Cement	tonne			
	ii) Sand	cum			
	iii) Aggregates	cum			
	Labour				
	Mason	Day			
	Beldar /Labour	Day			
	Bhisti	Day			
	Total Labour Charges				
	Hire Charges				
	i) Mixer	Day			
	ii) Vibrator	Day			
A	Total				
B	Overhead Sundries Water Charges and Contractors profit of ---- % on A				

Code No	Description	Unit/per	Qty	Rate	Amount
C	Centering	sqm			
D	Total Cost (A+B+C)				
	Per Unit Cost	Rs/cum			
R2-SE-5-1-a	**Providing & laying stoneware pipes of SP2 class including jointing with CM(1:1), filleting etc. complete as specified & as directed - 150mm diameter**	**R.M**			
	Details of Cost for 30 m				
	Material				
	(i) 150 mm stone.ware pipes 60 cm long (add 5% wastage)	Each			
	ii)Cement for 50 joints	tonne			
	ii) Fine Sand for 50 joints	cum			
	iv)Spun Yarn	Kg			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (S.W pipes) +Spun Yarn	tonne			
	Carriage of cement(lead 100m)	tonne			
	Carriage of sand(lead 100m)	cum			
	Labour				
	Mason (Grade-I)	Day			
	Beldar /Labour	Day			
	Bhisti	Day			

Code No	Description	Unit/per	Qty	Rate	Amount
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-1-b	**Providing & laying stoneware pipes of SP2 class including jointing with CM(1:1), filleting etc. complete as specified & as directed-230mm diameter**	**R.M**			
	Details of Cost for 30 m				
	Material				
	(i) 230 mm stoneware pipes 60 cm long (add 5% wastage)	Each			
	ii)Cement for 50 joints	tonne			
	ii) Fine Sand for 50 joints	cum			
	iv)Spun Yarn	Kg			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (S.W pipes) +Spun Yarn	tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Carriage of cement(lead 100m)	tonne			

Code No	Description	Unit/per	Qty	Rate	Amount
	Carriage of sand(lead 100m)	cum			
	Labour				
	Mason (Grade-I)	Day			
	Beldar /labour	Day			
	Bhisti	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-1-c	**Providing & laying stoneware pipes of SP2 class including jointing with CM(1:1), filleting etc. complete as specified & as directed-300mm diameter**	**R.M**			
	Details of Cost for 30 m				
	Material				
	(i) 300 mm stone.ware pipes 60 cm long (add 5% wastage)	Each			
	ii)Cement for 50 joints	tonne			
	ii) Fine Sand for 50 joints	cum			

Code No	Description	Unit/per	Qty	Rate	Amount
	iv)Spun Yarn	Kg			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (S.W pipes) +Spun Yarn	tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Carriage of cement(lead 100m)	tonne			
	Carriage of sand(lead 100m)	cum			
	Labour				
	Mason (Grade-I)	Day			
	Beldar /labour	Day			
	Bhisti	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-7-c	**Providing and laying R.C.C Pipe (NP3 Class) with collar joints including jointing with CM(1:1) & filleting etc. complete as specified**				

Code No	Description	Unit/per	Qty	Rate	Amount
	and directed-250mm diameter				
	Details of Cost for **10 M**				
	Material				
	(i) 250 mm RCC NP3 class pipes 2 m long (add 5% wastage)	Each			
	ii)Cement for 5 joints	tonne			
	ii) Fine Sand for 5 joints	cum			
-	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and collars	tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Carriage of cement(lead 100m)	tonne			
	Carriage of sand(lead 100m)	cum			
	Labour				
	Mason (Grade-I)	Day			
	Beldar /Labour	Day			
	Bhisti	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				

Code No	Description	Unit/per	Qty	Rate	Amount
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-a	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -300mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 300 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each	.		
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				

Code No	Description	Unit/per	Qty	Rate	Amount
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
	Tripod and chain pulley can lower 10nos 300mm pipes a day				
R2-SE-5-8-b	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -350mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 350 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			

Code No	Description	Unit/per	Qty	Rate	Amount
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-c	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -400mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 400 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				

Code No	Description	Unit/per	Qty	Rate	Amount
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-d	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -450mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 450 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				

Code No	Description	Unit/per	Qty	Rate	Amount
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-e	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -500mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 500 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			

Code No	Description	Unit/per	Qty	Rate	Amount
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-f	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -600mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 600 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				

Code No	Description	Unit/per	Qty	Rate	Amount
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-g	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -700mm diameter**				
	Details of Cost for **10 M**				
	Material				
	(i) 700 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			

Code No	Description	Unit/per	Qty	Rate	Amount
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			
R2-SE-5-8-h	**Providing and laying R.C.C. Pipes (NP3 Class) with rubber rings jointing etc. complete as specified and directed -800mm diameter**				
	Details of Cost for **10 M**				
	Material				

Code No	Description	Unit/per	Qty	Rate	Amount
	(i) 800 mm RCC NP3 class pipes with rubber ring 2.5 m long (add 5% wastage)	Each			
	ii)Tripod and chain pulley block cost	each			
	Total For Material				
	Carriage Charges				
-	Carriage of pipes (RCC NP3) and rubber rings	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ----% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-5-11-a	**Providing, Laying and Jointing Double Wall Corrugated (DWC) PE pipes of SN 8 class with R/R joint with PE coupler as per ISO21138-3 complete as specified and directed-160mm**	**RM**			
	Details of Cost for 30 **M**				
	Material				
	(i) 160 mm DWC PE pipe with rubber and ring coupler	**Each**			
	Carriage Charges				
-	Carriage of pipes(DWC PE)	Tonne			
	Note : Rate for Initial Lead of 100 m is considered				
	Labour				
	Fitter/Mason	Day			
	Labour	Day			
	Total Labour Charges				
A	**Total Of Material & Labour**				
B	Overhead Sundries Water Charges and Contractors profit of ---% on A				
C	Total Cost (A+B)				
	Per Unit Cost	Rs/RM			

Code No	Description	Unit/per	Qty	Rate	Amount
R2-SE-13-3	**Excavation to form horizontal bore manually for installing 1200mm(ID)**				
	Details of cost for 30m considering average output 0.8 Cum per day, and 5 days for setting up of shaft and for removing etc.				
	Equipment (Hire Charges.)	Day			
	Dewatering Pumps - 10HP	Day			
	DG, 45KVA	Day			
	Compressor	Day			
	Breaker	Day			
	Jack hammer(drilling)	Day			
	Splitter	Day			
	Ventilation blower	Day			
	Disposal of excavated material	Trip			
	Fuel, Oil, Grease and spares	%			
	MS Shield, 20mm thick to match the OD of the Concrete Pipe.	MT			
	Manpower				
	DG Operator	Day			
	Electrician (50%)	Day			
	Compressor Operator	Day			
	Splitter Operator no. 2	Day			
	Jack hammer - Skilled Labour (Drilling) (no. 02)	Day			
	Unskillled Labour no. 6	Day			

Code No	Description	Unit/per	Qty	Rate	Amount
	Watchman no. 02	Day			
	Supervisor	Day			
	Total A + B + C				
	Overhead Sundries Water Charges and Contractors profit of ----% on above				
	Total Cost				
	Rate for per Metre For Excavation				
R2-SE-14-3	**Installationof280mm-630dia(OD)HDPEpipeline**				
	Total Owning cost- A				
	OPERATING COST				
	Total Fuel Cost	Rs/Hr.			
	Fuel Cost Mud Mixing Unit + Trucking Cost				
	Lub, Oil, Grease, Filter etc. (25% of fuel)	Rs/Hr.			
	General maintenance of the equipment	Rs/Hr.			
	Operating Team Cost + Lodging + Boarding + Conveyance	Rs/Hr.			
	Supervisor / Misc Expenses	Rs/Hr.			
	Misc Works (Pit/Pipe Pulling/Pipe Pushing)	Rs/Hr.			
	Shifting Charges	Rs/Hr.			
	Communication Cost	Rs/Hr.			
	B				
	Consumables (Average for 400mm dia bore)				
	Foam + Polymer	Per			

Code No	Description	Unit/per	Qty	Rate	Amount
		100mtrs			
	Mud Disposal Cost (10%)	Per 100mtrs			
	Water	Per 100mtrs			
	TOTAL COST OF WATER AND MUD	Per 100mtrs			
	C				
	COST OF PIPE AND JOINTING ---D	Per Mtrs			
	overheads@ ---%				
	Total cost of HDD OPERATIONS				
R2-SE-13-4	**Approved 1200mm mild steel (M.S.) pipe sleeve confirming to jacking pipe as per IS 3589/ASTM/BS**				
	Equipment (Hire charges)	Day			
	Crane for lowering and removing jacking frame(30T)	Day			
	Push frame, Jacks, Power Pack etc.	Day			
	Hydra, 12 to 14 T for lowing of pipes and removing excavated material	Day			
	TOTAL- A				
	Fuel, Oil and Grease				
	Considering cost for fuel, oil and grease as % of equipment				
	TOTAL---B				
	Manpower				
	Skilled Labour				

Code No	Description	Unit/per	Qty	Rate	Amount
	Unskilled labour				
	Supervisor				
	Electrician				
	Jack, Jacking frame, power pack etc. Operator.				
	TOTAL---C				
	Material				
	i.M.S.pipe 1200mm dia 16mm thk				
	ii.PCC for bed (M20)				
	iii.RCC thrust wall(M30)				
	TOTAL ----D				
	TOTAL= A+B+C+D				
	overheads and contractor profit @ ---%				
	Rate for per metre pipe jacking.				

Sign & seal of the Tenderer

Annexure-E

Undertaking for best price

(As per circular u/no. DMC / CPD / OD / 15 Dtd. 06.05.2013 , to be uploaded in folder 'A')
(On stamp paper of Rs. 500/- duly notarized by notary with red seal and registration number)

Tender / Tender No. _____

To,
The Municipal Commissioner
For the Municipal Corporation of Greater Mumbai

Sir,

"I / We ……(Full Name in capital letters starting with surname), the Proprietor / Managing Partner / Managing Director / Holder of the Business / Manufacturer / Authorized Dealer, for the establishment / firm / registered company , named herein below , 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 any establishment / firm or any other person , who have filled in the tender for the aforesaid work."

"I / We do hereby further undertake that, we have offered the best prices for the subject supply / work as per the present market rates. **Further , we do here by undertake and commit that we have not offered / supplied the subject product / similar product / system or sub system in the past one year in the Maharashtra State for quantity variation upto - 50% or + 10 % at a price lower than that offered in the present tender to any other outside agencies including Govt. / Semi Govt. agencies and within the MCGM also.** Further, we have filled in the accompanying tender with full knowledge of the above 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 behalf in this tender.

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 Municipal Corporation of Greater 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."

However, in case of price difference, if it is a result of differential tax structures, different dollar value of Rupee, differential logistic of transport etc. Considering this aspect, before invoking the penalty, black-listing, I/We will be given a reasonable opportunity of being heard by representing our case as to why such price variation / differential has been arisen.

In case if the explanation submitted by me / us is unsatisfactory then action including forfeiture of despite and black-listing may be taken against me/us.

Tenderer's full Signature with full name
& address with rubber stamp

Annexure-G

MANUFACTURERS AUTHORISATION CERTIFICATE

(In case of tenderer who are authorized representative of manufacturer)

(On Letter head of Manufacturer)

This is to certify that M/s…….…….are Authorized Representative of ……..……. since……till date for dealing in ……

We authorize them to quote for the tender …….....…….……

…….....

bearing no…….....……..to be submitted on……and also promise to provide all the necessary technical support & after sales service during the contract period and afterwards.

Place: Seal of the Manufacturer & Sign of
Authority signatory

Date:

ANNEXURE – J

Bid No. _____

INTERNAL GRIEVANCE REDRESSAL MECHANISM

(To be uploaded in Packet 'A')

M.C.G.M. has formed a Grievance Redressal Mechanism for redressal of bidder's grievances. Any Bidder of prospective Bidder aggrieved by any decision, action or omission of the procuring entity being contrary to the provisions of the tender or any rules or guidelines issued therein, in Packets 'A', 'B' & 'C' can make an application for review of decision of responsiveness in Packets 'A', 'B' & 'C' within a period of 7 days or any such other period, as may be specified in the Bid document.

While making such an application to procuring entity for review, aggrieved bidders or prospective bidders shall clearly specify the ground in respect of which he feels aggrieved.

Provided that after declaration of a bidder as a successful in Packet 'A' (General Requirements), an application for review may be filed only by a bidder who has participated in procurement proceedings and after declaration of successful bidder in Packet 'B' (Technical Bid), an application for review may be filed only by successful bidders of Packet 'A'. Provided further that, an application for review of the financial bid can be submitted, by the bidder whose technical bid is found to be acceptable / responsive.

Upon receipt of such application for review, MCGM may decide whether the bid process is required to be suspended pending disposal of such review. The MCGM after examining the application and the documents available to him, give such reliefs, as may be considered appropriate and communicate its decision to the Applicant and if required to other bidders or prospective bidders, as the case may be.

M.C.G.M. shall deal and dispose off such application as expeditiously as possible and in any case within 10 days from the date of receipt of such application or such other period as may be specified in pre-qualification document, bidder registration document or bid documents, as the case may be.

Where MCGM fails to dispose off the application within the specified period or if the bidder or prospective bidder feels aggrieved by the decision of the procuring entity, such bidder or prospective bidder may file an application for redressal before the 'Internal Procurement Redressal Committee' within 7 days of the expiry of the allowed time or of the date of receipt of the decision, as the case may be. Every such application for internal redressal before Redressal Committee shall be accompanied by fee of Rs.25,000/- and fee shall be paid in the form of D.D. in favour of M.C.G.M.

1st Appeal by the bidder against the decision of C.E. / HoD / Dean can be made to concerned D.M.C. / Director who should decide appeal in 7 days.

If not satisfied, 2nd Appeal by the bidder can be made to concerned A.M.C. for decision.

Grievance Redressal Committee (GRC) is headed by concerned D.M.C. / Director of particular department for the first appeal / grievances by the bidder against the decision for responsiveness / non-responsiveness in Packet 'A', Packet 'B' or Packet 'C', and if not satisfied, concerned A.M.C. will take decision as per second appeal made by the bidder.

This Grievance Redressal Committee (GRC) will be operated through DMC(CPD) office where appeals of aggrieved bidder will be received with fee of Rs.25,000/- from aggrieved bidder. The necessary correspondence in respect of said application to the aggrieved bidder & concerned department, issuing notices, arranging Grievance Redressal Committee (GRC) with D.M.C. and further proceeding will be carried out through registrar appointed by M.C.G.M.

No application shall be maintainable before the Redressal Committee in regard of any decision of the M.C.G.M. relating to following issues:

Determination of need of procurement

The decision of whether or not to enter into negotiations.

Cancellation of a procurement process for certain reasons.

On receipt of recommendation of the Committee, it will be communicated his decision thereon to the Applicant within 10 days or such further time not exceeding 20 days,

as may be considered necessary from the date of receipt of the recommendation and in case of non-acceptance of any recommendation, the reason of such non-acceptance shall also be mentioned in such communication.

Additional Municipal Commissioner and/or Grievance Redressal Committee, if found, come to the conclusion that any such complaint or review is of vexatious, frivolous or malicious nature submitted with the intention of delaying or defeating any procurement or causing loss to the procuring entity or any other bidder, then such complainant shall be punished with fine, which may extended to Five Lac rupees or two percent of the value of the procurement, whichever is higher.

Full Signature of the tenderer with

Office Seal and Address

Annexure-K

Cost Breakup of Asset Replacement and Year of Replacement

(Not to be filled here and Uploaded)

Sr.No.	Description & Year of Replacement	Quantity	Rate	Unit	Amount
			X		X
			X		X
			X		X
			X		X

Bidders are requested to submit the cost breakup of asset replacement value & replacement schedule in separate sheet attached as Annexure K. It shall be sealed and submitted to office of EE Mech. (Sew.) Malad Zone at DN Nagar, Andheri West which will be opened along with Packet 'C' in presence of interested bidders/vendors and Accounts Officer.

Annexure-L

Geotechnical Investigation Report

PROFORMAS:

PROFORMA- I

The list of similar works as stated in para 'A' of Post qualification during last seven years–

Sr.No.	Name of the Project	Name of the employer	Stipulated date of completion	Actual date of completion	Actual Cost of work done
1	2	3	4	5	6

NOTE:

j. 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.

k. Works shall be grouped financial year-wise.

PROFORMA- II

Yearly turnover of Civil Engineering Construction Works during the last five years.

Sr.No.	Financial year	Annual Turnover of Civil Engineering Works	Updated value to current year	Average of last 5years	Page No.
1					
2					
3					
4					
5					

NOTE: The above figures shall tally with the audited balance sheets uploaded by the tenderers duly certified by Chartered Accountant.

PROFORMA- III

Atleast similar work, as stated in para 'A' of Post qualification,.

Name of the Project	Name of the Employer	Cost of the Project	Date of is-sue of work Order	Stipulated Date of Comple-tion	Actual Date of Comple-tion	Actual cost of work done	Remarks explaining reasons for delay, if any
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 support of information furnished in the above proforma.

PROFORMA- IV

Sr. No.	Post	Name (Prime Candidate/ Alternate)	Qualification	Work Experience	
				No. of Years	Name of Projects
1	Project Manager				
2	Quality Control Engineer				
3	Site Engineer				
4	Safety Engineer				
5	Site Supervisor				

NOTE: Scanned Attested copies of qualification certificates and details of work experience shall be submitted /uploaded.

MACHINERY: (for special work only)

PROFORMA- V/A			
Sr.No.	Equipment	Number	Owned/Leased/Assuredac- cess
1	2	3	4

PROFORMA- V/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 ongoing works –

Description of work	Place	Contract No. & Date	Name & Addresses of employer	Value of Contract in Rs.	Scheduled date of completion	Value of work re-maining to be com-pleted	Antici-pated Date of comple-tion
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 –

Description of work	Place	Name & Ad-dresses of employee	Value of Contract in Rs.	Time Pe-riod	Date on which decision is ex-pected	Remarks
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

Information on Litigation History in which the applicant is involved.

PROFORMA – VII				
Other party (/Parties)	Employer	Cause of Dispute	Amount Involved	Remarks showing Present Status
1	2	3	4	5

Note: Scanned attested copies of completion/performance certificates from the engineer-in-charge for each work should be annexed and uploaded.

Annexure 1

Irrevocable Undertaking

(on Rs.500/-
Stamp Paper)

I Shri/Smt_____ aged_____ years Indian Inhabitant. Pro- priter/Partner/Director of M/s resident at_____do hereby given Irrevocable Undertaking as under.

1. I say & undertake that as specific in Section 171 of CGST Act.2017, ant reduction in rate of tax on supply of goods or service or the benefit of input tax credit shall be mandatory passed on to MCGM by way of commensurate reduction in prices.
2. I further say and undertake that i understand that in case the same is not passed on and is discovered at any later stage, MCGM shall be at liberty to initiate legal action again me for its recovery including, but not limited to, an appeal to the Screening Committee of the GST Council.
3. I say that above said irrevocable undertaking is binding upon me/my partners/company/other Directors of the company and also upon my/our legal heirs, assignee, Executor, Administrator etc.
4. If I fail to compliance with the provisions of the GST Act, I shall be liable for penal- ty/punishment or both as per the provision of Act.

   Whatever has been stated here in above is true and correct to my/our own knowledge & belief.

Solemnly affirmed at DEPONANT
BEFORE ME This day of

Interpreted Explained and Indentified by me.

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.)

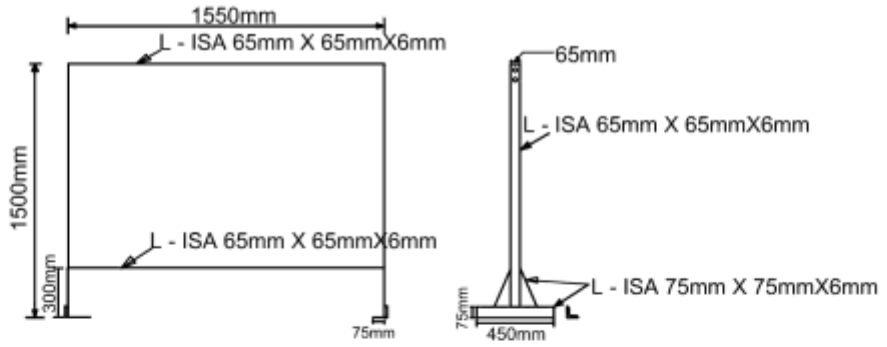
sd/- 5.5.2018
(Shri Ajoy Mehta)
M. C.

sd/-16.5.2018
(Shri P. R. Kadam)
D.M.C.(S.E.)

ANNEXURE I

A) Minor work

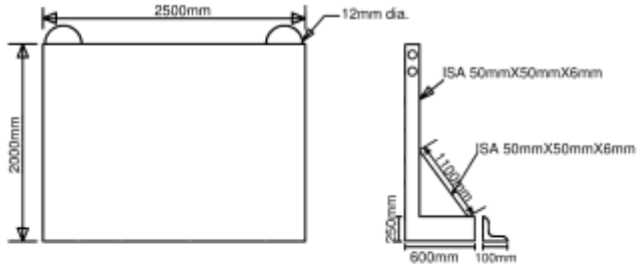
Providing, fabricating and installing the barricading made out of 1.5 m high M.S. Angle post of 65 mm X 65 mm X 6 mm with 1.5 mm thick M.S. Sheet of size 1.55 m X 1.2 m welded to the M.S. angle post/ frames and fixed to 75mm X 75mm X 6 mm angle base as shown in sketch for minor works , displaying of 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.

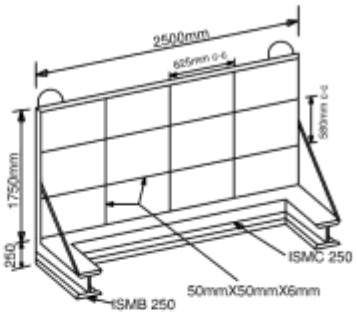


ANNEXURE II

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, filet / butt welding, splicing, machine grinding, of all member joints wherever required to give neat appearance, and dailycleaning 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-change.





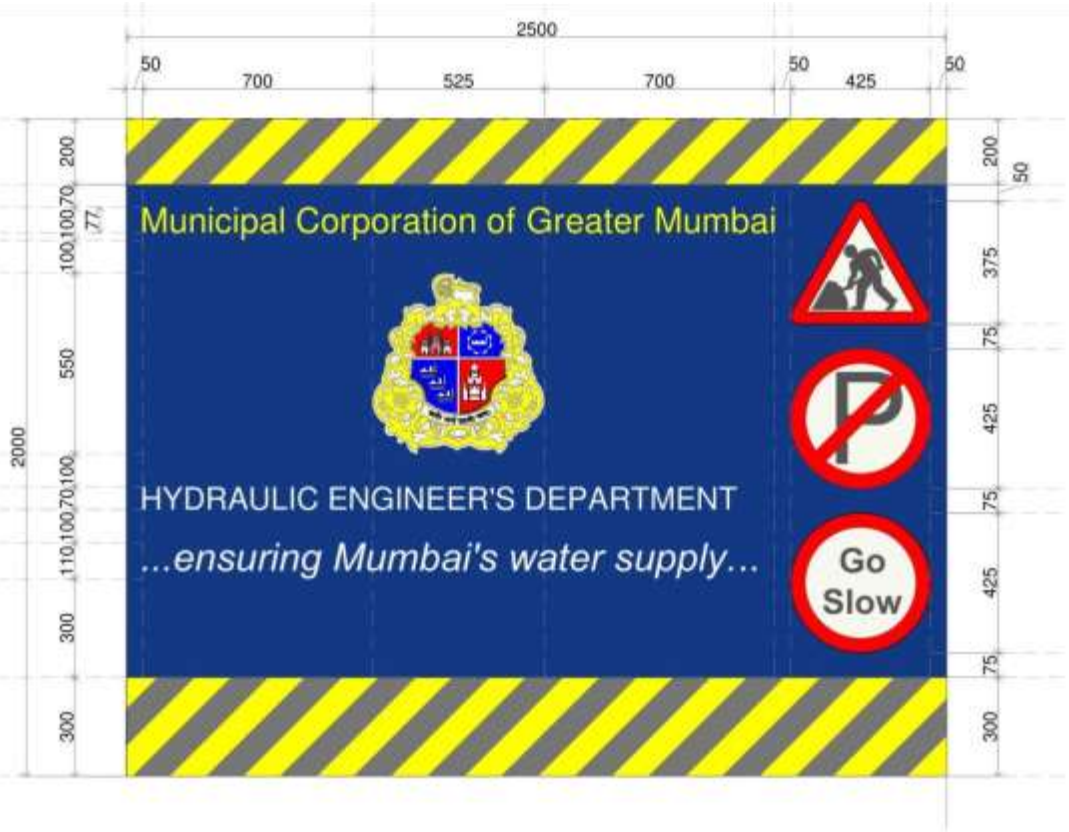
ANNEXURE III

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


2500
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Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
...ensuring Mumbai's water supply...
Go Slow
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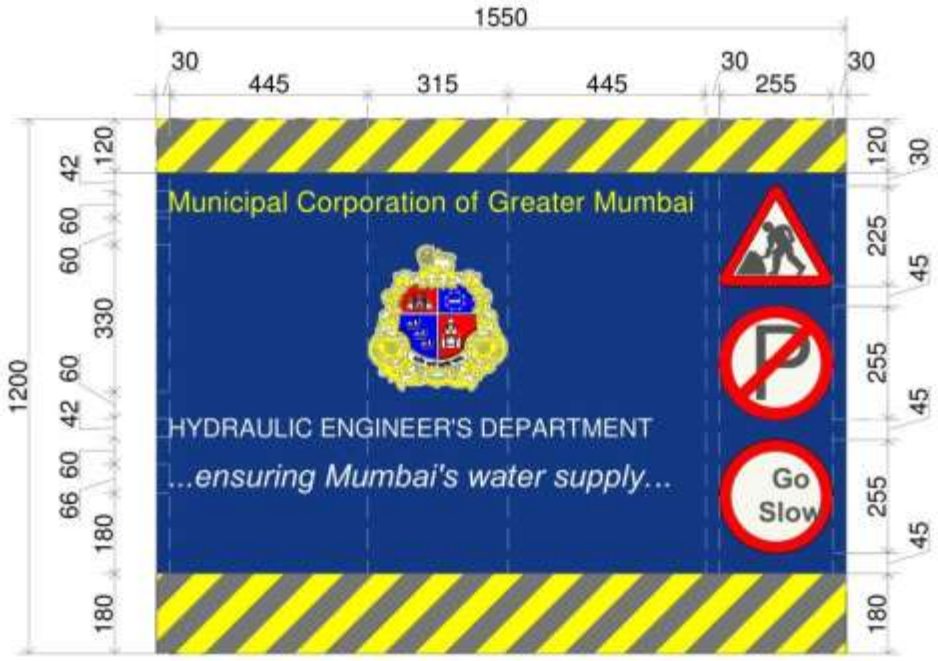
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HYDRAULIC ENGINEER'S DEPARTMENT
...ensuring Mumbai's water supply...
Go Slow
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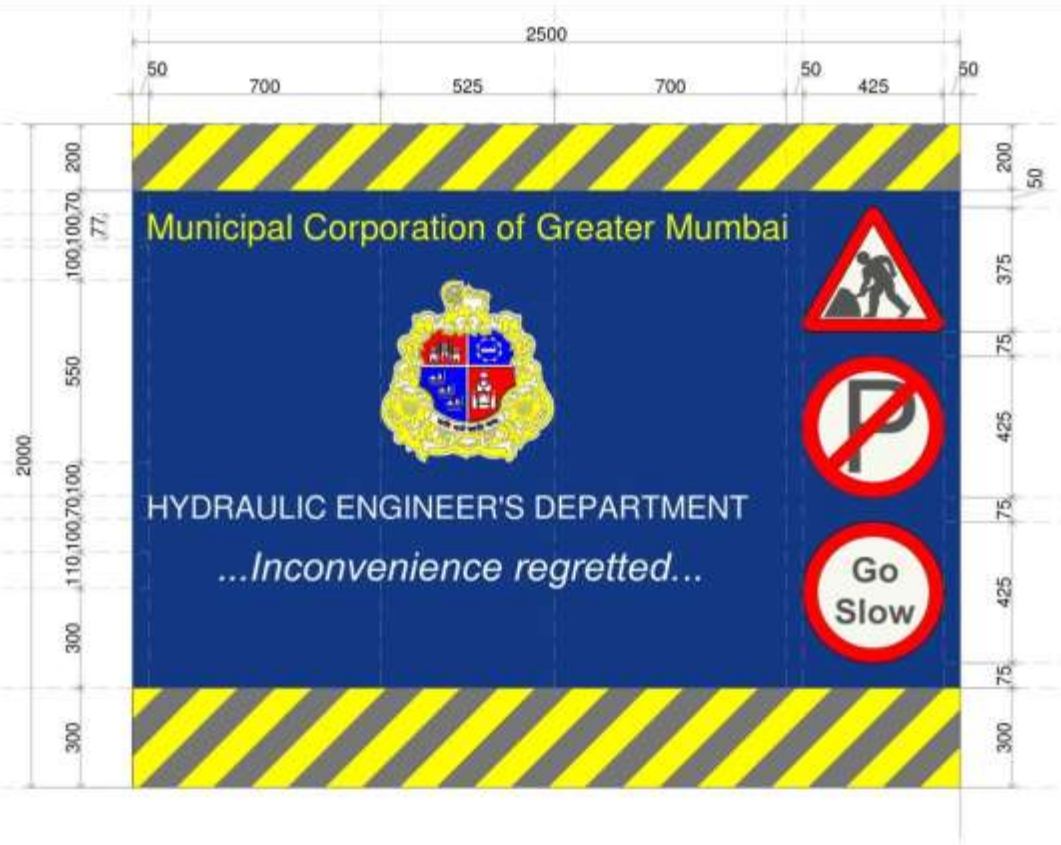
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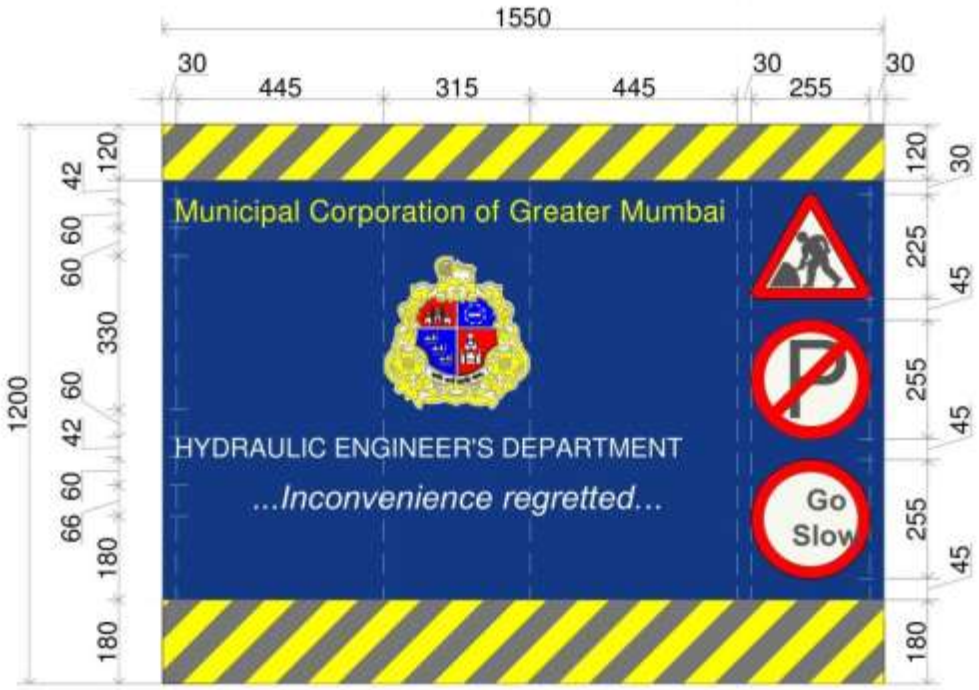
Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
...Inconvenience regretted...
Go
Slow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HYDRAULIC ENGINEER'S DEPARTMENT
...Inconvenience regretted...
Go
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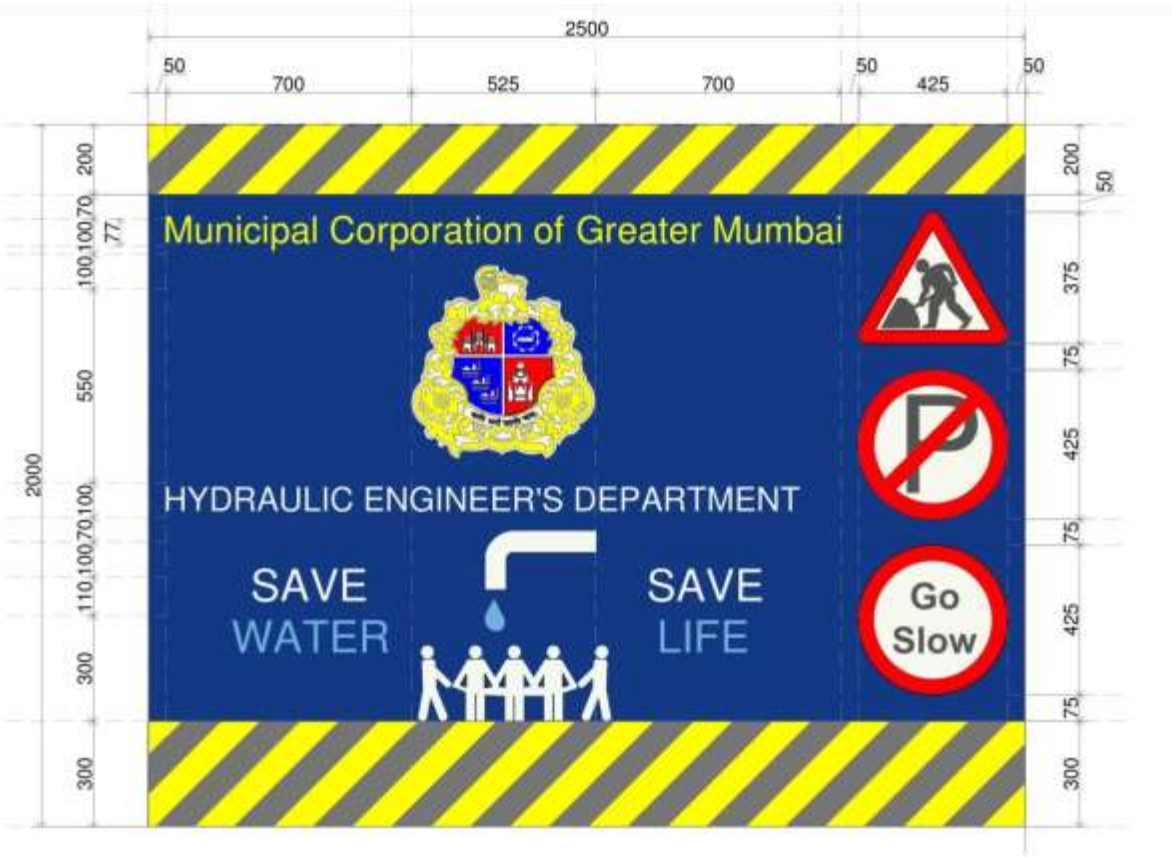
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Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
SAVE
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Go
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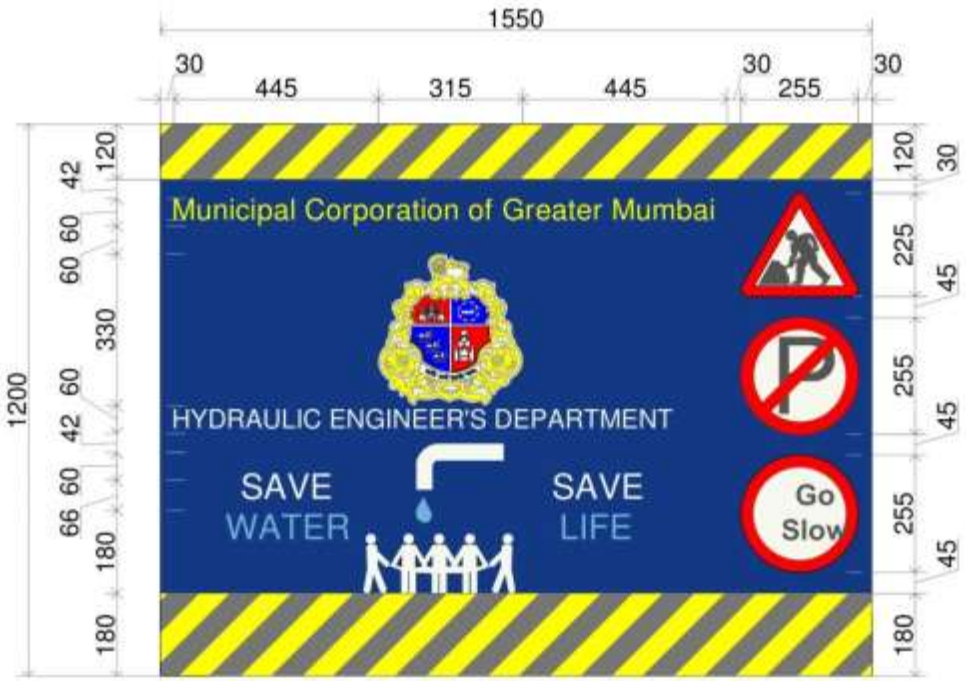
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Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
SAVE
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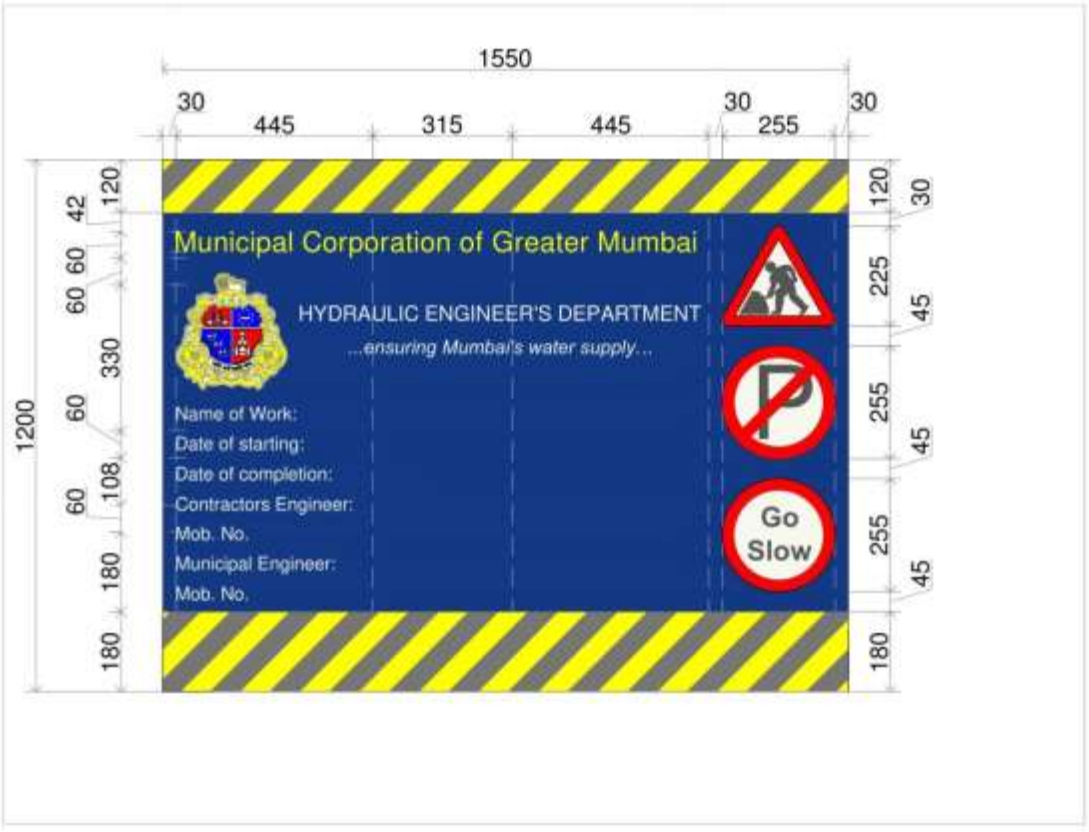
Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
...ensuring Mumbai's water supply...
Name of Work:
Date of starting:
Date of completion:
Contractors Engineer:
No.
Municipal Engineer:
No.
Go Slow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Municipal Corporation of Greater Mumbai
HYDRAULIC ENGINEER'S DEPARTMENT
...ensuring Mumbai's water supply...
Name of Work:
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Contractors Engineer:
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGE'S DEPARTMENT
...working towards a better tomorrow...
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
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...working towards a better tomorrow...
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGE'S DEPARTMENT
...Inconvenience regretted...
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Municipal Corporation of Greater Mumbai
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGE'S DEPARTMENT
...My Mumbai, Green Mumbai...
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGE'S DEPARTMENT
...My Mumbai, Green Mumbai...
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGES DEPARTMENT
...working towards a better tomorrow...
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Date of completion:
Contractors Engineer:
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Municipal Engineer:
Mob. No.
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Municipal Corporation of Greater Mumbai
ROAD, TRAFFIC
AND BRIDGE'S DEPARTMENT
...working towards a better tomorrow...
Name of Work:
Date of starting:
Date of completion:
Contractors Engineer:
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Municipal Engineer:
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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
...clean Mumbai, healthy Mumbai...
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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
...clean Mumbai, healthy Mumbai...
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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
...Inconvenience regretted...
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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
...Inconvenience regretted...
Go Slow

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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
...working towards a better tomorrow...
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Municipal Engineer:
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Municipal Corporation of Greater Mumbai
SEWERAGE OPERATIONS DEPARTMENT
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Name of Work:
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Contractors Engineer:
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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
...clean Mumbai, healthy Mumbai...
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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
...clean Mumbai, healthy Mumbai...
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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
Reduce
Reuse
Recycle
Go
Slow

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Municipal Corporation of Greater Mumbai
SEWERAGE PROJECTS DEPARTMENT
Reduce
Reuse
Recycle
Go
Slow

2500
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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...working towards a better tomorrow...
Go Slow
2000
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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...working towards a better tomorrow...
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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...Inconvenience regretted...
Go Slow

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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...Inconvenience regretted...
Go Slow

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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
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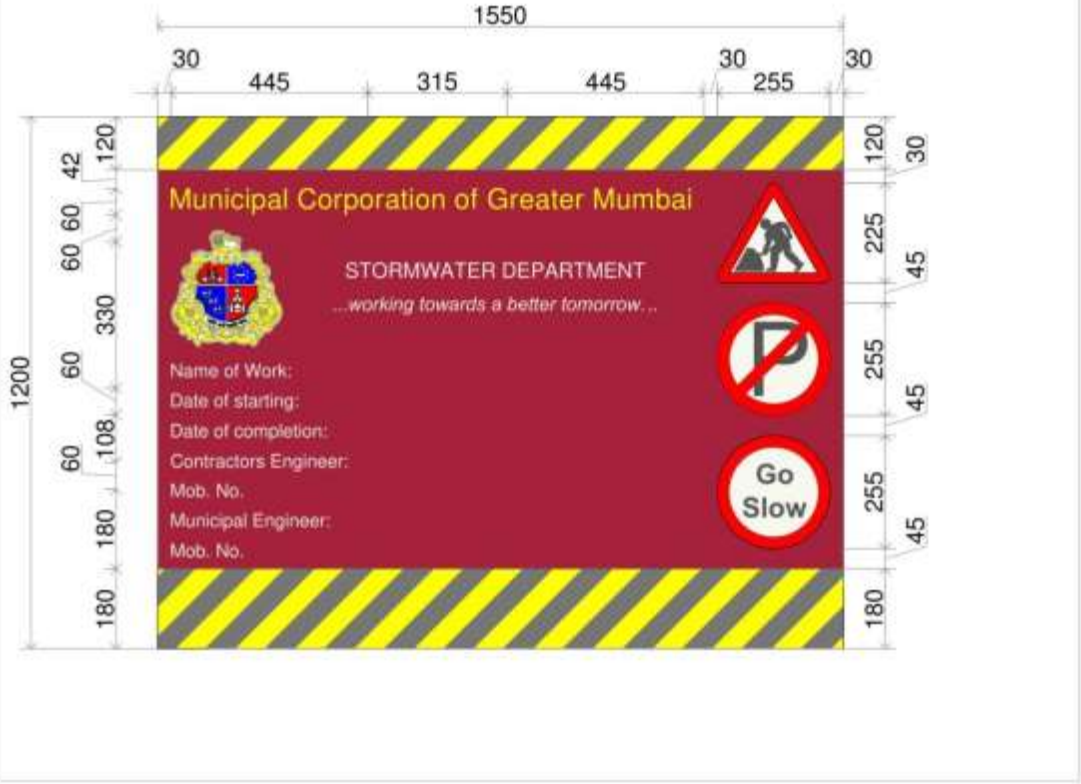
Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...working towards a better tomorrow...
Name of Work:
Date of starting:
Date of completion:
Contractors Engineer:
No.
Municipal Engineer:
No.
Go Slow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Municipal Corporation of Greater Mumbai
STORMWATER DEPARTMENT
...working towards a better tomorrow...
Name of Work:
Date of starting:
Date of completion:
Contractors Engineer:
Mob. No.
Municipal Engineer:
Mob. No.
Go Slow
1200