पिंपरी चिंचवड महानगरपालिका, पिंपरी १८,

पाणीपुरवठा विभाग.

ई- निविदा सुचना क्र. १/१/२०१७-१८

चे शुद्धीपत्रक क्र. – १

वरील निविदा नोटीस मधील कामासाठी निविदा विक्री व स्विकृतीची मुदत दिनांक १५/०६/२०१७ ते २९/०६/२०१७ रोजी दुपारी ३.०० वाजेपर्यंत वाढविणेत येत आहे.

इतर तपशिलात कोणताही बदल नाही

आयुक्त.
पिंपरी चिंचवड महानगरपालिका,
पिंपरी १८.

जाहिरात क्र.

जा.क्र.पापु/६/कवि/२८०/२०१७.

दि. १४/०६/२०१७

PCMC Project – Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city Under AMRUT Programme.

Tender No – 01 / 01 / 2017-18

Replies / Comments of PCMC on the queries of INTENDING BIDDERS

Replies / comments of PCMC on the queries of INTENDING BIDDERS for Pre-bid meeting.

1. **Bidder Name:- M/s Vishvaraj Infrastructure Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
1.	Detail Tender Notice, pg no. 7	EARNEST MONEY DEPOSIT / TENDER FEES: Tender fee and EMD shall be paid by 1.SBI Net Banking 2. Other Bank Internet Bank MOPS.	We request you to allow bank guarantee from nationalised or scheduled bank for payment of earnest money deposit. This is an acceptable practice in all other Water Supply schemes funded by ADB, World Bank etc.	As per NIT.
2.	Detailed tender Notice – Page 8	SECURITY DEPOSIT • 4% of the Estimated cost or Accepted Tender cost whichever is higher • Initial Security Deposit. 2% of estimated cost or accepted tender cost whichever is higher in the form of Fixed Deposit Receipt (FDR) of Nationalized / Scheduled Bank OR Bank Guarantee only from Nationalized Banks from local branch in the name of.....	We request you to allow bank guarantee from nationalised or scheduled bank.	As per NIT.
3.	Detailed tender Notice – Page 8	3. STAMP DUTY: The contractor shall bear the revenue stamp duty on total security deposit of the agreement and Additional Security Deposit (payable as per tender condition), as per the Indian Stamp Duty (1985) (latest) provision applicable during contract period.	We request you to share " Indian Stamp Duty (1985) (latest revision) provision applicable during contract period."	As per NIT.

1. **Bidder Name:- M/s Vishvaraj Infrastructure Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
4.	Detail Tender Schedule, Cl. No. 5, Pg no. 09	Bid Submission Date	Considering the scope of work involved in this project, we need additional time to have complete due diligence at site and to prepare a competitive bid. We request you to kindly extend the bid submission date at least four (3) weeks from present date of submission.	The bid submission date has been extended till 13/06/2017 up to 15.00 hrs.
5.	Conditions of contract Cl. No. 40	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 works, on account of any delay in accordance to sanction of estimates.	We request the Authority to kindly provide the current status of land acquisition, and we understand that land acquisition is under the Authority scope of work hence delay in land acquisition will directly affect the project timelines and hence no claim / penalties should be levied on contractor for delay in land acquisition by Authority.	As per NIT.
6.	ITB – Clause No 5 - Page 53	5. LOCAL ROADS : The existing public roads that are near the site of work are shown in Drawing accompanying the Tender documents. The contactor may construct and maintains additional roads as required at his own expenses.	We request you to provide Drawings and details of existing public road and additional roads which will be construct and maintain by contractor.	Contractor has to get acquainted with the site conditions.
7.	GCC Cl. No. 54 Page 38	TAXES TO BE DEDUCTED AT SOURCE During the course of contract period the deduction of Income Tax/Work Contract Tax or any other Central/State or local tax required to be deducted at source, will be made as per prevailing rules from the contractors bills and will be remitted	We request the Authority to kindly provide the clarification on acceptance /application of GST taxes levied by Central Government during the course of contract.	As per NIT.

1. **Bidder Name:- M/s Vishvaraj Infrastructure Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
		to the concerned Departments. Certificate for such deductions will be issued by the Executive Engineer/Commissioner.		
8.	GCC Cl. No. 68	No Interest on Dues No interest shall be payable by the Pradhikaran / Corporation / Council on amounts, due to contractors pending final settlement of claim. Further, no interest shall be payable by Corporation/Council on any amount/payment.	For any delay in payment due to Contractor by PCMC for reasons not attributable to Contractor, interest on delayed payment shall be paid to the Contractor at rate of interest calculated as per SBI MCLR + 4%.	As per NIT.
9.	GCC – Clause No 67 - Page 43	67. PRICE VARIATION - AUTHORITY Price variation is not applicable to this tender.	Price variation shall be applicable for Material, POL and Labour as per prevailing indices of WPI/CPI. Justification: Considering the market price volatility of commodities such as DI/MS/HDPE pipes and fittings, labour, fuel, we request you to allow the price variation for referred components.	As per NIT.
10.	GCC – Clause No 27 - Page 27	27. ARBITRATION: In case any dispute arises out during execution of works, no arbitrator shall be appointed for redressal of the dispute. In this regard, decision of the Commissioner, PCMC shall be final and remain binding on both parties.	We request you to appoint third party independent arbitrator for redressal of the dispute.	As per NIT.
11.	SCC. Cl. No. 21, Pg	The bills vetted and submitted by	Kindly delete the Last sentence "Such payment will be	As per NIT.

1. **Bidder Name:- M/s Vishvaraj Infrastructure Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	no. 50	the PMC will be normally cleared and payment will be released within a period of 15 days from the receipt of such vetted bills by the ULB or executing agency as the case may be. Such payment will be subject to availability of funds with the PCMC.	subject to availability of funds with PCMC" from referred clause. Justification: Such clauses put the Contractor under risk.	
12.	GCC – Clause No 70 - Page 43	70. Mobilization Advance will not be granted.	Mobilization Advance Payment to Contractor against BG : 10% of Contract Value Mobilization advance shall be recovered from each RA bill @ rate of 10% till complete advance payment is recovered. Justification: Mobilisation advance against BG is required for seamless start of project. In the absence of advance, the project bid price increases due to additional working capital required.	As per NIT.
13.	Clause 14 . Page 24	The Contactor has to supply 1 SUV vehicle (Innova / Scorpio / Xylo) to PCMC within 1 month from the date of work order.	This item is not included in BOQ, please confirm where to quote this item in BOQ? We understand that Contactor has to supply only 1 SUV vehicle but the driver and its maintenance will be scope of the PCMC. Please confirm.	As per NIT. The driver as well as the vehicle's maintenance will be scope of the Contractor.
14.	BOQ	House Service Connections	From BOQ, it seems that supply of meter for HSC is not part of scope of this tender. Please confirm the same.	Confirmed. Supply of meter for HSC is not part of scope of this tender.
15.	BOQ Item No - 42	Designing (aesthetically) & constructing R.C.C. Elevated service reservoir - - ----- directions of Engineer-in-charge)- 5No.	As rates considered in tender document is as per MJP CSR Pune Div. FY 2015-16 and rate of reinforcement is Rs.40875 /MT & however as per current market rate, it is Rs.41570 /MT. Please revise ESR rate.	As per NIT.

1. **Bidder Name:- M/s Vishvaraj Infrastructure Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
16.	BOQ Item No - 42	Designing (aesthetically) & constructing R.C.C. Elevated service reservoir - - ----- directions of Engineer-in-charge) - 5No.	As per actual market, rate of Labour and Material are increased drastically. Also, we have received quotation for the same and observed to be 45% higher than tender rate, Please revise rate.	As per NIT.
17.	BOQ Item No - 18	Providing and making B.B.M Road surface with seal --- ----------as directed by Engineering-in charge.	Rate consider by Consultant for this item is very low. We have received quotation for the same and observed huge difference, please provide Rate Analysis for the same, so we can enter correct rate.	As per NIT.
18.	BOQ	Prices considered for below items : 1. DI Pipe (K-9 & K-7) 2. MS Pipe 3. Pipe Specials 4. Valves	Prices for these items need to updated as per market available rates plus additional factors such as working capital, escalation, insurance, contractor profits, taxes etc. Justification: Prices of Bought out items as referred are near to what is available in Market or on the lower side by 10 – 15%. Please appreciate that the additional cost parameters such as working capital, escalation, insurance, contractor profits, taxes etc further loaded the cost of component. This makes the total bid more than 40-45% of estimated cost of project and hence makes it un-viable for Bidder to bid. We request you to kindly review the component prices including above mentioned factors.	As per NIT.

2. **Bidders Name :- M/s Laxmi Civil Engineering Services Pvt Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
19.	Page no 32, clause 38		We request that layout drawing of all underground utilities e.g. water supply pipe, sewers, cable, may please be provided OR all damages during present work may please be reimbursed as it will help in arriving at reasonable cost.	Contractor has to get acquainted with the site conditions.
20.	Page no 25, clause no 18		We request to clarify whether the deduction of labour welfare tax will gross amount of a bill OR on labour component of bill	It shall be as per practice of PCMC.
21.			We request to mention the location OR location map of municipal land for material OR give the average lead of transport stacking for planning purpose.	Contractor has to get acquainted with the site conditions.
22.	Page no - 42 clause no - 62		We pre assume that new tax levied by the competent authority will be reimbursed by PCMC	As per NIT.
23.	Page no - 47, clause no-7.2		We request to provide nature or additional facilities to be provided for installation of SCADA	SCADA and automation is not a part of this contract.
24.	Page no -47, 48 clause no-7.3		We request to revision of payment break up as under 1. supply -85% 2. Laying-10% 3. Testing- 5%	As per NIT.
25.	Page no-105 / schedule A		We presume the material will be supplied by PCMC free of cost	As per NIT.
26.	Page no - 43, clause no - 70		We request to provide Mobilization Advance for initial work.	As per NIT.
27.	Page no - 153, clause no - 23.3.3		Please release the break-up of payment for MS pipe as under 1. Supply of MS pipe 80% 2. Laying of pipes 20% 3. Hydraulic testing of pipe line 5%	As per NIT.
28.			Schedule B Item no 39 HDPE pipe PE class not mentioned. Pl clarifies the same	HDPE pipe to be used in Item No 39 and Item No 40 is for casing purpose. The PE for HDPE pipes in Item No 39 &

2. **Bidders Name :- M/s Laxmi Civil Engineering Services Pvt Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
				40 is PE – 63. This PE - 63 of HDPE pipes is applicable only for these two items.
29.	Page no - 145, Mode of Measurement		We request you to withhold 5% cost of valve for hydraulic testing in the presence Third party inspection.	As per NIT.
30.			We presume excise duty exempted for this project; please give the confirmation for	Confirmed as per Excise Duty notifications.
31.			We presume that LWS charge is included during estimate tender, as per MJP DSR, please give the confirmation.	As per NIT.
32.			Please add price escalation clause in this tender.	As per NIT.
33.			If work is delay due any problems of various department permission, please give the idle charge to labours.	As per NIT.
34.			The water supply in administration department has not staff for big project; the project may be delay due to shortage staff in water supply. Has any requirement.	As per NIT.
35.			As per the tender requirement the existing taxes will be considered for tender. However, any statutory changes in TAX structure such as introduction of GST etc. shall be considered and payment for any additional implication shall be compensated.	As per NIT.
36.			Further, kindly extend the time of submission of Technical and financial bid by at least 15 days to make us unable for detailed study and competitive bidding.	As per Sr. No. 4 above.
37.			We request you to consider the payment for extra items with prevailing SR rates &tender premium. We request to consider market rates for supply of items & labour works which are apart from tender provision.	As per NIT.
38.			It is assumed that during the period of hydraulic testing the water,	As per NIT.

2. **Bidders Name :- M/s Laxmi Civil Engineering Services Pvt Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
			electricity charges etc. will be provided by department.	
39.			We request you to provide underground utility services map (existing main, electrical and telephone cables and private water connections/sewage connections) or data so it not damage during excavation work.	Contractor has to get acquainted with the site conditions.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
40	Detailed Tender Notice Cl. No 1, Pg. No. 7	Bank Guarantee for Earnest Money Deposit (EMD)	We request you to kindly allow us to submit EMD in the form of Bank guarantee, as this is a standard practice being adopted in various contracts across India. As this has been adopted in Nagpur Municipal Corporation, Chandrapur Municipal Corporation & Pune Municipal corporation in Maharashtra. Kindly consider and confirm. We also request you to provide format for Bank Guarantee to enable us to submit EMD in the form of BG.	As per NIT.
41	Detailed Tender Notice, Cl. No 2, Pg. No. 7	Security Deposit	In the referred clause, it has been stated that 2% of security deposit shall be paid in the form of BG and balance 2% shall be deducted from running bills. We request you to consider full security deposit (4%) as an upfront Bank Guarantee. Please confirm.	As per NIT.
42	Detailed Tender Notice & Conditions of contract, Cl. No 2, 1 Pg. No. 7 & 71.	Security Deposit	In the detailed tender notice, it has been mentioned that 2% of Security deposit shall be paid in the form of BG and balance 2% shall be deducted from running bills whereas in the condition of contract, the same is given in two options as (A) & (B). Full security deposit (4%) shall be in the form of cash or Government securities Full security deposit (4%) shall be deducted from the running bills. Kindly clarify and confirm.	The Security Deposit shall be paid as per Detailed Tender Notice Clause No 2. Security Deposit, Pg. No. 7.
43	Detailed Tender Notice Cl. No 6, Pg. No. 11	Bid capacity	For Eligibility criteria on turnover, declared turnover is generally considered for evaluation, whereas it is mentioned that for arriving at present levels of Turnover upgradation based on WPI is to be taken. Please note that WPI is applicable only for commodities and cannot be used as an index for turnover upgradation. Hence, please provide the suitable factor to be considered for turnover upgradation.	As per NIT.
44	Detailed Tender	Bid capacity	As we execute huge number of projects pan India and abroad, it would be difficult to furnish the “Amount of work completed” year	As per NIT.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	Notice Cl. No 6, Pg. No. 11		wise for calculation of turnover (A). Therefore we request you to consider our Annual turnover certificate duly certified by Auditor. Kindly consider and confirm.	
45	General Conditions of Contract Cl. No 70, Pg. No. 43	Advance payment	We request you to kindly provide interest free mobilization advance of 10% of contract price for better cash flow during project execution. Kindly consider and confirm.	As per NIT.
46	Detailed Tender Notice Cl. No 69, Pg. No. 43	MPW Manual	Referred clause states, "secured advance shall be granted as per provisions in MPW manual and MPW Account code". We request you to kindly elaborate the payment of secured advance as per MPW manual.	As per NIT.
47	General Conditions of Contract Cl. No 67, Pg. No. 43	Price variation	Due to extreme volatility in market prices, we request you to consider price variation for cement, reinforcement steel, labour, POL, MS, HDPE pipe, DI pipe & other materials. Also provide percentage of components based on formulae governed by relevant RBI indices. Kindly consider and issue necessary amendments.	As per NIT.
48	General Conditions of Contract Cl. No 68, Pg. No. 43	Interest for delayed payments	We request you to consider 12% as interest rate on delayed payments to the contractor for better cash flow. Please consider and confirm.	As per NIT.
49	Special Conditions Cl. No 14, Pg. No. 49	Removal & Shifting of existing Utilities	We understand that during execution of work, cost involved in rectification of damages to the objects beneath the earth shall be the responsibility of contractor, however removal & shifting of utilities will be reimbursed at actuals by the department. Kindly confirm.	As per NIT.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
50	General	Extra claim	Being percentage rate tender, any work intended in the scope of work but not included in the BoQ (Schedule – B) shall be considered under extra claims. Hence, we request you to pay extra claims if any, as per rate mutually agreed between employer and contractor. Please consider and confirm.	As per NIT.
51	Conditions of Contract Cl. No 2, Pg. No. 72	Compensation delay	In the referred clause, it is mentioned that compensation delay shall be 1% of the estimated cost per day. We request you to amend the same as 0.01% for value of unfinished work cost per day. And also we request you to consider the total delay compensation amount to be 5% instead of 10%. Kindly confirm.	As per NIT.
52	Conditions of Contract Cl. No 2, Pg. No. 72	Compensation delay	We understand that, on accomplishment of overall project and achieving the final milestone within the intended completion date, all the compensation for delay (if any) which was imposed earlier, will be reimbursed to the contractor. Kindly confirm.	As per NIT.
53	Conditions of Contract Cl. No 17, Pg. No. 83	Compensation in case of bad work	We understand that the contractor will be levied at the rate of 1% of estimate of bad work per day in lieu of compensation for bad work not exceeding 10 days. Kindly confirm if our understanding is correct and also request you kindly provide the maximum amount of compensation to be levied in case of bad work.	As per NIT.
54	Schedule B & Special conditions of contract, BoQ & Cl. No 7, Pg. No. 47	Payment Terms	In Schedule B, Supply, Laying & jointing and Testing for pipeline, valves and associated activities, are given as separate line items whereas in special conditions the payment breakup for whole pipeline works are given as "60% amount of supplied item will be paid to the contractor on receipt of material (after satisfactory third party inspection), 25% amount will be released after lowering, laying, jointing and remaining 15% amount will be released after satisfactory hydraulic testing". We understand that payment percentage mentioned is against the total amount involved in carrying out the pipeline activity. If so, to	As per NIT.

4. Bidders Name :- M/s Larsen & Toubro Ltd.

<table>
<tr><th>Sr. No.</th><th>Clause No. & Page No.</th><th>Details as per RFP / Subject</th><th>Queries / Suggestions of Bidder</th><th>Replies / Clarifications of PCMC</th></tr>
<tr><td></td><td></td><td></td><td>facilitate better cashflow, we request you kindly consider payment terms as follows,
<table>
<tr><td>Against Supply</td><td>80% of total pipeline amount</td></tr>
<tr><td>Against Lowering, Laying & Jointing</td><td>15% of total pipeline amount</td></tr>
<tr><td>Against Hydraulic Testing</td><td>5% of total pipeline amount</td></tr>
<tr><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>55</td><td>General</td><td></td><td>We understand that exemption from payment of LBT is available, as the project is executed under Municipal Corporation. Kindly confirm.</td><td>It shall be as per practice of PCMC.</td></tr>
<tr><td>56</td><td>Technical specification page no 217</td><td>Schedule of Intermediate payments for sub work of MBR/ESR</td><td>In order to facilitate better cash flow during project execution, we request you to consider payment breakup for ESR as follows:
<table>
<tr><td>On approval of design</td><td>2%</td></tr>
<tr><td>Excavation and PCC</td><td>4%</td></tr>
<tr><td>On completion of Footing</td><td>12%</td></tr>
<tr><td>Staging half height</td><td>15%</td></tr>
<tr><td>Staging full height</td><td>15%</td></tr>
<tr><td>Bottom slab complete</td><td>15%</td></tr>
<tr><td>Vertical wall half height</td><td>5%</td></tr>
<tr><td>Roof slab</td><td>13%</td></tr>
<tr><td>On completion of spiral staircase / M.S ladder</td><td>8%</td></tr>
<tr><td>On completion of plastering and finishing</td><td>1%</td></tr>
<tr><td>On erection of pipes valves and constructions of chambers</td><td>3%</td></tr>
<tr><td>Hydraulic testing</td><td>4%</td></tr>
<tr><td>Other Miscellaneous items as per A/T including snowcem, painting water level indicator, lighting Conductor, M.S. ladder and nameplate etc.</td><td>3%</td></tr>
</table></td><td>As per NIT.</td></tr>
</table>

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
			Total 100 %	
57	Technical specification page no 218	Schedule of Intermediate payments for sump /BPT	In order to facilitate better cash flow during project execution, we request you to consider payment breakup for Sump as follows: On approval of design 2% Excavation and PCC 4% On completion of Bed concrete & Footing 25% Vertical wall half height 15% Vertical wall Remaining height 19% Roof slab 15% On supply pipes valves and specials 7% Plaster finishing 3% On erection of pipes valves and constructions of chambers 3% Hydraulic testing 4% Other Miscellaneous items as per A/T including painting water level indicator, lighting Conductor, M.S. / SS ladder and nameplate etc. 3% Total 100 %	As per NIT.
58	General	Right of way	We presume that the required width of ROW shall be provided to us by Employer with all permissions and clearances and free from all encumbrances, including payment of necessary charges, depository fees to all the authorities, private land owners. Kindly confirm.	As per NIT.
59	General	Right of way	We understand that necessary width of right of way required for laying pipeline and land required for construction of structures shall be provided to us free of cost and free from all encumbrances, clearances from all authorities including Forest department (if any), Railways, NH etc. and including crop compensation to private land	As per NIT.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
			owners. Please confirm if our understanding is correct.	
60	General conditions of contract Cl-62 page no - 42	Statutory Variation	We are sure that you would be aware of the impending GST implementation. However the tax structure including exemption and input tax credit rules are yet to be formalized and announced. In such a scenario, bidders cannot assess the impact on the project cost due to GST implementation. In order to avoid unnecessary loading of prices and to encourage competitive pricing, we request you to kindly consider reimbursement of statutory variation in taxes & duties & introduction of new taxes at actuals. Please consider and confirm.	As per NIT.
61	General	Quantity Variation	We understand that the quantities mentioned in the bills of quantities are tentative only and contractors will be paid as per actual quantities executed at site and also please specify the limiting factor for Quantity variation, above or below which rates will be applicable.	As per NIT.
62	General	Order of Precedence	We request you to provide order of precedence for the tender document.	As per NIT.
63	Annexure-1 Page no- 103	Information about work in hand	We understand that the bidder has to provide the information about work in hand in the referred annexure whereas the annexure seeking for information about supply of pipes only. Since we execute huge number of projects of different nature pan India and abroad, we request you kindly consider our concurrent commitments/ works in hand duly certified by our chartered accountant. Please consider and confirm.	As per NIT.
64	General	Bid Submission	In the view of extensive and critical scope of work involved, we require sufficient time to assess the site conditions in order to arrive at the suitable methodology to be adopted and to prepare competitive technical and commercial bid, we request you to extend	As per Sr. No. 4 above.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
			the bid submission date by at least 4 weeks. Kindly consider and confirm	
65	Conditions of contract Cl-61 page no 100	Insurance	In the referred clause it is mentioned that, "The contractor shall take out necessary insurance policy /policies so as to provide adequate insurance cover for execution of the awarded work from the Director of insurance Maharashtra State Mumbai." We request you to amend the mentioned clause as "Contractor shall take out necessary insurance policy/policies so as to provide adequate insurance cover for execution of the awarded contract work from any Public Sector Insurance Company in Maharashtra State only with the approval of Pimpri-Chinchwad Municipal Corporation" Kindly consider and confirm.	As per NIT.
66	General	Payment	We understand that final bill should be submitted by the contractor within one month of the date fixed for the completion of the work. We request you to kindly provide the period of certification and payment of contractor's final bill.	It shall be as per practice in PCMC.
67	General	Drawings	Please furnish the General Arrangement, Pipeline Alignment, Valve chamber drawings & Structural drawings of the components, GA drawings for feeder main, distribution main, ESR, GSR and all the other drawings which cover the complete scope of work. If the same is available with the department. And also provide the schematic drawing depicting source of supply of water from Intake to tail end.	Contractor has to make his own design and drawings and then get those approved from PCMC.
68	General	Road Restoration	We understand that road restoration work is not in the scope of bidder, as provision for the same is not given in the BoQ (Schedule – B). Kindly confirm	Please refer Item No. 18, Page No 256/257 of Schedule – B.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
69	Conditions of contract Cl-20 page no 85 & 245	Defect Liability period	In the referred clause it is mentioned that the defect liability period for all the components as 5 years. Whereas in the undertaking for guarantee given in page no: 245, the defect liability period is given as 12 months. Kindly clarify.	Defect liability period for all the components is 5 years from the date of completion.
70	Undertaking for guarantee page no- 225	Defect Liability period	In the referred undertaking, it is mentioned that the defect liability period is "Twelve months from the date of submission". We understand it is a typographical error and kindly alter the same as "twelve months from date of completion" and confirm.	As per Sr. No. 69 above.
71	Technical specification 18 Trail run of the scheme page no. 149	Project Duration and Trail run	We understand that design build period of 24 months is excluding 3 months of trial run. Kindly confirm if our understanding is correct.	Since, water treatment plant is not included in this tender, trial run is not required. However, operations at the time of commissioning will be the responsibility of the bidder and it shall be as per Tender Document.
72	General	Payment	Kindly provide the period of certification and payment from the date of submission of monthly bills.	It shall be as per practice of PCMC.
73	Technical specification Cl.27 (h) page no 177	O & M	In the referred clause, it is mentioned as, "Daily O & M of HDPE pipeline should be done & maintain by contractor for two years free of cost. No extra payment will be done by M.C. for this". On reviewing the tender document, we understand that the	O&M is not included, but defect liability period shall be as per Tender Document.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
			contractor has to rectify the defect only during DLP and O&M is not in scope of contractor. We request you to kindly clarify and delete the referred clause.	
74	General specification page no 116	Design, Drawing and DPR submission time	As per the referred clause, the contractor shall submit complete detailed designs and drawings within one month from the date of issue of work order. We request you to kindly increase the duration at least to 3 months.	As per NIT.
75	Schedule B ITEM NO 39 & 40	House service connections	Kindly provide the schematic diagram for the House Service connections right from tapping point to consumer end for our understanding.	As per NIT.
76	General	Project schematic	Kindly confirm the number of DMAs, Population of each DMA and design demand for our understanding.	It is mentioned on Page 23 of NIT. Number of DMAs is 105, these DMAs are to be designed by the contractor.
77	Technical specification Cl.no34 page no.182	MOC of Valves	As per the referred clause the MOC of valves is mentioned as Cast Iron. Whereas, it is mentioned as Ductile Iron in the Price bid (Item No. 10 to 13). Kindly clarify and confirm the MOC of Valves.	As per NIT. MOC of Valves is already mentioned as DI.
78	Schedule B Item no.39&40	House Service Connections	It is mentioned as HDPE casing pipes have to be provided for above ground MDPE pipes. We understand that HDPE casing pipes have to be provided only for MDPE pipes with road crossings. Please clarify and confirm.	As per NIT.
79	Schedule B Item no.39&40	House Service Connections	In the referred item in price bid it is mentioned as house connections have to be made with MDPE pipes upto 10m. Kindly clarify the modality of payment for increase and decrease of MDPE pipes.	As per NIT.
80	Schedule B Item no.42 Note 14	Safe bearing capacity	For all the water storage tanks, SBC is mentioned as 30t/m2. We request you to kindly provide the bore log data for better understanding if the same is available with PCMC.	Contractor has to get acquainted with the site conditions and ascertain

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	page no. 269			SBC.
81	Technical specification Foundation for ESR Page no.210	Painting and Plastering of tank	Since the container is constructed for M30, it can retain the liquid without any leakage, so only epoxy paint is sufficient & plastering may not be required. Kindly consider and confirm.	As per NIT.
82	General specification GS4:Foundation Conditions and Prescribed Bearing Capacities page no 115	Foundation depth	In NIT it is mentioned as "The foundation depth shall be considered as minimum 3.00 m below G.L. for the construction of BPT, MBR & E.S.R." Kindly allow us to consider the foundation depth according to the actual Geo-Technical report.	As per NIT.
83	Technical specification Foundation of ESR Page no.210	Uplift	In NIT it is mentioned as "minimum uplift up to 50% of depth of foundation below ground level should be considered in the designs". Kindly allow us to consider the water table according to the actual Geo-Technical report.	As per NIT.
84	Technical specification Materials required for construction Page no 201 & 206.	Staircase	In NIT page no 201, it is mentioned as RCC spiral staircase should be provided from GL to gallery & in page no 206 it is mentioned as MS ladder. We are considering MS ladder. Kindly confirm.	RCC spiral staircase should be provided.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
85	Technical specification CI Materials required for construction Page no 205	Grade of concrete & steel	In NIT it is mentioned as OPC of 43 grade cement Kindly allow us to consider OPC of 53 grade cement.	As per NIT.
86	Technical specification CI Design conditions page no 209	Maximum water depth	It is mentioned as maximum actual water depth shall not exceed 5.0.Kindly allow us to choose the tank height for better column arrangement & optimum design.	As per NIT.
87	Technical specification CI Criteria for design of RCC ESR Page no 231	Dismantling of ESR	It is mentioned to dismantle the existing ESR's & the same is not appearing in price schedule. Kindly provide us the number & capacities of ESR to be demolished.	As per NIT.
88	Schedule B Item no.29 page no-262	Grade of steel	In item no.29 of BOQ, grade of steel is mentioned as TMT-FE-500 & whereas as in NIT, it is mentioned as Fe415, Hence we are considering TMT Fe500 grade steel. Kindly confirm.	Confirmed.
89	BOQ Item no33 page no 262	Pipe pushing	Please provide the location and Number of Crossings (Highway/Railway) for better understanding.	Contractor has to get acquainted with the site conditions.
90	Tender document / Design Details page	Obligatory levels and Requirements	In the referred page it is mentioned that the obligatory levels and requirements are given in "Annexure –I DETAILS OF RCC BPT/MBR/ESR'S AT VARIOUS LOCATIONS TABLE". Kindly provide the same.	Contractor has to make his own design and drawings and then got approved from PCMC. However, the levels

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	no 200			can be seen from the drawings and DPR available with PCMC.
91	General	House service connection	We observed that there is no provision given for drain crossings, boundary wall crossing, flooring tile removal cum fixing inside the customer premises. We request you to kindly provide separate item for the same. Kindly clarify and confirm.	Contractor has to get acquainted with the site conditions and make his own design which shall be got approved from PCMC.
92	Technical Specification Cl-18 page no 149	Daily record and maintain of WTP parameters	The referred clause states that the "Daily record of raw water pumped, pure water pumped from WTP, Water reaching each ESR, Alum dose, alum consumed, turbidity, pH, chlorine dose, residual chlorine at consumer end etc. shall be maintained. All required data shall be maintained as per operation and maintenance manual as per of CPHEEO". Since WTP is not part of the bidder's scope, we presume that the provided guarantee of the water quality at outlets is a typographical error. Please confirm.	Confirmed.
93	Technical specification Cl- 38 page no 188/276	Requirements of flow meter and pressure transmitter at entrance /inlet of each DMA	As per referred clause, we understand that Bulk flow meter and Pressure transmitter to be installed at entrance/inlet of each DMA. Please confirm the quantity and specifications of Bulk flow meters. Also, provision is not available in Schedule B for supply and installation of Flow meter & Pressure transmitter. Kindly amend Schedule-B and provide.	As per NIT.
94	Technical specification Cl- 38 page no 188/276	Requirement of 05 Nos of Critical pressure monitoring station for each DMA	As per referred clause, we understand that Pressure transmitter with Battery operated Data Logger (with GPRS facility) to be provided for establish the Critical pressure monitoring system. But in Schedule-B (BOQ), provision is not available for supply and installation of the same. Kindly amend Schedule-B and provide.	As per NIT.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
95	General condition of contract & General Specification Cl 72 &GS-10 Page no 44/276 & 118/276	Installation of SCDA and Automation system for Complete WSS	In the referred clauses, it is mentioned as "it is proposed to install SCADA and Automation system for complete WSS. Accordingly civil works shall be designed and constructed". We presume that SCADA and Automation system is not part of this contract. Kindly clarify & confirm. If SCADA & Automation system is in the scope of work of this contract, kindly include supply & installation of SCADA and Automation system and provision of civil works for the same in Schedule-B.	SCADA and Automation is not of this contract.
96	Schedule B Item no 39 & 40 page no 265/276	Requirement of water meter for Consumer service connection	As per referred clauses, we understand that water meter is not required at individual Consumer service connection. Kindly confirm. If water meter has to be provided, please confirm the quantity, specification of water meters and amend Schedule B accordingly.	Water Meter is not part of this contract.
97	General	Chamber for Electromagnetic Flow meter	As per tender document, Flow meter to be provided at inlet of each ESR/GSR and each DMA. However provision for construction of flow meter chamber is not available in schedule-B. Kindly include the Flow Meter chamber in Schedule-B.	As per NIT.
98	General	Non –Revenue water	Though the name of work is given as "Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme", we notice that there are no relevant details about NRW mentioned in the tender document to ensure reduction of Non-Revenue water. We presume that the reduction of NRW is not under the scope of this project. Please confirm.	Agency has to identify the existing pipelines in each DMA and the new pipes are to be jointed with them which are included in the respective item. Leakages from the existing pipes under consideration shall be removed before commissioning. NRW after commissioning is out of scope of this tender. But any

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
				defect shall be corrected within Defect Liability Period.
99	General conditions of contract Cl-13 page no 23	Water supply to affected areas	We request you to consider and confirm that the alternative arrangement of Water Supply for the affected areas shall be taken care by PCMC.	As per NIT.
100	General conditions of contract Cl-13 page no 24	Item to be executed in other than Operational Zones	Request to provide the details of the Items in Schedule B to be executed in other than the Operational Zones along with the Payment Mechanism.	As per NIT.
101	General conditions of contract Cl-72 page no 44	SCADA & automation System	Kindly furnish the configuration of the Proposed SCADA & Automation System for better understanding & costing.	SCADA and Automation is not a part of this contract.
102	Instruction to tenderer Cl- 5 page no -53	Local Roads	Request to provide the length of additional roads to be constructed and Maintained.	Most of the roads are in the jurisdiction of PCMC. This can be in exceptional cases, for which the agency should get acquainted with the site.
103	Technical Specification Cl- 38 page no 188	Consumer survey & Geo- coding	We understand that the consumer survey & Geo-coding of 77370 Nos. are under the scope of contractor. Please Confirm.	Confirmed.
104	Technical Specification	Updating of the network Map	Request to provide the drawings of Existing Network showing Pipe material, Diameter and length.	Existing pipes are shown in the drawings available with

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	Cl- 38 page no 188		Request to mention the list of tracing equipment's like GPR/Pipe locators to be deployed for updation of the network. Request to provide the No. of trial pits (Nos. / Km) to be considered for updating of the Network Map.	PCMC. However, Agency has to identify the existing pipelines in each DMA and the new pipes are to be jointed with them which are included in the respective item.
105	Technical Specification Cl- 38 page no 188	Trail pits	It is our understanding that trial pits at @ of 2 km on existing network is required for updating the existing Network Mapping. Please consider and confirm. It is also requested to include the same in BoQ.	As per NIT.
106	Technical Specification Cl- 38 page no 188	Condition Assessment of pipe	IT is our understanding that, C-value test, Brinnel Hardness test and Hydro testing shall be carried out for condition assessment of existing CI/DI/HDPE distribution pipes. Please confirm our understanding is correct.	Confirmed.
107	General	Condition assessment of existing distribution system	Please clarify the payment mechanism in case, condition assessment suggests replacement of existing distribution network is necessary.	The distribution network shall be replaced as per approved SIP.
108	Technical Specification Cl- 38 page no 188	Baseline Levels	Please provide the list of "Various Baseline levels" to be assessed.	As per NIT.
109	Technical Specification Cl- 38 page no 188	Creation & Establishment of DMAs	As per the referred clause installation of 5 CPMs per DMA shall be under the scope of the contractor which are not included in the BoQ, request to include the same in the BoQ.	As per NIT.
110	Technical Specification Cl- 38 page	Creation & Establishment of DMAs	As per the referred clause, Leak detection using suitable latest techniques is under the scope of contract. So, request to include the list of equipments to be procured and include the same in Boq.	As per NIT.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
	no 188		Please consider and confirm.	
111	General conditions of contract Cl-21 page no-26	Water and Electricity	In the referred clause it is mentioned as "The contractor shall make his own arrangements at his own cost for water required for construction and hydraulic testing as well as for labour camp". Generally, water will be provided by the client for the hydraulic testing and is followed across the country. So, We request you to kindly provide the water necessary for the hydraulic testing.	As per NIT.
112	General	Drawings	Request to provide the drawings of all Operational Zones (52 nos.) including the Existing Pipes (to be retained and to be replaced) and new pipe lines along with their material and diameter for better understanding of the Zoning & DMAs .	Bidders can refer to available data with PCMC office.
113	General	Geotechnical investigation	Kindly provide the Geotechnical investigation reports along with bore log data for the proposed ESR locations.	Contractor has to get acquainted with the site conditions and make his own design which shall be got approved from PCMC.
114	General	DPR	Request to provide the Detailed Project Report of the project.	Bidders can refer to available data with PCMC office.
115	Schedule B Item no- 41	Topographic survey	Request to provide the total length of pipeline for which topographic survey is to be carried out.	Bidders can refer to available data with PCMC office.
116	General	Topographic survey	Request to provide the data of detailed topographic survey of existing network, if available with the client for reference purpose.	Bidders can refer to available data with PCMC office.

4. **Bidders Name :- M/s Larsen & Toubro Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
117	General conditions of contract Cl-4 page no-19	Procurement of ARC GIS and Water GEMS	As per the Referred clause, Contractor has to prepare design of existing and proposed new pipe network using GIS based Hydraulic model in water GEMS so, request to include the Procurement of Arc GIS in in the scope of Contractor. Please consider and confirm.	Procurement of Arc GIS is in the scope of Contractor.
118	General conditions of contract Cl-13 page no-21 Technical specification Cl-38 page no-188	Scope of Contracts Creation & Establishment of DMAs	As per the referred clause, NRW base line establishment is under the scope, but Procurement, installation and commissioning of Bulk flow meters, Domestic Water Meters are not under the scope of contractor. Request to include Bulk flow meter and Domestic water meters in BoQ which in turn facilitates establishment of base line NRW levels. Please consider and subsequently amend the estimate.	As per NIT.

5. **Bidder Name:- M/s Emirates Robotics India Pvt. Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
119			It is seen that only pressure reducing valves, diaphragm type are suggested, for controlling duty, our humble request is, since the primary application of the control valves is for flow control, to accept Needle valves also. As these types of valves are more rigid and robust for any distribution system. The advantages of Needle valves over diaphragm type valves are listed separately.	As per NIT.
120			Does Integral S.S. overlay as a body seat material for Butterfly valve is acceptable?	As per NIT.
121			Considering DI Air Valve specifications from tender their respective rate/unit are on very lower side. It looks like rates of MJP CI Air valve are considered against DI specifications hence we request you to reconsider it	As per NIT.
122			The latest technology trend of using HDPE material for Float of Air valve in lieu of Stainless steel is becoming very widespread across the globe & many top valve manufacturers are moving towards this change due to various properties which are superior to S.S. like; > HDPE float is capable of withstanding the more pressure load & hammering effect. > Light weight & high tensile strength > Non-toxic & non-staining > No moisture absorption & thermoforming performance. Relative documents are attached for your ready reference. We strongly recommend supply of Air valve with HDPE float.	As per NIT.

5. **Bidder Name:- M/s Emirates Robotics India Pvt. Ltd.**

Sr. No.	Clause No. & Page No.	Details as per RFP / Subject	Queries / Suggestions of Bidder	Replies / Clarifications of PCMC
123			We suggest one of the innovative trend in Sluice valve, which is bonnet less valve. The advantages of this design are better in functioning with absolute no leakage & no possibility of contamination with other external fluids at no extra cost.	As per NIT.
124			We understand that fusion welded PE/HDPE pipe fittings are specified in tender, where in we suggest to provide Hawle make pipe fittings which are suitable for PE/HDPE pipes without welding. Main advantages of this fittings are pipe laying becomes easier & faster. This fittings are maintenance free with absolute zero leak.	As per NIT.

(Sd)
JOINT CITY ENGINEER (WS)
PIMPRI CHINCHWAD MUNICIPAL CORPORATION
PIMPRI, PUNE – 411018.

PIMPRI- CHINCHWAD MUNICIPAL CORPORATION

e- TENDER NOTICE NO 01 / 01 / 2017-18

Name of work : **Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme.**

TENDER DOCUMENTS

COMMISSIONER

PIMPRI- CHINCHWAD MUNICIPAL CORPORATION

SAVE WATER EVERY DROP COUNTS

`

PRESS TENDER NOTICE

Pimpri Chinchwad Municipal Corporation

Implementation of Pressurized Water Supply, Reduction in Non Revenue water (NRW) and improving Coverage in various Water zones of Pimpri Chinchwad City.

TENDER NO 01 / 01 / 2017-18

Pimpri Chinchwad Municipal Corporation (PCMC) invites proposals for the Selection of Contractor for Implementation of Pressurized Water Supply, Reduction in Non Revenue water (NRW) and improving Coverage in various Water zones of Pimpri Chinchwad City. A Detailed Project Report was prepared by PCMC and is approved by Government of Maharashtra for funding under AMRUT. The indicative cost of the pressurized water supply project is about Rs. 212.67 crore.

More details about the bid submission procedure, qualification criteria & experience and the selection methodology are available in the Request for Proposal (RFP) document. Interested Applicants are requested to download (*www.pcmcindia.gov.in)* the RFP document from 15/05/2017. The cost of RFP document is Rs.50000/- (Rupees fifty Thousand only).

Last date for the submission of the bid is **06 / 06 / 2017**. Pre bid meeting date is **23/05/2017.**

Contact Person: For any further information / clarifications please contact

Joint City Engineer, Water Supply

1st Floor, Pimpri Chinchwad Municipal Corporation, Head Office, Old Pune-Mumbai Road, Pimpri, Pune – 411018. Phone:020-67331401 Fax: 020-27425600

Email: To - r.dudhekar@pcmcindia.gov.in Cc – r.tambe@pcmcindia.gov.in

(Sign)

Commissioner, PCMC

Pimpri- Chinchwad Municipal Corporation

WATER SUPPLY DEPARTMENT

Name of work : **Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme.**

TENDER NOTICE NO. -- 01 / 01 / 2017-18

I N D E X

DETAILED TENDER NOTICE

Pimpri- Chinchwad Municipal Corporation

WATER SUPPLY DEPARTMENT

DETAILED TENDER NOTICE NO. 01 / 01 / 2017-18

Online percentage rate basis Tender in B-1 Form in two envelopes system are invited for the following works from the contractors registered with MJP in class **I** (civil) or registered in CIDCO/MIDC OR ANY GOVERNMENT DEPARTMENT IN INDIA in equivalent class of MJP and registered with PCMC, by Commissioner Pimpri- Chinchwad, Municipal Corporation on PCMC's e-Tendering Portal: **www.pcmcindia.gov.in**

Note : *In order to participate in e-tendering process, it is mandatory for new contractors (first time users of this website) to complete the Online Registration Process for the e-Tendering website. For guidelines, kindly refer to Bidders Manual Kit documents provided on the website*

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

ESTIMATED TENDER COST : **Rs. 212,67,32,133 /-**

EARNEST MONEY DEPOSIT : **Rs. 2,12,67,321/-**

DOWNLOADING COST OF TENDER DOCUMENTS:- Rs. 50,000/- (Non-refundable).

CLASS OF CONTRACTOR : MJP in class **I** (civil) or registered in CIDCO/MIDC or any government department in India in equivalent class of MJP and registered with PCMC.

a. EARNEST MONEY DEPOSIT/TENDER FEES :

Tender fee and EMD shall be paid by

1. SBI Net Banking or
2. Other Bank Internet Bank MOPS.
3. PCMC's Online Payment Portal

For any assistance please contact help desk. Details are available online.

The online payment procedure can be seen on **www.pcmcindia.gov.in.**

Online payment requires 48 hours in Bank working days for clearance and hence, payment should have been made accordingly. The EMD will be retained in the pooling account and will be refunded to the unqualified / unsuccessful bidders after award of tender to the successful lowest bidder. The EMD of successful bidder will be ultimately refunded or will be adjusted against the security deposit after selection of the successful bidder at the time of execution of the contract. In case, the Commissioner decided to forfeit / adjust the EMD amount of the bidder, the EMD amount in such cases shall be credited to the bank account of the Corporation. The mandate for EMD refunds / forfeit / adjustment against security deposit shall trigger from e-tender application of PCMC portal."

NOTE - The bidder should make the payment well in advance so as to ensure that the payment reaches to Bank 4 (four) days before date and time for submission of tender.

2. SECURITY DEPOSIT

- 4% of the Estimated cost or Accepted Tender cost whichever is higher
- Initial Security Deposit.

  2% of estimated cost or accepted tender cost whichever is higher in the form of Fixed Deposit Receipt (FDR) of Nationalized / Scheduled Bank **OR** Bank Guarantee only from Nationalized Banks from local branch in the name of

  Commissioner, Pimpri Chinchwad Municipal Corporation for initial minimum period of 24 months (time limit) and shall be extended suitably if the work is not completed within the time limit.

- **Deductions through R.A. Bills.**

  Balance 2% amount will be recovered through each running bill at 5% of the gross amount of R.A. Bill to the extent that total required security deposit is to be recovered.

- **Additional Security Deposit**.

  If the accepted offer of the contract is below 10% of the cost put to tender, the additional security deposit shall be furnished by the agency as below before issue of work order. This security deposit is in addition to initial Security Deposit.

  - If offer is up to 10% below - Nil
  - If offer is more than 10% and Up to 15% below - 2%
  - If offer is more than 15% below - 4%

The initial Security Deposit and additional security deposit may be in the form of Fixed Deposit Receipt (FDR) of Nationalized / Scheduled Bank **OR** Bank Guarantee only from Nationalized Banks from local branch in the name of "Commissioner, Pimpri-Chinchwad Municipal Corporation, and shall be for a minimum period of 24 months (time limit) and shall be extended suitably if the work is not completed within the time limit. The tenderer shall have to furnish this security deposit with initial security deposit.

3. STAMP DUTY

The contractor shall bear the revenue stamp duty on total security deposit of the agreement and/or Additional Security Deposit (payable as per tender condition), as per the Indian Stamp Duty (1985) (latest revision) provision applicable during contract period.

4. TIME OF COMPLETION

24 (Twenty Four) calendar months, including Monsoon. This will be counted from the date of issue of the work order.

5. DETAILED TENDER SCHEDULE

Sr. No.	Activities	Date & Time
1	Tender Publishing date	15/05/2017
2	Documents download start date	15/05/2017 from 12.00 Hrs
3	Documents download end date	05/06/2017 up to 16.00 Hrs.
4	Pre-bid meeting date	23/05/2017 up to 12.00 Hrs.
5	Bid submission start date	31/05/2017 from 18.00 Hrs.
6	Bid submission closing date	06/06/2017 up to 15.00 Hrs.
7	Bid opening date (Technical Bid)	06/06/2017 at 16.00 Hrs.

6. PRE QUALIFICATION CRITERIA

- The firm / contractor should be registered with MJP in class I /MIDC/CIDCO OR ANY GOVERNMENT DEPARTMENT IN INDIA in class 'I'& above (Civil) (equivalent class of MJP) and should compulsorily have PCMC's Registration . The validity of registration should be at least upto the last date for submission of tender, then only pre-qualification will be considered. It is necessary to renew the registration before issue of work order. Bidder need to submit online copy of registration.

- Bidder or bidder's parent companies, subsidiary, Special Purpose Vehicle or Associates or Affiliates, must satisfy the pre-qualification criteria.
  Note :- The entity claiming experience should have held, in the company owing the eligible project, a minimum of 26% (twenty six percent) equity during the entire year for which eligible experience is being claimed

- The agency shall have experience of successful completion and commissioning of the works listed below with any Govt/Semi Govt./ Corporation or equivalent organization. The experience of for each sub-work should be under single agreement and in last seven years.

Sr.No	Components in project	Experience required for
l.	Rising mains pipelines / gravity main DI / CI / MS pipes	Minimum Diameter - 500 mm. Length L - 5000 m
2	Elevated Service Reservoir / Master Balancing Reservoir	10 Lakh Lit.
3	Distribution system : - Providing, lowering, laying and jointing HDPE pipes OR Distribution system :- Providing, lowering, laying and jointing DI pipes	Minimum Diameter - 110 mm . Length - 125,000 m OR Minimum Diameter - 400 Length - 100,000 m
Note: *The above work of pipe line shall be inclusive of successful Hydraulic Testing.*		

In addition to above, following experience is mandatary-

1) The contractor should have successfully completed the work of replacement or installing new House service connection of minimum 15000 numbers in a single order.
2) Experience in Construction, Commissioning single or multiple DMAs and covering minimum 15000 numbers water connections.

- The bidder shall submit online, required experience certificate. The certificate of experience shall have to be issued by the officer not below the rank of Executive Engineer and counter signed by the City/Hydraulic/Superintending Engineer or equivalent officer or head of Govt/Semi Govt./, Corporation or Corporations.

- The firm shall have valid VAT registration No or TIN No.
- The firm shall have valid PAN No.

All the documents pertaining to pre-qualification criteria shall be submitted separately online in Envelop No.1 (Technical Bid)

BID CAPACITY

The bidder shall have a bid capacity more than the value of this bid. Bidding capacity of contractor for completion of work will be decided by following formula.

BIDDING CAPACITY = 2 N A – B

Where ..

A =	Maximum value of **audited turnover** executed by the contractor in any one year, during the last three years, upgraded to the present year (i.e. tender accepted year) by the formula given below
=	$\left(1 + \frac{\text{(WPI Present - WPI Max. value years)}}{\text{WPI Max. value years}}\right)$ X Maximum value of **audited turnover** executed in a year
Where	**WPI Present :-** Wholesale price index of the month and year in which tender is invited. **WPI Max.value years :-** Average wholesale price index of the year in which the max. value of **audited turnover** executed.

N = Number of years prescribed for completion of the work for which present bid is invited.

B = Value of existing commitment of ongoing work (i.e. work in hand)

Details of **audited turnover** executed by the contractor in last three years and existing commitment of ongoing work

(in Rs. Cr.)

Abstract for BID Capacity Calculation

(Rs. In Crore)

Year	Max. value of engineering works executed in the year	Maximum value of **audited turnover** executed by the the contractor in any one year, during the last three years		Remarks
		Value	**Year**	

Sr. No.	Name of Works	Name of Division/MC	Accepted Tender Cost.	Amount of work completed			Amount of balance work	Remark
				2014-15	2015-16	2016-17		
1	2	3	4	5	6	7	8	9

1	**2**	**3**	**4**	**5**
2013-14		Write the max value here	Write concerned year here	
2014-15				
2015-16				

(Rs. In Crore)

Year	Value of existing commitment of ongoing work to be completed during next **N** years	Total value of existing commitment of ongoing work to be completed during next **N** years. (B)
1	**2**	**3**
2017-18		
2018-19		
2019-20....		
2020-21....		

Max. value of **audited turnover** executed in any one year during last Three years upgraded to present year (i.e. Tender acceptance year) by increasing the cost as per rise in whole sale price indexbetween the year of maximum value and year of tender acceptance (A) = .

No. of year prescribed for completion of work for which present tender are invited (N) =

Total value of existing commitment of ongoing work to be completed during next **N** years (B) =

Bid Capacity = 2 N A – B

Note :-

- Since all the data is pertaining to the contractors own performance, the contractors are requested to provide its bidding capacity for this work by furnishing the calculations and supporting documents duly certified by chartered accountant to prove its contentions along with the application for issue of tender form.
- The statement showing the value of existing commitments of ongoing works during next three years for each of works in the list should be counter signed by Engineer-in-charge not below the rank of Executive Engineer or equivalent officer or head of any other Govt/semi Govt. organization.
- Submission of false information results in blacklisting of the contracting agency.
- If support documents are not found uploaded, bid capacity will not be taken into account which will result in disqualification for this tender

7 COLLABORATION / JOINT VENTURE

- **Collaboration / Joint Venture :-**

The contractor who is willing to participate in tender process, and if he is not having experience of particular sub-work, then he is allowed to have collaboration / joint venture with other agency or contractor registered with Maharashtra Jeevan Pradhikaran or any government department in India in appropriate class and having experience of the particular sub-work as specified in pre-qualification criteria. Contractor with whom above collaboration is done shall be responsible for successful completion of the works. However it will be the responsibility of the principal contractor to get the work done.

- In no case value of work to be done by Principal Contractor shall be less than 51%
- The Collaborating firm can have only collaboration / joint venture with single Principal Contractor.
- The principal Contractor shall be ultimately responsible for completion of entire work.
- The Principal Contractor can have collaboration / joint venture with only one collaborating firm.

- Moreover with whom collaboration is made will only be binding to carry out the work to the effect of principal contractor & should submit an agreement on Rs. 100/- stamp paper as per prescribed form (**Annexure B**) duly Notarized at the time of pre-qualification of bidder

8. COST OF BLANK TENDER FORM

- Rs.50,000/- per set
- Blank Tender documents will not be sold by Municipal Corporation. Interested contractors have to download tender documents from the website.
- Cost of blank tender form shall not be accepted in the form of cash or cheque. The cost of the tender documents will not be refunded under any circumstances.

9. ISSUE OF BLANK TENDER FORM

The blank tender forms will have to be downloaded, from the website https://www.pcmcindia.gov.in as per online schedule.

10. PRE-TENDER CONFERENCE

Pre-Tender conference is open to all prospective tenderers and will be held on **23/05/2017 at 12.00 hours** in the office of the Joint City Engineer, Water Supply, 1st floor, Pimpri- Chinchwad Municipal Corporation, Pimpri, Pune – 411 018 wherein the prospective tenderers will have opportunity to obtain clarifications regarding the work and the tender conditions.

The prospective tenderers are free to ask for any additional information or clarification either in writing or orally and the reply to the same will be given in writing and this clarification referred to as common set of conditions, shall also be common and applicable to all tenderers. The minutes of this meeting along with the letters of tenderers will form the part and parcel of the tender documents. Bidder need to submit online signed copy of pre bid minutes in a technical bid.

11. VALIDITY OF THE OFFER

120 days from the date opening of tender.

12. LAST DATE & TIME OF ONLINE SUBMISSION OF TENDER FORM

06/06/2017 up to 15:00 Hrs.

13. DATE & TIME OF ONLINE OPENING OF TENDER

06/06/2017 at 16:00 in the office of the Commissioner, Municipal Corporation of Pimpri-Chinchwad.

14. SUBMISSION OF TENDER

Bids must be accompanied with:

a) Copy of online payment receipt of Tender documents .

b) Copy of online payment receipt of EMD

c) Scanned copy of all documents, certificates specified in Pre-qualification Criteria in Point No.6.

d) Scanned copy of duly signed declaration of contractor in prescribed format filled in agency's letter head attached with the tender. **(Annexure-A)**

e) Scanned copy of minutes of Pre-bid meeting duly signed by Contractor.

f) Scanned copy of Collaboration in prescribed format.

Bid shall be treated as invalid if scanned copies as mentioned above are not submitted online along with the bid.

The guidelines, "to download the tender document and online submission of bids procedure of tender opening" can be downloaded from website "www.pcmcindia.gov.in"

14.1 The two envelopes No. 1 & 2 shall be digitally sealed and signed and submitted online as per the online tender schedule.

14.2 The date and time for online submission of envelopes shall strictly apply in all cases. The tenderers should ensure that their tender is prepared online before the expiry of the scheduled date and time and then submitted online before the expiry of the scheduled date and time. Offers not submitted online will not be entertained.

14.3 If for any reason, any interested bidder fails to complete any of online stages during the complete tender cycle, Corporation shall not be responsible and any grievance regarding that shall not be entertained.

15. OPENING OF TENDER

The tenders will be opened on the date specified in the tender notice or on the date intimated to prospective bidders, in the presence of the intending bidders or their authorized representative to whom they may choose to remain present along with the copy of the original documents submitted for Pre Qualification. Following procedure will be adopted for opening of the tender.

Envelope No. I (Technical Bid)

First of all, Envelope No. 1 of the tenderer will be opened online through e-Tendering procedure to verify its contents as per requirements. Scanned copies of following documents shall be in Envelope No. 1.

a) Copy of online payment receipt of Tender documents .
b) Copy of online payment receipt of EMD
c) Scanned copy of all documents, certificates specified in Pre-qualification Criteria in Point No.6.
d) Scanned copy of duly signed declaration of contractor in prescribed format filled in agency's letter head attached with the tender. **(Annexure-A)**
e) Scanned copy of minutes of Pre-bid meeting duly signed by Contractor.
f) Scanned copy of Collaboration in prescribed format.

If the various documents contained in this Envelope do not meet the requirements as stated above, a note will be recorded accordingly by the tender opening authority and the envelope No. II of such tenderers will not be considered for further action and the same will be rejected. Also tender will be liable for rejection if bidder mention his commercial offer anywhere in envelop No.1

Envelope No. II (Commercial Bid)

This envelope shall be opened online through e-Tendering procedure after opening of envelope No. 1 only, if the contents of Envelope No. 1 are found to be acceptable to the Corporation. The tendered rate shall then be read out by the tender opening authority.

16. RIGHT RESERVED

a) Right to reject any or all tenders without assigning any reason thereof is reserved by the competent authority, whose decision will be final and legally binding on all the tenderer.

b) Tender with stipulations for settlement of a dispute by reference to Arbitration will not be entertained.

COMMISSIONER
Pimpri Chinchwad Municipal Corporation
Pimpri, Pune – 18.

GENERAL CONDITIONS OF CONTRACT

Pimpri- Chinchwad Municipal Corporation
WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

In the contract, the following terms shall be interpreted as indicated.

a) “UDD “means Urban development department

b) “AMRUT” means Atal mission for rejuvenation and urban transformation

c) "The Contract" means the agreement entered into between the owner and the contractor as recorded in the contract form signed by the parties, includes all attachments and appendices there to and all documents incorporated by references therein. Contract is the deed of contract together with all its original accompaniments and those later incorporated in it by internal consent.

d) "The Contract Price" means the price payable to the contractor under the contract for the full and proper performance of its contractual obligations.

e) "The Goods" means all of the equipments, machinery and/or other materials which the contractor is required to supply to the owner under the contract.

f) "Services" means services ancillary to the contract such as transportation and insurance and any other incidental services, such as Provision of Technical Assistance, Trial Runs, Commissioning, Training to staff and other such obligations of the contractor covered under the contract.

g) "The Owner" means, the Commissioner, Municipal Corporation, Pimpri-Chinchwad the person, for the time being holding that Office and also his successors and shall include any Engineer authorized by him.

h) The "Contractor" means successful tenderer, that is the tenderer, who’s tender has been accepted and who has been authorized to proceed with the work.

i) “ PCMC” means Pimpri- Chinchwad Municipal Corporation

k) "M. J. P." means, Maharashtra Jeevan Pradhikaran

l) "The City Engineer" shall mean Joint City Engineer, Water Supply, PCMC, the person, for the time being holding that Office and also his successors and shall include any Engineer authorized by him.

n) "Tender" means the proposal of the contractor submitted in prescribed form setting-forth the prices for the goods to be supplied and other related services

to be rendered and setting forth his acceptance of the terms and obligations of the conditions of contract and specifications.

o) "Contract Time" means period specified in the document for the entire execution of contracted works and other services to be rendered commencing from the date of notification of award including monsoon period.

p) "Month" means calendar month.

q) "Site" means location at which the contractor will have to execute the contracted work.

r) "The Engineer or Engineer-in-charge" shall mean the water supply Engineer authorized by the Municipal Corporation .

s) PMC means Project Management consultant appointed by the Pimpri- Chinchwad Municipal Corporation.

The contractor shall erect temporary sheds for storage for material supplied by Corporation/Corporation and brought by him on site. Also at each construction site contractor shall have separate storage space for cement and other material.

2. All the water retaining structures shall be designed in M25 and constructed in M30.

3. Contractor shall take trial pits and trial bores at site at his own cost to ascertain the bearing capacity of the strata and accordingly submit the designs.

4. Contractor shall submit designs (Hydraulic and structural) and drawings of the existing and the proposed new pipe network prepared using GIS based Hydraulic model (in WaterGEMS) in the water zones under selected area of PCMC and for all structures such as Master Balancing Tank, Pump House, Sump, ESR, GSR, Thrust blocks/anchor blocks, Pumping machinery and its layout, all allied electrical and mechanical equipments as directed by Engineer in charge. This designs and drawings shall be got checked from Government Engineering College, NIT or IIT at contractor’s own cost.

5. The contractor shall maintain the record of these materials in the prescribed proforma and registers as directed by the Engineer in charge. These registers shall be signed by both contractors and representative of Engineer-in-Charge. These registers shall be made available for inspection, verification for the department as and when required. These registers shall be in the custody of department and shall be maintained by the department.

6. Contractor shall take photographs and videos of all sub-works during construction and submit two copies in hard and soft along with final bill.

7. Contractor shall prepare record drawings of all sub-works as per execution in details by using Auto Cad programme; as directed by Engineer in charge. He should submit 3 Nos.

C.D. (R.W) along with three hard copies during the submission of final bill. Final bill will not be passed unless and until this is submitted. No extra payment will be made for submission of CDs.

8. Contractor shall maintain register for dewatering having details such as BHP of pumps, start and stop of dewatering pumps, Fuel consumed etc.

9. The material, i.e., cement, steel, sand, metal, bricks, alum pipes valves etc. brought on the work site shall be accompanied with the necessary company/manufacturing firm's test certificate. In addition these materials shall be tested as per frequency prescribed by the department and the cost of such testing shall be borne by the contractor. If the test results are satisfactory, then and then only the material shall be allowed to be used on the work. If the test results are not as per standards, these materials shall be immediately removed from the work site at contractor's cost. In case of cement, if so requested by the contractor in writing, material will be allowed to be used before receipt of test results but this will be entirely at the risk and cost of the contractor.

10. All the formwork used for construction shall be of steel or with lining of steel. Wooden shutters may be allowed at the discretion of the Executive Engineer/Engineer in charge/Commissioner for minor works.

11. Contractor shall have Cube Testing machine on site. Test cubes shall be tested in front of Engineer in charge or his representative and a register for it shall also be maintained.

12. RCC designer appointed by the Contractor shall visit and inspect the work at various stages of construction and comply with the query of the department without any extra cost.

13. SCOPE AND MEANING OF CONTRACT:

The term contract hereinafter used means and includes the notice for invitation of tender, schedule 'B' i.e. schedule of items to be executed under this contract in various water zones as indicated in the accompanying drawing of the pipe network, general conditions, schedule of obligatory requirements, general and detailed specifications all appendices drawing and any other documents attached to the blank tender form issued to the contractor firm. These are subject to any alterations and modifications carried out and agreed to before the contract is finally decided and accepted by the Commissioner. The term contract and firms means the agency entering into contract with the Commissioner, PCMC.

Pimpri - Chinchwad MC, an urban local body of Government of Maharashtra, has proposed to execute the following work under sanctioned scheme "Pimpri- Chinchwad Water supply scheme."

This tender includes - Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme.

The successful Contractor or the agency appointed by the Contractor should have the experience of successfully completing the work of GIS based hydraulic model for a city of population not less than 10 lakhs and minimum nodes of 10,000.

Tentative Layout diagram of proposed Water supply of selected Operational Zones are as shown in Figure 1. Contractor has to prepare GIS based hydraulic model in WaterGEMS software of the selected area as shown in Figure 1 and 2 with the boundaries of operational zones and DMAs. PCMC shall not provide any software for the purpose of creation of the model.

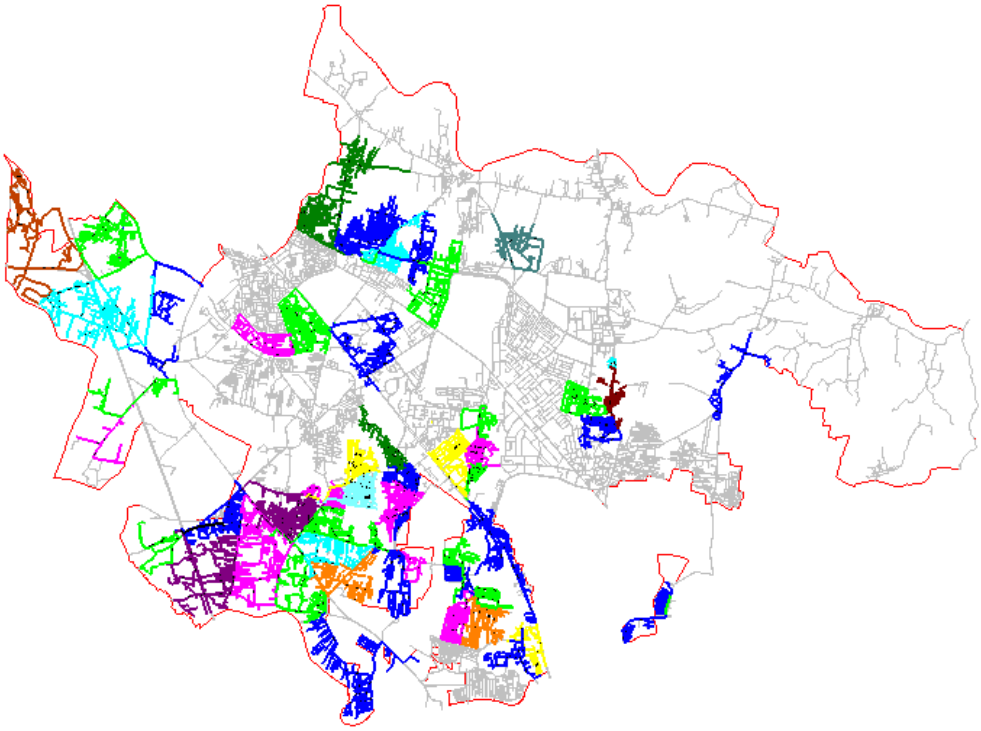

Figure 1: Tentative layout map for Selected Operational zones

Selected operational zones (Tentative) as indicated above and mentioned below are subject to change / modify as per requirements of PCMC. Details of Selected Water

districts / operational zones is as following (Table1);

Table 1 : Tentative Operational Zones / Water Districts Details

SN	Diameter (mm)	Length (m)
1	Ashok Cinema	25145
2	Ashram	18853
3	Bopkhel	10337
4	Dapodi1	11032
5	Dapodi2	10393
6	Dighi_Magzine	9186
7	Indrayaninagar a	17723
8	Kala Khadak	8141
9	Kala Khadak New1	26105
10	Kala Khadak New2	30504
11	Kasarwadi1	9732
12	Kasarwadi2	35007
13	Kaveri Nagar	24303
14	Khandoba-1	40801
15	Khandoba-2	39936
16	Lakshman Nagar	44478
17	Lakshman Nagar 2	36176
18	Mahendra	18353
19	Mamurdi_New	24326
20	Morewasti Chikhli	36576
21	Nav Maharashtra	4675
22	Naydu	22038
23	Nehru Nagar1	9963
24	Nehru Nagar2	16514
25	New Panjarpol	1985
26	New Pimple Gurav Garden	20729
27	New_Punavale	8702
28	NewJadhavwadi1	16026
29	Panjarpol	9751
30	Pimple Gurao1	10633
31	Pimple Gurao2	9127
32	Pimple Gurao3	17765
33	Pimple Gurav Garden	8579
34	Pimple Nilakh	36980
35	Pimple Saudagar a	6249
36	Pimple Saudagar b New	15064
37	Pimpri Delux a	17786
38	Pimpri Delux b	16704
39	Proposed Naydu	11603
40	Punavale	4023
41	Rahatni1	19210
42	Rahatni2	24006
43	Rahatni3	23526
44	Rupi Nagar	40601
45	Sachin1	19183
46	Sachin2	15300

47	Sector 96	31826
48	Sector 96 New	36323
49	Sector 96 Part 2	16986
50	Sector28	16475
51	Shahu Nagar	25938
52	Thergaon Gaothan2	17766
	Grand Total	1030985

Note:- Above operational zones / water district areas are tentative and shall be subject to addition / alteration of zones depending upon technical feasibility for bulk water supply and hydraulic modelling for selected area.

Boundaries for selected operational zones shown above are tentative and indicative only. Finalization of boundaries of selected operational zone is responsibility of Contractor. Contractor while assessing the operational feasibility shall verify the boundaries of 105 DMAs for hydraulically discrete. In the process, if any adjoining area is being affected for water supply, it is in the scope of Contractors to make alternative arrangement of water supply for the area affected.

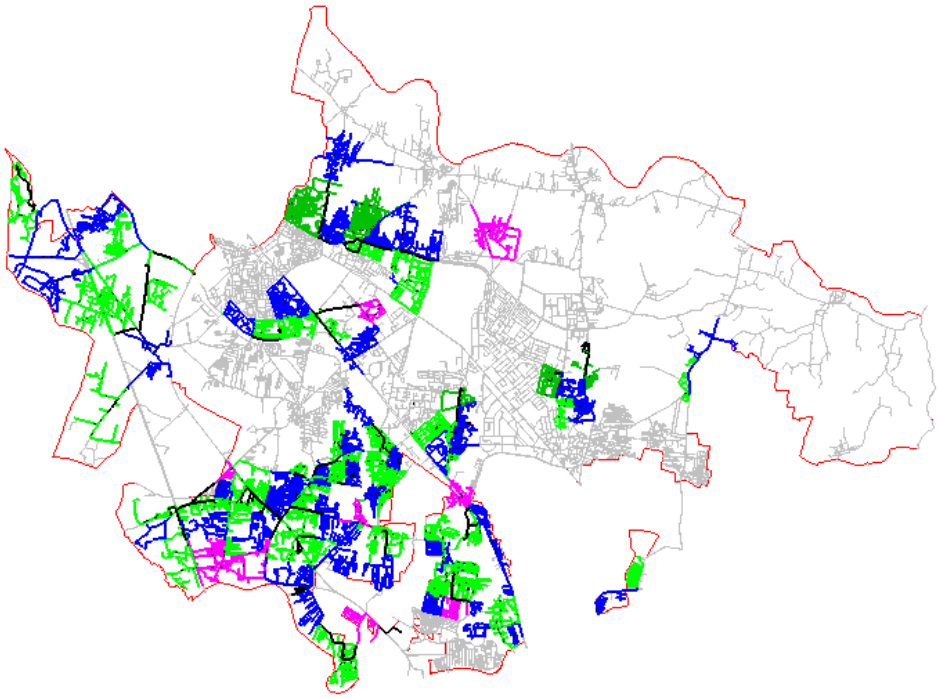

Figure 2 : Selected 105 DMA's within Operational Zones

The selected project area under selected operational zones is within the existing jurisdiction of Pimpri Chinchwad Municipal Corporation which may decrease or increase

at its sole discretion. Some items in the Schedule B may have to be executed as per requirement in the area other than the operational zones mentioned in the tender within the jurisdiction of PCMC.

The Contactor has to supply 1 SUV vehicle (Innova / Scorpio / Xylo) to PCMC within 1 month from the date of work order.

Scope for Transmission Mains:
The successful bidder shall design the transmission main for the Phase 1 and 2. The source is the Pure Water Tank at WTP in sector 23. The design shall be made by creating a GIS based hydraulic model of the transmission mains. A sufficient residual head of minimum of 5 m shall be attained in the design. Bulk meters and the isolation valves shall be designed at the entrance of the each tanks. The GIS drawings of the transmission main shall be prepared.

14. IMPORT LICENSE AND FOREIGN EXCHANGE :

In respect of the work on contractors own design, the contractor shall quote for the indigenous equipment only. Foreign exchange and import license required by the contractor, if any, shall have to be arranged by the contractor independently. PCMC shall not take any responsibility in this regards. Delay in getting any materials shall not be entertained for extension of time limit of the contract.

15. ACQUITANCE WITH WORKS AND SITE CONDITIONS:

The contractor shall be deemed to have carefully examined the scope of work, location and alignment of various components under this tender, site conditions, the general conditions, the specifications, drawing availability of material required etc. and has fully acquainted himself regarding all aspects of works, if he shall have any doubt as to the meaning of any portion of the tender papers. He shall set forth the particulars of the tender to the notice of Commissioner before submission of tender and get the doubts cleared. Once the tender is submitted duly filled, he shall be supposed to have accepted the conditions and specifications full and interpretation of the conditions be entirely at the discretion of the competent authority of the department.

16. OBSTRUCTIONS IN THE WORK :

All obstructions such as electric cables, telephone line, water and sewer mains, manholes, natural drainage, culverts, storm water drains etc. corning in the way shall be carefully looked after against any damages which otherwise will have to be made good by the contractor at his own cost. Any work of removing, repairing or remaking etc will be carried out by the contractor without any extra claims for the same in contractor with the respective departments.

17. LAND FOR THE USE BY THE CONTRACTOR FOR STORING MATERIALS ETC. :

As far as possible the contractor shall be allowed to use the Municipal Land without any charge, in possession of Pimpri- Chinchwad MC for stacking his materials, stores, erection of temporary structures, sheds etc with prior written permission of Commissioner. The location of the temporary structures to be erected shall be got approved from the Commissioner and all the products obtained after cutting the same shall be stacked at suitable place as directed by Engineer in charge. All concern MC land occupied by the contractor for temporary use shall be handed over back in good conditions to the entire satisfactions of the Pimpri- Chinchwad MC as and when demanded by him. Any damage or alterations made in the area shall be made good by the contractor. If the PCMC land is not available the contractor has to make his own arrangements of land on hire or otherwise at his own cost.

18. LABOUR CAMPS :

The contractor shall at his own expenses make all necessary provisions for land, housing grains, water supply and sanitary arrangements etc for employees and shall pay direct to the authorized concerned all rents, taxes and other charges. The contractor shall also comply with all requirements of health department in regard to maintenance of anti-epidemic conditions.

19. WORK THROUGH OTHER AGENCY IN THE SAME AREA :

The Commissioner PCMC shall have the right to execute the works, not included in this contract, but within the premises occupied by the contractor for the purpose of this contract, through any other agency.

20. SPECIFICATIONS

The wording of items in Schedule 'B' shall be taken as guidelines for general provisions and coverage under the item. The detailed specifications for relevant items shall be as per detailed specifications enclosed and as per P.W.D. Hand Book, Standard Specifications, Relevant and latest editions of IS.Code. The other standard, wherever quoted, shall be applicable. If the standard specifications fall short for the items quoted in the Schedule of this contract, reference shall be made to the latest Indian Standard Specifications, IRC codes. If any of the items of the contract do not fall in reference quoted above, the decision and specification as directed by the Engineer in charge shall be final.

It is presumed that the Contractor has gone carefully through the standard specification (Vol. I & II, 1981 edition) and the Schedule of rate of the Division, and has also studied site conditions before arriving at rates quoted by him. The special provisions and detailed specification of wording of any item shall gain precedence over the corresponding

contrary provisions (if any) in the standard specification given without reproduction the details in contract. Decision of Engineer in charge shall be final in case of interpretation of specifications.

21. WATER AND ELECTRICITY

The contractor shall make his own arrangements at his own cost for water required for construction and hydraulic testing as well as for labour camp. The Pimpri- Chinchwad Municipal Corporation does not take any responsibility for supply of water to contractor for construction or testing purposes during the entire work. If water is supplied by Corporation, Contractor shall take connection at his cost and provide water meter on it. Water charges shall be paid by contractor as per prevailing water rates to Corporation regularly every month. Power supply from MSEDCL if required for construction of work as well as for labour camp will have to be arranged by the contractor at his cost. Pimpri- Chinchwad MC does not take guarantee for continuous power supply at site.

22. LINE OUT

The contractor shall himself carry out the line out of works in the presence of the representative of the PCMC and the contractor shall be responsible for accuracy of it. He shall employ a qualified Engineer for this purpose as well as for supervision of works.

23. PROGRAMME AND PROGRESS SCHEDULE

The contractor will have to submit work implementation schedule (PERT/CPM chart) before awarding of work. A progress schedule indicating the date of starting, quarterly progress expected to be achieved and anticipated date of completion of each major item of the work. The schedule should be capable of achievement towards completion of whole work in the stipulated time.

i. The Contractor shall submit his own programme as per time limit stipulated in the tender, in the form of Bar Chart which should give details of milestones of physical stages of each sub work. Simultaneously with the execution of the Contract Agreement, the Contractor shall submit to The Engineer his item-wise monthly programme, which shall be nothing but detailing of the programme,

ii. The programme shall also state the milestones of part commissioning and part completion of the sub-work included in the tender. The programme shall also provide the information as to required approvals to drawings, samples, materials, equipments and their time of submissions to the PCMC. The progress shall be submitted by the Contractor visa-a-vis programme every month. The works team of the Contractor shall be so motivated to know the balance work at the end of each week and the rate required in the balance period to complete the work and therefore, shall endeavor to complete the task assigned for each week timely. In case, where the

updated and revised schedule is required, the same shall be submitted to the owner for approval.

If deviation exceeds 10% in scheduled programme, competent authority has right to reject the tender of successful tenderer.

In the event of contractor failing to execute the work as per scheduled programme submitted by him or in the event of unreasonable delay in the part of contractor, he shall be liable to as compensation an amount at the fixed rate subject to maximum amounting to 10% of the tender cost.

24. CHECKING QUALITY OF THE WORK :

The Engineer in charge should consider it necessary to satisfy himself to the quality of work, the contractor shall at any time during continuance of the contract period produce sample of work done or if necessary pull down a responsible part of the work enough for such inspection and testing as the Engineer in charge may direct. The contractor shall make good the same at his cost and to the satisfaction of the Engineer in charge without extra cost.

25. CHANGES :

Any marginal and minor changes as may be found necessary by the Engineer in charge during execution shall have to be carried out by the contractor without extra cost.

26. INSURANCE OF WORKERS :

The successful tenderer should get the labour insurance done, on account of risk involved within a month from the date of work order, failing which One percent will be withheld from the R. A. bills of the work and it will not be refunded till labour insurance is done and a documentary evidence to this effect is produced by the contractor. The successful contractor tenderer should purchase insurance policy identifying the Commissioner therein.

27. ARBITRATION

In case any dispute arises out during execution of works, no arbitrator shall be appointed for redressal of the dispute. In this regard, decision of the Commissioner, PCMC shall be final and remain binding on both parties.

28. INTENT AND INTERPRETATION OF CONTRACT DOCUMENTS

28.2 The contract documents are complementary and what is called for by one is as binding as if called for by all. Any work that may be reasonably inferred from the drawings or specifications as being required to produce the intended result shall be provided by the contractor whether or not it is specifically called for, in Schedule- 'B'.

The contractor shall furnish and pay for all labour, supervision, materials, equipment, transportation, construction, equipment and machinery tools, appliances, water, fuel, power, energy, light, heat, utilities, telephone, storage, protections, safety provisions, and all other facilities like service, incidentals, approaches to site etc any nature whatsoever necessary for the satisfactory and acceptable execution, testing and completion of the work in accordance with the contract documents, ready for use and operation by the owner. The cost of all these arrangements shall be deemed to be included in the contract offer and no separate payment shall be admissible thereof.

29.2 Interpretations

Written clarifications or interpretations necessary for the proper execution or progress of the work, in the form of drawings or otherwise, will be issued with reasonable promptness by the Engineer and in accordance with any schedule agreed upon.

29.3 Drawings

Figured dimensions on drawings shall govern over scaled dimensions and detailed drawings shall govern over general drawings. The Contractor shall submit six sets of drawings according to the design.

29.4 *Signed Drawings*

Signed drawings alone shall not be deemed to be in order for work unless it is entered in the agreement or schedule or drawings under proper attestation of the Contractor and the Engineer or unless it has been sent to the contractor by the Engineer with a covering letter confirming that the drawing is an authority for work in the contract.

29.5 *Technical Words*

Work, materials or equipment described in words which so applied have a well-known trade or technical meaning shall be deemed to refer to such recognized meanings.

30. LANDS, CONDITION AND LAYOUT

30.1 Line out of the Work

The contractor shall himself carry out the line out of works in the presence of the representative of the PCMC and the contractor shall be responsible for accuracy of it. He shall employ a qualified Engineer for this purpose as well as for supervision of works.

30.2 Surveys and Measurements

The contractor shall carefully preserve all surveys as also setting out stakes, reference points, bench marks and monuments. If any stakes, points or benches be removed or destroyed by any act of the contractor or his employees, they may be reset at the contractor's expense. The contractor shall supply without charge the requisite number of persons with the means and materials necessary for the purpose of working survey, setting out works, and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials.

30.3 Contractor's Verification

The Contractor will establish at the work site a substantial B.M. and connect it to a permanent B.M. available in the area with known value. The contractor will then carry out necessary surveys and leveling, covering his work, in verification of the survey data on the working drawings furnished by the Engineer and he will be responsible for establishing the correct lines and levels and verification of the lines and level furnished on the working drawings. If any error has occurred in the work due to non-observance of this clause, the contractor will be responsible for the error and bear the cost of corrective work.

30.4 Site Office

The Contractor shall construct at his cost a semi-permanent nature site office with minimum of 20 Sq.m area and shall be provided with minimum two tables, two almaries, six Nos of chairs. The office and the furniture shall be provided and maintained by the contractor throughout the contract period at his cost. The use of the site offices shall be adequate size to accommodate the inspecting Engineers of PCMC/any other inspection committee, agency appointed by the Government of India, Maharashtra ,Collector and Municipal Administration to discuss and review progress of work. No extra payment will be made on this account.

The site office shall be provided at all the conspicuous structures to be constructed/components to be executed.

31. SECURITY DEPOSIT AND INDEMNITY BOND

31.1 *Security Deposit*

The security deposit shall be returned to the contractor without any interest when

the contractor ceases to be under any obligation under the contract. This shall be read with Clause No.1 and 20 of B-1 Form for Security Deposit and Defect Liability Clause respectively.

31.2 ***Loss or Damage Indemnity Bond***

The contractor shall be responsible during the progress as well as maintenance for any liability imposed by law for any damage to the work or any part thereof or to any of the materials or other things used in performing the work or for injury to any person or for any property damaged in or outside the work limit. The contractor shall indemnify and hold the owner and the Engineer harmless against any and all liability, claims, loss or injury, including costs, expenses, and attorney's fees incurred in the defense of same, arising from any allegation, whether groundless or not, of damage or injury to any person or property resulting from the performance of the work or from any material used in the work or from any condition of the work or work site, or from any cause whatsoever during the progress and maintenance of the work.

32. SUPERVISION AND SUPERINTENDENCE

32.1 SUPERVISORY STAFF :

The contractor shall have experienced technical qualified general supervisor for the work, who is capable of managing and guiding the work and also capable of understanding the instructions given to him by the Engineer in charge from time to time and shall be responsible to carry them out promptly. The contractor shall have during working hours, supervisor of sufficient training and experience to supervise the various items and operations of the work. Further, the Engineer in charge may notice, desire contractor high ranking member to be present on any specified date, the contractor shall comply with such directions Contractor's Supervision

The contractor shall supervise and direct the works efficiently and with his best skill and attention. He shall be solely responsible for means, methods, techniques, procedures and sequences of construction. The contractor shall co-ordinate all parts of the work and shall be responsible to see that the finished work complies fully with the contract documents, and such instructions and variation orders as the Engineer may issue during the progress of the works.

32.2 Agent

The Contractor shall keep on the work at all times during its progress a competent resident agent preferably a qualified and experienced Engineer, capable of managing and guiding the work and understanding the specifications and contract conditions. For this purpose the contractor shall communicate to the Department, name, qualification and experience of such Engineer to be appointed for execution of this work. The agent

appointed by the contractor shall not be replaced without ten (10) days written notice to the Engineer except under extra-ordinary circumstances. The agent shall be the Contractor's representative at the site and shall have authority to act on behalf of the contractor. All communications, instructions and directions given to the agent shall be binding as if given to the Contractor by the Engineer not otherwise required to be in writing will be given or confirmed in writing upon request of the Contractor. or in work-order book.

33. CARE AND USE OF SITE

The Contractor shall not commence operations on land allotted for work without prior approval of the Engineer-in -charge. If these lands are not adequate the Contractor may have to make his own arrangements for additional lands required for his use. The contractor shall not demolish, remove or alter any of the structures, trees or other facilities on the site without prior approval of the Engineer. All the area of Contractor's operations shall be cleared before returning them to the Engineer.

34. OVERLOADING

No part of the work or new and existing structures, scaffolding, shoring, strutting, construction machinery and equipment, or other permanent and temporary facilities shall be loaded more than its capacity. The Contractor shall bear the cost of correcting damage caused by loading or abnormal stresses or pressures.

35. USE OF EXPLOSIVES

The Contractor shall comply with the laws, ordinances, regulations, codes, orders, other governing the transportation, storage and use of explosives, shall exercise extreme care not to endanger life or property and shall be responsible for all injury or damage resulting from the use of explosives for or on the work.

36. MANUFACTURER'S INSTRUCTIONS

The Contractor shall compare the requirements of the various manufacturer's instructions with requirements of the contract documents, shall promptly notify to the Engineer in writing of any difference between such requirements and shall not proceed with any of the works affected by such difference shall until an interpretation or clarification is issued pursuant to article.

The contractor shall bear all costs for any error in the work resulting from his failure to the various requirements and notify the owner of any such difference.

37. PROTECTION

The contractor shall take all precautions and furnish and maintain protection to prevent damage, injury or loss to other persons who may be affected thereby. All the works and

all materials and equipment to be incorporated therein whether in storage or on the site, under the care, custody or control of the contractor or any of his sub-contractors and other improvements and property at the site or where work is to be performed including building, tools and plants, pole lines, fences, guard rails, guide posts, culvert and works markers, sign structures, conduits, pipelines and improvements within or adjacent to streets, right-of-way, or easements, except those items required to be removed by the Contractor in the contract documents. The Contractors protection shall include all the safety precautions and other necessary forms of protection, and the notification of the owners of utilities and adjacent property.

The contractor shall protect adjoining site against structural, decorative and other damages that could be caused by the execution of works and make good at his cost any such damages that could be caused by the execution of works and make good at his cost any such damages.

38. UTILITIES AND SUB-STRUCTURES

Before commencing any excavations, the Contractor shall investigate, determine the actual locations, and protect the indicated utilities and structures, shall determine the existence, position and ownership of other utilities and substructures in the site or before the work is performed by communication with such property owners, search of records, or otherwise and shall protect all such utilities and substructures.

38.1 Restoration and Repair

Except for those improvements and facilities required to be permanently removed by the contractor, the contractor shall make satisfactory and acceptable arrangements with the appropriate owners, and shall repair, restore all improvements, structures, private and public roads, property, utilities and facilities disturbed, disconnected, or damaged as a result or consequence of his work or the operations of those for whom he is responsible or liable, including that caused by trespass of any of them, with or without his knowledge or consent, or by the transporting of workmen, material or equipment to or from the site.

39. WORKMEN

The contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the works any unfit person or anyone not skilled and experienced in the assigned task. The Contractor shall in respect of labour employed by him comply with or cause to be complied with the provisions of various labour law and rules and regulations as applicable to them in regard to all matters provided therein and shall indemnify the owner in respect of all claims that may be made against the owner for non-compliance thereof by the Contractor.

In the event of the contractor committing a default or breach of any provisions of labour laws and rules and regulations, the Contractor shall without prejudice to any other liability under the acts pay the owner a sum as decided by the engineer.

39.1 Work during Night or On Sundays and Holidays

Unless otherwise provided, none of the permanent works shall be carried out during night, Sunday or authorized holidays without permission in writing. However, when work is unavoidable or necessary for the safety of life, priority of works, the Contractor shall take necessary action immediately and intimate the Engineer accordingly.

39.2 Workmanship

The quality of workmanship produced by skilled knowledgeable and experienced workmen, machines and artisans shall be excellent. Particular attention shall be given to the strength appearance and finish of exposed work.

40. MATERIALS AND EQUIPMENT

All materials and equipment incorporated in the work shall be new. Materials and equipment not covered by detailed requirements in the contract documents shall be of the best commercial quality suitable for the purpose intended and approved by the owner prior to use in the work.

40.1 *Optional Materials*

Only one brand, kind or make of material or equipment shall be used for each specific purpose through-out the works, notwithstanding that similar material or equipment of two or more manufacturers or proprietary items may be specified for the same purpose

41. USE OF APPROVED SUBSTITUTIONS OR EQUALS

The contractor shall bear all extra expenses resulting from providing or using approved substitutions or equals where they affect the adjoining or related work, including the expenses of required engineering, redesigning, drafting and permits where necessary, whether the Engineer's approval is given after receipt of tenders.

42. LAWS AND REGULATIONS

43. Governing Law

The contract documents shall be governed by the laws and by-laws of India, the State of Maharashtra and the local bodies in this region.

44. Resolving the disputes:

In case of disputes, between a Contractor and M.C. the decision of the Commissioner shall be final and binding. In case of any further dispute, the decision of Secretary UDD-2 / or any other person appointed by the Secretary UDD-2 will be final.

45. BURRIED AND CONCEALED WORK

The contractor shall help in recording the precise location of all piping, conduits, ducts cables and like work that is buried, embedded in concrete or masonry, or concealed in wood or metal frame walls and structures at the time such work is installed and prior to concealment. Should the contractor cover such buried or work before such recording takes place, he shall uncover the unrecorded work to the extent required by the Engineer and shall satisfactorily restore and reconstruct the removed work with no change in the contract price or the contract time.

46. SAFETY PRECAUTIONS AND EMERGENCIES

Contractor's Responsibility for Safety

The contractor shall be solely responsible notwithstanding any stipulations by owner or Engineer for initiating, maintaining and supervising all safety precautions and programmes, in connection with the work and shall comply with all laws, ordinance, code rules regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damages, injury or loss during the entire contract period including non-working hours.

On the occurrence of an accident arising out of the works which result in death or which is so serious as to be likely to result in death, the contractor shall within one hour of such accident intimate in writing to the Engineer the facts stating clearly and with sufficient details the circumstances of such accidents and subsequent action taken by him. All other accidents on the works involving injuries to the persons or property other than that of the contractor shall be promptly reported to the Engineer clearly and with sufficient details the facts of such accidents and the action taken by the contractor. In all cases, the contractor shall indemnify the Engineer against all losses or damages, resulting directly from the contractor's failure to report in the manner aforesaid.

This includes the penalties or fines, if any payable by the owner as a consequence of failure to give notice under Workmen's Compensation Act or otherwise to conform to the provisions of the said Act in regard to such accidents. In the event of an accident in respect of which compensation may become payable by the contractor, such sum of money as may, in the opinion of the Engineer, be sufficient to meet such liability will

be kept in deposit. On the receipt of award from the Labour Commissioner in regard to the quantum of compensation, the difference in the amount will be adjusted.

It is obligatory that the contractor shall take an all Risk Insurance Policy for the works and keep it in force throughout the work period.

47. WARNINGS AND BARRICADES

The contractor shall provide and maintain barricades, guards, guard rails, temporary bridges and walkways, watchmen, headlights and danger signals illuminated from sunset to sunrise and all other necessary appliances and safeguards to protect the work, life, property, the public, excavations, equipment and materials. Barricades shall be substantial construction and shall be painted such as to increase their visibility at night. For any accident arising out of the neglect of above instructions, the contractor shall be bound to bear the expenses of defense of every suit, action or other legal proceedings, at law, that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay all damages and costs 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 in compromising any claim by any such person.

48. ENGINEER'S STATUS DURING CONSTRUCTION, AUTHORITY OF THE ENGINEER

The Engineer shall have the authority to enforce compliance with the contract documents. On all questions relating to quantities, the acceptability of materials, equipment, or works, the adequacy of the performance of the work and the interpretation of the drawings and specifications, the decision of the Engineer shall be final and binding and shall be precedent to any payment under the contract agreement unless otherwise provided in the contract documents. The Engineer shall have the authority to stop the work or any part thereof as may be necessary to ensure the proper execution of the work, disapprove or reject the works which is defective, to require the uncovering and inspection or testing of the works to require re-examination of the works, to issue interpretations and clarifications, to order changes or alterations in the works, and other authority as provided elsewhere in the contract documents.

The Engineer shall not be liable for the results of any ruling, interpretation or decision rendered, or request, demand, instruction, or order issued by him in good faith. The contractor shall promptly comply with requests, demands, instructions and order from the Engineer.

The whole of the works shall be under the directions of the Engineer, whose decision shall be final, conclusive and binding on all parties to the contract, on all questions

relating to the construction and meaning of plans, working drawings, sections and specifications connected with the work. The Engineer shall have the power and authority from time to time and at all times make an issue 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 the terms of specifications and the contractor shall receive, execute, obey and be bound by the same according to the true intent and meaning thereof; fully and effectually. Engineer 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 works or any portion of works executed or partially executed, to be removed, changed or altered and if needful, may order that other works shall be substituted instead thereof and the difference of expenses occasioned by any such diminution or alteration so ordered and directed shall be deducted from or added to the amount of this contract.

49. DUTIES OF ENGINEER'S REPRESENTATIVE

The duties of the representative of the Engineer are to check, inspect and continuously supervise the work and to test any materials to be used or workmanship employed in connection with the works. He shall furnish the drawings and information to the contractor, approve the contractor's drawings subject to post-facto approval and signature of the Engineer-in-Charge, recommend and approve the interim certificates and taking over certificates after thorough checking and inspection and recommend extra work required and extension of time.

Approval for or acceptance of any work or material or failure to disapprove any work or material by the representative of the Engineer shall not prejudice the power of the Engineer thereafter to disapprove such work of material and to order removal or modification thereof. If the contractor shall be dissatisfied with any decision of the representative of the Engineer, he shall be entitled to refer the matter to the Engineer, who shall thereupon confirm, reserve or vary such decision only in genuine cases.

The representative of the Engineer shall be liable to inform the Engineer about the daily progress and compare it with the programme. He shall also inform the contractor immediately about the log or lead in the progress than the programme.

50. DEFECTS AND RECTIFICATION

For period specified in the Clause 20 of B.1 form for the defect liability period for the individual type of work from the date of issuance of the completion certificate in accordance with Condition "Final Inspection and Acceptance" mentioned herein after, contractor shall remain liable for any of the works or parts thereof or equipment and

fittings supplied which in the opinion of the Engineer fail to comply with the requirements of the contract or are in any way unsatisfactory or defective except fair wear and tear. The process of the assembly commissioning of all sections of pipe lines, tested hydraulically in patches, will involve some additional measures such as shaft of suitable height, fixing of air valves at more number of places on the alignment and all such measures shall be done by the contractor.

To the intent that the works and each part thereof shall at or as soon practicable after the expiry of the above period be taken over by the Engineer in the condition required by the contract to the satisfaction of the Engineer, the contractor shall finish the work (if any) outstanding at the date of completion as soon as may be practicable after such date and shall execute all such work of repair, amendment, reconstruction, rectification and making good of defects imperfections, shrinkages or other faults as may during the period of maintenance or after its expiry be required of the contractor in writing by the Engineer as a result of an inspection made by or on behalf of the Engineer prior to the expiry of the period. The contractor at his own expenses shall carry out all such work if the necessity thereof shall in the opinion of the Engineer and due to the use of materials or to neglect or failure on the part of the contractor to comply with any obligation expressed or implied on the contractors pat under the contract. If the contractor fails to do any such work as entitled to carry out such work in which the contractor should have carried out at the contractor's own cost, the Engineer shall be entitled to recover from the contractor the cost thereof or may deduct the same from the moneys that become due to the contractor. Notwithstanding the aforesaid, if the contractor remains in default, one calendar month after the Engineer has given written instructions in writing, the Security Deposit shall become payable to the Commissioner who will deduct the cost plus overhead expenses of such works as have been necessary to rectify the contractor's default and the balance, if any, shall be disbursed. The Contractor shall submit the operation and maintenance manual for the fruitful operation of the works. The Contractor will have a liberty to visit the operating works during the defect liability period and satisfy himself about the on-going operations in case he do not visit and a defect is observed then the Engineer's opinion shall be final and binding as to the application of defect liability.

51. RIGHT TO WITHHOLD

The Engineer may refuse to approve to any payment, or because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously approved and paid to such extent as may be necessary in the opinion of the Engineer to protect him from loss because (a). The work is defective, (b) Third party claims have been filed or there is reasonable evidence indicating probable filing of such claims, (c) of the Contractor's failure to make payment properly to

sub-contractors or for labour, materials or equipment, (d) of damage to another Contractor, or to the property of other caused by the Contractor, (e) of reasonable doubt that the work cannot be completed for the unpaid balance of the contract price, (f) of reasonable indication that the work will not be completed within the contract time, (g) of the Contractor's neglect or unsatisfactory prosecution of the work including failure to clean up. Once the provisions of law that enables or require the Engineer to withhold such payments are removed, payment will be made for amounts withheld because of them to the extent the contractor is entitled to payment.

52. FINAL INSPECTION AND ACCEPTANCE

Upon written notice from the contractor, that the entire work required by the contract documents is complete and that all submittals required by him are made, and after the Contractor has delivered the bonds, certificates of inspection, guarantees, warranties, releases and other documents, as required by the contract documents or by law, the Engineer will make a final inspection, and he will notify the Contractor in writing of any particulars in which this inspection reveals that the work is defective, and will also notify the Contractor in writing of any deficiencies in the submittals and the document required from him.

The Contractor shall promptly make such corrections as are necessary to remedy all defects or deficiencies. After the Contractor has completed any such corrections to the satisfaction of the owner, the Engineer will issue a written completion certificate of the work and file any notice and completion required by law or otherwise.

53. CONTINUING OBLIGATION OF THE CONTRACTOR

The Contractor's obligation to perform and complete the work in accordance with the contract documents is and shall be absolute. Neither the observation during construction and final inspection of the work by the Engineer, nor any payment to the Contractor under the Contract documents, nor any use or occupancy of the work or any part thereof by the Engineer, nor any act of acceptance by the defective work by the Engineer shall constitute acceptance of work not in accordance with the contract documents.

54. TAXES TO BE DEDUCTED AT SOURCE

During the course of contract period the deduction of Income Tax/Work Contract Tax or any other Central/State or local tax required to be deducted at source, will be made as per prevailing rules from the contractors bills and will be remitted to the concerned Departments. Certificate for such deductions will be issued by the Executive Engineer/Commissioner.

55. RECORDS AND MEASUREMENTS

The Engineer shall except or otherwise stated therein, determine by measurement the value in accordance with the contract of works done in accordance therewith.

All items having a financial value shall be entered in a measurement book, level book etc. as prescribed by the Engineer so that a complete record is obtained of all work performed under the contract.

The Engineer ORhis authorized representative shall take measurements jointly with the Contractor or his authorized representative. Before taking measurement of any work the Engineer –in –charge for the purpose shall give reasonable notice to the contractor. If the contractor fails to attend or send an authorized representative for measurement after such notice or fails to countersign or record the objection within a week from the date of measurement, then in any such event measurements will be taken by the Engineer, or by the person deputed by him shall be taken to be correct measurements of the works and shall be binding on the contractor.

There shall be absolutely no doubt regarding the measurements and hence the contractor shall first arrange the exact branding of the alignment length on site, and mark distinctly. All hidden measurements shall be measured by steel tape, on the exact section as marked previously and depth by the regular staff generally at an average interval of 30 m or suitable interval decided by Engineer-in-Charge.

In case of difference of opinion in the measured quantity and the payable quantity of any particular measurements, the contractor must know the departmental practices developed as per the manuals and standard specifications.

Normally only excavation will not be measured. When the pipes and specials are laid in position, then only the excavation and other items will be measured.

The Contractor shall, without any extra charge, provide assistance with every appliance and other things necessary for measurements, such as leveling instruments (Auto setting), tapes, staffs, camera, paints, brushes and required labour.

Measurements shall be signed and dated by both the parties each day (for taking measurement) on the site on completion of measurements. The Contractor shall take up still colour photographs at intervals during the execution of works so that a history of development of the works is maintained.
The dated photographs, in two copies, shall be submitted to the Engineer-in-charge every time. No extra cost will be paid for this. This generation of record shall provide the used methodology of working and highlight the quality of material and workmanship.

The cost of the said work shall be borne by the Contractor. It shall be the property of the Municipal Corporation. and shall not be used for campaigning, advertising without permission of the Corporation.

56. WRITTEN NOTICE

Written notice shall be deemed to have been duly served or delivered in person to the individual or member of the firm or to an Engineer of the contractor for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice. The notice on the Fax Message/ E-Mail shall be deemed to have been duly served. The address given in the contractor's tender on which all notices, letters and other communications to the contractor shall be mailed or delivered, except that said address may be changed by the Contractor by notifying the owner in writing. This shall not preclude the service of any notice, letter or other communication upon the Contractor personally.

57. USE OF COMPLETED PORTIONS

The owner shall have the right, upon written notice to the Contractor, to take possession or occupancy of, and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired but such taking possession or occupancy and use shall not deemed to waive of any requirement of the contract documents or a waiver or acceptance of any work not completed in accordance with the contract documents.

58. CLEANING UP

The contractor shall at all times during the work keep the site and premises, adjoining property and public property free from accumulations of waste materials, rubbish, and other debris resulting from the works, and at the completion of the work shall remove all waste materials, rubbish and debris from and about the site and premises as well as all tools, construction equipment and machinery and surplus materials, and shall leave the site and premises, clean, tidy and ready for occupancy by the owner. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the contract documents paved ways, parking areas and roadways disturbed by the construction shall be redone by filing the excavation, if any, by sand compacted material and bringing it to its original shape as directed and approved by the Engineer. No waste material shall be buried or disposed off on the owner's property unless so approved in writing by the Engineer-in-Charge. Before the Contractor applies for final inspection and acceptance of the work, all items of work shall be complete, ready to operate, and in a clean condition as determined by the Engineer.

59. OWNER'S RIGHT TO CLEAN UP

If the Contractor fails to satisfactorily clean up or if a dispute arises between the Contractor or in several Contractors as to their responsibility for cleaning up, the Engineer may clean up and charge the cost thereof to the Contractor for his failure, or to the several contractors as the Engineer shall determine to be just.

60. FOSSILS ETC.

All fossils, coins, articles of value of antiquity and structures or other remains or things of geological or archaeological interest discovered on the site shall be deemed to be the property of the owner and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out at the expenses of the Engineer's order as to the disposal of the same.

61. LABOUR RULES

If demanded by Municipal Authorities, the contractor will have to produce to the satisfaction of the accepting authority a valid and current license issued in his favor under the provision of Contract Labour (Regulation and Abolition) Act 1970, before starting the work, otherwise the Contractor shall have to face the further consequences. The contractor shall have to comply with the Apprentices Act 1961, and the rules and orders issued there under from time to time. If he fails to do so, his failure will be breach of contract and the Commissioner, Pimpri- Chinchwad M.C. may in his discretion, cancel the contract. The Contractor shall also be liable, for any pecuniary liability arising on account of any violation of the provisions of this act.

Salient features of some major labour laws/ Acts applicable to establishment engaged will be as below.

a. Workman compensation Act 1923.
b. Payment of Gratuity Act 1972.
c. Employees PF and miscellaneous provisions Act 1952.
d. Maternity Benefit Act 1951.
e. Contract Labour (Regulations and Abolition) Act 1970.
f. Minimum Wages Act 1948.
g. Payment of Wages Act 1936.
h. Equal Remuneration Act 1979.
i. Payment of Bonus Act 1965.
j. Industrial Disputes Act 1947.
k. Industrial Employment (Standing orders) Act 1946.
l. Trade Union Act 1926.
m. Child labour act 1926.

n. Inter state Migrant Workmen's (Regulation of Employment and Conditioned of Services) Act 1979.

o. The Building and other construction works (Regulation of employment and conditions of Services Act 1946 and the cess Act of 1996).

p. Factories Act 1948.

All the relevant law and act will be applicable for this work.

62. STATUTORY INCREASE IN DUTIES, TAXES ETC.

All the taxes and duties levied by the Central Govt., State Govt and by Local Bodies at the prevailing rates applicable on the date of receipt of tender, considering this contractor should quote his offer. Any increase in tax rates till completion of work shall be fully borne by the Contractor and shall not be reimbursed to him on any account.

63. INSPECTION, TESTING & FEES.

All material & equipment, irrespective whether specified or not, shall be tested at manufacturer's works laboratory and the Test Certificate thereof shall be furnished. The test shall be witnessed by the Engineer-in-charge as well as the third party designated by the Pimpri- Chinchwad MC.

64. MACHINERY REQUIRED

All machinery required for erection/execution purposes such as cranes, trucks, etc. shall be arranged by the Contractor. Department shall not take any responsibility for providing such machinery even on rental basis. No concreting shall be permitted unless centering and reinforcement is approved by the Engineer-in-Charge.

65. WORK ORDER BOOK

A well bound work order book shall be maintained on site and it shall be the property of Corporation and the Contractor shall promptly sign orders given therein by the Engineer in charge of PCMC and Commissioner. officials or his superior officer, in token of having received them and comply them.This will be a permanent record The compliance shall be reported by the contractor to the Engineer-in -Charge in good time so that it can be checked. The blank work order book with machine numbered pages will be provided by the Corporation free of charge for this purpose. The Contractor will be allowed to copy out the instruction therein from time to time. He will not record any remarks in the order book but may take up the matter recorded therein.

66. DISCREPANCIES AND OMISSIONS

The tender drawings and specifications, shall be considered as explanatory, of each other and together shall form the technical requirements and stipulations of tender documents. Detailed drawings shall have preference over small scale drawings. Similarly, detailed specifications shall have preference over general specifications. Should any discrepancy arise as to the meaning, intent or interpretation of any specification or drawing the decision of the Engineer- in-charge shall be final and binding on the Contractor.

67. PRICE VARIATION - AUTHORITY

Price variation is not applicable to this tender.

68. NO INTEREST ON DUES

No interest shall be payable by the Corporation on amounts, due to contractors pending final settlement of claim. Further, no interest shall be payable by Corporation on any amount and payment.

69. Any recovery advised by the PCMC shall be recovered from any bill or money retained from this contract. All the recoveries either outstanding or dues under the contract or incidental there to as determined may be, stand recoverable.

Secured Advance will be granted as per provisions made in MPW Manual and MPW Account Code.

70. Mobilization Advance will not be granted.

71. The tenderer is entitled to avail exemption from central excise tax, to all items of machinery, including instruments, apparatus and appliances, auxiliary equipment and their components/parts required for setting up a water treatment plants intended to treat water to make it fit for consumption of humans or animals. Central excise duty will also be exempted on pipes of sizes 100 mm and above required for obtaining untreated (raw) water from its source to the plant and for supplying the treated (potable drinking) water to the storage place from which it would be further supplied for consumption of humans or animals. The concession would be subject to the certification by the Collector of the District in which the water treatment plant is to be set-up. To avail exemption on duty the tenderer himself shall pursue the matter with different Government Departments. Any co-operation in this regard will be extended to the tenderer. The tenderer shall quote his offer

taking into account above exemption which he may avail.

72. Note :- It is proposed to install SCADA and automation system for complete WSS. Accordingly civil works shall be designed and constructed in consultation with engineer-in-charge Additional information in this regard shall be obtained from PCMC.

SPECIAL CONDITIONS

Pimpri- Chinchwad Municipal Corporation
WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

SPECIAL CONDITIONS

1) Payment against Excess quantities of various items.

Before making payment of excess quantities as per rules, PCMC shall get itself satisfied regarding genuineness of the claim and a compulsory check of minimum 10 % of measurements will be exercised for a particular item. Responsibility of informing the excess quantities as per Schedule 'B' of the tender for approval of Competent authority of Corporation and also for correctness of claim to be submitted in future shall rest with Junior Engineer, a auditor and divisional Accountant also. While submitting the proposal for approval, concerned authorities should consider the exact position of the revised estimates, if necessary due to this excess.

For executing any quantity, the excess over the quantity specified in the tender, the contractor should be authorized by the Corporation in writing.

While asking the contractor to execute such excess quantity, PCMC should inform the Contractor in writing specifically that the payment in excess of quantities specified in the tender will be made after following concerned prescribed rules.

2) General

The quoted rate shall be total rate for the completed item of work as per the specification, and shall be inclusive of all incidental charges such as lifts, leads for materials, water for construction etc. The rates for excavation are inclusive of the edge of the excavation pit beyond foundation.

The tenderer must obtain on his own responsibility and his own expenses all the information which may be necessary for the purpose of making a tender and entering into a contract and must consider and satisfy himself with all local conditions, sites and quarries means of accesses, the nature of rock, material to be met with in all execution and all materials pertaining to work.

Specifications of item stipulated for other sub works shall be made applicable, where relevant.

3) Outline of works

The work will be on the lines of plans attached to the tender documents. The plans are however, liable to change and strata as shown there is approximate.

The item of work and their approximate quantities are given in schedule 'B' of the tender. The quantities are approximate and are liable to vary on plus or minus side.

4) Unit

The rates quoted for each item are for units mentioned in Schedule 'B' against each item.

5) Site conditions

1. It shall be presumed that the Contractor has satisfied himself as to the nature of the works, general and local conditions, particularly on those bearings on transport handling, storage of materials, availability of labour, weather conditions and has estimated the cost and quoted his rates accordingly Engineer in charge of Corporation will bear no responsibility for lack of such acquaintance with site conditions and consequences thereof.
2. Set of tender documents and conditions (up to a maximum of three sets) at the discretion of the. Corporation will be supplied to the contractor after acceptance of tender.

6) Extras, Omissions and Discrepancies.

In all the cases of the omissions, doubts or discrepancies in the dimension in the drawing and items of works, reference shall be made to the Engineer in charge of Corporation , whose elucidation and elaboration shall be considered final.

7) Supply of material by the contractor.

7.1 The contractor should supply all the material mentioned in Schedule "B". This shall be conforming to relevant IS & approved PCMC vendors.. All types of pipes, valve and specials will be accepted only after due third party inspection and satisfactory inspection by the third party inspection agencies appointed by the PCMC. (List of third party inspection agencies appointed is periodically circulated by the PCMC). The charges for the same shall be borne by the contractor.

7.2 Other material such as cement, tor steel etc. shall be conforming to relevant ISS testing charges for cement, steel shall be borne by the contractor. Ultra Tech cement (Ultra tech) , Ambuja, Birla shall be preferably be used for water retaining structures.

7.3 In case of item of supply of pipes, valves, specials etc., 60% amount of supplied item will be paid to the contractor on receipt of material (after satisfactory third party inspection), 25% amount will be released after lowering, laying, jointing and remaining 15% amount will be released after satisfactory hydraulic testing.

7.4 The contractor shall provide, at the site of work, satisfactory storage for not less than one month's average consumption of works and shall keep the cement of storage and utilization of cement in the order of its arrival at the stores and the contractor shall maintain satisfactory records, which would at any time show the dates of receipt and proposed utilization of cement lying in the storage.

7.5 The Executive Engineer, PCMC shall at all the times have access to the stores and sites, method of storage, records and securities provided by the contractor. The contractor shall comply with instruction that will be given by Executive Engineer, Engineer in charge of Corporation , in this behalf.

7.6 The contractor shall further at all times satisfy the Executive Engineer, Engineer in charge of Corporation on demand any production of books, of submissions of returns in Performa as directed, other proofs, that, the cement supplied is being used for the purpose for which it is supplied and available to the Engineer in charge of Corporation .

8 TIME OF COMPLETION OF WORK:-

If at any stage of work, it is found that the execution of work is not as per the programme given in the Bar Chart, a fine shall be imposed on the contractor as mentioned in the agreement form.

9. APPOINTMENT OF ARBITRATOR:-

In case of any disputes raised between contractor and Executive Engineer/Engineer in charge during the course of contract regarding work, there shall be no provision for the appointment of an Arbitrator. The decision of the commissioner PCMC / Secretary UDD2 / any other person appointed by secretary UDD2 shall be held as valid and final. If the contractor files a case in appropriate court, the action of withdrawing the work and allotting it to any other agency shall be deemed to be continued as per the practice in vogue in the larger interest of implementation of work in time and as per original time schedule.

10. STRATA :

Strata for excavation are shown approximate based on trial pits and the Contractor shall have no right to claim extra if there is variations in the strata. The contractor will also have no claim if extra excavation is required to be done due to boulders and the Contractor will have to make such extra excavation good by filling the same by C.C. 1:3:6 (M-100) or by plum concrete with 60% plum in C.C.1:3:6 maximum

11. CHANGE IN SITE:

No claims shall be paid on account of reasonable change in site, alignment or orientation of the proposed work, within the work site marked on plan attached to the tender as the circumstances may call for.

12. TOOLS AND PLANT:

All tools, instruments and machinery and all other materials shall be acquired by the Contractor. It is, however, open to the Engineer to lend or supply to the Contractor implements, machinery or other service not covered by the tender document which he can be and may consider desirable. For such tools, instruments, machinery and service provided, the Contractor will have to sign an agreement and pay Security Deposit and rental charges as may be fixed by the Engineer.

13. EXCAVATED MATERIALS:

All excavated stuff shall be Corporation's property and shall be disposed off at lead and lift by the Contractor in a manner as directed by the Engineer –In -Charge.

14. DAMAGES TO UNDER/ABOVE GROUND UTILITY

During the course of excavation and laying of the pipe line utmost care of existing main, electrical and telephone cables and private water connections/sewage connections shall be taken. Any damage to existing main electrical and telephone cable and private water/ sewage connection, etc, occurs during the course of execution, same shall be restored at the cost of the contractor. In case the repairs are done by owner, the cost of such repair will be recovered from the contractor.

Rates for all type of materials are inclusive of VAT and all taxes levied by Central Government, State Government or local bodies.

Rates for supply of specials and valves are inclusive of excise duty (Central), VAT, Third party inspection charges, storage charges, overhead charges and transportation of materials up to site and stacking. Rates mentioned in the tender are inclusive of all Central Govt, State Govt. and Local taxes, duties and cess etc.

15. Though the contractor is required to do refilling before hydraulic testing to avoid traffic hurdle, no payment for refilling of the trenches of pipe line shall be payable till satisfactory hydraulic testing is given. Re-excavation required if any during testing shall be done by contractor at his own cost.

16. The works of cross connections to existing lines are to be arranged in such a way as no major shutdowns are required to be taken and work should be completed within minimum period of time, without interrupting the major water supply in the area.

17. Activity in Bar chart and network diagram (CPM / PERT) shall be modified regularly in case any activity could not be done in time due to some extra ordinary reason. The same modified Bar Chart/Network diagram should be submitted for approval of Engineer-in-

Charge or competent authority of Corporation, who will give approval after consultation with MJP.

18. Work shall be executed in stages as mentioned Government Resolutions and letter issued by the Urban Development department on date 12/07/2016 and 25/11/2016

19. **INCENTIVE BONUS**

As an encouragement to the early completion of the project an incentive bonus will be payable to the contractor.

If contractor completes the work before scheduled time limit, he will be paid incentive bonus at the rate of 0.5% of the initial contract value or revised contract value whichever is less for every one month of early completion ahead of the original completion period or revised completion period whichever is less.

Maximum incentive payable shall not be more than 3% of the original value or revised value whichever is less.

This incentive scheme shall not apply if extension to the original completion period is required irrespective of on whose account (Owner or Contractor's account). Period less than a month will not reckoned for the incentive bonus calculations.

20. All the bills in R A bill format shall be submitted to the PCMC by the contractor. The bills will be checked and scrutinized by PCMC and will be further submitted for Recording, Passing and Payment by the PCMC.

21. The bills vetted and submitted by the PMC will be normally cleared and payment will be released within a period of 15 days from the receipt of such vetted bills by the ULB or executing agency as the case may be. Such payment will be subject to availability of funds with the PCMC.

22. Extension of time limit in appropriate cases will be granted by Commissioner PCMC.

INSTRUCTIONS TO TENDERER

Pimpri- Chinchwad Municipal Corporation
WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme.

INSTRUCTIONS TO TENDERER

1. AWARD CRITERIA

The Owner will award the contract to the successful bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily. The tender will be awarded after bid evaluation report approved by the appropriate competent authority.

2. ACCEPTANCE OF THE TENDER

2.1 The acceptance of the tender rests with the appropriate competent authority. The right to reject any or all the tenders without assigning any reason thereof is reserved by appropriate competent authority. The tenderer whose tender is accepted will have to enter into regular agreement in the type and form prescribed in the tender and abides by all the rules embodied therein, cost of agreement etc. should also be borne by the tenderer.

2.2 No corrections, additions or alterations in the tender document shall be made. No special stipulations in the tender document shall be permitted.

2.3 The tender shall be liable to be rejected outright if while submitting the same.

i) The Tender is not submitted on e-tendering portal specified in the Tender Notice.
ii) The Tenderer proposes any conditions and alterations in the obligatory conditions of the tender.
iii) Any of the pages of the tender is removed/replaced or spoiled badly.
iv) If the offer in words and in figures is not filled in appropriate place of B.1 Form.
v) If the specified Earnest Money in specified form is not paid.
vi) Any erasures are made in the tender documents.
vii) The tenderer or in case of firm or company authorized person does not sign the tender documents in the place provided for the purpose, in B.1 Tender form.

2.4 If the tendering contractors are a firm or company, they shall in their forwarding letter should mention the names of all the partners of the firm or the company as the case may be and the names of the partners who hold the power of attorney authorizing him to conduct transactions on behalf of the Company / Firm.

2.5 Rules and conditions of the contract are subject to amendment till the time of acceptance

of tender.

2.6 The notes and conditions stipulated in this notice will form a part of the agreement.

3. SIGNING OF CONTRACT

At the same time as the Owner notifies the successful Bidder that the bid has been accepted, the Owner will send the Bidder an acceptance letter informing the Bidder, the further necessary line of action including signing of contract etc.

4. FOR SPECIAL ATTENTION OF TENDERER

The tenderer is expected to visit the site before quoting the tender and get himself acquainted with the site conditions and site requirements.

The contracting firm shall study the site and general conditions in respect of approaches, labour, water supply, climate, quarries and the data included in the tender papers and get verified from the actual inspection of site etc. before submitting the tender. In case of any doubt about any item or data included in the tender or otherwise, it shall be got clarified by applying in writing to the tender inviting authority at least 3 days before the date of pre-tender conference. Once the tender is submitted, it shall be concluded with all the details required for completing the work as per tender conditions and specifications.

Responsibility of Departmental staff will be nominal and limited to extending all possible help in solving local problems for obtaining permission, obtaining power supply etc.

5. LOCAL ROADS

The existing public roads that are near the site of work are shown in Drawing accompanying the Tender documents. The contactor may contruct and maintains additional roads as required at his own expenses.

6. MEDICAL AND SANITARY ARRANGEMENT TO BE PROVIDED FOR LABOUR EMPLOTED IN THE CONSTRUCTION BY THE CONTRACTOR

a) The contractor shall provide an adequate supply of pure and wholesome water for the use of labourers on works and in camps.

b) The contractor shall construct trenches, semi permanent latrines for the use of labourers , Separate latrine shall be provided for men and women.

c) The contractor shall construct sufficient number of huts on a suitable plot of land for use of the labourers according to the following specifications.

i) Hut of Bomboos and Grass may be constructed.

ii) A good site not liable to submergence shall be selected on high ground remote from jungle but well provided with trees shall be chosen wherever it is available. The neighborhood of land, jungle s trees or woods should be

particularly avoided . Camp should not be established close to large cutting of earth work.

iii) The lines of huts shall have open space of at least 10 meters between rows. When a good natural site is not available in this case. Particular attention should be given to the drainage.

iv) There should be no over crowding , floor space at the rate of 3 sqm. (30 sq.ft) per head shall be provided . Care should be taken to see that the huts are kept clean and in good order.

v) The contractor must find his own land and if he wants Govt. land he should apply for it. Assessment for it if demanded will be payable by contractor. However the department does not bind itself for making available the required land.

d) The contractor shall construct a sufficient number of bathing places. Washing places should also be provided for the purpose of washing clothes.

e) The contractor shall make sufficient arrangement for draining away the surface and sullage water as well as water from the bathing and washing places and shall dispose off this waste water in such a way as not to cause any nuisance.

f) The contractor shall engage a medical officer with a traveling dispensary for a camp containing 500 or more persons, If there is no Govt. Or other private dispensary situated within 8 kilometers from the camp. In case of emergency the contractor shall arrange at his cost free transport for quick medical help to his sick workers.

g) The contractor shall provide the necessary staff for erecting the satisfactory conservancy and cleanliness of the camp to the satisfaction of the Engineer-In-Charge. At least one sweeper per 200 persons should be engaged.

h) The Assistant Director of Public Health shall be consulted before opening a labour camp and his instructions on matters such as Water Supply, sanitary, convenience for the camp site accommodation and food supply be followed by the contractor etc.

i) The contractor shall make arrangement for all antimalarials measures to be provided for the labours employed on the work. The anti measures shall be as directed by Assistant Director of public health.

j) In addition to above all provisions of the relevant labour Act pertaining to basic amenities to be provided to the labourer shall be applicable which will be arranged by the contractor.

7. MISCELLANEOUS

7.1 For providing electric wiring or water ling etc. Recesses shall be provided if necessary through walls, slabs, beams, etc. and later-on refilled it who out any extra cost.

7.2 In case it becomes necessary for the due fulfillment of contractor for the contractor to occupy land outside the department, limits the contractor will have to make his own

arrangements with the land owners and pay such rents if any, which are payable as mutually/agreed between them.

7.3 The contractor shall duly comply with provisions of the Apprentices Act 1961 (III of 1961) and the rules and order made there under from time to time under the said rules and on this failure or neglect to do so he shall subject to all the liabilities and penalties provided by the said Act and Said Rules.

7.4 It is presumed that the contractor has gone carefully through the standard specification (Vol I and II 1981 edition) and the schedule of rates of the Division, and studies of site condition before arriving at rates quoted by him. The special provisions and detailed specification of wording of any item shall gain precedence over the corresponding contrary provisions (if any) in the standard specification given without reproducing the details in contract. Decision of Engineer in charge shall be final in case of interpretation of specification.

7.5 If the standard specifications fall short for the items quoted in the schedule of this contract, reference shall be made to the latest Indian standard specifications, I.R.C. code, if any of the item of this contract do not fill in reference quoted above the decision and specification as directed by the Engineer-In –Charge. Shall be final.

7.6 The stacking and storage of building materials at site shall be in such a manner as to prevent deterioration or inclusion of foreign material and to ensure the preservation of the quality, properties and fitness of the work. Suitable precautions shall be taken by contractor to protect the materials against atmospheric action, fire and other hazards. The materials likely to be carried away by wind shall be stored, in suitable stores or with suitable barricades and where there is likelihood of subsidence of soil, heavy ,materials shall be stored on paved platforms. Suitable separation barricades and enclosure as directed should be provided by the contractor to separate materials brought by contractor

8. HANDING OVER OF WORK

All work and material before taken over by Municipal Corporation will be entire responsibility of the contractor for guarding, maintaining and making good, any damage of any magnitude. Interim payments made for suck work will not alter this position. The handing over by the contractor and taking over by the Engineer- in -charge or Commissioner or his authorized agent will be always in writing, copies of which will go to the Engineer-in-charge, signed by authorized representative of Municipal Corporation and the contractor. It is however understood that before taking over of such work Municipal Corporation will not put the system into its regular use, casual or incidental one, except as specifically mentioned elsewhere in this contract or mutually agreed to.

Acquaintance with site conditions and work conditions

Pimpri- Chinchwad Municipal Corporation
WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

ACQUAINTANCE WITH SITE CONDITIONS AND WORK CONDITIONS

1. The Contractor shall study the site conditions, general conditions and data included in the tender papers and get it verified from actual inspection of the site etc. before submitting the tender. In case of doubts about any items or data included in this tender or otherwise, it shall be got clarified by applying in writing to the Commissioner, 15 days in advance before date of submission of the tender. Once the tender is submitted, it shall be considered that the Contractor has verified and made himself conversant with all the details as required for quoting the rates and completing the work as per tender conditions and specifications.

2. Contractor shall not sell or otherwise dispose off or remove except for the purpose of this contract, the rubble, stone metal, sand or other material which may be obtained from any excavation made for the purpose of the contract. All such materials shall be Corporation property and shall be disposed off in the manner and at place as may be directed by the Engineer-in-charge. Contractor may with the permission of the Engineer-in-charge in writing and when directed by him, use any of the materials free of cost.

3. Other unforeseen items to be done in the course of work will have to be done by the Contractor as per specifications in P.W.D. Hand book volume I and II and will be paid at mutually agreed rates, ISS and standard practice in vogue. Extra charge of claims in respect of extra work shall not be allowed unless the work to which they relate are in the spirit and meaning of the specifications or unless such works are ordered in writing by the Engineer-in-charge and claimed for in the specified manner before the work is taken in hand.

MATERIALS:

4. The Contractor shall make his own arrangements for obtaining rubble, khandki, headers, metal, sand, murum etc. from Corporation or private quarry. Applications of the

Contractor for reasonable area of Government land required for this purpose can be recommended to Revenue Authorities without any guarantee of making the land for quarry available.

All the materials involved in the construction shall be of best quality and specifications and shall be got approved from the Engineer-in-charge before use. If necessary, materials shall be got tested from the Laboratory at his cost. Samples requiring approval shall be submitted by the Contractor to the Engineer-in-charge in good time before the use of each material. The samples shall be properly marked to show the name of the materials place.

5. The Contractor shall provide all labour, skilled as well as unskilled, pages, lime, strings, site-rails (wooden as well as Steel etc.) as and when required as per approved design and make available such other materials for surveying, lining out, setting out, checking of work, taking measurements, testing of hydraulic and other structures, without any payment by the Corporation to him. He will also provide proper approach and access to all his works and stores without any extra cost over tendered rates for the items to be inspected.

6. Rates quoted include clearance of site (prior to commencement of work and its closure) in all respects and hold good for work under all conditions of sites, moisture, weather etc.

7. Failure to comply with any of the above instructions will result in the Corporation doing the needful at the risk and cost of the contractor. These conditions are for all items and as such no extra payment shall be made for observing these conditions.

8. The contractor shall make his own arrangements for quarrying of rubble, stone, murum, sand, lime, metal etc.

9. Overburden in a quarry will have to be removed by the contractor at his own cost.

10. Unless a separate item is provided in Schedule 'B' minor dewatering of foundations in excavation and during the construction of foundation Masonry if required shall be done by the Contractor without claiming extra cost.

11. Masonry shall be kept wet for atleast 15 days and concrete work shall be kept wet for atleast 21 days commencing from the date of its final laying in position. In case during execution curing is found inadequate it will be carried out Corporation and the cost thereof shall be recovered from the contractor. The contractor shall make his own arrangements for getting water at site at his own cost.

12. The proportions of cement concrete specified in the Schedule ‘B’ are nominal and are

only an indication of approximate proportion of cement, fine aggregate and coarse aggregate which may have to be altered suitably at site to obtain the desired strength and workability. However quantity of cement shall not be less than the one specified below.

NOMINAL MIX:

1:11/2:1	(M-300)	9.00 bags/one cum of cement concrete
1:1:5: 3	(M-200)	7.90 bags/one cum of cement concrete
1:2:4	(M-150)	6.30 bags/one cum of cement concrete
1:3:6	(M-100)	4.40 bags/one cum of cement concrete
1:4:8	(M-80)	3.40 bags/one cum of cement concrete

In case of major items of concrete for R.C.C. works, the Contractor shall prepare test blocks as per I.S. specifications for testing its tensile and compressive strength at his own cost. These block will be tested in any of the Government Test Laboratories at the cost of the Contractor. The number of test blocks, frequency etc. shall be directed by Engineer-In-Charge.

13. DAMAGE BY FLOODS OR ACCIDENT:

The Contractor shall take all precautions against damage by floods and from accidents. No compensation will be allowed to the contractor for his plant, material and work etc. Lost or damaged by floods or from other causes. The Contractor shall be liable to make good any part of material which is in charge of the Contractor and which is lost or damaged by floods or from any other cause. If the work executed is damaged, trenches filled due to any reason, Contractor shall have to make it good at his cost only.

14. SUPPLY OF RATE-ANALYSIS IN CASE OF EXTRA ITEMS

In case of the EIRL the Contractor shall supply Rate Analysis based on labour and material in case he is called upon to do so.

15. WATER REQUIRED FOR CONSTRUCTION :-

The Contractor has to make his own arrangements at his cost for water required for construction, testing, filling, structures, etc. either from local bodies or from else where, by paying the charges directly and arranging tankers etc. as per necessity. No claim for extra payment on account of non-availability of water nearby, or extra lead for bringing water shall be entertained. All required piping arrangements and pumping if required for water shall be made by the Contractor at his cost.

If Contractor fails to pay the water charges to local bodies or private parties these shall be recovered by the Corporation from his bills. In case Corporation water supply is available, a connection at a suitable place may be sanctioned but all further arrangements of pumping if required, piping etc. shall be done by the Contractor at his cost, and water

charges in such a case, shall be paid by the Contractor at the rates as decided by the Commissioner, which shall be final and binding on the Contractor.

Whenever Schedule ‘B’ provides for any dewatering item, payment shall be admissible under that item, but apart from that item no extra claims for dewatering required for executing various tender items, and for executing such items in wet condition shall be entertained as all these expenses are deemed to be included in the dewatering item.

16. LEADS AND LIFTS :-

Unless otherwise specifically mentioned in the tender item, the tendered rate for all items in tender shall cover all lifts and leads encountered for the executions of the work as directed.

17. Unless otherwise specifically provided for in the tender or a separate item is provided in Schedule 'B', all the sides of excavated trenches after the work is completed or in progress are to be filled by the Contractor to the original ground level from excavated stuff at no extra cost to the Corporation.

18. Unless otherwise specifically mentioned in tender items, the net dimensions of RCC or CC members actually cast are only admissible for payment under RCC or Plain CC items. No increase in dimensions due to plastering or finishing shall be admissible for payment under RCC or plain CC items.

19. No claims for any desilting of trenches, foundation etc. filled due to floods, untimely rains, or any other reasons whatsoever shall be entertained and Contractor shall have to do this desilting operation together with dewatering operations entirely at his cost.

20. Electricity supply required for construction of work / labour camp, etc. shall be arranged by the contractor at his own cost.

FORM-B.1

FORM B.1
PERCENTAGE RATE TENDER AND CONTRACT FOR WORKS

DEPARTMENT Pimpri- Chinchwad Municipal Corporation

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

GENERAL RULES AND DIRECTIONS FOR THE GUIDANCE OF CONTRACTORS

1. All works proposed to be executed by contractor shall be notified in a form of invitation to tender pasted on a Board hung up in the office of the Commissioner/ executive engineer and signed by the Commissioner.
   This form will state the works to be carried out as well as the date of submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any to be deducted from bills. It will also state whether a refund of quarry fees, royalties and ground rents will be granted. Copies of the specifications, designs and drawings and estimated rates, schedule rates and any other documents required in connection with the work which will be signed by the Executive Engineer for the propose of identification shall also be open for Inspection by contractors at the office of the Executive Engineer during office hours.
   Where the works are proposed to be executed by the contractor according to the specifications recommended and approved by a competent authority on behalf of the Corporation, such specification with designs drawings shall form part of the accepted tender.
2. In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof, and in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power - of - attorney authorizing him to do so.

   i) The contractor shall pay along with the tender the sum, of Rs.2,10,00,000 (Rs. Two crores and ten lakhs only) as and by way of earnest money. The EMD shall be paid by Net Banking only. The said amount of earnest money shall not carry any interest whatsoever.

ii) In the event of his tender being accepted, to the provision of sub-clause(iii), below, the said amount of earnest money shall be appropriated towards the amount of security deposit payable by him under conditions of General conditions of contract.

iii) If, after, submitting the tender, the contractor withdraws his offer or modifies the same, or if after the acceptance of his Tender, the contractor fails or neglects to furnish the balance security deposit without prejudice to any other right and powers of the Corporation hereunder, or in law, Corporation shall be entitled to forfeit the full amount of the earnest money deposited by him.

iv) In the event of his Tender not being accepted, the amount of earnest money deposited by the contractor shall, unless it is prior thereto forfeited under the provision of sub-clause (iii) above, be refunded to him on his passing receipt therefore.

3. Receipts for payments made on account of any work, when executed by a firm should also be signed by all the partners except where the contractors are described in their tender as a firm. In which case the receipt shall be signed in the name of the firm by one of the partners or by some other person have authority to give effectual receipts of the firm.

4. Any person who submits tender shall fill up the usual printed form stating at what percentage above or below the rates specified in Schedule - B (memorandum showing items of work to be carried out) he is willing to undertake the work. Only one rate or such percentage on all the Estimated rates/ Schedule rates shall be named. Tenders which propose any alteration in the work specified in the said form of invitation of tender, or in the time allowed for carrying out the work, or which contain separate percentage over estimated rates / schedule rates for different sub work or item, or which any other conditions of any sort which are not filled with the percentage as the space provided for the purpose and not signed at proper place in the printed B-1 Tender Form will be liable to rejection. No printed form of tender shall include a tender for more than one work. But, if contractors who wish to tender for more works, shall submit a separate tender for each work. Tenders shall have the name and the number of work to which they refer, written outside the envelopes.

5. The competent authority shall open tenders in the presence of any intending contractors who have submitted tenders or their representatives who may be present at the time, and he will enter the amount of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, the contractor shall for the purpose of identification, sign copies of the specifications and other documents mentioned in Rule 1. In the events of a tender being rejected, the

Commissioner shall arrange / authorized to refund the amount of the earnest money deposited to the tenderer, on his giving a receipt for the return of the money.

6. Competent authority is the final authority to reject all or any of the tenders.
7. No receipt for any payment alleged to have been made by a contractor in regard to any matter relating to this tender or the contract shall be valid and binding on Corporation unless it is signed by the Commissioner.
8. The memorandum of the work to be tendered for and the schedule of materials to be supplied by the Corporation (herein before and after called as PCMC) and their rates shall be filled in and completed by the office of the Commissioner before the tender form is issued. If a form issued to an intending Tender has not been so filled in and completed, he shall request the said office to have this done before he completes and delivers his tender.
9. All work shall be measured net by standard measure and according to the rules and customs of the PWD/MJP and without reference to any local custom.
10. Under no circumstances shall any; contractor be entitled to claim enhanced rates for items in this contract.
11. Every registered contractor should produce along with his tender certificate of registration, as approved contractor in the appropriate class and renewal of such registration with date of expiry.
12. Corrections and additions should be initialed.
13. The measurements of work will be taken according to the usual methods in use in the PWD/MJP and no proposals to adopt alternative methods will be accepted. The Engineer's decision as to what is the usual method in use will be final.
14. A tendering contractor shall furnish a declaration along with the tender showing all works for which he has already entered into contract, and the value of work that remains to be executed in each caseon the date of submitting the tender. Such certificate shall be in the proforma attached in the tender documents.
15. In view of the difficult position regarding the availability of foreign exchange no foreign exchange would be released by the corporation/Corporation for the purchase of plant and machinery or any other purpose for the execution of the work contracted for.

16. The contractor will have to construct shed, for storing controlled and valuable material brought by him on work site, at work site having double locking arrangement. The materials will be taken for use in the presence of the department person. No materials will be allowed to be removed from the site of works without written permission of the Engineer-in-charge.

17. The tenderer will have to produce to the satisfaction of the accepting authority a valid and current license issued in his favour under the provision of Contractor Labour Regulation and Abolition Act. 1973 before starting work, failing withacceptance of the tender will be liable for withdrawal and Earnest money / Security Deposit will be forfeited to the Corporation.

18. The contractor shall comply with the provision of the Apprentices Act. 1961 and the rules and orders issued there under from time to time. The contract shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the Act.

19. In this tender 52 sub-works are included. As per Government resolution, the work will be taken up in three phases. The work order will be issued accordingly by fixing time limit. Contractor has to complete the work within stipulated time for each phase. If he fails, action as per clause 2 will be initiated against the contractor.

20. As per clause 6 of B-1 form, extension of time limit will be governed. If contractor fails to apply for extension of time limit as per clause 6 to keep the tender alive, Municipal Corporation will grant the extension considering the progress of work and in the light of clause 2.

    As per Government Resolution Price Variation Clause is not applicable to tender.

21. The tender Rates are inclusive of all taxes such as VAT, Service Tax, Cess, and General Tax etc. Contractor shall be deemed to have examined the work and site conditions including labour, the general and special conditions, specifications and drawings and shall be deemed to have visited the work site and to have fully informed himself regarding the local conditions and carried out his own investigations to arrive at rates quoted in the tender.

    There shall be no corrections or overwriting and if any that shall be dully initiated by Contractor himself.

Note: The Commercial Offer must be filled online using individual's digital certificate. (An online form will be provided for this during online bid preparation stage).

. I / We hereby, tender for the execution for the Water Supply Scheme of Pimpri-Chinchwad Municipal Corporation (hereinbefore and hereinafter referred to as PCMC) for the work specified in the underwritten memorandum within the time specified in such memorandum at---------- (----------) in figures as well as in words percent below/above the estimated rates entered in schedule 'B' memorandum showing items of work to be carried out and in accordance with all respects with the specifications, designs, drawings, and instructions in writing referred to in Rule hereof and in clause 12 of the annexed conditions of the contract here to.

Memorandum

a) General description ***:*** **-** Pimpri- Chinchwad WSS under AMRUT Programme Comprising of laying of Pure Water Transmission main, providing and laying of DI and HDPE pipes, Pure Water Rising Main, Leading Mains, Construction of New ESRs, sump, Distribution System, Replacement of Existing service connection.

a) *if several sub works are included they should be detailed in a separate list*

b) Estimated Cost. Rs. **212,67,32,133/-**

c) Earnest Money. Rs**. 2,12,67,321**/-

c) The amount of earnest money to be deposited shall be in accordance with the provision of paras 206 and 207 of the M.P.W. Manual.

d) **Security Deposit**.
Total 4% of estimated cost put to tender or accepted tender cost whichever is higher

d) This deposit shall, be in accordance with paras 213 and 214 of the M.P.W. Manual.

i) **Initial Security Deposit**
2% of estimated cost put to tender or accepted tender cost whichever is higher shall be in form of FDR from any Nationalized / Scheduled Bank or Bank Guarantee only from Nationalized Banks from local branch.

ii) Balance 2% amount of Security deposit, will be recovered through each Running Bill at the rate of 5% of the gross amount of running bill till the required total amount of Security Deposit is recovered

e) Percentage, if any, to be deducted from bills so as to make up the total amount required as security deposit by the time, half the work as measured by the cost is done.
5% (Five) Percent

e) This percentage where no security deposit is taken, will vary from 5 % to 10 % according to the requirement of case where security deposit is taken see note to clause 1 this conditions of contractor.

f) **Additional Security Deposit.**
If the tender is proposed to be accepted at the rates quoted less than estimated cost put to tender security deposit over and above 4% in (d)

at the below rate shall have to be paid by Tender.

i) For offer upto 10% below 2% Intial + 2% through R.A.Bill.

ii) For 10% to 15% below 4% Intial + 2% through R.A.Bill.

iii) For offer more than 15% below 6%Intial + 2% through R.A.Bill.

Additional security is to be paid by the successful bidder initially only in addition to 2% original Security Deposit.
(Security Deposit shall be based on estimated cost put to tenderor tendered cost whichever is higher)

g)Time allowed for the work from date of written order to commence.
24(Twenty Four) Calendar Months. (Including monsoon)

I/We agree that the offer shall remain open for acceptance for a minimum period of 120 days from the date fixed for opening for the same and thereafter until it is withdrawn by me/ us notice in writing duly addressed to the authority opening the tenders and sent by registered post A.D. or otherwise delivered at the office of such authority. Term deposit Receipt No./Demand draft No. dated and date in respect of the sum of `…….( in wards `……) is herewith forwrded. The amount of earnest money shall not bear interest and shall be liable to be forfeited to the PCMC should I/We fail to (i) abide by the stipulation to keep the offer open for the period mentioned above of (ii) sign and complete the contract documents as required by the Engineer and furnish the security deposit as specified in item. (d) of the memorandum contained in paragraph (1) above within the time limit laid down in clause (1) of the annexed General Conditions of contract, the amount of earnest money may be adjusted towards the security deposit or refunded to me/us in writing unless the same or any part thereof has been forfeited as aforesaid.

I/We have secured exemption from payment of earnest money after executing the necessary bond in favour of the PCMC a true copy of which is enclosed herewith should any occasion for forfeiture of earnest

money for this work arise due to failure on my/our part to abide by the stipulations to keep the offer open for the period mentioned above or to sign and complete the contract documents and furnish to security deposit as specified in item (d) of the Memorandum contained in paragraph (1) above within the time limit laid down in clause (i) of the annexed General Conditions of contract, the amount payable by me/us at the option of the Engineer, be recovered out of the amount deposited in lump sum for securing exemption in so far as the same may be extend in terms of the said bond and in the event of the deficiency out of any other moneys which are due to payable to me/us by the PCMC under any other contract or transaction of any nature whatsoever or otherwise.

Should this tender be accepted I/We hereby agree to abide by and fulfill all the terms and provisions of the conditions of contract annexed hereto so far as applicable and in default thereof to forfeit and pay PCMC the sum of money mentioned in the said conditions. Term Deposit Receipt No. ……. Dated from The Bank…… at in respect of sum of Rs. …… ……. Is herewith forwarded representing the earnest money (a) the full value which is to be absolutely forfeited to the PCMC should I/We not deposit in the full amount of security deposit specified in the above memorandum in Accordance with (d) of clause (i) of the tender for works shall be refunded.

Strike out (a) such security deposit is to be taken.

Contractor

Signature of the contractor
before submission of tender.

Address

date of 2016

Witness

Signature of witness to contractor's signature.

The above tender is hereby accepted by me for and one behalf of the Pimpri- Chinchwad Municipal Corporation.

Dated

Jt. City Engineer (WS)
Pimrpi Chinchwad Municipal Corporation
Pimpri, Pune – 18.

CONDITIONS OF CONTRACT

**(Modification as per the GR PWD NO. CAT-1087/ CR- 94/Bldg-2, dated 14.6.1989) **

Security Deposit

Clause 1 : The person / person whose tender may be accepted (hereinafter called the Contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assigns) shall (A) within ten days (which may be extended by the Commissioner concerned up to 15 days if the Commissioner/Commissioner thinks fit to do so) of the receipt by him of the notification of the acceptance of his tender deposit with the Engineer in-charge in Cash or Government securities endorsed to the Engineer in charge (if deposited for more than 12 months) of sum sufficient which will make up the full security deposit specified in the tender or (B) (permit Corporation at the time of making any payment to him for work done under the contract to deduct such sum as will amount to 4% of all moneys so payable; such deductions to be held by Corporation by way of security deposit). Provided always that in the event of the Contractor depositing a lumpsum by way of security deposit as contemplated at (A) above, then and in such case, if the sum so deposited shall not to 4% of the total estimated cost of work or tendered cost whichever is higher, it shall be lawful for Corporation at the time of making any payment to the contractor for work done under the contract to make-up the full amount of Four (4) percent by deducting a sufficient sum from every such payment as last aforesaid until the full amount to the security deposit is made up. All compensation or other sums of moneys payable the contractor to Corporation under the terms of his contract may be deducted from or paid by the sale of sufficient part of his security deposit or from the interest arising there from, or from any sums which may become due by Corporation to the contractor under any other contract or transaction on any account whatsoever and in the event of his security deposit being reduced by reason of any such deduction or sale as aforesaid, the contractor shall, within ten days thereafter, make good in cash or Government securities endorsed as aforesaid or Bank Guarantee issued by bank for any sum or sums which may have been deducted from or raised by sale of his security deposited or any part thereof. The Security deposit referred to, when paid in cash may, at the cost of the depositor, be converted into interest bearing securities provided that the depositor has expressly desired this in writing.

If the amount of the security deposit to be paid in a lump sum within the

period specified at (A) above is not paid the tender/contract already accepted shall be considered as cancelled and legal steps taken against the Contractor for recovery of the amounts. The amount of security deposit lodged by Contractor shall be refunded along with the payment of the final bill, if the date upto, which the Contractor has agreed to maintain the work in good order, is over. If such date is not over only 90% amount of the security deposit shall be refunded along with the payment of the final bill. The amount of security deposit retained by Corporation shall be released after expiry of period upto, which the Contractor has agreed to maintain the work in good order, is over. In the event of Contractor failing or neglecting to complete rectification work within the period upto, which the Contractor has agreed to maintain the work in good order then subject to provisions of Clause 17 and 20 hereof, the amount of security deposit retained by Corporation shall be adjusted towards the excess cost incurred by the Pradhikaran/Corporation/Corporation on rectification work.

Compensation Delay

Clause 2 : The time allowed for carrying out the work as entered in the agreement shall be strictly observed by the Contractor and shall be reckoned from the date on which the order to commence work is given to the Contractor. The work shall throughout the stipulated period of the contract be proceeded with, all due diligence (time being deemed to be essence of the contract on the part of the Contractor) and the Contractor shall pay as compensation an amount equal to one percent or such smaller amount as the Commissioner(whose decision in writing shall be final) may decide of the amount of the estimated cost of the whole work as shown by the tender for everyday that the work remains uncommenced or unfinished after the proper dates. And further to ensure good progress during execution of the work, the Contractor shall be bound in all cases in which the time allowed for any work exceeds one month to complete, for complete minimum quantum of work as compared to accepted tender cost as stated below.

¼ of the work in ¼ of the time.
½ of the work in ½ of the time.
3/4 of the work in ¾ of the time.
Full work in 24 months including monsoon

Note: The quantity of the work to be done within a particular time to be specified above shall be fixed by an Officer competent to accept the contracts after taking into consideration the circumstances of each case .and insert in the blank space kept for the purpose

In the event of the contractor failing to comply with these conditions he shall be liable to pay as compensation an amount equal to one percent or such smaller amount as Commissioner(whose decision in writing shall be final) may decide of the said estimated cost of the whole work for everyday that the due quantity of work remains incomplete provided always that the total amount of compensation to be paid under the provisions of this clause shall not exceed 10% of the estimated cost of the work as shown in the tender. Commissioner should be the final authority in this respect, irrespective of the fact that tender is accepted by State level technical Committee. However Commissioner shall seek the consent of the MJP and/or approval of the State level technical committee.

Action when whole of security deposit is forfeited.

Clause 3: If any clause in which under any clause of this contract the Contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit (whether paid in one sum or deducted by installment) or in the case of abandonment of the work owing to serious illness or death of the Contractor or any other cause, the Engineer in charge on behalf of the Corporation shall have power to adopt any of the following courses, as he may deem best suited to the interest of the Corporation.

a) To rescind the contract (for which rescission notice in writing to the Contractor under the hands of Engineer in-charge shall be conclusive evidence) and in that case the security deposit of the Contractor shall stand forfeited and be absolutely at the disposal of the Corporation

b) To carry out the work or any part of the work departmentally debiting the Contractor with the cost of the work, expenditure incurred on tools, plant and charges on additional supervisory staff including the cost of work-charged establishment employed for getting unexecuted 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 has been carried out by the Contractor under the terms of his contract. The certificate of the Engineer in-charge as to the cost and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the Contractor.

c) The order that work of the Contractor be measured up and take such part thereof as shall be unexecuted 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 other contractors 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 Engineer in-charge as to all the costs of the work and other expenses incurred as aforesaid for getting the unexecuted 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 contractor shall be rescinded under clause (a) above, the contractor shall not be entitled to recover or to be paid, any sum for any work therefore actually performed by him under this contract unless and until the Commissioner 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 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, the amount of excess shall be deducted from any money due to the contractor by Corporation under the contract or otherwise however or from his security deposit or the sale proceeds thereof provided however that the contractor shall have to claim against Corporation event if the certified value of the work done departmentally or through a new contractor exceeds the certified cost of such work and allied expenses, provided always that whichever of the three courses mentioned in clauses (a), (b) and (c) is adopted by the Corporation, the contractor shall have no claim to compensation for any loss sustained by him by reason of not having purchased or procured any materials, or entered into any engagements, or made any advance on account of or with a view to the execution of the work or the performance of the contract. The extra cost involved in the completion of the balance work carried out through the other contractor under

Amount of 3 (c) shall be recoverable from the contractor over and above the compensation levied under Clause 2 and the Security Deposit shall be apportioned against the total recoveries for this purpose also.

Action when the progress of any particular portion

Clause 4 : If the progress of the any particular portion of the work is

unsatisfactory, the Corporation shall not withstanding that the general progress of the work is in accordance with the condition mentioned in clause 2 be entitled to take action under clause 3(b) after giving the contractor 10 days notice in writing. The contractor will have no claim for compensation, for any loss sustained by him owing to such action.

of the work is unsatisfactory.

Clause 5 : In any case in which any of the powers conferred upon MJP/Corporation/Corporation by Clause 3 and 4 hereof shall have become exercisable and the same shall not have been exercised the non exercise thereof shall not constitute waiving of any of the conditions hereof the such powers shall not withstanding be exercisable in the event of any future case of default by the contractor for under any clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit and the liability of the contractor for past and future compensation shall remain unaffected. In the event of the Corporation taking action under Sub-Clause (a) or (c) of clause 3, he may, if he so desires, take possession of all or any tools and plants, materials and stores, in or upon the work or the 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 Corporation whose certificate thereof shall be final. In the alternative the Corporation may after giving notice in writing to the contractor or his clerk of the work, foreman or other authorized agent require him to remove such tools, plant, materials or stores from the premises within a time to do specified in such notice, and in the event of the contractor failing to comply with any such requisition, the Corporation may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and at his risk in all respects, and the certificate of the Corporation as to the expenses of any such removal and the amount of the proceeds and expense of any such shall be final and conclusive against the contractor

Contractor liable to pay compensation if action not taken under clause 3 and 4.

Extension of time

Clause 6 : If the contractor shall desire an extension of the time for completion of work on the ground of his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the Corporation before the expiration of the period stipulated in the tender on before the expiration of 30days from the date on which he was hindered as aforesaid or on which the cause for asking extension occurred, whichever

is earlier and the Corporation/Corporation or in the opinion of Commissioner, as the case may be, if in his opinion, there were reasonable grounds for granting the extension, grant such extension as he think necessary or proper. The decision of the Corporation in this matter shall be final.

Final Certificate.

Clause 7 : On the completion of the work the contractor shall be furnished with a certificate by the Corporation (hereinafter and hereinbefore called the Engineer-in-charge) of such completion but neither such certificate shall be given nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall have been executed, all scaffolding surplus materials and rubbish , tools, plants and equipments and shall have cleaned off the dirt from all woodwork, doors, windows, walls, floor or other parts of any building in or upon which the work has been executed or of which he may have had possession for the purpose of executing the work nor until the work shall have been measured by the Engineer-in-charge or where the measurements have been taken by his subordinate until they have received approval of the Engineer-in-charge the said measurements being binding and conclusive against the contractor, if the contractor shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials and rubbish and cleaning off the dirt on or before the date fixed for the completion of the work, the Engineer-in-charge may at the expense of the contractor, remove and rubbish and dispose off the same as the thinks fit and clean off such dirt as aforesaid and the contractor shall forthwith pay the amount of all expenses so incurred but shall have no claim in respect of any such scaffolding tools and plants equipments or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

Payment on intermediate certificate to be regarded as advance.

Clause 8 : No payment shall be made for any work estimated to cost less than Rupees one thousand till the whole of work shall have been completed and a certificate of completion given. But in the case of works estimated to cost more than Rupees one thousand the contractor shall on submitting a monthly bill therefore be entitled to receive payment proportionate to the part of the work then approved recommended by the Engineer-in-charge, whose certificate of such recommended and passing of the sum of payable shall be final and conclusive against the contractor. All such intermediate payments shall be regarded as payment by way of advance against the final payments only and not as payments for work actually done and completed

and shall not preclude the Engineer-in-charge for 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 occurring of any claim nor shall it conclude determine or affect in any other way the powers of the Engineer-in-charge as to the final settlement and adjustment of the accounts or otherwise or is any other way very or affect 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.

Payment at reduced rates on account of items of work not accepted as completed, to be at the discretion of the Engineer-in-charge.

Clause 9: The rates for several items of works estimated to cost more than 1000/- agreed to within, shall be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specification. In cases where the items of are work not accepted as so completed by the Engineer-in-charge may make payment on account of such items at such reduced rates as he may consider reasonable in the preparation of final or on account bills.

Bills to be submitted monthly

Clause 10 : A bill shall be submitted by the contractor in each month on or before the date fixed by the Engineer-in-charge for all work executed in the previous month and the Engineer-in-charge shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim, so far as it is admissible shall be adjusted and paid if possible within ten 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 the Engineer-in-charge may prepare a bill from such list which shall be binding on the contractor in all respects

Bills to be on printed form.

Clause 11 : The contractor shall submit all bills on the printed forms to be had on application at the office of the Engineer-in-charge. The charges to be made in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the tender at the rates hereinafter provided for such work

Stores supplied by M.C.

Clause 12 : If the specification or estimate of the work provides for the use of any special description of materials to be supplied from the store of the Corporation or if it is required that the contractor shall use certain stores to be provided by the Engineer-in-charge (such material and stores and the prices to be charged therefore as hereinafter mentioned being so far as practicable for the convenience of the contractor but not so as in any way to control the meaning or effect of this contract specified in the schedule or memorandum hereto annexed) the contractor shall be supplied with such materials and stores as may be required from time to time to be used by him for the purposes of the contract only and value of the full quantity of the materials and stores so supplied shall be set off or deducted from any sums then due, or thereafter to become due to the contractor under the contract or otherwise or from the security deposit or the proceeds of sale thereof if the security deposit is held in Government Securities, the same or a sufficient portion thereof shall in that case be sold for the purpose. All materials supplied to the contractor shall remain the absolute property of Corporation and shall not be removed from the site of the work and shall at all times be open to inspection by the Engineer-in-charge. Any such materials issued at cost but remained unused and in perfectly good condition at the time of completion or termination of the contract shall be returned to the Corporation, store if the Engineer-in-charge so required by a notice in writing given under his hand, but the contractor shall not be entitled to return any such material supplied to him as aforesaid but remaining unused by him or for any wastage in or, damage to any such materials. The contractor shall, however return all unused material at the time of completion, which was issued to him free of cost by the Engineer in charge and which has remained surplus with the contractor after accounting for the actual utilization of such material from the total quantity that was issued by the Engineer in charge. Cost of any material issued free of cost by the engineer and which has remained surplus with the Engineer from the contractor as mentioned in Schedule – 'A'

Storage of controlled material

Clause 12 (A) : All stores of materials such as cement, steel etc. supplied to the contractor by Corporation should be kept by the contractor in a separate store near the work site under lock and key and will be accessible for inspection by the Corporation or his Engineer-in -Charge at all the times.

Works to be executed in accordance with specifications drawings.

Clause 13 : The contractor shall execute the whole and every part of the work in the most substantial and workman like manner and both as regards

materials and every other respect in strict order accordance with specification. The contractor shall also conform 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 of the work, during office hours. The contractor will be entitled to receive one sets of contract drawing and working drawings as well as one certified copy of the accepted tender along with the work order free of cost. Further, copies of the contract drawings and working drawings if requires by him shall supplied at the rate of 20000/- per set of contract drawings and 1000/- per working drawing except where otherwise specified.

Alteration in specifications & designs not to invalidate

Clause 14 : The Engineer-in-charge shall have power to make any alterations in or additions to the original specifications, drawing, design and instructions that may appear to him to be necessary or contracts, advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Engineer-in-charge and such alterations shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work and at the same rates as are specified in the tender for the main work. And if the additional and altered work includes any class of work for which no rate is specified in this contract, then such class of work shall be carried out at the rates entered in the Schedule of Rates of the Division with due consideration for leads and lifts involved for materials and labour or at the rates mutually agreed upon between the Engineer-in-charge and the contractor, whichever are lower However, if the Engineer-in-charge is not empowered by Corporation to approve the rates of such additional or altered work then as far as possible he shall obtain prior approval to the changes and to the rates payable for such changes from competent authority of Corporation not entered in before ordering the Contractor to take up the alternation/ additional work. If the additional or altered work for which no rate is in the schedule or rates of the Division, is ordered to be carried out before the rates are agreed upon then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge of the rate which it is his intention to charge for such class of work, and if the Engineer-in-charge does not agree to this

rate he shall by notice in writing be at liberty to cancel his order carry out such class of work and arrange to carry out in such manner as he may consider advisable provided always that if the contractor shall commence the work or incur any expenditure in regard thereto before the rates shall have been determined as lastly hereinbefore mentioned then in such case he shall only be entitled to be paid in respect of the work or incur any expenditure in regard there to before the rates shall have been determined as lastly hereinbefore mentioned then in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of a dispute the decision of the Commissioner will be final.

Extension of time in consequences additions or alterations

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority the alterations above referred to shall be within the scope of such designs, drawings and specifications appended to the tender. The time limit for the completion of the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work and the certificate of the Engineer-in-charge as to such proportion shall be conclusive.

Clause 15 :

No claim to any payment or compensation for alteration in or restriction of Work except specified in this clause.

i) If at any time after the execution of the contract documents the engineer shall for any reason what so ever (other than default on the of the contractor for which the Corporation is entitled to rescind the contract) desires that the whole or any part of the work specified in the tender should be suspended for any period of that the whole or part of the work should not be carried 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 to 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.

ii) Where the total suspension of work ordered 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 for as it pertains to the unexecuted part of the work by giving a 10days prior notice in writing to the Engineer within 30days of the expiry of the said period of 90 days of such intention and requiring the Engineer to record the final measurements of the work already done and to pay final bill. Upon giving such notice the Contractor shall be deemed to have been discharged from his obligation 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.

iii) Where the Engineer in-charge requires the 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 work after such suspension for payment of compensation to the extent of peculiarly loss suffered by him in respect of working machinery rendered idle on the site or on the account of his having had to pay the salary or wages to 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 of any suspension whatsoever occasioned by unsatisfactory work or other default on his part. The decision of the Engineer- in -charge in this regard shall be final and conclusive against the Contractor.

iv) In the event of

a) any total stoppage of work on notice from the Engineer under sub-clause (1) in that behalf.

b) Withdrawal by the Contractor from the contractual obligation to complete the remaining un-executed work under sub-clause (2) on account of continued suspension of work for a period exceeding 90 days.

c) Curtailment in the quantity of item or items originally tendered on account of any alteration, omission or substitutions in the specifications, drawings, designs or instructions under Clause 14 where such curtailment exceeds 25% in quantity and the value of the quantity curtailed beyond 25% at the rates for the item specified in the tender is more than 5,000/-

It shall be open to the Contractor within 90 days from the service of

i) the notice of stoppage of work or
ii) the notice of withdrawal from the contractual obligations under the contract on account of the continued suspension of work or
iii) notice under Clause 14(i) resulting in such curtailment

to produce to the Engineer satisfactory documentary evidence that he had purchased or agreed to purchase material for use in the contracted work before receipt by him of the notice of stoppage, suspension or curtailment and required the Corporation/Corporation to take over on payment such material at the rates determined by the Engineer, provided, however, that such rates shall in no case exceed the rates at which the same was acquired by the Contractor. The MJP/Corporation/Corporation shall thereafter take over the material so offered, provided the quantities offered are not in excess of the requirements of the unexecuted work as specified in the accepted tender and are of quality and specifications approved by the Engineer

No. claim to compensation on account of loss due to delay in supply of material by Corporation.

Clause 15 A : The Contractor shall not be entitled to claim any compensation from Corporation for the loss suffered by him on account of delay by Corporation in the supply of materials entered in Schedule 'A' where such delay is caused by.

i) Difficulties relating to the supply of railway wagons.
ii) Force majeure.
iii) Act of God.
iv)Act of enemies of the State or any other reasonable cause beyond the control of Corporation.

In the case of such delay in the supply of materials,Corporation shall grant such extension of time for the completion of the works as shall appear to the Corporation to be reasonable in accordance with the circumstances of the case. The decision of the Corporation as to the extension of time shall be accepted as final by the Contractor.

Time limit for unforeseen claims.

Clause 16 : Under no circumstances whatsoever shall the Contractor be entitled to any compensation from Corporation on any account unless the Contractor shall have submitted claim in writing to the Engineer-in-charge within one month of the case of such claim occurring.

Action and compensation payable in case of bad work.

Clause 17 : If at any time before the security deposit or any part of thereof is refunded to the Contractor it shall appear to the Engineer-in-charge or his subordinate –in-charge of the work that any work has been executed with

unsound, imperfect or unskilled workmanship or with materials of inferior quality, or that any materials or articles provided by him for the execution of the work are unsound or quality is inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the Engineer-in-charge to intimate this fact in writing to the Contractor and then notwithstanding the fact that the work, materials or articles complained of may have been inadvertently passed, certified and paid for, the Contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or if so required shall remove the materials or articles at his own charge and cost and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in the written intimation aforesaid, the Contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for everyday not exceeding 10 days during which the failure so continues and in the event of any such failure the Engineer-in-charge may rectify or remove and re execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the Contractor. Should the Engineer in charge consider that any such inferior work or materials as prescribed above may be accepted or made use of, it shall be within his discretion to accept the same reduced rates as he may fix therefore.

Work to be open to inspection.

Contractor or responsible agent to be present

Clause 18 : All work under or in course of execution or executed in pursuance of the contract shall at all times be open to inspection and supervision of the Engineer-in-charge and his subordinates and the Contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge and his subordinates to visit the works shall have 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 duly authorized agent shall be considered to have the same force and effect as if they had been given to the Contractor himself.

Notice to be given before work is covered up

Clause 19 : The Contractor shall give not less than five days' notice in writing to the Engineer-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 dimensions thereof taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Engineer-in-

charge or his subordinate in-charge of the work, and if any work shall be covered up or placed beyond the reach of measurement, without such notice having been given or consent obtained, the same shall be uncovered at the Contractor's expense, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed.

Contractor liable for damage done and for imperfections

Clause 20 : If during the period as listed below, from the date of completion as certified by the Engineer-in-charge pursuant to Clause 7 of the Contract or for the period as mentioned below after commissioning the work whichever is earlier in the opinion of the Engineer in-charge, the said work is defective in any manner whatsoever the contractor, shall forthwith on receipt of notice in that behalf from the Corporation, duly commence execution and completely carry out at his cost in every respect all the work that may be necessary for rectifying and setting right the defects specified therein including dismantling and reconstruction of unsafe portion strictly in accordance with and in the manner prescribed and under the supervision of the Corporation. In the event of the Contractor failing or neglecting to commence execution of the said rectification work within the period prescribed therefore in the said notice and/ or to complete the same as aforesaid as required by the same notice, the Corporation may get the same executed and carried out departmentally or by any other agency at the risk, on account and at the cost of the Contractor. The Contractor shall forthwith on demand pay to the Corporation the amount of such costs, charges and expenses sustained or incurred by the Corporation of which the certification of the Corporation shall be final and binding on the Contractor, Such costs, charges and expenses shall be deemed to be arrears of land revenue and in the event of the Contractor failing or neglecting to pay the same no demand as aforesaid without prejudice to any other rights and remedies of the Corporation, the same may be recovered from the Contractor as arrears of land revenue. The Corporation, shall also be entitled to deduct the same from any amount which may then be payable or which may thereafter become payable by the Corporation to the contractor either in respect of the said work or any other work whatsoever or from the amount of security deposit retained by the Corporation. During defect liability period, the work of daily maintenance and general repairs and expenses thereon would be out of scope of the tender. However, if any defects in the sub work or in the material are found, the same will be rectified by the Contractor at his cost and will be binding on him, failing to which legal action would be taken as per tender clauses. Ten percent amount will be withheld from security deposit depending upon the nature of work, till the defect liability period is over.

1. Pumping Machinery.

a) Pumping machinery and other allied mechanical, electrical installation (excluding those in the treatment plant contract), surge arrestors, water hammer control devices, chlorinators (excluding those provided in the treatment plant contract)	Five Years
Repairs to the works at (a) above.	Five Years

2. WTP/ESR/GSR/BPT, Sump and Pump House, Balancing Tank Etc. head works, approach bridge

a) Based on Contractor's own design.	Five Year.
b) Based on Departmental design.	Five Years
c) Special repairs to ESR/ GSR/ BPT	Five Years
d) Ordinary repairs to ESR/GSR/BPT Sump and Pump House, etc.	Five Years

3. Pipe Lines.

i) Pumping Mains, Gravity Mains, Leading Mains including all the fixtures	Five Years
ii) Distribution system, laterals, branch sewers of sewerage system, etc.	Five Years
iii) Repairs to pipe lines under the works at (a) and (b) above.	Five Years

The instructions contained in the Government of Maharashtra (Public Works Department) Resolution dated 14th June, 1989 shall henceforth be applicable to all the works for which defect liability periods have been specified as above

Contractor to supply plant, ladders, scaffoldings, etc.

Clause 21 : The Contractor shall supply at his own cost all material (except such special materials, if any, as may in accordance with the contract be supplied from the Corporation stores), plant, tools, appliances, implements, ladders, tackles, scaffolding and temporary works requisite or proper execution of the work, in the original, altered or substituted from the whether included in the specification or other documents forming part of the contract of referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer in charge as to any matter as to which under these conditions he is entitled to as satisfied or which he is entitled to require together with the carriage therefore to and from the work

And is liable for damages arising from non-provisions of lights, fencing, etc

The Contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or the materials, Failing which the same may be provided by the Engineer-in-charge at the expense of the Contractor and 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 a 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 defense 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 costs which may be awarded in any such 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 costs which may be awarded in any such suit action or proceedings to any such person, or which may with consent of the Contractor be paid for compromising any claim by any such person.
List of machinery in contractors possession and which he proposes to use on the work should be submitted along with the tender.

Clause 21 A : The Contractor shall provide suitable scaffolds and working platforms, gangways and stairways and shall comply with the following regulations in connection herewith.

a) Suitable scaffolds shall be provided for workmen for all works that cannot be safely done from a ladder or by other means.
b) A scaffolds shall not be constructed, taken down or substantially allowed except
i) Under the supervision of a competent and responsible person, and
ii) As far as possible by competent workers possessing adequate experience in this kind of work.

c) All scaffolds and appliances connected herewith and ladders shall.

i) be of sound material

ii) Be of adequate strength having regard to the loads and strains to which they will be subjected, and

iii) Be maintained in proper condition.

d Scaffolds shall be so constructed that no part thereof can be displaced in consequence of normal use.

e Scaffolds shall not be over – loaded and so far as practicable the load in consequenceof normal use

f Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds.

g Scaffolds shall be periodically inspected by a competent person.

h Before allowing a scaffold to be used by his workmen the Contractor shall whether the scaffold has been erected by his workmen or not, take steps to ensure that it complies fully with the regulations herein specified.

i Working platform, gangway, stairways shall:-

1) be so constructed that no part thereof can sag unduly or unequally.

2)be so constructed and maintained, having regard to the prevailing conditions as to reduce as far as practicable risks of persons tripping or slipping, and

3) kept free from any unnecessary obstruction.

j) In the case of working platform, gangways, working places and stairways at a height exceeding 2 meters (to be specified).

a) every working platform, gangways shall be closely boarded unless other adequate measures are taken to ensure safety,

b) every working platform, gangway shall have adequate width, and

c) every working platform, gangway, working place and stairway shall be provided with railing/ barricading

k) Every opening in the floor of a building or in a working platform shall except for the time and to the extent required to allow the excess of persons or the transport or shifting of material be provided with suitable means to prevent the fall of persons or material.

l)When persons are employed on a roof where there is a danger of falling from the height exceeding 3 meters (to be specified) suitable precautions shall be taken to prevent the fall of persons or material

m) Suitable precautions shall be taken to prevent persons being struck by articles, which might fall from scaffolds or other working places.

n) Safe means of access shall be provided to all working platforms and other working places.

Liability of contractors forany damage done in or outside the work area

o)The Contractor will have to make payments to laborers as per Minimum Wages Act.

Clause 21 B : The Contractor shall comply with the following regulations as regards the Hoisting appliances to be used by him.

a) Hoisting machines and tackles, including their attachments, anchorages and supports shall.

i) be of good mechanical construction, sound material and adequate strength and free from patent defect, and

ii) be kept in good repairs and in good working order.

Employment of female labor work on Sunday

b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defect.

c) Hoisting machines and shackles shall be examined and adequately tested after erection on the site and before use and be re-examined in position at intervals to be prescribed by the MJP/Corporation/Corporation.

d) Every chain, ring, hook, shackle, swivel and pulley block used in hoisting or lowering materials or as means of suspension shall be periodically examined.

e) Every crane driver or hoisting appliance operator shall be properly qualified.

f) No person who is below the age of 18 years shall be in control of any hoisting machine, including any scaffold, which gives signals to the operator.

g) In case of every machine and every chain, ring, hook, Shackle, swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.

h) Every hoisting machine and all gear referred to in proceeding regulation shall be plainly marked with the safe working load

i) In case of hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated.

j) No part of any hoisting machine or any gear referred to in regulation (g) above shall be loaded beyond the safe working load except for the purpose of testing.

k) Motors, gearing, transmissions, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards.

l) Hoisting appliances shall be provided with such means, which will reduce to minimum, and the risks of the accidental descend of load.

m) Adequate precaution shall be taken to reduce to a minimum the risk of any part of suspended load becoming accidentally displaced

Clause 22 : The Contractor shall not set fire to any standing jungle, trees, brushwood or grass without a written permission from the Corporation. When such permission is given and also in all cases when destroying, cut or dug up trees, brushwood, grass, etc. by fire, the Contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property. The Contractor shall make his own arrangements for drinking water for the labor employed by him.

Measures for prevention of fire.

Clause 23 : Compensation for all damages done intentionally or unintentionally by Contractor's labour whether in or beyond the limits of the Corporation property including any damage caused by the spreading of fire mentioned Clause 22 shall be estimated by the Engineer-in-charge or such other officer as he may appoint and the estimate of the Engineer-in-charge subject to the decision of the Chief officer 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 damage in the manner prescribed in Clause 1 or deducted by the Engineer-in-charge from any sums that may be due or become due from Corporation to Contractor under this contract or otherwise.

Liability of Contractor for any damage done in or outside work area.

The Contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of fire and he shall pay any damages and cost that may be awarded by the court in consequence.

Clause 24 : The employment of female laborers on works in neighborhood of soldiers barracks should be avoided as far as possible.

Employment of female labor

Clause 25 : No work shall be done on Sunday without the sanction in writing of the Engineer-in-charge.

Work on Sunday.

Clause 26 : The contract shall not be assigned or sublet without the written approval of the Engineer-in-charge, and if the Contractor shall assign or sublet his contract or attempt to do so, or become insolvent or commence any proceedings to get himself adjudicated and insolvent or make any composition with his creditors or attempt so to do so or if bribe, gratuity, gift, loan, perquisite, reward of advantage, pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the Contractor or any

Work not to be sublet.. Contract may be rescinded and security deposit forfeited for subletting it without approval or for bribing a Public Officer or if Contractor becomes insolvent.

of his servants or agents to any public officer or person in the employment of Corporation in any 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 Corporation and the same consequences shall ensure as if the contract had been rescinded under Clause 3 hereof and in addition the Contractor shall not be entitled to recover or be paid for any work thereof actually performed under the contract.

Sum payable by way of compensation to be considered as reasonable without reference to actual loss

Clause 27 : 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 Corporation without reference to the actual loss or damage sustained, and whether any damage has or has not been sustained

Changes in the constitution of the firm to be notified.

Clause 28 : In the case of tender by partners, any change in the constitution of a firm shall be forthwith notified by the Contractor to the Engineer-in-charge for his information.

Directions and control of the Engineer in charge

Clause 29 : All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-charge /Commissioner, for the time being, who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried out.

Directions and control of the Engineer in charge .

Clause 30.1 : Except where otherwise specified in the contract and subject to the powers delegated to him by Corporation under the code, rules then in force, the decision of the Engineer-in-charge/Commissioner for the time being shall be final, conclusive and binding on all parties of the contract, upon all questions relating to the meaning of the specifications, designs, drawings and instruction hereinbefore mentioned and as to the quality of workmanship, or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders, or these conditions, or otherwise concerning the works, or the execution, or failure to execute the same, whether arising during the progress of work, or after the completion or abandonment thereof.

Clause 30.2 : The Contractor may within thirty days of receipt by him of any order passed by the Executive Engineer as aforesaid appeal against it to the

Commissioner PCMC with the contract work or project provided that.
a) The accepted value of the contract exceeds ` 10 lakhs(`. Ten lakhs)
b) Amount of claim is not less than ` 1.00 lakh (` One Lakh).

Clause 30: If the contractor is not satisfied with the order passed by the Commissioner as aforesaid, the contractor may, within thirty days of receipt by him of any such order, appeal against it to the Member Secretary, MJP who if convinced that prima facie, the contractors, claim rejected by Commissioner is not frivolous and that there is some substance in the claim of the contractor as would merit a detailed examination in the claim of the contractor and decision by Secretary Urban development department for suitable decision. The decision of the MS MJP shall be final and binding on the contractor and the Engineer-in-charge.

Clause 31 : ***Deleted***

Lump sums in estimates

Clause 32 : When the estimate on which a tender is made includes lump sums in respect of parts of the work, the Contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for each item, or if the part of the work in question is not in the opinion of the engineer-in-charge capable of measurement, the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the Contractor with regard to any sum or sums payable to him under the provisions of this clause.

Action where no specifications

Clause 33 : In the case of any class of work for which there is no such specification as is mentioned in Rule I of Form B-1, such work shall be carried out in accordance with the Divisional specifications and in the event of there being no Divisional specifications, the work shall be carried out in all respect in accordance with all instructions and requirements of the Engineer-in-charge.

Definition of work

Clause 34 : The expression ‘Work’ or ‘Works’ where used in these conditions, shall unless there be something in the subject or context repugnant to such construction, be constructed to mean the work or works contracted to be executed under or in virtue of the contract, whether temporary or permanent and whether original, altered, substituted or additional.

Contractor’s percentage whether applied to net or

Clause 35 : The percentage referred to in the tender shall be deducted from/ added to the gross amount of the bill before deducting the value of any stock

issued.

gross amount of bill.

Clause 36 : All quarry fees, royalties, octroi duties and ground rent for stacking materials, if any should be paid by Contractor, which will not be entitled to a refund of such charges from the Corporation. (Please see special clause for royalty).

Quarry fees and royalties

Clause 37 : The Contractor shall be responsible for and shall pay any compensation to his workmen payable under the Workmen's Compensation Act., 1923 (VIII of 1923), (hereinafter called the said Act) for injuries caused to the workmen. If such compensation is payable/ paid by the Corporation as principal under sub-section (1) of Section 12 of the said Act on behalf of the Contractor, it shall be recoverable by the Corporation from the Contractor under the sub-section (2) of the said section. Such compensation shall be recovered in the manner laid down in Clause 1 above.

Compensation under Workmen's Compensation Act.

Clause 37 A : The Contractor shall be responsible for and shall pay the expenses of providing medical aid to any workman who may suffer a bodily injury as a result of an accident. If such expenses are incurred by Corporation, the same shall be recoverable from the Contractor forthwith and be deducted without prejudice to any other remedy of the Corporation from any amount due or that may become due to the Contractor.

Clause 37 B : The Contractor shall provide all necessary personal safety equipment and first aid apparatus available for the use of the persons employed on the site and shall maintain the same in condition suitable for immediate use at any time and shall comply with the following regulations in connection herewith.

a) The workers shall be required to use the equipments so provided by the Contractor and the Contractor shall take adequate steps to ensure proper use of the equipment by those concerned
b) When work is carried on in proximity to any place where there is a risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any person in danger.
c) Adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work.

Clause 37 C : The Contractor shall duly comply with the provisions of 'The Apprentices Act, 1961' (III of 1961), the rules made thereunder 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 subjected to all the liabilities and penalties provided by said Act and said Rules.

Quantities put to tender are approximate.
Excess quantity beyond quantity put to tender will be governed as per Cl.38

Clause 38 : I) Quantities in respect of the several items shown in the tender are approximate and no revision in the tendered rate shall be permitted in respect of any of the items so long as subject to any special provision contained in the specifications prescribing a different percentage of permissible variation in the quantity of the item does not exceed the tender quantity to more than 25% and so long as the value of the excess quantity beyond this limit at the rate of the item specified in the tender, is not more than 5,000/- (Whichever is more)

ii) the Contractor shall, if ordered in writing by the Engineer so to do, also carry out any quantities in excess of the limit mentioned above in sub –clause (1) hereof on the same conditions and in accordance with the specifications in the tender and the rates

a) derived from the rates entered in Current Schedule of Rates and in the absence of such rates
b) At the rates prevailing in the market. The said rates being increased or decreased as the case may be by the percentage which the total tendered amount upon the schedule of rates applicable to the year in which the tender were accepted

For the purpose of operation of this clause, this cost shall be worked out from the DSR prevailing at the time of inviting of tender. The cost of Clause 38 is Rs **209,09,00,203/- (Rs. Two hundred and nine crores Nine lakhs Two hundred and three** only**)**

iii) This clause is not applicable to extra items.

iv) Claims arising out of reduction in the tendered quantity of any item beyond 25% will be governed by the provision of Clause 15 only when the amount of such reduction beyond 25% at the rate of the item specified in the tender is more than 5,000/- This reduction is exclusively the reduction in Clause Nos. 14 & 15 of the work and site conditions.

v) There is no change in the rate if the excess is less than or equal to 25%. Also there is no change in the rate if the quantity of work done is more than 25% of the tendered quantity, but the value of the excess work at the tendered rates does not exceed ` 5,000/-

vi) The quantities to be paid at the tendered rates shall include,
a) tendered quantity plus 25% excess of tendered quantity or the excess

quantity of the value of ` 5,000/- at tendered rate whichever is more

Interim payment for excess quantity

Clause 38 A : Engineer in- charge of Municipal Corporation shall see that claim towards excess quantity under this clause 38 is submitted to higher authority immediately on its cropping up. The Engineer-in-charge of Municipal Corporation while making such payment shall see that the total expenditure shall not exceed sanctioned cost of the scheme. If the proposal of Clause 38 is submitted to competent authority for payment then interim 50% payment will be released as under

a) At accepted tender rate or current schedule rate whichever is less subject to condition that total expenditure on the tender shall not exceed sanctioned cost of the scheme

Payment for average rate of excavation

Clause 38-B : If the rate entered in to schedule B for the work of excavation of pipeline is a combined rate for different strata then the rate entered in Schedule-B will be applicable for quantity 25% in addition to the quantity mentioned in schedule-B of all items of excavation for pipe line trenches and for excess over 25% of Schedule-B quantity ,the rate payable to the contractor shall be worked out from the CSR by considering following percentage of excavation in different strata irrespective of actual strata met at the site for the increased quantity.

1) Excavation in all types of soils,. Sand, gravel and soft murum with lead up to 50 meter and lift as involved. Including dewatering, shoring and strutting etc. excluding refilling etc. % of average rate for lift 0.00 to 1.50 meter and____ % for lift ____.

2) Excavation in hard murum and boulders with lead up to 50 m and lead and lift as involved including dewatering, shoring and strutting etc. excluding refilling etc. ____% of average rate for lift _____ meter and %____ for lift ___.

3) Excavation in soft rock and old cement and lime masonry with lead upto 50 m and lift as involved, including dewatering, shoring and strutting, excluding refilling etc. ___% of average rate for lift ____ and ___% for lift ____.

4) Excavation in hard rock and concrete road by chiseling wedging line drilling by mechanical means or by all means other than blasting with lead upto 50m and lift as involved, including dewatering, shoring and strutting etc. excluding refilling ____% of average rate for lift 0.00 to 1.590 m _____% and 1.50 to 3.00 m.

(*Note-Sheet is attached separately*)

Employment of famine labour, etc

Clause 39 : The Contractor shall employ any famine, convict or other labour of a particular kind or class if ordered in writing to do so by the Engineer-in-

charge.

Clause 40: 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 works, on account of any delay in accordance to sanction of estimates.

Claim for compensation for delay in starting the work.

Clause 41: No compensation shall be allowed for any delays in the execution of the work on account of water standing in borrow pits or compartments. The rates are inclusive for hard or cracked soil, execution in mud, sub-soil, water standing in borrow pits and no claim for an extra rate shall be entertained unless otherwise expressly specified.

Claims for compensation for delay in execution of the work.

Clause 42 : The Contractor shall not enter upon or commence any portion of work except with written authority and instructions of the Engineer-in-charge of his subordinate in charge of the work. Failing such authority the Contractor shall have no claim to ask for measurements of or payment for work.

Entering upon or commencing any portion of work

Clause 43 :

i) No Contractor shall employ any person who is under the age of 18 years.

ii) No Contractor shall employ donkeys or other animals with breaching of string or thin rope. The breaching must be at least three inches wide and should be of tape (Nawar).

iii) No animal suffering from sores, lameness or emaciation or which is immature shall be employed on the work.

iv) The Engineer-in-charge or his agent is authorized to remove from the work, any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by the Corporation for any delay caused in the completion of the work by such removal.

Minimum age of persons employed,
the employment of donkeys and other animals and the payment of fair wages.

v) The Contractor shall pay fair and reasonable wages to the workmen employed by him in the contract undertaken by him, In the event of the dispute arising between the Contractor and his workmen on the grounds that the wages paid are not fair and reasonable, the dispute shall be referred without delay to the Engineer in charge who shall decide the same. The decision of the Executive engineer shall be conclusive and binding on the Contractor but such decision shall not in any way affect the conditions in the contract regarding the payment to be made by the

Corporation at the sanctioned tender rates.

vi) Contractor shall provide drinking water facilities to the workers. Similar amenities shall be provided to the workers engaged on large work in urban areas

vii) Contractor to take precautions against accidents which taken place on account of labour using loose garments while working near machinery.

Method of payment

Clause 44: Payment to Contractors shall be made by cheque drawn on Commissioner account provided the amount exceeds `1000/- Amounts not exceeding 1000/- will be paid in cash.

Acceptance of conditions compulsory before tendering for work.

Clause 45: Any Contractor who does not accept these conditions shall not be allowed to tender for work.

Employment of scarcity labour

Clause 46 : If Government declares a site of scarcity or famine to exist in any village situated within 16 Kms of the work, the Contractor shall employ upon such parts of the work, as are suitable for unskilled labour, any person certified to him by the Engineer in-charge /Commissioner of Municipal Corporation or by any person to whom the Engineer in charge/ Commissioner of Municipal Corporation may have delegated this duty in writing to be in need on relief and shall be bound to pay to such person wages not below the minimum wages which Government may have fixed in this behalf. Any disputes which may arise in connection with the implementation of this clause shall be decided by the Engineer in charge whose decision shall be final and binding on the Contractor.

Price not to exceed controlled price fixed by Govt.

Clause 47: The price quoted by the Contractor shall not in any case exceed the control price, if any, fixed by Government or reasonable price which is permissible for him to charge a private purchaser for the same class and description, the control price or the price permissible under the provisions of Hoarding and Profiteering Preventing Ordinance, 1948 as amended from time to time. If the price quoted exceeds the controlled price or the price permissible under Hoarding and Profiteering Prevention Ordinance, the Contractor will specifically mention this fact in his tender along with the reasons for quoting such higher prices. The purchaser at his discretion will in such case exercise the right of revising the price at any stage so as to conform to the controlled price as permissible under the Hoarding and Profiteering Prevention Ordinance. This discretion will be exercised without prejudice to any other action that may be taken against

the Contractor.

Rate inclusive of all taxes

Clause 47 A : The tender rates are inclusive of all taxes, rates, cess and are also inclusive of the livable tax in respect of sale by transfer of property in goods involved in the execution of work contract under the provision of Rule 58 of Maharashtra Value added Tax ACT 2005 for the purpose of levy of tax

The rates to be quoted by the contractor must be inclusive of all taxes including VAT. No extra payment on this account will be made to the contractor

Sale tax on surplus material

Clause 48 : In case of materials that may remain surplus with the Contractor from those issued, the date of ascertainment of the materials being surplus will be taken as the date of sale for the purpose of Sales Tax and the Sales Tax will be recovered on such date.

Employment of local labour

Clause 50 : The Contractor shall employ at least 80 percent of the total number of unskilled labour to be employed by him on the said work from out of the persons ordinarily residing in the district in which site of the said work is located. Provided, however, that if required number of unskilled labour from that district is not available, the Contractor shall in the first instance employ such number of persons as is available and thereafter may with the previous permission in writing of the Engineer-in-charge of the said work obtain the rest of the requirement of unskilled labour from outside of district.

Wages to be paid to the skilled and unskilled labours employed by contractor.

Clause 51 : The Contractor shall pay the labourers – skilled and unskilled according to the wages prescribed by Minimum Wages Act applicable to the area in which the work of the Contractor is located. The Contractor shall comply with the provision of the Apprentices Act, 1961 and the Rules and Orders issued there under from time to time.. The Contractor shall be liable for any pecuniary liability arising on account of any violation by him of the provisions of the Act. The Contractor shall pay the labourers – skilled and unskilled- according to wages prescribed by Minimum Wages Act applicable to the area in which the work lies.

Clause 52 : All amounts whatsoever which the Contractor is liable to pay to the Corporation in connection with the execution of the work including the amount payable in respect of

i)materials and/ or stores supplied/ issued hereunder by the Corporation to

the Contractor,

ii) hire charges in respect of heavy plant, machinery and equipment given on hire by the Corporation to the Contractor for execution by him of the work and/ or for which advances have been given by the Corporation to the Contractor shall be deemed to be arrears of the land revenue and Corporation without prejudice to any other rights and remedies of the Corporation recover the same from the contractor as a arrears of land revenue

Clause 53 : The Contractor shall duly comply with all the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 (37 of 1970) and the Maharashtra Contract Labour (Regulation and Abolition) Rules 1971 as amended from time to time and all other relevant statutes and statutory provisions concerning payment of wages particularly to workmen employed by the contractor and working on the site of the work. In particular and contractor shall pay wages to each worker employed by him on the site of the work at the rates prescribed under the Maharashtra Contract Labour (Regulation and Abolition) Rules 1971. If the contractor fails or neglect to pay wages at the said rates or makes short payment and the Corporation makes such payment of wages in full or part thereof less paid by the contractor, as the case may be, the amount so paid by the Corporation to such workers shall be deemed to be debt payable by the Contractor and the Corporation shall be entitled to recover the same as such from the contractor or deduct same from the amount payable by the Corporation to the contractor hereunder or from any other amounts payable to him by the Corporation.

Clause 54 : Where the work are required to work near Machine and are liable to accident they should not be allowed to wear loose clothes like Dhoti, Jhabba etc.

Clause 55 : The Contractor shall comply with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued there under from time to time

Clause 56 : In view of the difficult position regarding the availability of the Foreign exchange, no foreign exchange, will be released by the Department for the purchase of the Plant and Machinery required for the

execution for the work concerned work.

Clause 57 – Deleted

Clause 58 (A) : Conditions of Malaria Eradication.

Anti-Malaria and other health measures.

a) The anti malaria and the health measures shall be as directed by the Joint Director (Malaria and Filarial) of Health Service, Pune.

b) Contractor shall see that most autogenic conditions are not created so as to keep vector population to minimum level

c) Contractor shall carry out anti malaria measures in the area as per guidelines prescribed under National Malaria Eradication Programme and as directed by the Joint Director (M & F) of Health Services, Pune

d) In case of default in carrying out prescribed anti malaria measures resulting in increase in malaria incidence contractor shall be liable to pay to Government the amount spent by Government on anti malaria measures to control the situation in addition to fine.

e) Relations with Public Authorities.
The contractor shall make sufficient arrangements for draining away the sullage water as well as water coming from the bathing and washing places and shall dispose of this water in such a way as not to cause, any nuisance. He shall also keep the premises clean by employing sufficient number of sweepers.

The contractor shall comply with all rules, regulations, bye-laws and directions given from time to time by any local or public authority in connection with this work and shall pay fees or charge which are leviable on him without any extra cost to Government

Clause 58 (B) : The successful contractor will have to enter into agreement in form specified by MJP/Corporation/Corporation on a stamp of required amount as per rules in force. The stamp charges shall be borne by the contractor

Clause 59 :.Deleted

Clause 60 : The contractor shall provide and maintain barricades, guards, guard rails, temporary bridges and walkways, watchmen,

headlights and danger signals illuminated from sunset to sunrise and all other necessary appliances and safeguards to protect the work, life, property, the public excavations, equipment and materials. Barricades shall be substantial construction and shall be painted such as to increase their visibility at night. For any accident arising out of the neglect of above instructions, the contractor shall be bound to bear the expenses of defence of every suit, action or other legal proceedings, at law, that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay all damages and costs 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 in compromising any claim by any such person.

Insurance

Clause 61 : The contractor shall take out necessary insurance policy /policies so as to provide adequate insurance cover for execution of the awarded work from the PCMC's approved Insurance Company. However if contractor desire to effect insurance with local office of any insurance company same should be under the Co-insurance-come-servicing arrangement approved by the director of insurance if the policy taken out by the contractor is not Co – Insurance basis(GIF- 60% and insurance company -40%) the same will not be accepted and the amount of the premium calculated by director of insurance will be recovered directly from the amount payable to the contactors for the executed contract work.

1 Loss of or damage to the Civil and Mechanical and Electrical equipments supplied/installed including the materials such as pipes, valves, specials etc. brought on site

Loss of or damage to contractor's equipments including his vehicles.
Loss of or damage to property (except the works, Plant material and Equipment) in connection with the contractor, and :
Personal injury or death due to vehicles of the contractor and or due to any accident that may arise at or around the site to the Contractor personnel or to the Corporation staff or to any other person not connected with Corporation /Contractor

2. Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the date of actual starting of work. All such insurance shall provide for compensation to be payable in the types of proportions of currencies required to rectify the loss or damage incurred

3. If the contractor did not produce any of the policies and certificates required the Engineer may effect the Insurance for which the contractor should have produced the policies certificates and recover the premium it has paid from payment otherwise due to the contractor or, if no payments due to payment of the premiums shall be of debt due.

4. Alternations to the terms of an insurance shall not be made without the approval of the Engineer

5. The minimum insurance cover for loss damages to physical property, injury and death shall be 10% of the contract cost per occurrence with number of occurrences as 3(Three). After each occurrence the contractor shall pay additional premium necessary so as to keep the insurance police valid always till the defect liability period is over

6. No payment will be released to the contractor until the insurance coverage with the Govt. Insurance fund, Maharashtra State is provided and unless the proof of insurance coverage is produced by the Contractor to the Engineer-in-Charge

Clause 62:During execution of work excavation is required to be carried out for various sub-works for which royalty is required is to be paid by the contractor.

During execution of work and till completion if point of royalty is raised by collector office it will be sole responsibility of the contractor to pay royalty charges/compensation if any to concern. Until the certificate from the collector office regarding royalty charges is not submitted by the contractor, final bill and security deposit for such work will not be payable to the contractor.

Pimpri- Chinchwad Municipal Corporation

WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

GENERAL SCOPE OF WORK

ANNEXURE-1

INFORMATION ABOUT WORK IN HAND

(To be supported with certificate signed by concerned Superintending Engineer) in case Col. 8 shows the cost of completed work as more than 80%)

Sr. No.	Name of Works	Name of Division /MC	Accepted Tender Cost.	Cost of supply of pipes	Balance cost (4-5)	Cost of work completed as on _____ (Excluding supply of pipe)	Proportion of Col.7 to Col.6 %	Reason for delay (if any) for completion of balance work.
1	2	3	4	5	6	7	8	9

ANNEXURE-2

DETAILS OF MACHINERY AVAILABLE WITH THE TENDERER

FOR THE USE ON THIS WORK

Sr.No	Name of Equipment	No. of unit	Name of Make	Capacity	Age and Condition	Remark

ANNEXURE-3

FORM OF BANK GUARANTEE

BANK GUARANTEE

(***Security for Performance***)

In consideration of the Commissioner (hereinafter called "Pimpri- Chinchwad Municipal Corporation" (PCMC) having agreed to exempt hereafter called "The said contractor") from the demand, under the terms and conditions of an Agreement dated (hereafter called "the said Agreement") made between the Commissioner Pimpri- Chinchwad MC and the said contractor for the Security Deposit for the due fulfillment by the said contractor of the terms and conditions contained in the said Agreement, on production of the Bank Guarantee for Rs_____(In words Rs_____) we, (hereinafter referred to as "the Bank" at the request of the said contractor do hereby undertake to pay to the MC an amount not exceeding the above said amount of Guarantee against any loss or damage caused to or would be caused to or suffered by the Pimpri- Chinchwad MC by reason of any breach by the said contractor or any of the terms or conditions.

2. We, _____ do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, in hereby on a demand from the MJP/…MC stating that the amount claimed is due by way of loss or damage caused to or would be to or suffered by the Pimpri- Chinchwad MC by reason of breach of the said contractor of any of the terms or condition contained in the said agreement or any reason of the contractor's failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding the above said amount Guarantee.

3. WE undertake to pay to the MJP/…MC any money so demanded not withstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor shall have no claim against us for making such payment

4. We _____ further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continued to be

enforceable till all the dues of the MJP/….MC under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged till MJP/…MC certified that the terms and conditions of the said Agreement have been duly and properly carried out by the said contractor and accordingly discharges this guarantee unless a demand or claim under this guarantee is made on us in writing on or before we shall be discharged from all liability under this guarantee thereafter.

5. We _____ further agree with the MJP/…MC that the MJP/….MC shall have the fullest liberty without our consent and without affecting in any manner our obligations here under to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the MJP/…MC against the said contractor and to forbear or enforce any of the terms and conditions relating to the said Agreement, and we shall not be relieved from any liability by reason of any such variation, or extension being granted to the said contractor, or for any forbearance act or omission on the part of the MJP/…MC any indulgence by the MJP/….MC to the said contractor or by any such matter or thing whatsoever which under the law to sureties would, but for this provisions, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or of the Contractor.

7. We, lastly undertake not revoke this guarantee during its currency except with the previous consent of the MJP/….MC in writing.

Dated the day of 2017

For _____

(Indicate the name of the Bank)

<u>Note: However, these forms will be as per the current practices of MJP/….MC and Banks</u>.

ANNEXURE-4

UNDERTAKING FOR GUARANTEE

I/We Guarantee that :

1 I/We will replace repair and adjust free of all charges to the employer any part of the work which fails to comply with the Specifications or amendment to such specifications as refereed to in our specifications attached to tender, fair were and tear except until the completion and for a period mentioned under clause 20 from the date or completion of contract.

2 All the work will be reliable.

3 All the work will be of a type which has been proved in service to be suitable for the duty required by the specifications and will be manufactured and tested in accordance with the appropriate standard specifications approved by the Engineer-in-charge.

4 I/We accept the abide by the clause relating to quality and guarantee of work.

DATE : CONTRACTOR

ANNEXURE-5

DECLARATION BY CONTRACTOR

Pimpri- Chinchwad Municipal Corporation
WATER SUPPLY DEPARTMENT

Name of work : Implementation of Pressurized Water Supply, Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme..

DECLARATION

I hereby declare that I have made myself thoroughly conversant with the local conditions regarding all materials such as stones, murum, sand, availability of water etc. and labour on which I have based my rates for this work. The specifications and requirements of lead for this work have been carefully studied and understood by me before submitting the tender. I undertake to use only the best materials, to be approved by the Commissioner/Engineer in charge of the work or his duly authorized representative, before starting the work and also to abide by his decision.

I hereby undertake to pay the labours engaged on the work as per Minimum Wages Act 1984 applicable to the zone concerned.

Contractor's Signature

ANNEXURE-6

COLLABORATION AGREEMENT

Annexure-B

COLLABORATION AGREEMENT

This agreement made at (Place) _____ this day (date, month and year) between M/s. _____ (Name of the bidder, who intends to collaborate and its registered office address) here-in-after referred as (Principal contractor) which expression shall unless it be repugnant to the context or contrary to the meaning there of be deemed to mean and includes its successors in business and permitted assigns of the ONE PART and M/s ----------(name of the collaborator and its registered address) here-in-after referred as (Collaborator) which expression shall unless it be repugnant to the context or contrary to the meaning there of be deemed to mean and includes its successors in business and permitted assigns of the OTHER PART.

WHERE AS

1) Pimpri- Chinchwad Municipal Corporation has floated a tender for the

2) Name of work : Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Pimpri Chinchwad city under AMRUT Programme.

(Principal contractor) ----------registered with Maharashtra Jeevan Pradhikaran/MCGM/MIDC/CIDCOANY GOVT ORGANIZATION in Class --------is a well established contractor engaged in the activities of execution of water supply projects.

1. (Collaborator) ----------Registered with Maharashtra Jeevan Pradhikran/MIDC/MCGM/CIDCO/ANY GOVT in Civil/Mechanical in Class--------- is well established contractor having the experience of work mentioned in para 4.

1. The principal contractor desires to collaborate with the collaborator for execution of following works, as he don’t have sufficient experience of this particular work included in tender as mentioned in para 1 above.

2.

Sr.No.	Name of work	Amount
	Total :-	

(Note *:- It is obligatory to furnish above information otherwise collaboration agreement will not be considered).*

1. The Parties hereto have come together to set up a collaboration in order to quote for the tender mention in para 1 above and on award of the tender to jointly execute the work as mentioned in para 4 above as well as to guarantee it's perfect execution utilizing the technical experience. The principal contractor involved in this collaboration, directly or indirectly will hold fully responsible towards MJP/…… Municipal Corporation to look after the execution of the said work as per the terms and conditions and specifications mentioned in tender.

NOW IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS UNDER :-

1) In consideration of the mutual understanding, trust and confidence each of the parties in other, they have mutually agreed to form a collaboration to submit the tender and if the tender is accepted by the MJP/…….. Municipal Corporation/Corporation then carry on the business as a collaboration in respect of development and execution of the said work in accordance with the terms and conditions that may be imposed or agreed by and between the …….. MJP/Municipal Corporation/Corporation and the Principal contractor hereto.

2) The collaborator shall be responsible for completion of works for which the collaboration is made, however the principal contractor shall be ultimately responsible and liable for completion of entire works in accordance with the terms and conditions on which the award to execute the work is made by Pimpri- Chinchwad Municipal Corporation under the said tender.

3) In the event of any dispute or difference or misunderstanding arises between both of them in course of execution of the work after the award of the work to the Principal contractor by Pimpri- Chinchwad Municipal Corporation, the same shall be referred to Member Secretary, Maharashtra Jeevan Pradhikaran and his decision in this respect shall be final and binding on both the parties.

IN WITNESS WHERE OF the parties hereunto have set and subscribed there respective hands and seals the day, month and year first above written.

SIGNED, SEALED AND DELIVERED
BY THE WITH NAME

(Name of First Party)

(Name of Second Party)

WITNESS :-

1.

2.

ANNEXURE-8

BAR CHART

Sr. No.	Name Of Subwork	Month																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

GENERAL SPECIFICATION

GS-1

1) All the materials used in the work shall be of best quality and the material rejected shall be removed from the site by the contractor within 36 hours in the presence of the Engineer in charge at his own cost.

2) All other rules regarding workmen compensations etc will be binding on the contractor.

Unwanted persons shall be dispensed with if called upon by the Engineer in charge.

3) Other unforeseen items to be executed in course of work will have to be done by the contractor as per specifications, in P.W.D. Hand book volume I and II (Latest Edition) I.S. code of practice and as per standard specifications book of latest edition.

4) The contractor shall be responsible and liable to pay for the damages caused by him to public property etc.

5) All T and P machinery shall be provided by the contractor. Non availability of the same shall not be an excuse for application for extension of time limit.

6) Water of good quality for labour, construction, washing and such other purposes shall be provided by the contractor without any claim for extra cost.

7) Materials belonging to contractor if not removed from site of works after completion of the work within a period of 15 days shall be taken over by M.C. at contractors risk and cost and then shall be auctioned at the contractor's risk and cost. The amount so recover shall be credited to contractor's account after recovery of any dues or over payments etc.

8) The final bill and deposits will not be paid unless the site is cleared off all rubbish materials and contractor's stores etc from the site of the work.

9) The contractor will have to pay the royalties and municipal taxes, if charged by the M.C. The same will not be refunded.

10) Specifications given for relevant nature and type of work, for any particular item of the tender shall also be applicable to the other item of work when similar work is repeated or carried out in part or full although the item numbers may not have been mentioned especially against the particular specifications.

11) The contractor shall be responsible for obtaining permission from Government local bodies, private party for storing, stacking of materials required for execution of work.

12) Necessary sign board, danger flags, red lamps shall be provided by the contractor to avoid accidents. Necessary guarding will also have to be provided.

13) Before entering any land, the contractor shall make independent enquiry regarding ownership of land. Any action regarding trespassing will be at the risk of contractor.

14) Materials remaining unsold or unserviceable as per discretion of the C.O/Executive Engineer shall be confiscated destroyed or disposed off without any compensation to the contractor, who will be responsible for all legal disputes at his own cost and consequences without reference to the department.

15) In case of legal disputes for materials brought and stores at site without permission of the C.O./Executive Engineer, the contractor will be responsible for all legal disputes at his own cost and consequences without reference to the department.

GS 2: SPECIFICATION OF WORK :

The work shall be carried out as per practices and procedures laid down in P.W.D. Hand book Volume - I & II Latest Edition and Public Works Department's standard specifications (Latest Publication of Government of Maharashtra) with amendments from time to time and as per I. S. applicable for respective items of works, as directed by the Engineer in charge.

GS 3: MOTIVE POWER :

No electric power supply shall be entered by the M.C. during construction and testing of various structures under different sub-works. The contractor shall have to make his own arrangement for the same at is cost. During trial period of the plant, power supply shall be made available by the department. The firm should inform within one month from the date of receipt of work order, the total electrical load required for successful operation of the treatment plant. This electrical load shall also include lighting load for inside and outside light points etc. attached to the buildings in proper as well as premises of the plant.

GS 4: FOUNDATION CONDITIONS AND PRESCRIBED BEARING CAPACITIES

The tenderer shall acquaint himself for results of S.B.C. by taking actual trial pits on site and refilling them afterwards at his cost. The foundation depth shall be considered as minimum 3.00 m below G.L. for the construction of BPT, MBR & E.S.R.. The bearing capacities of the actual strata met with the foundation levels shall wherever be required got tested from reputed institution, at contractor's cost and in the presence of Engineer-in-charge. Detailed design shall be prepared and submitted by the contractor and got approved from the department after actual confirmation of S.B.C.

GS 5: WATER TIGHTNESS TEST

All the water retaining and carrying structures will have to be tested for their water tightness by filling them with water up to their designed F.S.L. Similarly the pipe line will have to be tested hydraulically. Structures will be considered water tight when the reductions in filled up level is not more than 6 mm in 48 hours with outer surface dry. As regards pipe line, they should hold pressure as directed by Engineer in charge without reduction for thirty minutes. The contractor will have to give all such hydraulic tests by making his own arrangements for water supply, filling and disposing off water after the test. He shall repeat this test if necessary until the above results are achieved and certified by the Engineer-in-charge without any claim for extra cost. The contractor shall carry out the rectification of the structures or pipe lines to achieve the above tests at his own cost. The structures and pipe lines shall be kept filled with water upto F.S.L. after the above test are over at his own cost.

GS 6: SATISFACTORY COMPLETION OF VARIOUS ITEMS :

The sub works included in the schedule of works for BPT MBR WTP & ESR on Lump sum basis.

The various items of the sub work are to fit in perfectly in the whole system physically, hydraulically, architecturally and mechanically.

GS 7: DISPOSAL OF EXCAVATED STUFF :

All materials obtained from any excavation carried out under this contract will be the property of M.C. and the contractor shall not have any claim on it. It will not be used by the contractor for any other purpose than the legitimate use on the work itself. Stuff still remaining surplus shall be spreaded over the different site of work or disposed off as directed by the Engineer in charge without extra cost.

GS 8: SUBMISSION OF DETAILED DESIGNS AND DRAWINGS AFTER ACCEPTANCE OF TENDER :

For Lump sum job works the contractor shall submit complete detailed designs and drawings within three months from the date of issue of work order for approval of the department to the same. Piecemeal submission of designs and drawings shall not be permitted to commence the actual work at site unless detailed hydraulic and structural designs and working drawing are approved by the department. If called upon, the contractor shall also submit within reasonable time relevant books and other literature which have been referred to by him in working out the design for civil, mechanical or electrical works involved in the construction. Such books and literature will be returned to him. Reason of secrecy in regard to details of designs, materials, equipments etc shall

not be placed by the contractor in the name of 'TRADE SECRET' for not furnishing the requisite details called for the Maharashtra Jeevan Pradhikaran. The design get approved from Govt. Engineering College structurel consultants approved inlisted in MJP shall be subjected to modifications if found necessary and such modification shall not violet the contract. The contractor shall be responsible for the correctness and soundness of the designs submitted by him. The structures shall be as per recognized engineering practices and if any provisions, are found inadequate or faulty, necessary modifications will have to be carried out by him at any stage up to the expiry of guarantee period and no extra payment will be made on the account.

Six copies of all the approved designs and drawings should be furnished by the contractor to the department free of cost.

GS-9: REQUIREMENT OF STRENGTH OF CONCRETE

The contractor shall make field arrangements for testing of all materials for cement concrete i.e. slumps test, compression test etc. The concrete cube moulds 3 Nos. of 15 x 15 x 15 cm size shall be kept during concreting operation. Three cubes shall be prepared from at site during concreting to be used in work for compression test, for each concreting to be used in work for compression test, for each concreting of the structures. One cube shall be tested for test at 7 days age and two at 28 days in Regional Testing Laboratory at Govt. Polytechnic/Engineering college / Vishveshvarayya National Institute of Technology, Nagpur or at any approved laboratory, by Engineer –In-Charge. All the testing charges shall be paid by contractor. The entire responsibility of the testing of materials will be borne by the contractor.

Mixing of concrete shall be done with Concrete Mixers.

a) The contractor will make his own arrangement for receiving all materials, tools, etc. required for the work.

b) No extra charges for the carriages of water will be allowed.

c) The rates for all items are inclusive of all charges such as carting, lifting etc. No extra payment for any lead and lifts will be paid for any item.

d) The contractor should not be subleted without written permission of the Engineer-In-Charge.

e) The conditions in the tender notice will be binding on the contractor and the Tender Notice will form a part of agreement.

f) The material required for carrying out the work for which the tender is offered shall be brought by the tenderer.

GS-10 ORDINARY CONCRETE

Full payment shall be made when 75% of the result are equal and above the specified strength and the remaining 25% of the result are above 75% of specified strength.

Cases failing outside the above limit shall be examined by the Engineer-In-Change on merits in each case.

1) The charges for preliminary design of concrete mix shall be entirely borne by the contractor .

2) For grades of concrete M-20 and above where cement is to be used by weighment, the cost of extra cement required to make up under weight bags shall be borne by the contractor.

3) For the item of concrete and other items in the agreement where cement is not to be used by weighment the cement bags are received from the manufacturer shall be assumed to contain cement of 50 kg. net weight. The work shall carried out as per this method of reckoning.

Note :- It is proposed to install SCADA and automation system for complete WSS. Accordingly civil works shall be designed and constructed in consultation with engineer-in-charge Additional information in this regard shall be obtained from PCMC/MJP.

TECHNICAL SPECIFICATIONS

DETAILED SPECIFICATION

All material such as sand, metal, rubble, steel, bricks, cement etc. shall be get checked from laboratory of Government Polytechnique or Engineering College. Then it should be allowed to use. Charges for this shall have to be borne by the contractor.

1. EXCAVATION IN ALL SOFT AND HARD STRATA MATERIAL

1.0 GENERAL

The specifications contained in the standard specification volume IInd published by Public Works and Housing Department, Govt. of Maharashtra, Chapter Bd.A shall apply. In addition to above following specification shall apply. In case of any discrepancy between the two the below given specifications shall govern.

1.1 SITE CLEARANCE

The area to be excavated shall be cleared off. All trees and bushes and rubbish and other objectionable materials removed shall be burnt or disposed off as directed by the Engineer-in-Charge. The cost of such clearing shall be deemed to have been included in the rates accepted for different items under excavation.

1.2 DEWATERING

No distinction shall be made as to whether the materials being excavated is dry, moist or wet. The item also includes bailing out of water by manually or pumps to keep the trenches reasonable dry for all further works of lowering, laying, jointing and testing of the pipe line till the completion of the work.

1.3 SHORING AND STRUTTING

The item includes all shoring and strutting that may be required. On no account the width of trenches more than these mentioned here in after shall be measured. If excavation width more than the specified is required for the purpose of keeping machinery, steeping due to loose material or for any other reasons the same shall be at the Contractors cost.

1.4 LIGHTING, BARRICADING AND GUARDING

The items of excavation are including necessary lighting at night at suitable intervals, but not more than 15 meter along the excavated trenches and at all crossing and barricading the same by fencing so as to avoid the accident. Chowkidars shall be employed at place where the trenches cross over any traffic road to caution the vehicles and pedestrians etc. The arrangements shall be maintained till completion of work and at the cost of the Contractor.

1.5 ALIGNMENT AND LEVELS

Before the trenches excavation is commenced, sight rails shall be erected at every 30 meters and at all points of change of direction, gradient and at ends. The excavation work shall be preceded by a detailed survey along the alignment of the main to obtain ground levels at every 30 meters or less distance. Temporary bench mark shall be constructed at every 30 meters distance along the alignment and shall be maintained till the completion of work. All labour and materials required for the survey work of fixing bench mark etc. shall be provided by the Contractor at his own cost. For any mistakes in survey the Contractor is fully responsible. He should not lay the pipes, unless the alignment is thoroughly checked by the Engineer-in-Charge or his authorized representative who is empowered to sign the work order book in token of checking the exact grade and level of the trenches excavation.

Excavation at random places shall not be measured by the Pradhikaran's Engineer. Any non-technical practices during the excavation of the contracted work shall be viewed very seriously by the Pradhikaran and a note to that effect will be recorded against the Contractor in his name.

1.6 DEPTH AND GRADES OF TRENCHES

The trenches shall be excavated to the required grades and depth in all types of strata and on the lines as shown on approved drawings or as directed by the Engineer-in-Charge,. If not so, the payment for the item will not be paid to the Contractor. The depth of excavation and the levels of the pipe inverts shall be checked by means of boning rods of suitable lengths. Additional depths if required to be excavated for pipes, for sockets, collars, specials, joints and for any other working facility and shall not be measured and paid. The minimum cover above the pipe shall be 0.90 m.

The Contractor shall notify the Engineer when the trenches are ready for bedding so that the Engineer can inspect and record the depth. Only on explicit approval by Engineer, the bedding shall be provided by the Contractor. If any public utility i.e. electrical cable, telephone cable, water connections, sewer connections, gutter damage etc. then same will be rectified by contractor at his own cost.

1.7 WIDTH OF TRENCHES

The maximum width of the trenches admissible for payment shall be as under

Sr. No.	Internal dia of pipe	Width of excavation of trenches	Nature of strata
1.	80 mm and below	0.70 M	In soft and hard material
2.	100 m	0.75 M	In soft and hard material
3.	150 mm	0.75 M	In soft and hard material
4.	200 mm	0.85 M	In soft and hard material
5.	250 mm	0.85 M	In soft and hard material
6.	300 mm	0.90 M	In soft and hard material
7.	350 mm	0.95 M	In soft and hard material
8.	400 mm	1.10 M	In soft and hard material
9.	450 mm	1.15 M	In soft and hard material
10.	500 mm	1.20 M	In soft and hard material
11.	550 mm	1.25 M	In soft and hard material
12.	600 mm	1.25 M	In soft and hard material
13.	700 mm	1.30 M	In soft and hard material
14.	750 mm	1.40 M	In soft and hard material
15.	More than 750 mm	OD + 0.60 M	In soft and hard material

For excavated width whichever is less shall be recorded and paid for. Extra widths for pits at sockets, collars, specials, joints, construction and also for working liabilities shall neither be measured nor paid for. However, excavation required for providing and casting fixity block, thrust blocks, encasing etc. will be measured and paid for under relevant item of excavation. The pits for welding joints will also be paid under relevant item of excavation.

1.8 Strata Percentage

1) Raw water Rising Main

Sr .No.	Strata	Percentage	lift
1	Earth, soils of all types, sand , gravel and soft murum	-	
2	Hard murum	93.33%	0 to 1.5m
3	Hard murum and boulders, WBM road	-	
4	Soft rock and old cement and lime masonry foundation , asphalt road	-	
5	Hard rock and concrete road by chiseling	6.67	0 to 1.5m

2) Pure water rising main

Sr .No.	Strata	Percentage	lift
1	Earth, soils of all types, sand , gravel and soft murum	76.67	0 to 1.5m
2	Hard murum	6.67	0 to 1.5m
3	Hard murum and boulders, WBM road	3.33	0 to 1.5m
4	Soft rock and old cement and lime masonry foundation , asphalt road	3.33	0 to 1.5m
5	Hard rock and concrete road by chiserlling	10	0 to 1.5m

3) Gravity main outlet No. 1/outlet No.2/Distribution

Sr.No.	Strata	Percentage	lift
1	Earth, soils of all types, sand , gravel and soft murum	77.78	0 to 1.5m
2	Hard murum	7.41	0 to 1.5m
3	Hard murum and boulders, WBM road	7.41	0 to 1.5m
4	Soft rock and old cement and lime masonry foundation , asphalt road	3.70	0 to 1.5m
5	Hard rock and concrete road by chiserlling	3.70	0 to 1.5m

1.9 **PRESSING AND CONSOLIDATING OF THE TRENCHES**

The bed of the trenches shall be well rammed before laying of the murum or sand for bedding hollows, if any, shall be filled with murum duly rammed and watered to required level and grade at cost of the Contractor.

1.10 **CLASSIFICATION OF MATERIALS IN TRENCHES**

Weighted rate of excavation is given and accordingly measurement shall be recorded for items of excavation provided. In case of any, dispute regarding classification of strata, the decision of Engineer-in-Charge shall be final and binding. The strata classifications and its quantity shown are indicative only. The Contractor therefore, shall carry out his own assessment regarding the strata at different depth along the alignment, before submission of the tender.

1.11 **EXCAVATION BY CHISELLING** MECHANICAL MEANS

(In Hard Strata)

Excavation in hard strata shall be done by chiseling, wedging or line drilling as specified any mechanical all means or ordered by the Engineer. The excavation refers to excavation generally for foundation, wet or dry, in hard rock by chiseling, wedging or line drilling and shall comply with the specifications.

1.12 **MODE OF MEASUREMENT AND PAYMENT**

The excavation shall be measured in Cubic meters only. Dimensions shall be measured correct to two decimal of meter and quantity shall be calculated to two places of Decimal of Cubic meters. The item mentioned in Schedule-B in which includes disposing excess excavated material remained after refilling will not be paid separately for disposing excavated material.

2. PLAIN/REINFORCED CEMENT CONCRETE
a) PLAIN CEMENT CONCRETE
b) REINFORCED CEMENT CONCRETE

2.1 **(a)** Proportions of concrete for types of work

i) M-100 – For leveling course and foundation of chairs and thrust blocks etc

ii) M-150 PCC with temperature nominal 0.15% reinforcement for footing thrust blocks, anchor blocks, chairs and encasing of pipes etc.

iii) M-200 PCC for water retaining structure

iv) M-300 for Construction of Jack well, Pump House & Water Retaining Structure. Such as ESR, WTP, MBR, BPT.

v) M-250 Pump house and bridges (excluding sub-merged portion)

b) General specifications of this work shall be as per standard specification of Public Works Department, latest edition, for PCC Bd.-E1 to E-7 and for RCC Bd.F2 to F16.

c) Whenever concrete is to be laid in trenches, the trench shall be cleaned, and watered before placing. The sub-soil water which is met shall be removed and the trench shall be kept dry during and after 2 hours of placing concrete.

d) Pedestal pier shall be perpendiculars to center line of pipe.

e) Proper seat shall be left on top of pedestal pier to construct saddle. Seat shall be strictly done within 24 hours, failing which MJP will not accept it for payment

f) RCC saddle shall be constructed as per detailed drawing. The top of saddle where pipe rests shall be provided with wearing plate fixed in CM 1.3 smoothly and CM grouting may be done after pipe is placed and no extra payment will be made for this.

2.2 **MODE OF MEASUREMENT AND PAYMENT.**

The tender rate shall be for one cubic meter of concrete. The concrete shall be measured for its length, breadth and depth limiting dimensions to those specified in drawing or as per direction of Engineer-in-Charge.

The damages to concrete during laying of pipe line shall be rectified free of cost. The rate for the concrete includes all labour, material centering shuttering securing etc. all leads and lifts.

Mixing of concrete shall be done with concrete mixer.

For providing Electric wiring duct tubes of the required diameter and length shall be

provided through walls beams and floors, slabs as and when directed without any extra cost.

a) The contractor will make his own arrangement for receiving all material tools etc. required for the work.
b) No extra charges for the carriages of water will be allowed.
c) The rates for all items are inclusive of all charges such as carting, lifting, etc. No extra payment for any lead and lifts will be paid for any item.
d) The contractor should not be Sublette without written permission of the Engineer-in-Charge

a. The conditions in the tender notice will be binding on the contractor and the Tender Notice will form a part of agreement.

Cement cubes of size 15 cm x 15 cm x 15 cm are taken during the concreting of important structure like RCC well, water treatment plant, elevated service reservoirs, bridge etc. to check the strength of the concrete and its acceptability it is observed that while taking cubes the requirement specified in the relevant Indian Standard specification are not observed properly and cubes are not cast in the required numbers. Due to this the acceptability of the concrete can not be decided correctly. Similarly, proper care is also not taken for curing of the cubes the requirements specified in the ISS in respect of casting of concrete cubes and curing thereof, with acceptability criteria of concrete are reproduced below, which shall be following scrupulously.

2.3 **FREQUENCY OF SAMPLING** (IS:456:2000 (Clause 15.2)

a) Number of samples to be taken during concreting based on the quantum of concrete cast shall be as below.

Quantity of concrete in Cum	No. of samples
01 to 05	1
06 to 15	2
16 to 30	3
31 to 50	4
50 and above	4+1 for every 50 Cum part thereof

At least one sample shall be taken from each shift of concrete and three test specimens (cubes of size (15 x 15 x 15 cm) shall be cast from each such sample for testing of the compressive strength additional three cubes will also have to be taken for 7 days test.
The test strength of the sample shall be the average the strength of the three specimen.

2.4 **ACCEPTANCE CRITERIA** (IS:456:2000 Clause 16)

The concrete cost shall be supposed to be acceptable in the compressive strength (i.e. average strength of the three specimen) of the samples fulfill the following requirements.

a) Every sample has a test strength not less then characteristic value.

OR

b) The strength of one or more samples, though less the characteristic value is in each case, not less then the greater of following.

i) The characteristic strength minus 1.35 times the standard deviation.

and

ii) 0.80 times the characteristics strength.

c) And the average strength of all the samples is not less than the characteristic strength plus

$$1.65 * \frac{1.65}{\text{No. of samples}} = \text{times the standard deviation}$$

d) However, it should be noted that individual variation should not be more than the percent of average.

STANDARD DEVIATION VALUES

Grade of Concrete	Assumed Standard deviation in Kg/Cm^2
M-100	35.00
M-200	46.00
M-250	53.00
M-300	80.00

2.5 **CURING OF CONCRETE CUBES** (IS:516:1959, CLAUSE 3.3)

The test specimen (cubes) shall be stored on the site at place free from vibration, under damp matting, sacks or other similar material for 24 hours + ½ hour from the time of adding the water to the other ingredients. The temperature of the place of storage shall be within the range of 22° to 32^oC. After the period of 24 hours, stored in clean water at temperature of 24° to 30^oC until those are transported to the testing laboratory. Samples shall be sent to the testing laboratory well packed in damp sand, damp sacks or other suitable material as to arrive there in a damp condition, not less than 24 hours before the time of test.

On arrival at the testing laboratory, the specimen shall be stored in water at a temperature of $27^o + 2^o$ C until the time of test. Record of the daily minimum and maximum

temperature shall be kept, both during the period specimen remain on the site and in the laboratory.

2.6 **TEST PROCEDURE** (IS:516:1959 CLAUSE 5.5)

Specimen stored in water shall be tested immediately on removal from water and while those are still in the wet condition. Surface water and grit shall be wiped off the specimens and any projecting fins removed. Specimen, when received dry, shall be kept in water for 24 hours before taken for testing. The dimensions of the specimens to the nearest 0.2 mm and also weight shall be noted before testing.

2.7 **OTHER THINGS**

Here, it should be specifically noted that age of concrete cube will be age as on the date of testing i.e. time difference between addition of water to dry ingredient and actual testing.

2.8 **MIX DESIGN**

The following instructions shall be followed as regards preliminary design of mix and methods of batching of plain cement and reinforced cement concrete. These instructions should be treated as supplementary to the relevant provision in the specifications for the respective items contained in the book of standard specification and will be carried the provisions contained therein, wherever they are contrary to the following instructions.

The preliminary design and batching for various grades of concrete shall be governed by the following guidelines.

No.	Concrete Grade	Guidelines
1	Upto M-150	This should only be ordinarily concrete. No change may be prescribed in the present practice as regards preliminary design of mix and permitting volume batching.
2.	M-200 to M-250	Preliminary mix design must be carried out for these mixes. However, weigh batching shall be insisted for cement, fine aggregate and course aggregate.
3.	Above M-250	Preliminary mix design must be prepare for such mixes weigh batching should be for cement fine aggregate and course aggregate.

For the grades of concrete M-200 and above the preliminary mix design shall be carried out from the approved laboratory. The rate quoted by the contractor in the agreement for these items shall be final and binding on him, irrespective of content of cement required as per preliminary mix design and there shall be no adjustment in the agreement rate for

these item on this account.

The charges for preliminary design of concrete mix shall be entirely borne by the contractor.

For grades of concrete M-200 and above where cement is to be used by weightment, the cost of extra cement required to make up the under weight bags shall be borne by the contractor.

For the items of concrete of grades lower than M-200 and other items in the agreement where cement is not to be used by weightment the cement bags as received from the manufacturer and shall be assumed to contain cement of 50 kg net weight.

This shall be as per specification of P.W.D. (Hand Book) and as directed by Engineer-in-charge. Only trap stone shall be used other than the specification for this item in Standard Specification Book.

3 SPECIFICATIONS FOR MILD STEEL AND TOR STEEL REINFORCEMENT FOR RCC WORKS

3.1 The item provides for supply of mild steel, tor steel bars, cutting, bending with G.I. wire and placing in position, welding for reinforcement in the RCC.

3.2 Mild steel and tor steel bars shall confirm to Specification A-10 of Standard Specification of Public Works Department, Latest Edition.

3.3 The binding wire shall confirm to Specification A-15 of Standard Specification of Public Works Department, Latest Edition.

3.4 During contractor's supply, if any, the steel bars shall be supplied directly to the site of work.

3.5 Bending reinforcement confirm accurately to the dimensions and shapes in the details drawings (approved) or as directed by the Engineer-in-charge.

3.6 Bars shall be bend cold only. In no way bending by heat will be allowed.

3.7 Bars with kinks, bends or cracks shall not be used.

3.8 Details of length, size, laps and bending diagram shall be got approved by the Engineer-

in-charge.

3.9 As far as possible full length of bars shall be placed as per drawing details. When full lengths are not available, bars be supplies only after written permission of the Engineer-in-charge. Supplies shall be staggered and in tension zone shall be avoided strictly. Bars shall be lapped as specified in IS:456-2000 with due regards to the grade of concrete. Welding may be used for large diameter of bar only after permission of Engineer-in-charge.

3.10 Welding, if permitted shall conform to specification B.10.7 of Standard Specification of Public Works Department.

3.11 All reinforcement shall be accurately placed in position with spacing and cover shown in detailed drawing and firmly held during the placing and setting of concrete. Bars shall be ties at all intersections. Binding wire of 1.63 mm or 1.22 mm diameter (about 16 or 18 gauge) shall be used. Spacing of the bars shall be maintained by means of stays, blocks ties, spacers, hangers or other approved supports at sufficient close intervals so that bars will not be displaced. During placing vibrating or compacting concrete, placing bars for reinforcement on a layer of fresh concrete as the work progress will not be permitted. The use of pieces of broken stones or bricks or wooden blocks for maintaining spacing or cover shall not be permitted. Layers of bars shall be separated by precast cement blocks, spacer bars or other devices.

3.12 Full details of numbers, sizes, lengths, weights, laps, welds, spacing of bars placed in position in different parts of the work shall be recorded by the contractor and certified and signed by the Engineer-in-charge or his representative to show that all reinforcement has been placed correctly as per sanctioned drawing or as directed by the Engineer-in-charge in writing, before placing concrete. No concrete shall be placed in position until the certified the correctness of reinforcement, recording the steel measurements and has given permission in writing to place concrete. After approval of reinforcement as above, it will be the contractor's responsibility to seal that the spacing of reinforcement and arrangements are not tampered with in any way before or during concreting.

3.13 Any steel is required to be procured by Contractor. He shall produce the test certificate. In addition, actual test shall be carried out according to IS:432-1982, in an Government laboratory and the cost of test shall be borne by the contractor, including all transport, etc.

3.14 **This item includes,….**

a) Cost of labour, materials, use of tools, plant and tackle and other incidental items to complete the work satisfactorily.

b) Supplying, conveying, cleaning, cutting, bending, binding with (1.63 mm or 1.22

mm diameter – 16 to 18 gauge) wire on spot, welding and placing reinforcement in position and maintaining it clean and in position till the concrete is laid.

c) Cost of sampling and testing, as required.

3.15 In no case, any foreign material e.g. oil, grease, etc. which prevent bonding between steel and concrete shall remain on steel on steel bars during placing of concrete.

3.16 **MODE OF MEASUREMENT AND PAYMENT**

The tender rate shall be on weight basis for MT of MS/tor steel reinforcement. The weight of steel reinforcement used for the item of concrete will be measured in tonnes based on total compacted weight for the sizes and lengths of bars as shown in drawing or as directed by Engineer-in-charge.

3.16.1 The lengths of the bars shall be measured correct to 2 places of decimals of meters. The weights for payments shall be calculated according to standard weights mentioned in the ISI Hand Book correct upto 0.10 Kg.

4. BURNT BRICK MASONRY SECOND CLASS

4.1 **GENERAL**

This specification lays down the requirements for B.B. Masonry 1st class in cement mortar of specified proportion required for various structures, including necessary scaffolding, watering etc. The specifications shall conform to IS:2212-1991 its latest revision.

4.2 **MATERIALS**

BRICKS : Bricks shall be first class and shall conform IS:1077-1992.

4.3 **MORTAR**

The quantity of mortar to be used per Cum of B.B. masonry shall be about 30 to 32% or 300 to 320 liters for conventional bricks and 32 to 33% or 320 to 330 liters for ISI bricks. The proportion of mortar shall be as specified in the item of the tender.

Mode of Measurement :

The contract rate shall be for a unit of one cubic meter of Masonry. The concrete shall be measured for its length, breadth and depth limiting dimensions to those specified on the plan or as directed by Engineer-in-Charge. No deduction shall be made for reinforcement in concrete in RCC work. Individual dimension shall be measured in Cum. And quantities shall be worked out correct upto three places of decimal of a cubic meter.

4.4 **CONSTRUCTION JOINTS :**

Joints shall not exceed 12 mm (about ½") in thickness and shall be uniform throughout. All other specifications of KB-1 for B.B. masonry first class shall apply to this class of masonry also.

4.5 **HALF BRICK MASONRY**

The half brick masonry shall be in cement mortar specified in the item but not weaker than 1:4.

Mode of measurement : Per Sq.mt.

The half brick masonry shall be reinforced by 2 No. of 6 mm dia M.S. longitudinal bars or 2 No. of hoop item strips of 25 x 1.6 mm size, at even third course properly bent and bounded in vertical joints of the brick work or to main walls as directed by the Engineer-in-charge, if continuous strip is not available, strips shall be rivet jointed with a minimum overlap of 8 cm. All the bricks shall be laid stretch wise breaking joint with the upper and lower courses. Fixtures, plugs, hold, fasts, frame down, windows shall be based into brick work while laying only and of the correct levels and positions. Holes of required size and stage shall be left in the brick work during laying for fixing pipes or service lines, passage of water etc. After the pipeline work is completed, extra hollow left around the hole shall be plugged with 1:3 cement mortar or 1:3:6 cement concrete. Hold fasts for frames of doors and windows shall be accommodated in the joints of the brick which laying. The joints in the courses where reinforcements is places shall admit of a mortar cover at least 5 mm for the brick work with 15 bricks and not more than 12 mm for conventional brick work. A set of mason's tools shall be maintained on work for each group of 3 masons or less for frequent use and checking. The ends of walls shall be bonded into the side walls where necessary. The joints shall be raked out to depth not less than the thickness of the joints.

This item shall include :

a) Providing and fixing mild steel reinforcement bars or hoop iron strips as mentioned above.

b) Leaving holes for fixtures or pipes and making them good after completion of the work.

c) Building in frames, hold fasts etc. and forming chassis and grooves.

Mode of measurement

The contract rate shall be for a unit of one Square meter and quantities shall be worked out correct upto three places of decimal of a Sqmt..

5. CEMENT PLASTER : Internal Neeru finish

5.1 **GENERAL**

This specification lays down the requirement of cement plaster to be applied to concrete or brick masonry surface. In cement mortar of specific proportion and thickness.

5.2 **PREPARATION**

For masonry all joints in the frame work that is to be plastered shall be raked out to a depth not less than the width of the joints or as directed by the Engineer-in-charge. The raking shall be done taking care not to allow any chipping of masonry. In new work the raking out shall be done while the mortar in the joints in still green. Smooth surface of concrete or plaster etc. must be suitably roughened to provide necessary bond for the plaster all dirt, soot oil paint or any other materials that might interfere with satisfactory bond shall removed and surface wetted before plastering is started.

5.2.1 **General :** The item shall comply with specification B.11.b subject to the additional clauses Bd.L 1.2, Bd.L 1.3, Bd.L 1.4 and the following

5.2.2 **Finishing :** When no finish is specified the plastered surface shall be rubbed well to an even plane with a wooden float for external surfaces and finished smooth with a steel trowel for internal surfaces.

- When cement finish is specified, coat of pure Portland cement slurry 1.5 mm (1/6') thick shall be applied to the plastered surface while the second coat is still fresh. If neeru finish is specified, then the surface shall be finished as per specification for Item Bd.L-10.

The thickness of the cement plaster shall be 12 mm excluding cement or neeru finish.

5.2.4 Mode of measurement

As per NdL-1.7 on square meter basis

5.3 **MATERIALS**

Cement mortar shall be prepared from cement and as specified for RCC work and mixed in the proportion specified. Sand shall be screened and washed if called upon to do so. Water proofing compound of directed make in directed quantities shall be added where it is water proof plaster, scaffolding shall be prepared from sound materials and shall be provided, where ever situation demands for facility of proper working.

5.4 **GAUGES**

Patch of plaster 15 x 15 cm shall be put on about 3 m apart as gauges to ensure even plastering in one place.

5.5 **FINISHING**

In any continuous face of wall, finishing treatment of any type shall be carried out

continuously and day to day breaks made to coincide with architectural breaks in order to avoid unsightly junctions. All mouldings shall be worked true to template and drawn neat, clean and level. All exposed angles, junctions and openings shall be carefully finished.

5.6 **WATERING**

All pointing work shall be kept damp continuously for a period of 14 days. To prevent excessive evaporation of the sunny and wind ward side of the building in hot, dry weather matting or gunny bags may be hung over on the outside of the plaster in the beginning and kept moist. If the contractor fails to water the work to the satisfaction of the Engineer-in-charge, the requisite labour, materials and equipment to water the work properly shall be engaged departmentally at the cost of the contractor.

5.7 Cost all scaffolding is included in the tender rate.

6. SAND FACED CEMENT PLASTER

6.1 **GENERAL**

The item shall comply with the specification B.11 in all pertinent particulars. In addition Bd.L.1.2, Bd.L 1.3, Bd.L 1.4 and the following specifications shall also be complied with.

Base Coat : The base coat plaster shall be of cement mortar 1:4. Water proofing compound of approved make like Pudlo, Sika, Accorproof shall be added according to the maker's instruction in Bd.L 2 which a thickness of 15 mm for brick work and concrete surfaces and 20 mm for rubble stone masonry. Keys shall be formed on the surface by thoroughly combing it with wavy horizontal lines about 12 mm apart and about 3 mm deep when the mortar is still plastic.

Sand Faced Treatment : The cement mortar fo sand faced plaster shall have washed Kharsalia or Kasaba or similar type of approved sand with slightly larger proportion of coarse material The proportion of cement to sand shall be 1:4. The water is added gradually to make the mixture homogeneous. The thickness of finishing coat shall not exceed 8 mm. After applications the surface should be finished with a wooden float lined with cork and tapped gently to retain a coarse surface texture. When the finishing coat has hardened the surface shall be kept moist continuously for 14 days.

Item to include relevant portion of Bd.L 1.6. it shall also be include the base coat and san face treatment of above.

Mode of Measurement and payment per Bd.L 1.7 on square meter basis

The specification lays down the requirements of applying sand faced plaster in specified thickness with cement mortar to concrete or masonry surface in specified coats. This shall conform to specification for ordinary cement plaster where ever it is not irrelevant and in addition following shall also be applicable.

Tools and accessories used in plastering work be thoroughly cleaned before plastering is done.

The programming of other building operations before during and after plastering shall be according to the instructions contained in Clause 4 of IS:1661-1960 or its latest revision. The item shall be executed as per Red book specification BdL-7 to 7.50 page No. 351)

Care shall be taken that other parts of work of adjacent work are not damaged while plastering.

The base coat plaster shall be of cement mortar of specified proportion 1:4 and thickness as mentioned in the item or otherwise, it shall be of cement mortar 1:3 and thickness 15 mm to 20 mm. The base coat shall be laid in a similar manner as stipulated in. However, instead of finishing the top surface smooth keys shall be formed on the surface thoroughly combined in with wavy horizontal lines about 12 mm apart and about 3 mm deep when the mortar is still plastic. The base coat shall be cured for suitable period as per relevant code.

7. DOORS, WINDOWS AND ROLLING SHUTTERS

The specification for this work are as per Standard Specification BD-T-2 and T-7 and as directed by Engineer-in-Charge. (The item shall be executed as per Red book specification)

8. PAINTING WHITE WASH

This item is to be executed as per Standard Specification and as directed by Engineer-in-Charge. (The item shall be executed as per Red book Specification)

9. WATER PROOFCEMENT PAINTING

9.1 **GENERAL**

This specification lays down the requirement of applying cement based paint in specified coats to concrete or masonry surface.

9.2 **MATERIALS**

Cement paint with a base of white portland cement of approved manufacture. Colour and

shade shall be used. Approved quality cement based paint shall be brought to site in original air tight containers with seal intact.

Scaffolding wherever necessary shall be provided to the entire satisfaction of the Engineer-in-Charge.

9.3 **PREPARATION**

The surface to be painted shall be cleaned of all loose dust, and dirt paints and all cracks, holes and surface defects shall be repaired with cement plaster cured and allowed to set hard. Before the panting is commenced the surface is wetted well and water is allowed to run off. Any grease, oil paint, shall be removed by approved methods.

9.4 **APPLICATION OF PAINT**

Mixing of paint and procedure of painting shall be as specified by the manufacturer when no specification are following specification shall generally apply.

The dry cement shall be thoroughly mixed with clean fresh water to produce paint of required consistency (normally that of ordinary paints). The paint shall be kept stirred and used within one hour of mixing hardened or damaged paint shall not be used. The paint shall be applied by brushes in the manner specified by the manufacturer.

The number of coats shall be specified in the wording of the item. When more than one coat is to be given the subsequent coats shall be applied after the preceding coat has thoroughly hardened, inspected and approved.

9.5 **CURING**

Each application of paint should be wetted at the end of the day with a fine water spray, depending on climatic conditions. Wetting shall be done only after an interval of at least 6 to 8 hours after the applications. In dry weather the painted surfaces shall be kept dump for at least two days and protected from direct sun.

9.6 **MODE OF MEASUREMENT AND PAYMENT**

The item includes,

a) All materials and labour for painting.
b) All equipment and scaffolding.
c) Curing as per specification
d) Non uniform colour or shade shall be rectified without any extra cost.

The item shall measured and paid in per Sqmt basis of area painted.

10. STEEL ROLLING SUTTERS

10.1 The specifications lays down requirements of providing and fixing steel rolling shutters with accessories locking arrangement top hood cover and painting in three coats of synthetic enamel paint of approved quality and shade

The specification for this work as per standard specification of Red Book - and as directed by Engineer-in-Charge.

10.2 **MATERIALS**

The rolling shutters shall conform to IS:6248:1979. Rolling shutter shall be supplied of specified type with accessories. The size of the rolling shutters shall be as specified in the drawings. The shutters shall be constructed with interlocking lathe sections foamed from cold rolled steel strips not less than 0.9 mm thick and 80 mm wide for shutters upto 3.5 m width and not less than 1.25 mm thick and 80 mm wide for shutters 3.5 m width and above unless otherwise specified. Guide channels shall be of mild steel deep channel section and or rolled pressed or built up (fabricated) jointless construction. The thickness of sheet used shall not be less than 3.15 mm.

Head cover shall be made of M.S. sheet not less than 0.9 mm thick for shutters upto 3.5 m width. For shutters having width 3.5 mm and above the thickness of M.S. sheet for the hood cover shall not be less than 1.25 mm.

The spring shall be of best quality and shall be manufactured from tested high tensile spring steel wire or strip of adequate strength to balance the shutters in all positions. The spring pipe shaft etc. shall be supported on stron M.S. or Malleable C.I. brackets the brackets shall be fixed on or under the lintel as specified with raw plugs and screws bolts etc.

The rolling shutters shall be self rolling type upto 8 Sq.mt clear area without ball bearing and upto 12 Sqm.. Clear area with ball bearing. If the rolling shutters are of larger size, then gear operated type shutters shall be used.

The locking arrangement shall be provided at the bottom of shutters at bottom ends. The shutters shall be opened from outside.

The shutters shall be complete with door suspension shafts, locking arrangements, pulling hooks, handless and other accessories.

10.3 **WORKMANSHIP**

Rolling shutters and top hood with all accessories shall be supplied of specified type and shall be got approved before fixing by the Engineer-in-Charge. The fixing shall be done in true line and level. The damaged work shall be made good to the level of original

works. The fixing work shall be done to the entire satisfaction of the Engineer-in-Charge. After the erection and fixing the rolling shutters with hood shall be painted with synthetic enamel paint in three coats. The paint shall be of approved quality and shade.

10.4 **MODE OF MEASUREMENT AND PAYMENT**

The item shall include –

a) Providing and fixing the rolling shutters of specified size, material with all accessories, locking arrangement and top hood cover.

b) Painting the same with approved synthetic enamel paint in three coats.

c) Redoing the damaged works

The item will be measured and paid in Sqmt. Basis of the shutter area.

11. PROVIDING, FIXING RSJ AND OTHER STRUCTURAL STEEL WORK For all work

The specification of the work as per standard specification Bd.C2 and the item cover fixing MS/RS girders, M.S. angle, channels, flats, base plate gusset plates, cleat, bracket etc. and other accessories as per requirement and as directed and fabricating the assembly by cutting, drilling holes etc and erecting and fixing item as site with necessary riveted or welded joints fixtures with nuts and bolts etc. wherever necessary together with their proper fixing and embedding in masonry or slabs of concrete as directed. Structural steel works materials shall be procured by the Contractor from open market at his cost. The item includes 3 coats of oil paint of shade as directed to all structural work.

All above operations including cost of materials and labour thereof are included in the tender item. The measurement and payment shall be on the weigh basis in the unit as mentioned in Schedule-B actually erected at site as directed shall be admissible for payment. RSJ channels, angles, flats, gusset plates, brackets base plate, cleats, packing pieces actual used as directed shall be admissible for payment but not the rivets, nuts and bolts etc.. the riveted or welded joints or fixing with nuts are included in the tendered rates. The specifications for this item given in Standard Specification (Red Book) published by B&C Department will be followed.

12. STRUCTURAL STEEL WORK (for pipe line, outlet arrangement and weir work only)

12.1 Requirements specified in this section will form a part of detailed specifications for items of works failing under this category. Indian Standard shall apply as if included herein. Design of structure shall be compliance with Indian Standard (IS) viz. Rivet IS:1148-1964 for bolts IS:1148-1964 and IS:800-1962 for structural fabrication IS:800-1962, etc.

PRINCIPAL ITEMS

1) Structural steel members
2) Steel joints
3) Plates and connection
4) Steel chair assembly
5) Pipe supports and hangers for piping in all locations
6) Pipe railing
7) Ladders and stairs
8) Misc. metal work for water supply and sewerage disposal installations.

12.2 **QUALITY ASSURANCE**

Unless otherwise specified all work specified herein and shown on the drawings shall conform to the applicable requirements of the following specifications and codes.

A) Fabrication and erection of structural steel shall be in accordance with IS:800-1962. (latest edition)

B) **WELDING INSPECTION**

The contractor shall perform all structural field welding under continuous inspection of a representative of the Pradhikaran. Notice will be given at least 24 hours in advance of needed inspection.

12.3 **SUB METALS**

SHOP DRAWINGS

The contractor shall submit shop drawings for approval before fabrications of any of the work. Complete fabrication details with material and specification lists showing all welds, fabrication and finish details, and shop painting will be shown with the drawing. In approving shop drawings, the owner does not assume responsibility for accuracy of the work relative to other components as constructed.

12.4 **SHOP FABRICATION**

GENERAL

A) The maximum possible fabrication on structural steel work shall be manufactured off-site in a fabrication shop.

B) Shop connections shall be welded or bolted, unless otherwise indicated.

C) In so far as possible all work shall be fitted and assembled in shop ready for erection.

12.5 **MEMBERS**

A) All members shall be free from twists, kinks, buckness or open joints.

B) All members, holes and their spacing shall be so accurately made that when assembled the parts shall cone together and bolt without distortion.

C) Parts assembled with bolts shall be in close contact, except where separators are required where unlike metals are in contact, to insulate as necessary to prevent corrosion.

D) Bolt holes will be provided to secure special items, if any, to structural members.

E) Bearing surface shall be planned to true beds. Abutting surface shall be closely fitted. Steel requiring accurate alignment shall be provided with slotted holes and/or washers for aligning the steel.

F) All materials shall delivered in the order, in which they will be required so as to avoid all delay in completion of the project.

12.6 WELDING

A) Welding in shop and field shall be done by qualified operators who have experience of similar work. The standard for welders will be as required by IS:817-1966.

B) All steel before being fabricated shall be thoroughly wire brushed, cleaned of all scale and rust and thoroughly straightened by approved methods, that will not injure the materials being worked on. Welding shall be continuous along the entire line of contact except where tack or intermittent welding is permitted. Where exposed welds shall be cleaned of flux and slag and ground smooth.

12.7 ERECTION

A) Erection shall include the installation and erection of all steel as called for in this section. The contractor shall verify correctness before starting erection.

B) As erection progresses, the work shall be securely bolted up to take care of all dead-load, wind and erection stresses.

C) No final bolting or welding shall be done until each portion of the structure has been properly aligned and plumbed.

D) Bolts shall be drawn up tight and threads set so that nuts cannot become loose.

E) **DAMAGED MEMBERS**

During erection, members which are bent, twisted or damaged shall be straightened or replaced as directed. If heating is required in straightening, a heat method shall be used, which will ensure uniform temperature throughout the entire members. Members which in the opinion of the Pradhikaran are damaged to an extent impairing appearance, strength or service ability, shall be removed and replaced with new members.

F) **ANCHOR BOLTS AND ANCHORS**

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and nuts shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately. Embedded anchor bolts that are submerged in process, water or pump room floors, or are in enclosed tanks or spaces exposed to process gas or moisture shall be of stainless steel with nuts of same material. To such stainless steel bolts, a non-oxidizing lubricant grease will be applied before bolting.

G) **BEARING PLATES**

Bearing plates shall be provided under beams and columns resting on walls or footings. Bearing plates may be attached or loose and aligned on steel wedges or shims. After the supported members have been plumbed and properly positioned and the anchor nuts tightened, the entire bearing are under the plate shall be dry packed solidly with bedding mortar. Wedges and shims shall be cut off flush with edge of bearing plate and shall be left in place.

H) **SUBSTITUTIONS**

Unless otherwise directed, the exact sections, shapes, thickness, sizes, weights and the details of construction shown for the structural steel work, shall be furnished. However the contractor, because of his stock or shop practices, may suggest change of the net area of section is not thereby reduced, if the section properties are at least equivalent and if the overall dimensions are not exceeded. All substitutions or otherwise deviations from drawings and/or specifications shall be specifically noted or 'clouded' on the shop drawing submittals.

I) **FLAME CUTTING**

Flame cutting by the use of a gas cutting torch in the field for correcting fabrication errors will not be permitted on any major member in the structural framing. The use of a flame cutting torch will be permitted only on minor members, when the members is not under stress, and only after the approval of the Pradhikaran has been obtained.

J) **STORAGE OF MATERIALS**

Structural materials, either plain or fabricated shall be stored above ground upon platforms, skids, or other supports. Materials shall be kept free from dirt, grease and other foreign matter and shall be protected for corrosion.

K) **TEST REPORTS**

Certified physical and chemical mill test reports for material used for major structural members shall be furnished. All tests shall be performed in accordance with applicable Indian Specification Standards.

12.8 MATERIALS AND WORKMANSHIP

A) STRUCTURAL STEEL AND MISCELLANEOUS METAL WORKS

i) GENERAL

This work shall include the furnishing and installation of all structural steel and miscellaneous metal work and related work including grating and grating supports, pipe hangers and supports, tanks, manhole steps, equipment guards, anchors and other appurtenances and any other shown on the drawings or herein specified. All materials shall be new, sound and of the best quality available.

ii) MATERIAL

Steel rolled sections, plates and bars shall conform to the latest editions of IS:226, 808, 1730, 1731, 1732 and 3954. Pipe used for columns or other structural purposes shall conform to IS:1161-1968. Iron for castings shall conform to IS:210.

B) STEEL JOINTS

These shall be fabricated true to size and details shown on drawings in strict conformance with requirements of reference standards.

C) COMMON BOLTS

Bolts and nuts shall conform to IS:1363-1967.

D) WELDING ELECTRODES

The electrodes shall conform to the requirements of IS:814, latest edition.

E) SHOP PAINTING

Structural steel not designated to be galvanized shall e shop coated, using priming coat of red lead as specified in painting section, of these specifications. The portion of steel to be embedded in concrete shall not be painted.

F) GALVANIZING

All metal work shown or specified to be galvanized, shall be zinc coated, as per IS:2629-1966. The zinc coating should be free from defects and shall have uniform thickness of coating.

Galvanizing coating marred or damaged during erection or fabrication shall be repaired by any approved process as directed by the Engineer.

G) SHOP PAINTING

Before leaving the shop all steel not shown or specified to be galvanized shall be given one coat of primer red lead. Final painting shall be in specified coats of approved and approved brand oil paint. The portion of steel to be embedded in concrete shall not be painted.

H) **TEST REPORTS**

Certified physical and chemical mill test reports for material used for major structural members shall be furnished by the contractor.

I) **SHOP DRAWINGS**

Five sets of shop drawings shall be submitted to the Engineer, for approval before fabrications of any of the work. In approving shop drawings, the Engineer does not assume responsibility for accuracy of the work relative to other plant components, as constructed.

J) **ANCHOR BOLTS**

Anchor bolts shall be galvanized and shall be fabricated as shown or as specified by the equipment manufacturer.

Suitable expansion bolts may be used in lieu of anchor bolts, at certain locations. It shall be the responsibility of the contractor to request the substitution and obtain the Engineer's approval, regarding type an location of expansion and bolts proposed to be used prior to pouring concrete.

K) **STEEL GRATING**

Seat angles and anchors shall be of steel, grating and support shall be galvanized. Gratings to be supplied and installed as detailed in the drawings.

L) **MECHANICAL EQUIPMENT GUARDS**

All rotating belts, pulleys and shafting shall be covered and guarded in conformity with applicable safety requirements or as directed by the Engineer.

MODE OF MEASUREMENT

This item will be calculated as per Metric Tone basis.

13. **CHEQUERED PLATE**

Plate shall be of regular quality carbon steel of the thickness shown on the drawings. The raised lugs shall be diamond shaped and have an angled and opposed pattern.

This item will be calculated as per Square meter basis.

14. **PROVIDING & FIXING SLUICE VALVES & BUTTERFLY VALVES, AIR VALVES SPECIFICATION FOR MANUFACTURE, SUPPLY AND DELIVERY OF SLUICE VALVES, BUTTERFLY VALVES**

SLUICE VALVES

These specifications cover general provisions and requirements and are supplementary to the General conditions of contract.

GENERAL

The Sluice Valves proposed to be procured through this tender are to be used for drinking water supply schemes under execution.

WORK UNDER THIS CONTRACT

The work entitled manufacture, supply and delivery of Sluice valves for transmission mains shall comprise the manufacture, supply and delivery of the goods as mentioned in the Bill of Quantities.

a)	Sluice Valves	PN 1.6 of IS: 2906:1984. of various sizes, ranging from 350 mm to 1200 mm.
b)	Sluice Valves	PN 1.6 of IS:780:1980, of various sizes, ranging from 200 mm to 300 mm.

The manufacturer of sluice valves should be from MJPs approved list

NOTE :

The above goods to be used for conveyance of potable water at temperatures varying from 10 degree centigrade to 40 degree centigrade.

The tender price shall include all labour and machinery and all materials necessary for the proper, manufacture of the goods, for tests at the contractor's works for the insurance and for delivery to works for the proper maintenance and for discharging every obligations and requirement of the contract, in accordance with the intent of the contract documents, as stated in the General Conditions of Contract.

STANDARDS

Where reference is made to a particular standard, it shall be the latest revision of the Indian Standard Institution. Unless otherwise specified, the sluice valves shall be in accordance with the provisions of IS:780:1980 and IS:2906:1984 or sizes of the sluice valves covered under relevant standards.

MARKING OF SLUICE VALVES

Each sluice valve shall be marked as per IS:780:1980, Para-II for sizes (50 mm to 300 mm) and IS:2906:1984, page: 11.1 (for sizes 350 mm to 1200 mm).

PACKING AND HANDLING

The contractor shall dispatch from the manufacturer's works goods adequately protected to prevent damage and deterioration during transportation and storage, etc. The packing is to be quite robust to withstanding rough handling during the transit by road/ rail/ sea and storage.

Each package / create will contain sluice valve of one size only in relevant class.

The packing procedure followed shall be in accordance with para 12 of IS:780:1980 and para 12.1 of IS:2906:1984

The contractor shall use proper handling equipment or follow suitable handling method as approved by the Engineer to unload the materials at the delivery site to prevent damage to the goods and equipments.

Third party inspection from agency approved by PCMC should be carried out at contractor's cost only.

The contractor should produce manufacturer's test certificate conforming that the valves have been tested in accordance with I.S. specifications, stating the actual pressure and the medium used in the test. The design workmanship, material, strength and dimensions of all parts shall be as per I.S.S. The product shall be of proven quality rendering reliable service during maintenance and requirement.

THIRD PARTY INSPECTION

Third party inspection shall be carried from the agencies appointed by PCMC central office from time to time

The valve shall be tested in factory by third party in presence of PCMC representative at least for

a. Review of martial of construction
b Overall dimension of all component
c. Hydraulic testing.

Mode of Measurement

This item will be measured and paid as per unit basis. 15% amount of this item will be withheld for hydraulic testing respectively and will be released after satisfactory hydraulic test.

PROVIDING AIR VALVES OF ALL CLASSES AND DIAMETERS.

This item includes Air valves (with IS make) and firm approved by MWSSB's letter No. 1091/33/Store/5284 dated 17.07.1992. The cost of valves should be including all taxes (Central & Local) railway freight, transportation upto site of work or departmental store.

Mode of Measurement

This item will be measured and paid as per unit basis. 15% amount of this item will be withheld for hydraulic test and will be released after satisfactory hydraulic test.

15. **HYDRAULIC TESTING OF PIPELINE :**

After the work of laying pipeline is completed and before it is commissioned, the pipeline shall be tested in the field both for its strength and leakage in the following manner.

NOTE

Whether stated specifically elsewhere or not, the testing in section of 1 km shall have to be completed within 3 months of laying and jointing.

The pipeline laid length will be divided into sections specified by Engineer-in-Charge. The contractor shall recheck pipe and valves for cleanliness and shall recheck operations of the valves. The open ends of the pipeline or sections thereof shall normally be stopped off by blank flanges or cap ends additionally secured where necessary by temporary struts and wedges. All anchor and thrust blocks must have been completed and all pipe straps and other devices intended to prevent movement of pipe must have been securely fastened. The contractor shall clean out the whole pipeline and flush it with water, so as to remove dust, dirt and any foreign matter laying in the pipeline. No separate payment for the work of cleaning will be made and the rates under various items of work include thereof.

Each valves section of the pipeline shall be subjected to hydraulic test in section. For this test, the pipe shall be slowly filled with clean water by opening cross connection with the existing mains or otherwise by pumping water into the line (water and pumping arrangement is to be arranged by contractor) as directed and all air shall be expelled from the pipeline through hydrants, air valves and blow off fixed on the pipeline. Once the pipe is full, the cross connection or pumping shall be closed. The pressure in the pipeline should then be raised in stages and built up and maintained by means of suitable approved pumps, to the specified test pressure based on the elevation of the lowest point on the line or per section under test.

The pipe line should be tested hydraulically upto required pressure as per IS specification or as per detailed specification for the Sub-Work. Before starting the pressure test, the expansion joint shall be tightened the test pressure shall be maintained for at least 24 hours. The drop in pressure shall not exceed 0.7 kg/cm2 within a period of 2 hours after the full test pressure is built-up. Under this pressure no leak or sweating shall be visible at the joints. During the test, the pipe shall be struck sharp blows with 1.5 kg hammer. Water shall not spout, ooze or sweat through any part. In case of any leak observed anywhere in the field joints whether welded or bolted, the same shall be repaired entirely at the contractor's cost which shall include repairs to welding and regunitting etc. The repaired joint shall be subjected to retest. No section shall be accepted unless it is perfectly water tight.

The entire cost of testing, retesting including cost of water taken together shall be paid under relevant item or Bill of Quantities. The contractor shall make all the arrangements for all labour, pumps, pressure gauge equipment etc. The gauges should be got tested if insisted by the Engineer-in-Charge. The contractor shall arrange for labour required for operating air valves, scour valves etc. Any labour of Pradhikaran/corporation/Corporation employed for the above activities of the test other than supervision shall charged to the contractor as per rules.

The hydraulic testing of the water main will be carried out for entire length as directed by Engineer-in-Charge. If any leakages are observed even during defects liability period due to defective workmanship, the same shall be rectified immediately. The charges of repairs if done departmentally will be recovered from the amount of retention money. Repairs on live water mains are to be carried out immediately to avoid wastage of water and other problems such as disruption of water supply and traffic etc. In view of this, it will be very difficult to give prior intimation to concerned contractor. As such the cost of repairs, being the expenditure will be recovered from the contractor's retention money withheld in deposit without giving any prior intimation. The contractor will not challenge or claim any extra for such action on the part of the Department.

Generally the contractor shall be required to test the pipe line sections of 2 km using necessary equipment. However, if the Engineer-in-Charge directs, to test full pipeline lengths in further suitable sections in the interest of the work, the tenderers will have to carry out the test in such sections as directed by Engineer-in-Charge.

Mode of Measurement

This item will be measured and paid as per km basis measured up to 3 digits.

16. REFILLING OF TRENCHES OF PIPELINE

After lowering, laying, jointing and welding of pipe line, site gunitting and concreting work, refilling of trenches with available excavated stuff shall be done.

The available excavated stuff shall be laid in layers of 15 cm to 20 cm. Each layer shall be watered and compacted before the upper layer is laid till the required level is reached. First 2 layers of 15 to 20 cms shall be free from stones or chips or any harmful material, to protect the pipe from damage.

Only soil or soft murum shall be used for filling.

Originally filling shall be done 30 to 40 cms above natural ground or road level.

Sinking below the road or ground level, if noticed till the completion of work, the contractor shall have to make it level at his cost.

This item includes,..

a) Clearing useful excavated material of rubbish bracking clods, stone, etc.
b) Conveying the useful excavated material upto 500 M and filling in layers, watering and compacting.
c) All labour, equipment and other arrangements necessary for the satisfactory completion and completion of the item.

Mode of measurement and payment of the rate shall be for a unit of 1 Cum of compacted trench filling with approved excavated material. The measurement shall be net for the compacted filing and no deduction for shrinkage or voids shall be made. However, deduction for pipe volume will be made. Depth of filling for measurement will be limited from natural ground level only. No payment will be made for filling for 30 to 40 cms above natural ground level, if so insisted by the Engineer-in-charge.

Surplus excavated material is the property of M.C. So contractor is not empowered to sell this excavated material to any other agency.

This disposal will not be considered for initial 500 M lead from edge of pipe line trenches and so will not be paid for.

The material shall be conveyed by means of suitable devices/manner.

The material conveyed to the place of disposal shall either be stocked or spread as directed by Engineer-in-charge or his representative.

The route opening and maintenance, payment of any royalties, compensation to land owners and for damaged of any etc. during the process of conveyance etc. shall be the entire responsibility of the contractor. 10% amount will be withheld till satisfactory

hydraulic testing of pipe line.

17 G.I. HAND RAILING

The item shall be executed as specified in the tender item and as shown on drawing. The vertical supports shall be properly fixed at base either in masonry or concrete by nuts and bolts duly embedded in the form, right anchorage holes in the vertical support to pass G.I. piping in it or welding to fix the G.I. pipes to supports together with M.S. cleats, etc. are included in this item. The G.I. piping shall be provided along with required specials, fixtures, fastening, etc. and G.I. piping shall be bent in circular or spiral railing pipes and shall be jointed by G.I. collar or welded as per necessity. The diameter of G.I. piping, number of rows size and type to vertical posts together with its centre to centre distance height, etc. shall be as specified in the tender item an in absence thereof as per the MJPs type design in force. The rate shall also include two coats of approved shade oil paint. Cost of all the materials which shall be procured by the Contractor, labor involved for executing this item is included in tender item. The measurements and the payment shall be on the basis of lengths in running meters occupied by the complete railing assembly in plan.

The agency should provide G.I. pipe railing having one meter height consisting 50 x 50 x 6 mm thick MS angles and vertical at 1.50 m c/c and additional post at every corner bends or curved point with three rows of 25 mm G.I. pipe of medium class variety of horizontal at 3 coats of oil paints over one coat of anti corrosive paint approved colour including cost of labour, transport, materials etc. complete

Mode of payment

The payment shall be made on running meter basis

18. TRIAL RUN OF THE SCHEME

The period of trial run is 3 month and shall start from the satisfactory commissioning of the scheme.

Daily record of raw water pumped, pure water pumped from WTP, Water reaching each ESR, Alum dose, alum consumed, turbidity, pH, chlorine dose, residual chlorine at consumer end etc. shall be maintained. All required data shall be maintained as per operation and maintenance manual of as per of CPHEEO.

Calibration chart for turbidity and chlorine dose shall be prepared.
Alum dose shall be decided by performing jar test.

Daily record of filters washed, head loss before back wash and after backwash, rate of

filtration of each filter shall be maintained.

Log book of pumping shall be maintained.

Daily record of bulk meter reading from source to ESR shall be maintained.

During operation and maintenance period all the minor repairs of plant, equipments and machinery and leakages in the network shall be rectified by agency at their own cost.

The plant, equipments and machinery shall be operated as per design capacity and parameter or else necessary deduction will be done in the bills.

During this period MSEDL Co. charges and raw water charges shall be borne by the owner.

Staff to be deployed.

1.	Supervisor
2.	Pump operator
3.	Helper to pump operator
4.	Lab Assistant
5.	Filter operator
6.	Labour
7.	Valve man
8.	Labour for distribution

A) Alum

Requirement of quantity standard for Alum (Alumino Ferric) are covered by IS:299”1989. This standard has been revised in October 1989. There are 3 grades of material grade 1 & 2 solid form and grade 3 in liquid form. Standard requirement of these grades are as given below as per amendment No.1 January 1995.

Sr. No.	Characteristic	Requirement				
		Grade-I	Grade-II			Grade-III
			Type – 1		Type -2	
1.	Insoluble matter percent mass max.	0.5		0.5		0.25
2.	Soluble iron compounds percent by mass max.	0.7		0.7		0.35

3.	Water soluble Alluminium compounds (as Al_2O_3 percentage by mass max.	16.0		15.0		7.5
4.	pH (of 5 percent aqueous solution) min.	2.7	2.7		2.3	2.7
5.	Basically as (Al_2O) percent by mass max.	-		-	0.5	-
6.	Free acidity (as H_2SO_4	-		-	0.5	-
7.	Lead as (Pb) parts per million max.	30.0		30.0		15.0
8.	Arsenic (as Al_5O_3) parts per million max.	6.0		6.0		3.0

Soluble iron compound as (Fe), percent by mass permissible for water purification purpose only shall be 1.0 for Grade-I and II 0.5 for Grade-III. The material of Grade-II can also be supplied as having free acidity (as H_2SO_4) of 0.5 percent by mass max. If required by the purchase, the pH in this case shall not less than 2.3.

B) TCL Powder.

Requirement of TCL (Stable Bleaching Powder) are covered by IS:1065:1989 (2nd revision). There are 2 grades of Bleaching Powder. Requirement of these grades are as given below.

Sr. No.	Characteristic	Requirement		Method of Test (Ref. Clause No. in Annex. A of IS: Book)
1.	Available chlorine percentage by mass minimum	34%	32%	A-2
2.	Stability, loss of chlorine on the basis of initial available chlorine	1/15	1/11	A-3
3.	Moisture Percentage by Mass max.	0.3	0.5	A-4
4.	Practical size (passing through 1.70 mm IS sieve)	99.50	99	A-5

C) **Chlorine Gas**

The quantity of liquid chlorine shall be as per IS:646:1987 (Revised)

Supply shall be made in Tonner of 900 Kg.

The arrangement to deliver the filled tonners and to collect the empty tonners from water works including loading and unloading, transportation of tonner shall be the responsibility of contractor.

The contractor shall see for themselves the fitting and the connecting facilities provide at water works for the safety point . The contractor shall be responsible for compliance of the explosive conditions as prescribed by the Government/Central Government from time to time.

Damages to the container shall be brought to the notice of the Engineer-in-Charge within 3 days from the date of receipt of the report from the supplier along with a copy of the report from the supplier.

Mode of Measurement

This item will be measured and paid as per ..... basis.

19. PROVIDING AND FIXING MANHOLES FRAME AND COVER COWL TYPE VENTILATORS

The cost of providing the above item is included in tender item. These are to be properly fixed at place and manner as directed, painting with two coats of anti-corrosive black paint is also included in this item. If locking arrangement are required they shall be done by Contractor as directed without any extra cost.

Mode of Measurement

This item will be measured and paid as per unit basis.

20. LIGHTENING CONDUCTOR

The contractor shall ensure that any structure. Must or other installation provided by him is adequately designed to minimize damage to the works from lighting strike.

Any lighting conductors shall be design in accordance with the edition of the appropriate Indian Standard Code of Practice IS:2903:1969.

Mode of measurement : Per No.

21. PENSTOCKS

Penstocks shall be of cast iron with scrapped non-ferrous sealing faces. Each penstocks shall be provided with a suitable hand wheel of adequate diameter for the easy operation and gearing shall be supplied where necessary.

Hand wheels shall have engraved on it the direction of closing which shall be ‘Clockwise’

Spindles shall have machine cut trapezoidal or square from threads. They shall be of stainless steel or manganese steel with the exception of non-threaded sections of extended spindle installations which may be of mild steel.

Head stocks and foot brackets shall be provided for non-rising spindle penstocks where necessary. Guide bracket shall be provided where necessary. Headstocks with non-rising spindle installation shall have a penstock position indicator.

Penstocks shall be watertight under the conditions of head and direction of maximum design flow.

The frames and door of cast iron penstocks shall be made from close grained gray iron. The penstocks shall be designed so as to ensure tight closure while maintaining freedom of door movement during operation and minimizing sliding wear of the sealing faces.

Mode of Measurement

This item will be measured and paid as per number basis.

22. DETAILED SPECIFICATIONS FOR MS PIPELINE

THE PIPES TO BE SUPPLIED WITH INTERNAL CLEAR DIAMETER WITH INSIDE MORTAR LINING.

1. Pipes to be supplied under this contract shall conform to IS:3589-2001, (latest version) and IS:5504 (Latest version) Indian Standard for Electric Resistance welded or seamless or spirally welded steel pipes for water, gas and sewage (subject to specific requirements given below).
2. In case supplier proposes to supply pipes to the standards superior to the above standards no weightage will be given while evaluating the bid and for payment.

Method of Manufacture	**Electric resistance welded (ERW)**
Applicable Standards (with latest edition)	
Welded or seamless steel tubes for water, gas and sewage	ISO-1977
Steel pipes and tubes for pressure purposes, carbon steel, ordinary duties	BS:3601 (Latest version)
Specification for gas line pipe	API 5L-1980
Specification for electrically welded steel pipes for water, gas and sewage.	IS:3589-2001 IS:5504 (Latest version)

Methods of sampling of steel pipes, tubes and fittings	IS:5711- (latest version)
Methods of tensile testing of steel tubes	IS:1984 (latest version)
Code of practice for laying and jointing MS pipes	IS:5822- (latest version)

23.1 INSPECTION

Inspection of MS pipe is divided in 2 parts.

Inspection during manufacturing.

a) Identification of plate/strip material for manufacturing.

b) Qualification of welding process to be used for manufacturing of pipes.

c) Qualification of welders.

d) Dimensional check before start of welding to avoid rejection at a later stage.

Inspection of ready built pipes.

23.2 SPECIFICATION FOR LAYING OF MS PIPELINE

Warped or deformed timber shall not be used for shoring. Shoring shall project atleast 150 cms above ground and shall extended the trench as approved by the Engineer. Planks shall be placed close enough to avoid any running in of sand or earth through the joints. For walling pieces round timber shall not be allowed.

Spacing of struts shall be as per the requirements of the design of shoring. The shoring material shall be of the minimum sizes as specified below unless steel sheet piling is used.

a) Planks 5 cms thick.

b) Walling Pieces 20 x 10 cms

c) Struts 20 x 15 cms

Shoring shall be removed only after the approval of the Engineer-in-Charge. In case shoring may be required to be left in trenches after confirmation that its removal is likely to cause damage to the structure or utilities etc. the same shall be left therein permanently with all accessories without any compensation or extra cost. Payment for providing shoring in square meter of area shored and leaving it in the trench in cubic meter of timber left is included in the item of excavation. Projection above ground level after attaining final depth, however, shall not be retained in any circumstances.

23.3 UNDERGROUND PIPE LAYING

GENERAL

Pipe laying shall be done as shown on the drawings or as directed by Engineer, to the

correct line and level. The Engineer, at his discretion, may change the alignment and/or levels depending on the site conditions. The minimum cover under roadway etc. where traffic is expected over the pipeline shall be 120 cm as specified in IS: 5822 (latest version). The minimum cover for pipeline along the major district road and State Highway shall generally be 1.0 m, where traffic is not expected over the pipeline. Pipes and specials to be laid underground shall be provided either with C.M. gunitting Coal tar wrapping or cement concrete encasing as specified separately as per requirement. Care shall be taken to see that while handling these pipes, the pipe and unitted portion is not damaged. The rate includes all expenses on account of labour, machinery, material etc. required for complete process of lying. No extra rate for any reason for this job will be admissible even if the process of lowering and laying of these pipes requires additional labour, machinery, materials etc. From safety point of view.

23.3.1 LAYING PROCEDURE

The contractor shall lower the pipes of standard lengths. Short length pipes shall be lowered only if found necessary and only after obtaining the permission of Engineer-in-Charge. The pipes shall be lowered in the trench on prepared bedding or concrete bedding as per the decision of Engineer-in-Charge. Pipes shall not be laid on the open rock bottom as it may damage the pipe shell on account of point loads.

The alignment and levels shall be checked by the theodolite. Cutting of pipes shall not be allowed for matching the sides of trenches excavated. While assembling the pipes the ends shall be brought close enough to leave a uniform gap not exceeding 3 mm. Marginal cutting and grinding shall be done if found necessary, for which no extra payment shall be made. There shall be no lateral displacement between pipe faces to be jointed.

When the pipe is properly assembled and checked by Engineer-in-Charge for correct line and level, it shall be firmly supported on wooden beams and wedges and then tack welded.

In the trenches where shoring is provided, care shall be taken to see that during lowering of pipes, only required struts are removed at a time with additional precautions to keep the shoring in position if necessary.

23.3.2 *SPECIAL PRECAUTIONS FOR MAINTAINING CIRCULAR SHAPE OF PIPE*

Special attention of the tenderer is drawn to the fact that the proposed pipeline is to be provided with cement mortar lining. It is therefore very necessary that the circular shape of the pipes be maintained till these pipes are mortars lined. The contractor shall provide adjustable steel struts of the approved design for this purpose. Minimum three sets of struts shall be provided per pipe length of 6 meter. They shall be retained till complete refilling is done and properly consolidated or till concrete encasing is set. Any diametric

variation beyond + 2% shall have to be rectified by the contractor at his cost, which may include, removing the section of the pipeline and relaying it along with all other ancillary operations. Providing required number of adjustable struts and all other operations involved as above shall be deemed to have been included in the item of laying and no separate payment on this account will be admissible.

23.3.3 MODE OF MEASUREMENT

The payment for MS pipe, the measurement of this will be taken on running meter basis and paid on running meter basis at the rate specified in Schedule-B. The break-up of payment shall be as under

Supply of MS pipe with inside mortar lining and third party inspection report	60% of cost mentioned in
Laying of pipes & outside wrapping of pipes	25% -- do –
Hydraulic testing of pipe line And 'C' value test of 140	15% -- do --

23.4.0 SPECIFICATIONS FOR LAYING SPECIALS

23.4.1 *GENERAL*

All specials like distance pieces, straps, tapers, saddles, branches, tees etc. shall be generally fabricated in the factory. Only small kinks or bends or saddles may be fabricated on site, care being taken to see that the length of the fabricated fitting is at least equal to the diameter of the pipe to which it is being fixed. Such fabrication of specials on site shall be done only on approval of the Engineer and as his direction. As specified earlier, only kinks or bends shall be fabricated on site by cutting the pipe faces and then welding shall be carried out as specified hereinafter and shall be paid separately.

All specials shall necessarily be in steel and shall be laid in the same manner specified in pipes section.

23.4.2 *STRAPS*

Whenever the pipe laying work proceeds from two ends and if gap between two faces is less than 30 cms., this gap shall be bridged by providing a strap. Strap shall also be

provided during fixing of expansion joints as has been specified earlier. Such strap shall be fabricated on site by cutting a piece from the pipe. This piece shall be split longitudinal and stepped over the gap. A minimum gap of 8 cm shall be kept on both the pipes to be connected and strap shall be welded with required number of fillet welds from inside and outside. The gap between the ends of straps shall be welded longitudinally butt welded.

23.4.3 DISTANCE PIECES

Distance piece shall be provided with the gap between the pipe faces to be jointed is more than 30 cms measured in the evening. Distance pieces shall be cut from the pipe pieces on site or can be cut in factory. These will be measured and paid for laying as specials

23.4.4 TAPERS AND BENDS ETC.

These shall be fabricated in the factory and shall be welded on site as per requirements. Laying of tapers shall be paid for laying as specials for the diameter in the larger size. Bends shall be measured along the mean length and paid for in the respective items of Bill of Quantities.

23.4.5 MODE OF MEASUREMENT

The MS specials including all above described will be paid on weight basis in Kg. Unit on supply, while lowering, laying of specials will be paid as mentioned in Schedule-B. However, 15% of the amount of lowering, laying will be withheld till satisfactory hydraulic testing of pipe line is given.

23.5. WELDING JOINTS

23.5.1 GENERAL

Before aligning, assembling and welding the pipe faces shall be cleared by scraping with wire brushes or by any other method approved by the Engineer. Welding of pipes in field shall conform to ISS:816-1969 (code of practice for use of metal arc welding for general construction in Mild Steel). In case of variance, specifications hereunder shall have precedence.

Welder shall be qualified, experienced and approved by the Engineer-in-Charge to do the welding at the locations welding shall not be allowed to be done by helpers. Contractor shall remove such of the welders form the job, whose work is not found to be satisfactory. The Engineer may ask them to do test welding before approving their employment on the job.

The contractor shall keep record of the welding for each circumferential joint. It shall contain the name of the Welder, Operator and Date of Completion of such run of internal and external welding.

23.5.2 GOUSING AND CHIPPING

MS Pipes of diameter larger than 1016 mm shall be welded with two number of runs from inside and a sealing run from outside. External sealing run shall be done only after internal welding is completed. Before starting the external welding the weld material in the joint shall be cleaned by clipping out loose scales. Gousing shall be done before rectification of any defective welding wherever necessary and as directed by the Engineer. Gousing or chipping shall not be paid for separately and the rate for welding shall be deemed to include the cost of gousing

23.5.3 ELECTRODES

Welding electrodes to be used for welding in this contract shall conform the Indian Standard Specifications ISS:814-1971 (Specification for covered electrodes for metal arc welding of Mild Steel)

The contractor shall use standard electrodes depending on the thickness of the plates to be welded and the type of joint. The contractor shall also use standard current and A.C. voltage required for the machine as per manufacture's directions.

23.5.4 TYPES OF WELDED JOINTS

The circumferential joints of the pipes shall be butt welded with required number of runs externally and internally.

All fillet welds shall have a throat thickness not less than 0.7 times the thickness of the pipe to be welded.

23.6.0 WELDING PROCEDURE

All parts of pipes, specials, etc. shall have all loose scale, slag, rust, paint and any other foreign material shall be removed with wire brush and left clean and dry. All scale and slag shall be removed from each run of weld when that run is completed.

Openings in the form of manholes in the laid pipeline at suitable distance of access for the work of cleaning, repairs etc. Such manholes, as far as possible shall be provided on sides of the pipe line and cutting manholes at the crown shall be strictly avoided.

Patch Plates for plugging the above manholes shall be cut from a separate pipe of the

same diameter. Edges of the patch plate shall be properly shaped and shall be inserted in the opening leaving a gap of 3 to 4 mm and tacked. Welding of patch plate shall be done in segments in a proper sequence conforming to Indian Standard Specifications IS : 823

23.6.1. TESTING OF WELDED JOINTS :

Welded joints shall be tested in accordance with procedure laid down in Indian Standard Specifications (IS : 3600, Part I –1985 of procedure for Testing Fusion welded joints and weld metals in steel)

At least one test specimen shall be taken out for testing for every fifty field joints done. Test pieces shall be taken out from the places pointed out by the Engineer. These shall be machined and tested early as possible. The shape of the test pieces removed for testing shall be such that it shall be such that it shall give the specimen of the required dimensions with the weld in the middle of the specimen and at the same time leave the holes in the pipe with rounded corner. This hole shall be patched with a plate of suitable size cut from a separate pipe of same diameter. It must ensure good butt weld.

23.6.1.1 TENSILE TEST

The test specimen taken perpendicularly across the weld shall be shaped in accordance with Indian Standard Specifications IS:223. The tension test specimen shall be machined. The protruding welded portion from inside as well as outside shall be machined. The protruding welded portion from inside as well as outside shall be removed by machining before the specimen is tested.

If the specimen shows defective machining or develops flaws not associated with welding, It shall be discarded and another specimen substituted. The welded joint shall show a strength not less than the minimum tensile strength for the plate in accordance with ISS:226

23.6.1.2 BEND TEST

Bend Test specimen shall also be prepared in the same fashion as the tensile test specimen. The specimen shall stand being bent cold 180o around a pin that has a diameter equal to 4.5 times the plate thickness, without developing cracks. For this test face representing inside of the pipe shall be placed next to the pin.

23.6.1.3 TRE-PANNED PLUG :

Tre-Panned plugs shall be taken out from any welded portion as pointed out by the

Engineer. These plugs shall not show any defect in welding such as inclusion of slag, blow holes cavities, etc. the plug shall be 12 mm in dia and shall be taken out by means of suitable electrically operated holes. Such holes in the pipe shall either be filled back by inserting a steel stud and welding around or threading the hole and providing suitable G.I. plug. This test shall be done only if considered necessary by the Engineer.

23.6.1.4 PROCEDURE OF FAILURE OF TEST SPECIMEN

If the test fails in either tensile or bend test or in both, two additional test specimen shall be taken out from the section and shall be tested for tensile and bend tests. If any one of them fails, extensive gousing and rewelding shall be done for the welded joints in that section to the full satisfaction of the Engineer. However, if both the samples give satisfactory results, the joint form which the original sample was taken and had failed shall be repaired to the satisfaction fo the Engineer by gousing and welding etc. at contractor's cost. Welder who has done the welding of the joint that has failed shall be solely held responsible for bad workmanship and failure. Since all other factors like electrodes, current, arc voltage etc. are already controlled, on negligence on the part of the welder only is responsible for such failure. For first such failure the welder shall be warned and if the welded joint done by him fails for the second time, he shall be removed from the job.

23.6.1.5 MEASUREMENT AND PAYMENT

Welding shall be paid in linear meter of welding done including the required number of runs. The welding shall be paid for in the relevant item of welding butt joint or lap joint in respective items in the Bill of Quantities and Rates. The rate shall include providing all labour, material and welding machinery including all ancillary preparations and testing, repairing retesting, gousing etc. complete in all positions and circumstances prevailing in site. No extra payment on any account whatsoever may be admissible to contractor 10% of the amount under this item will be withheld till the satisfactory hydraulic testing is given.

23.7 GAS CUTTING

23.7.1 GENERAL

Gas cutting of MS Pipes may require to be adopted on site for fabrication of bends on site or for preparing distance pieces, straps etc. and for cutting holes in pieces for manholes, branches scour valves, Air Valves and other appurtenances and temporary manholes for cleaning welding etc..

After gas cutting the edges shall be made smooth and even so as to remove all the equalities ends of the pipe shall have 'V' edge from in side.

23.6.2 MEASUREMENT AND PAYMENT

Gas cutting shall be measure in linear meters of gas cutting done and shall be paid for in this item and rates shall include all labour materials and machinery for gas cutting irrespective of any circumstances, shall ancillary preparation and including chamfering the ends to form 'V' edges.

23.7.0 PROVIDING, FABRICATING AND TRANSPORTATION OF M.S SPECIALS

23.7.1 *SCOPE*

The scope or special specification shall cover the following works under the contract. Fabrication MS plates for specials for road crossing works, expansion joints and testing, etc. at the contractor's factory and testing the pipes.

These specials (detailed hereafter) specifications, supplement, standard specifications for civil construction works prepared by the Maharashtra Jeevan Pradhikaran for Maharashtra Jeevan Pradhikaran.

23.7.2 DRAWINGS

Working drawings shall have to be prepared by the contractor taking into consideration the sizes and lengths of the MS plates, flats, etc. The contractor shall have no claim by whatever reason of sizes of material issued being different from those shown in the drawings, in case supplied by the Maharashtra Jeevan Pradhikaran to the contractor.

23.7.3 SUPPLY OF MATERIALS TO THE CONTRACTOR:

The Pradhikaran will not supply MS Materials such as plates, flats etc. required for the fabrication of pipes, specials, appurtenances, etc.

The conveyance of fabricated materials from workshop to site of work shall be deemed to have been covered in the relevant items of fabrication of pipes, specials etc. The contractor should note that the steel plates and other structural steel required for fabrication of specials is to be procured by him from open market at his cost. The contractor has to procure such plates in several stages as the circumstances demand, or, as directed by Engineer-in-Charge.

The Pradhikaran shall not however supply any steel or structural steel to the contractor for his use for preparing jigs, testing arrangements, platforms etc. in the factory or in the field. The contractor shall have to make his own arrangements for procuring them at his own cost immediately or receipt of work order and the Pradhikaran shall not entertain any request for extension of completion period of compensation on increase in cost etc.

23.7.4 *HYDRAULIC TESTING OF FABRICATED PIPES*

The pipe length fabricated shall be as specified earlier above. The contractor shall

provide all the required machines and apparatus for testing all the pipes at the factory. The arrangements made by the contractor for hydraulic testing of pipes shall be subject to the approval by the Engineer. The contractor shall paint inside the serial number of pipe, the diameter and the plate thickness and letters MJP as well as the date of the test etc. as directed by the Engineer. The pipes shall be inspected thoroughly before testing for any apparent defect in welding and the contractor shall repair such defects by gousing and rewelding. Such pipes will be laid only on approval of the Engineer-in-Charge. Necessary provisions for storage tank for water for testing water pumping arrangements, if necessary and making available the required water shall be made by the contractor. Hydraulic test shall be carried out under cover at the fabrication in the presence of and to the satisfaction of the Engineer-in-Charge or his authorized representative.

Accurate pressure gauge of approved make shall be mounted on one end of the pipe to indicate the pressure inside the pipe being tested. The Engineer at his discretion may accept untested pipes if the total length of fabricated pipes of that particular dia. is less than 50 meters.

The pressure shall be applied gradually by approved means and shall be maintained at least for 10 minutes or till inspection by EIL and Engineer-in-Charge during which time, the pipes be hammered throughout its length with sharp blows with 1 kg. Hand hammer. The pipe shall stand the test without showing any sign of weakness, leakage, oozing or sweating. If any leakage is observed, on approval of Engineer-in-Charge, it shall be repaired by gousing and rewelding or as directed by him. No separate/additional payment shall be made for dewatering, gousing, repairing and dewatering and the handling required to be done for such pipes.

23.7.5 HYDRAULIC TESTING OF PIPE LINE

The working pressure shall be not less than 12 kg/cm2. The drop in pressure shall not exceed 0.7 kg/cm2 within a period of 2 hours after the full test pressure is built-up. Under this pressure no leak or sweating shall be visible at the welded joints. During the test, the pipe shall be struck sharp blows with 1.5 kg hammer. Water shall not spout, ooze or sweat through any part. In case of any leak observed anywhere in the field joints whether welded or bolted, the same shall be repaired entirely at the contractor's cost which shall include repairs to welding and regunitting etc. The repaired joint shall be subjected to retest. No section shall be accepted unless it is perfectly water tight.

The entire cost of testing, retesting including cost of water taken together shall be paid under relevant item or Bill of Quantities. The contractor shall make all the arrangements for all labour, pumps, pressure gauge equipment etc. The gauges should be got tested if insisted by the Engineer-in-Charge. The contractor shall arrange for labour required for

operating air valves, scour valves etc. Any labour of Pradhikaran employed for the above activities of the test other than supervision shall charged to the contractor as per rules.

The hydraulic testing of the leading main will be carried out for entire length or part of it as directed by Engineer-in-Charge. If any leakages are observed even during defects liability period due to defective workmanship, the same shall be rectified immediately.

The charges of repairs if done departmentally will be recovered from the amount of retention money. Repairs on live water mains are to be carried out immediately to avoid wastage of water and other problems such as disruption of water supply and traffic etc. In view of this, it will be very difficult to give prior intimation to concerned contractor. As such the cost of repairs, being the expenditure will be recovered from the contractor's retention money withheld in deposit without giving any prior intimation. The contractor will not challenge or claim any extra for such action on the part of the Department. Generally the contractor shall be required to test the pipe line sections of 1 km using necessary equipment. However, if the Engineer-in-Charge directs, to test full pipeline lengths in further suitable sections in the interest of the work, the tenderers will have to carry out the test in such sections as directed by Engineer-in-Charge.

23.7.6 ***MODE OF PAYMENT AND UNIT OF MEASUREMENT***

The payment shall be on Rmt basis

24. PROVIDING AND SUPPLYING DI/CI/MS SPECIALS

The items include providing ,supplying DI/CI/MS Double flanged specials suitable for diameter as required and of required thickness and including all materials labour charges with epoxy paint from inside and outside including all taxes (Central & local) Octori if necessary, inspection charges, transportation to stores/ sites & stacking etc complete. As per requirement a machine ends DI specials suitable for PCCP/BWSC/D.I .pipes will also be supplied under this item. The mode of measurement of payment shall be on weight (Kg) basis.

Scope: The item cover supply of DI/CI/MS double socket and flanged all types of specials of various diameters including conveyance of specials form manufacture's works to site stores, stacking them properly and protecting till commissioning of work. ***General:*** The specials

shall confirm to relevant I.S.S.

Materials: The specials shall be manufactured form cast iron conforming to IS 210 Gr. 20.

Coating: The specials shall be coated by bitumen by not dipping process.

Tests: The specials shall be tested at factory for 25 kg/sq/cm/ Pressure.

Flanges: The flanges shall be drilled to IS-1538.

Tolerance: The tolerance in weight and dimensions shall be as per ISS. Only the specials fitting within tolerance limit shall be accepted.

25.1 ***DISMANTLING JOINTS***

Providing and fixing Dismantling joints

Providing dismantling joints of appropriate diameter of M.S.as per detailed drawing suitable for PCCP pipes including epoxy coating of approved make from inside, outside, transportation, loading, unloading octroi, inspection charges as per directions from Engineer-in-charge etc.

25.2 MODE OF MEASUREMENT

Diameter wise on No.& kg basis.

25.3 PERMANENT TEST POINTS

Providing permanent test points on the pipe line as per drawing and as directed by Engineer In Charge including providing and fixing sluice valves road box for sluice valve of Size 80mm to 250mm in one brick masonry chamber 300mm x 300mm clear C.M 1:5 with 12 mm thick 1:3 cement plaster both inside and outside on M -100 C.C 150mm thick etc complete as specified & directed.

25.4 MODE OF MEASUREMENT

On No. & kg basis

25.5 ***GAS CUTTING HOLES***

Gas cutting holes up to 50 mm dia (for plugs) (either square Cut of ‘V’ cut) to pipe, plates etc. of required thickness including cost of Gas, tools, machinery, conveyance of labour and machinery etc. complete and as directed by Engineer-in-Charge..

25.6 MODE OF MEASUREMENT

On rmt basis

25.7 ALL CAST IRON SPECIALS

Material

All Cast iron specials such as C.I. detachable joints shall conform to I.S. 1538- 1993 (Part 1 to 24). The Supply at departmental stores shall be of various diameters as specified. The specials shall be free from any defects. It should be possible to cut/drill the special to suit site condition to fit in the position. The hardness of the external surface shall not exceed 210 HBS. Rings shall conform to IS 5382- 1985. Ring shall be homogeneous and free from porosity, grit and surface defects ,such as pitting, irregularities. Dimension of rings shall be as per IS 10292-1988.

25.7.1 MANUFACTURE :

The dimensions of flanged sockets and flanged spigots shall be as per Tables 7 & 8 of IS 1538-1993, respectively. Supply and Stacking at Departmental Store or Work Site : As specified under the agreement.

Markings :

Each fitting shall have cast stamped or indelibly painted on it the following markings :

1. Manufacturer's Name or trademark or identification mark.
2. The nominal diameter,
3. Mass of fitting,
4. Last 2 digits of year of manufacture,
5. Any other mark required by the purchaser.

Item to Include:

The item includes the supply of Cast Iron detachable joints, including all taxes, levies excluding octroi, transporting, loading, unloading and stacking at departmental store or work site as directed. The necessary test certificate also shall be provided along with the supply. Octroi paid shall be reimbursed on producing documentary evidence for the payment made.

25.7.2 MODE OF MEASUREMENT AND PAYMENT :

The item shall be measured as number of sets for the specified diameter of pipe. The rate shall be for supply of one number of detachable joint of specified diameter.

25.7.3 CAST IRON JIFFY COLLAR COUPLING WITH RINGS

The item provides to supply at departmental store the Cast Iron jiffy collar coupling with rings etc. complete as per the specified diameter of pipe / pipes. (Dia. between 80 mm & 750 mm). The joints shall conform the provisions of IS: 1538-1993 and IS 5382-1985.

25.7.4 MATERIAL

All Cast iron specials such as C.I. mechanical compression collar coupling shall confirm to I.S. 1538- 1993 (Part 1 to 24). The Supply at departmental stores shall be of various diameters as specified in supply order. The specials shall be free from any defects. It should be possible to cut it drill the special to suit the site condition and fit in position etc. The hardness of the external surface shall not exceed 210 HBS. Sealing Rings shall confirm to IS 5382-1985. Ring shall be homogeneous and free from porosity, grit and surface defects, such as pitting, irregularities. Dimension of rings shall be as per IS 10292- 1988.

Manufacture:

Generally as per item WS/B/2.3. The dimensions of jiffy collar coupling shall be as per Table 9 IS 1538-1993.

Supply and Stacking at Departmental Store :

Specified under agreement.

Markings:

Each fitting shall have cast stamped or indelibly painted on it the following markings:

Manufacturer's Name or trademark or identification mark.

The nominal diameter,

Mass of fitting,

Last 2 digits of year of manufacture,

Any other mark required by the purchaser

Item to Include :

The item includes the supply of Cast Iron jiffy collar coupling, including all taxes, levies excluding octroi, transporting, loading, unloading and stacking at departmental store or work site as directed. The necessary test certificate also shall be provided along with the supply. Octroi paid shall be reimbursed on producing documentary evidence of payment made.

25.7.5 MODE OF MEASUREMENT AND PAYMENT:

The item shall be measured as numbers of collar couplings for the specified diameter of pipe. The measurement and payment shall be per No.

25.7.6 Flat rubber gaskets.

The item provides to supply at departmental store the flat rubber gaskets for flanged joints. Following two types of rubber gaskets, depending upon the hardness of rubber ay be supplied as specified in the supply order:

1. Type A: 50 to 65 Hardness in IRHD and

2. Type B: 65 to 80 Hardness in IRHD.
   In each of two types, 2 Grades, Grade 1 & 2 are again prescribed.

Material:

The rubber gaskets shall be manufactured from either a) Sheet Rubber or b) Sheet Rubber reinforced with fabric (Rubber insertion jointing). For manufacturing rubber gaskets, natural rubber or synthetic rubber or a blend thereof, shall be used, with suitable composition and vulcanization to attain the required degree of hardness.

The fabric for rubber insertion jointing shall have a minimum breaking strength of 120 N/mm2,under test conditions according to IS: 1969- 1968.

Manufacture:

The rubber gaskets shall be free from porosity, grit and surface defects such as pitting and irregularities. The rubber shall be homogeneous. The manufacturing of sheet rubber and rubber insertion jointing shall be in accordance with the IS: 638-1979. The thickness and number of fabric plies shall be as per the IS. Unless mentioned in the supply order the size of each rubber sheet shall have suitable bolt holes conforming to IS 1538-1993, for the pipe diameter specified in the order.

Supply and Stacking at Departmental Store:

As specified under agreement.

Markings:

Each piece of rubber sheet jointing or rubber insertion jointing shall be marked with the following:

1. The name of manufacturer or the Trade Mark,
2. Type, Grade and Thickness,
3. Month and Year of manufacture,
4. Any other Marking as specified in the purchase order Item to Include:
   The item includes the supply of flat rubber gasket at departmental store, suitable for flanged joints (3/6 mm thick) with bolt holes and nominal bore, pitch circle diameter as per IS: 1538- 1993 and gasket as per IS: 638-1979, including all taxes, levies except octroi, transporting, loading, unloading and stacking at departmental store as directed. The necessary test certificate also shall be provided along with the supply. Octroi paid shall be reimbursed on producing documentary evidence for the payment made. Mode of Measurement and Payment:

26. ***LOWERING, LAYING AND JOINTING DI PIPES OF GIVEN DIAMETER AND CLASS***

Contractor shall take delivery of pipes from the stores and shall convey them upto work site for use after checking and testing for soundness of the pipes and shall be held responsible for replacement of such materials of cracked or damaged materials are in advertantly fixed and jointed.

Municipal Corporation will issue pipes in available lengths and specials. Damages to Corporation materials due to carelessness of the contractor during loading, unloading, transport, lowering, laying, cutting to required size, jointing, testing, etc. shall be at contractor's accounts and shall be recovered from him at the rates decided by the Executive Engineer in-charge

During laying the pipe line some time it may be necessary to cut the pipe suit the site condition or to put in some special or valve or to have exact length of the section etc. The contractor at his cost shall do this cutting only. No claims for extra amount due to any particular type or individual length of cut pipes and specials being supplied or joints having been increased due to small lengths shall be entertained.

The payment for this item shall be admissible on the basis of actually laid at site including length occupied by all types of specials and incidental small pipe pieces or other types.

All the pipes and specials and valves to be taken into use shall be cleaned and brushed clear or rust and paint at both the spigot and socket ends.

Before the pipes and specials are lowered and laid in trenches, the contractor shall see that the bedding is plane or the surface is brought to uniform grade and leveled with the help of cross sight rails and boning staff and approved in advance by the last 3 days by the Engineer-in-charge.

The contractor shall provide, fix and maintain cross sight rails and boning staff whenever required until the time of completion without any extra claim for cost etc. and which shall be considered inclusive of the rates for excavation and lowering and laying. The contractor shall provide temporary benchmarks if called upon at a minimum distance every 150 M without any claim for extra cost. These benchmarks shall be either of stone masonry or mass concrete not less than 0.03 Cum.

The contractor shall provide ladder for inspection of works at least 2 Nos. at the time of inspection for all the trenches of depth greater than 1.2 M.

The pipes, specials and valves shall be lowered by means of ropes, rackles or pulley as ordered evenly and uniformly and shall be brought level with well consolidated hard

murum or wooden sleeper as ordered.

All the S & S pipes and specials shall be laid with sockets facing direction of flow, as per manual.

Materials to be used for jointing such as spun yarn, etc. shall be first get approved in advance from the Engineer-in-charge.

No jointing operations shall be started unless the Engineer-in-charge approves the grade and levels.

The pipes shall be laid in a complete straight line with center line ranged accurately by mean of string stretched between marked centers in cross sight rails and no deviation will be permissible without the permission of the Engineer-in-charge. For deviations proposed by the Department from marks on sight rails, the contractor shall postpone the work of jointing without claiming extra cost. The spigot end of the pipe or specials shall be inserted in socket and of the other pipe or special and shall touch squarely without any gap.

Under no circumstances, the D.I. pipes and other water mains will be laid in black cotton soil or rock surface without murum cushioning.

The above murum cushioning of a depth of 150 mm thick or as specified shall always be provided in all formation within the rate of laying pipe line unless an item for murum bedding is provided for separately in the tender.

The murum bedding shall be of the full width of the trench. Murum bedding will be necessary in rock formation boulder formation and soft soils and black cotton soil but not in murum formation itself.
No brickbats or hard stone metal bigger than 20 mm gauge shall be allowed beneath the pipe line directly in touch with the pipe as in the murum bedding.

All stokes such as electric wires, water and sewer mains, manhole, natural drainage, culverts, storm water drains, gutters, poles, etc. coming in the way shall carefully be looked after and any damage be prevented to the same. Any work of removing repairing and reducing such structures or obstacles in the process of laying, jointing and testing pipe line etc. should be carried out by the contractor wherever directed, without any claims for extra to the satisfaction of the Engineer-in-charge. Contractor shall foresee all such situation and make necessary arrangement to overcome those in advance.

The contractor shall not be allowed, any wastage and breakage in pipes brought by him. For pipes issued departmentally, the total length of pipes laid and that returned to stores in cracked or unused conditions shall coincide with total length is used. The cost of pipes etc. cracked due to fault of contractor beyond the above permissible limit shall be recovered from him. All waste and broken pipe pieces shall be returned by the contractor to the store of issue at no extra cost. The contractor shall keep an upto date account of pipes, specials and valves etc. issued him free of cost showing quantity received vide unstamped receipt No. and date, quantity used giving chainages as and balance at hand and returned (supported by acknowledgements signed by the Engineer-in-charge) failing which the Engineer-in-charge shall reserve the right to keep final bill pending till this account is finalized and contractor shall not claim any compensation in that case for delay in settlement of final bill.
Pipes shall be laid in reasonably dry trenches. Under no circumstances pipes shall be laid in slushy, marshy or water logged and filled up or yielding strata before getting it inspected from Engineer-in-charge and providing proper foundations.

Contractor shall make his own arrangements for obtaining permission for stacking or pipes etc. on the road from land Owners whether it is belonging to any other Government Department or Municipal or Local Bodies or Private Land Owners.

For crossing obstacles natural or built up such as culverts, drains, gutters, cables, pipline, poles etc. contractor shall approach respective authorities obtain permission for crossing them immediately at the time limit of acceptance of the tender and shall take into consideration all such difficulties for the time limit allowed for execution and completion of the work. Any such work left remaining to be carried out due to want of the tender without any claim for extra cost or compensation due to non receipt of permission or any other natural or unforced and until the date of completion of the work shall be treated as incomplete. contractor shall also not claim compensation if work is delayed on account of permission for road crossing etc. not being received in time.

Before the work of laying pipe line is started the contractor shall see that all pipes are stacked length wise above the trench between road fencing in sufficient number and without causing any construction to the traffic.

Necessary road diversion as directed shall be provided without any extra claims by the contractor for excavation the roads till completion of work, so that the traffic shall not be hampered. Necessary guide stones duly painted with white wash shall be provided on both sides of temporary diversions. Necessary sign boards, indicating diversions and road closed etc. shall be provided at prominent places alongwith red flags and red letters at night time and maintained till the crossing work is over and road opened for traffic. The

diversion shall be removed after road surfaces are brought to original condition. Necessary storing planks for crossing the trenches shall be provided on the open trenches in the towns and wherever required without claiming extra cost.

The contractor shall take utmost care in laying the pipe line alongwith roads and in towns in order to avoid accidents to human life and animal.

26.1 JOINTING OF PIPES

All the jointing work shall be carried out by the contractor after giving written due intimation in advance at least for 4 days before jointing operation starts and laid pipes are approved for grade and cleaned of all inside waste material such as mud etc. and in presence of responsible Government Servant not below the rank of Junior Engineer. Unless otherwise mentioned in the wording of the item in Schedule 'B' of the tender all labour and materials required for jointing (depending upon the type of joint mentioned in item) such as lead, spunyarn, grease, oil, SBR quality rubber rings and gaskets, cement, sand, water, fire wood, nut-bolts, washers, rubber packing, RCC collars, etc. shall be Produced and used by the contractor at his cost. All the materials to be used for jointing should be first got approved from the Engineer-in-charge.

No extra claims or compensation will be admitted for items of laying pipes etc. If the pipes are required to be laid upto a depth not greater than 3 times the maximum depth shown in the sectioned longitudinal sectional drawings or estimate so also no compensation shall be paid if class of pipes to be laid is changed during execution.

If the lines are laid in separate detached sections and not continuous length due to any of the reasons such as non availability of specials or due to obstacles etc. contractor shall see that no end of any pipe length is kept open even temporarily and that all open ends are immediately covered up either by suitable blank flange or cap, plug or by means of a double layer gunny cloth tied properly by means of mild steel wires and without any claim for extra cost or compensation.

The contractor shall take utmost precautions to see that no extraneous matters such as lead, stones, brick bats or animals such as rats, reptiles are allowed any access into the pipe line and in case of their existence being detected in the pipe line, the contractor shall remove them by means of rodding etc. to the complete satisfaction of the Engineer-in-charge, without any claim for extra cost.

No extra cost will be allowed to fixing of specials and other accessories such as valves, washouts, etc. unless provided for separately in the tender. So also no extra cost will be paid for cutting the pipes and specials as and where required for negotiation of bend or fixing valve, branch tee or achieving exact length of the line etc. The cutting operation

shall be carried out preferably by means of standard pipe cutter or hacksaw unless cutting by chisel and hammer is allowed by the Engineer-in-charge. The end of pipe to be used for gasket joint shall be chamfered by means of file and made perfectly true or like original chamfered and if portion of pipe or specials is damaged rendered use less due to careless cutting of the contractor the cost of the damaged portion as decided by the Executive Engineer will be recovered from the contractor.

Insertion of gaskets shall be done by proper application of a thin film of lubricant (Vegetable oil only) to the butt seating inside the socket. The gasket shall be wiped clean, fixed and then the socket with the bulb towards the back of the socket. The groove in the socket must be located on the retaining board in the socket and retaining hole of the gasket firmly bedded in the seating. Contractor shall ensure to the satisfaction of the Sub-Divisional Officer that the gasket fits evenly around the full circumference removing any bulges which would prevent the proper entry of the spigot and for large diameter this operation should be assisted by forming a second loop in the gasket opposite to the first and then pressing the loops flat one after the other.

The thin film of lubricant (Vegetable oil only) shall be applied to the inside surface of gasket which will be in contact with the entering spigot. A thin film of lubricant shall be also applied to the outside surface of the entering spigot for a distance of 25 mm from pigot end. The pipeline to be jointed should be supported centrally by the tackle used for laying and balance just clear of the trench bottom. The spigot of the pipe must be aligned and entered carefully into the adjacent socket until it makes contact with the gasket. Final assembly of the joint is completed from this position.

The spigot end of the entering pipe shall be compressed until it reaches the bottom of the socket. If the assembly is not completed with reasonable force, the spigot end shall be removed and the position of the gasket examined and then the assembly is refitted properly to the satisfaction of the Engineer-in-charge. The work shall generally be carried out as per instructions given in manufacturer's pamplets. All the tools and tackles required for jointing, such as rack and layer 3 mm dia, 5 m long wire rope with thimble, hook and rope adjuster should be procured by the contractor at his own cost.

The item includes all other necessary materials including rings, etc. and labour.

26.2 HYDRAULIC TESTING

The pipeline and valves should be tested hydraulically upto the required pressure as per IS satisfactorily and all the leakages if any should be repaired at the time of hydraulic esting. The 25% amount of the lowering, laying and jointing of pipeline shall be released after satisfactory hydraulic testing. Contractor should make his own arrangements at his

own cost for water for hydraulic testing of pipeline. He should not rely upon completion of any other sub-works for such testing.

26.3 MODE OF MEASUREMENT

The item will be measured and paid on the Running Meter basis. The 15% payment will be with held for till satisfactory hydraulic testing is given.

27. HDPE Pipes

The specifications for HDPE pipes of various diameters are confirming to I.S.4984 – 1995.

Grade of Raw Material

Raw material used to manufacture the HDPE pipes shall be pre compounded at manufacturing stage. PE 100 is resin proposed to be used for manufacturing of the pipes.

General :-

1) The material used for the manufacturer of pipe should not constitute toxic hazard, should not support microbial growth and should not give rise to unpleasant taste and odour or discoloration of water. Pipe manufacturer shall obtain a certificate to this effect from the manufacturer of raw material.

2) High density polyethylene (HDPE) used for the manufacture to designation PEEWA – 45 – T – 006 of IS 7328 : 1992. HDPE conforming PEEWA – 45 – T012 of IS 7328 : 1992 may also be used with exception that met flow rating (MTR) shall not exceed 1.10 g/10 minutes – In addition the material shall also conform to 5.6.2 of IS 7328 : 1992.

3) The specified base density shall be 946.5 Kg/m³ and 946.4 Kg/m³ (Both inclusive) when determined at 27^0 C according to procedure prescribed in IS 7328 : 1992.The value of the density shall also not differ than 3 Kg/m³

4) The melting flow rating (MFR) shall be between 0.41 and 1.10 (both inclusive) when tested at 190^0 C with nominal load of 5 Kg & as determined by method prescribed in 7 of IS 2530 : 1963. The MFR of the material shall also be within 20% of the value declared by the manufacturer.

5) The resin shall be compounded with carbon black. The carbon black content in the material shall be within 2.5 0.5% and dispersion of carbon black shall be satisfactory when tested according to the procedure described in IS 2530 : 1963.

6) The percentage of the antioxidant used shall not be more than 0.3 percent by mass of finished resin.

Quality Assurance Certificate

Quality assurance certificate for the raw material proposed to be used for the project, from one of the certifying agencies such as Bodycoat or Slevan or Advantica or any other internationally reputed organization shall be submitted along with the supply.

The manufacturer should submit the above raw material certificates for proposed grade of material PE – 100 at time of supply of pipe.

Contractor shall submit the following Certificates from the manufacturer.

Pressure Rating

The pressure rating of HDPE pipes and specials shall be confirming to I.S. 4984-1995 for 10 Kg/cm² (working pressure) for material grade PE 100.

Colour of pipes

The Colour of the HDPE pipe shall be as specified in IS code is black. The pipe shall be designed for the temperature of 45^0 C maximum.

Reworked material.

The addition not more than 10% of the manufacturer's own rework material resulting from the manufacturer of pipes is only permissible.

Dimensions

The pipe dimensions shall be as per latest revisions and amendment of specified in standards IS 4984-1995. The pipes shall be supplied in straight lengths of 20 m. Short length of 3 m (Min) upto maximum of 10% of total supply will be permitted.

The internal diameter, wall thickness, length and other dimensions of pipes shall be as per relevant clauses given in IS 4984 applicable, for different class of pipes. Each pipe shall be of uniform thickness throughout its length.

The dimension to tolerances shall be as per specified I.S. standards.

Performance requirements

The pipe supplied should have passed the acceptance tests as per clause given in specified IS standards. The manufacturer should provide the test certificates for the tests conducted, as required in specified standards along with the supply of pipes. These acceptance tests can be performed in the in house laboratory of the pipe manufacturing factory of the successful Contractor. Also, PCMC will witness the manufacturing process of the pipes and then approve the dispatch before which the pipes will not be supplied on site. Third party inspection shall be carried out by the approved agencies of PCMC and

they shall submit their report to the Department, after supply of pipe at site. Then only it can be measured and recommended for further payment.

Marking

As per the provisions of clause given in specified standards each straight length of the pipe shall be clearly marked in inedible ink/paint the following information shall be marked.

a. ISI stamping with marking of IS 4984(or IS 14333)
b. The manufacturer's name and /trade mark.
c. Designation of the pipe as per IS 4984 (or 14333)
d. Lot number /Batch number

BIS License

The pipe manufacturer who is going to supply the pipes for the project has to have a valid BIS license.

Bid without these licenses may be treated as non-responsive

Fittings/Specials

All HDPE fittings/specials shall be fabricated in accordance with IS : 8360 (Part I & III). PE Injection moulded fittings shall be in accordance with IS : 8008 (Part I to IX). All fittings /specials shall be fabricated or injection moulded at factory only. No fabrication or moulding will be allowed at site, unless specifically permitted by the Engineer.
Fittings will be butt welded on to the pipes or other fittings by use of heat fusion.

Bends

HDPE Bends shall be plain square ended as per IS : 8360 part I & III specifications. Bend may be moulded shall be manufactured or fabricated from pipes elements.

Tees

HDPE Tees shall be plain square ended as per IS : 8360 Part I & II specifications. Tees may be equal tees or reduced bench off tees. Tees may be moulded or fabricated from pipes elements.

Reducers

HDPE Reducers shall be plain square ended as per IS : 8008 Part - I & VII Specifications.

Flanged HDPE Pipe Ends.

HDPE Stub ends shall be square ended as per IS : 8008 Part & VII Specifications. Stub ends will be welded on the pipe. Flange will be of slip on flange type as described below.

Slip on Flanged

Slip-on-flanges shall be metallic flanges covered by epoxycoating or plastic powder coating. Slip on flanges shall be conforming to standard mating relevant flange of valves, pipes etc. Nominal pressure rating of flanges wll be PN 10.

Welding

Procedure

Jointing between HDPE pipes and specials shall be done as per the latest IS : 7634 Part II. Method of jointing between the pipes to pipes and pipes to specials shall be with butt fusion welding using semi automatic, hydraulically operated, superior quality butt fusion machines which will ensure good quality butt fusion welding of HDPE pipes.

Normally butt fusion welding shall include following activities.

- Alignment of pipe on welding M/C
- Surface preparation for welding.
- Heating of pipe ends
- Holding pipe ends for welding
- Cooling etc.

Installation and Commissioning of HDPE PIPES

Installation

a. Supplying, laying, jointing, testing and commissioning of pipes shall conform to relevant IS codes, as applicable.

b. The alignment of pipelines shown in drawings of the tender documents is only indicative and the exact alignment will be as per drawings and /or as directed by the Engineer or his representative.

c. The HDPE pipes shall be laid in accordance with the latest IS 7634 Part -2.

Hydraulic Testing of HDPE Pipe Line

a. The Sectional Hydraulic Test shall be carried out after the pipeline section to be tested has been laid jointed and backfilled to a depth sufficient to prevent floatation.

b. Each length of the pipeline to be tested shall be capped or blanked off at each end and securely strutted or restrained to withstand the forces which will be exerted when the test pressure is applied.

c. Proposals for testing where thrusts on structures are involved even where thrust flanges on the piping are installed, shall be with the prior approval of the Engineer.

d. The proper method of filling the pipeline with water shall be used. The length under test shall be filled making certain that all air is displaced through an air valve or any other appropriate mechanism. The test length shall then remain under constant moderate pressure as per testing method given in the IS 7634.

e. As per IS code water required to built up allowable drop in pressure during test will be treated as a make up water.

f. Notwithstanding the satisfactory completion of the hydraulic test, if there is any discernible leakage of water from any pipe or joint, the Contractor shall, have to be repaired at his own cost, replace the pipe or repair the pipe or remake the joint and repeat the hydraulic test is the responsibility of the contractor. The additional payment will not be made.

g. Test pressures are to be measured in kg/cm² at the centre of the bank flange situated at the lowest end of the pipeline under test.
HDPE pipes and Fittings

All the pipes specials and fitting of HDPE shall be supplied and shall be tested along pipeline as per relevant IS codes and specifications.

h. Daily O & M of HDPE pipeline should be done & maintain by contractor for two years free of cost. No extra payment will be done by M.C. for this.

The Following code shall be used for:

a. Site Test Pressure : as per IS 7634 Part I.
Suitable section length shall be 500 to 800 m as directed by the Engineer in charge shall be taken for such testing from time to time during progress of the work and satisfactory test given for that section. All testing apparatus, gauges, connections, etc. and water required for testing shall be arranged by the Contractor at his cost. The M.C. does not undertake any responsibility to supply water for testing, If there is delay in testing, the contractor shall refill the trenches for the time being and reopen them at time of testing at his own cost, failure of which shall entitle the M.C. to do the refilling the reopening of trenches at the risk and cost of the contractor. If the trenches are filled due to any reason whatsoever before testing the contractor shall have to open for testing at no extra cost.

Satisfactory hydraulic test shall be recorded when the section under test shall

withstand the pressure as specified by the Engineer in charge for about 15 minutes without operating the test pump. The test pressure being maintained at the specified figures during that 15 minutes interval.

The field pressure to be imposed should be not less than the maximum of following

a) 1.5 times the maximum sustained operating pressure.
b) 1.5 times the maximum static pressure in the pipe line.
c) Sum of maximum sustained operating pressure and maximum surge pressure.
d) Sum of maximum pipe line static pressure and maximum surge pressure. Subject to the maximum equal to the work test pressure to any pipe fitting incorporated.
e) The field test pressure should wherever possible be not less than 2/3 rd work test pressure and should be applied and maintained for atleast 15 minutes.

The test pressure shall be gradually raised at the rate of 1 Kg/ cm^2/min. If the pressure measurement are not made at the lowest point of the section, an allowance should be made for the difference in static head between the lowest point and point of measurement to ensure that the maximum pressure is not exceeded at the lowest point. If a drop in pressure occure, the quantity of water added in order to re-establish the test pressure should be carefully measured. This should not exceed 0.1 lit/ mm of pipe dia. per Km. of pipeline per day for each 30 cm. head of presssure applied.

During testing if any joints are found leaking they shall be repaired and /or redone by the contractor at his cost till the test is found satisfactory. Similarly, any pipes, collars, specials, show hair cracks, leaks etc. during testing the contractor shall replace them with sound pipes and specials etc. free of cost. The hydraulic test shall be given in presence of the Engineer in charge.

15% payment of total subwork of pipe line work shall be withheld till hydraulic test is given which shall be released only on giving satisfactory test.

Mode of Payment :60% payment shall be released against providing HDPE pipes, after submitting third party inspection certificate from the approved Third Party Inspection agencies of PCMC. 25% payment will be made after lowering, laying, jointing of pipes. 15% payment will be released after satisfactory hydraulic testing is given by contractor. The cost all types specials required as per site conditions is on Lum-Sum basis.

29. GRP PIPE :-

(Sub Work No....., Item No.....)

The specification of GRP pipes of various diameter are conforming to IS 12704-1994

Grade of Raw Material :-

Raw material used to manufacturer the GRP pipes shall be as follows.

1. **Resin System :-** The manufacturer will use heighest quality polyester resin in liner and structure of pipe conforming to IS 6746-1994.
2. **Glass reinforcements :-** Glass reinforcement shall be of commercial grade E-type and shall conform to IS 11273-1992, IS 11320-1985 or IS 11551-1986
3. **Fillers / Aggregate :-** Silica sand of size range 0.05 mm to 0.8 mm may be used as fillers / aggregates in the laminates.
4. **Elastomeric Sealing Rings :-** Electromenic sealing rings must be supplied by recognized ------- to the provisions of IS 5382

30.1 Manufacture and Construction

30.1.1 Pipes

The pipes shall be supplied in accordance with the diameters and tolerances specified as below. Large diameter pipe (700 and above) will be manufactured by a controlled reproducible continuous advancing mandrel process using the materials described as above to result in a corrosion resistant, composite structure to meet the operating conditions for this project. Structure of pipe must content chemical resistance liner and reinforced structural layer. Liner should be at least 1.5 mm thickness, made of surface veil, chop glass and chemical resistance resin at the resin to glass ratio 80:20. Out of 1.5 mm 0.5 mm inner layer must built with surface veil and resin. Rest 1.0 mm thickness will be built with chop glass and resin. Reinforced structural layer must follow I-beam principle. Sand layer can be incorporated in the centre of the reinforced structural layer and would be sandwiched by two glass rich skin layers. To avoid any delamination sand layer must content at least 6 - 8% glass reinforcement. Pipe shall have to be provided with UV stabilized resin coat as external layer for above ground application. Pipe diameter less than 600 mm may be produced in helical winding process. But the reinforced structural wall must follow the I-beam principle without glass fiber reinforcements.

30.1.2 Joints

The large diameter(DN700 and above) pipe shall be field connected with GRP sleeve coupling that utilizes EPDM elastomeric Sealing rings to maintain joint water tightness. Below DN 600 pipe shall be jointed with double “O” ring bell and spigot joint only.

Depending on site condition butt and wrap joint is also permissible to some extent.

Flanged joints shall be used for connecting GRP pipes with valves and other type of pipes. Flanged joints shall be used with EPDM gasket and hot dip galvanized bolts as per IS: 1367

30.1.3 Fittings

Flanges bends, reducers tees wyes and other fittings shall, when installed be capable of withstanding all operating conditions. They may be contact molded or manufactured from mitered sections of pipe joined by glass fiber reinforced polyester overlays.

30.2 Dimensions

30.2.1 Nominal Diameters

Pipes will be supplied with the following nominal diameters in accordance as specified in 1994

30.2.2 Lengths

The pipe standard effective length will be 6,9,12 meters with a tolerance of ±25mm. A maximum of 10% of the pipe sections maybe supplied in random lengths subject to the approval of the engineer.

30.2.3 Wall Thickness

The wall thickness shall satisfy the inside and outside diameters specified in IS: 1994. The wall thickness and outside diameter shall be measured to an accuracy of 0.1 mm

30.2.4 End Squareness

All pipe ends shall be square to the pipe axis ± 6mm or ± 0.5% of the nominal diameter whichever is the greater.

30.2.5 Tolerance of Fittings

The tolerance of the angle of a bend and the angle between the main and leg of a wye or tee shall be ± 2 °. The tolerance on the laying length of a fitting shall be + 50mm.

31. Qualification Testing

The physical properties and characteristics of the pipes shall be determined by prototype testing of the manufactured product. These tests need not be conducted specifically for this Project if prior tests on similar products have been previously completed. Testing may be conducted on one diameter and extrapolated to other diameters, the pipes are of similar composition and material arrangement and are manufactured from the same materials specification using a similar process.

31.1 Hydrostatic Design Basis HDB

The Hydrostatic Design Basis (HDB) will be obtained in accordance with IS 12709/IS 14402B or ASTM D2992 established at an extrapolated 5O year value.

31.2 Long Term Strain corrosion

The long term strain corrosion test shall be in accordance with AWWA C950 for water Projects or ASTM D3262 Section 6.3 for sanitary sewer projects.

32. Inspection and Testing

The GRP pipes supplied by the contractor/manufacturer will be subjected to following tests as per AWWA C950 / IS 12709/14402 for acceptance :

32.1 Workmanship

Pipes shall be free from all defect including indentations, de-Lamination, bubbles, pinholes, cracks, pits, blisters, foreign inclusions and resin starved areas. The pipe shall be a uniform as commercially practicable in color opacity, density and other physical properties as per ASTM 2563/BS 5480/ IS 12709/ IS 14402. Internally maximum 3% area and externally maximum 15% area can be reworked.

32.2 Hydrostatic Pressure Test

Each length of irrespective of diameter shall be tested for Hydrostatic test as per IS 12709 at Manufacturer's premises before dispatch

32.3 Longitudinal Tensile Strength

One in each batch of pipe shall be tested for longitudinal tensile strength as per AWWA C950/IS12709/14402.

32.4 Hoop Tensile Strength

One in each batch of pipe shall be tested for hoop tensile strength as per AWWA C950/IS12709/14402.

32.5 Stiffness test

One in each batch of pipe shall be tested for stiffness as per AWWA C950/IS12709/14402.

Any other tests required as per the provisions to which the supplied pipe confirms i.e. (AWWA C950/IS12709/14402)

The test reports for the rubber gaskets shall be as per acceptance test of the IS 5382

The sampling method for testing shall be as per the provisions of the standards to which they are manufactured.

Mode of Payment :75% payment shall be released against providing GRP pipes, after submitting third party inspection certificate from the approved Third Party Inspection

agencies of PCMC. 10% payment will be made after lowering, laying, jointing of pipes. 15% payment will be released after satisfactory hydraulic testing is given by contractor. The cost all types specials required as per site conditions is on Lum-Sum basis.

33. LAYING AND JOINTING OF PIPE LINE

33.1 General

Where ever there is need for deviation, it should be done with the use of necessary specials or by deflection in pipe joints (limited to 5% of permissible deflection as per relevant standards).

33.2 Standards

Except otherwise specified in this technical specification, the Indian Standards and Codes of Practice in their latest version, National Building code, PWD specification shall be adhered to for the supply, handling, laying, installation, and site testing of all material and works. The laying pipeline shall be done conforming to the following standards : IS : 13916 for GRP pipeline.

34. VALVES/PEN STOCKS/SLUICE GATES

All the valves shall be D.I.D.F. type Valves shall be of approved make by MJP or such other reputed and approved make. Valves shall have the certificate of I.S.I. and shall be as per the relevant IS codes. All valves having diameter 300 mm and above shall have spur gear arrangement for manual operations. Dia below 300 mm shall be with hand wheel for operation.

All sluice gates shall be of approved make and with brass lining. It shall be provided with spur gear arrangement and hand wheel for easy manual operation.

<u>GAS CUTTING</u>

GENERAL

Gas cutting of M.S. Pipes may require to be adopted on site for fabrication of bends on site or for preparing distance pieces, straps etc. and for cutting holes in pieces for manholes, branches scour valves, Air Valves and other appurtenances and temporary manholes for cleaning welding etc..

After gas cutting the edges shall be made smooth and even so as to remove all the equalities ends of the pipe shall have ‘V’ edge from in side.

MEASUREMENT AND PAYMENT

Gas cutting shall be measure in linear meters of gas cutting done and shall be paid for in this item and rates shall include all labour materials and machinery for gas cutting irrespective of any circumstances, shall ancillary preparation and including chamfering

the ends to form ‘V’ edges.

MAKING CROSS CONNECTIONS :

Making cross connections, to existing distribution system of any type including excavation, breaking and removing existing pipes, lowering, laying of special and pipes and their position, refilling closing the water supply in that area dewatering and restoring the water supply etc. complete as directed by Engineer-in-charge.

The payment will be done on No. basis.

35. ROAD BOX

The item includes providing and fixing 225x300 mm (20 Kg.) CI road box including necessary excavation, supporting B.B. Masonry etc. complete.

The mode of measurement shall be on basis of each number of completed item.

35A C.I. MECHANICAL JOINTS

Supply of C.I. Mechanical Compression collar coupling (popularly known as Jiffy Collar Coupling) suitable for C.I. spun pipes (as per IS:1536:2001) and D.I. pipes (as per IS:8329:2000) complete with sealing rubber gasket of SBR. C.I. Follower glands and MS Nit bolts. The whole assembly should be mechanically and hydraulically tested to the provisions as paid down in IS:1538:1993 and as directed by Engineer-in-Charge.

Mode of measurement : Per No.

36. COLOUR WASH

General

It item refers to providing and applying of applying of approved colour wash to surfaces which are not given any finishing.

COLOUR WASH

This is prepared by adding necessary colouring matter of approved make to the white wash which has been stained. The colour shall be as approved by the Engineer. For all colour wash, a sample must first be applied, allowed to dry and approved by the Engineer-in-Charge before the work proceeds. It should be noted to large surface such as a the walls of a room . Care must be taken to mix sufficient colour wash to complete the whole surface to be treated, otherwise it is taken to mix impracticable to obtain exactly the same shade of colour in two successive mixtures. Sufficient gum or rice size should be added to prevent the colour wash coming off when rubbed with fingers.

Preparation of surfaces : The surfaces shall be prepared by brooming down, brushing or other means as may be ordered by the Engineer-in-Charge. The surface shall be thoroughly cleaned down and freed from all foreign matter before the base coat is applied.

Sub-base: Sub-base of two coats of white wash shall be applied as specified in Item No. Bd.P-1.

Application of colour wash: The colour wash shall be applied over the base coat. It shall be applied in the same way as white wash. The number of coats shall be as mentioned in the item, each coat being applied after the earlier coat has dried.

Mode of measurement : Per sq m

36A POLISHED SHAHABAD/TANDUR/KOTAH STONE FLOORING

The specification for this item shall be same as for item No. B.M.1

1. All the stone slabs shall be square in shape. The dimensions shall be 0.60 x 0.60 m or other dimensions as specified in the special provisions or as directed by Engineer-in-Charge. Tolerance in thickness $\pm$ 3 mm

2. The exposed surface of the specified stone flags shall be machine polished to a smooth, even and true plane and the edges machine cut square and to the required shape when necessary. Samples shall be got approved by the Engineer-in-Charge who will keep them in his office for reference.

3. The thickness of joints shall not exceed 1.5 mm

4. Joints shall be grouted with neat cement slurry

5. When the bedding and joints of the flooring have completely set, the surface shall be machine polished to give a smooth, even and true plane to the floor and thoroughly cleaned.

Mode of measurement : Per sq meter

36 B GLAZED TILES FOR SKIRTING AND DADO

Plastering : Cement plaster of about 12 mm for brick walls and 20 mm for stone masonry walls shall be applied to the part of the wall where dado or skirting is to be fixed

as per specification No. B.11. The proportion of mortar shall be as mentioned in the item.

Fixing tiles : Dado or skirting work shall be done only after fixing tiles on the floor. The white glazed tiles shall be soaked in water for at least 2 hours before being used for skirting or dado work. Tiles shall be fixed when the cushioning mortar is still plastic and before it gets very stiff. The back of tiles shall be covered with a thin layer of neat cement plaster and the tile shall then be pressed in the mortar and gently tapped against the wall with a wooden mallet. The fixing shall be done from the bottom of wall upwards without any hollows in the bed or joints. Each tile shall be fixed as close as possible to the one adjoining. The tiles shall be joined with white cement slurry. Any difference in the thickness of tiles shall be evened out in cushioning mortar to that all tile faces are in the vertical plane. The joints between the tiles shall not exceed 1.5 mm in width and they shall be uniform between the tiles in dado work, care shall be taken to break joints vertically. After fixing the dado, skirting etc. they shall be kept continuously wet for 14 days.

If doors, windows or other openings are located within the dado area, the sills, jambs, angles etc. shall be provided with white glazed tiles and appropriate specials according to the foregoing specification and such tiled area shall be measured net along with the dado.

Cleaning : After the tiles have been fixed the surplus cement grout that may have come out of the joints shall be cleaned off before it sets. After the complete curing the dado or skirting work shall be washed thoroughly clean.

Item to include : The rate shall include all labour, materials, tools and equipment required for the following operations to carry out the item as specified above.

- Plastering
- Fixing the tiles including all angles, etc., after applying neat cement paste
- Jointing the tiles with white cement slurry
- Curing
- Cleaning the dado and skirting.

Mode of measurement and payment : Same as for item No. Bd.M-9.

37. TECHNICAL SPECIFICATIONS OF COMBINATION AIR-VALVES

Material Specification:

GGG50 Ductile Iron body

GGG50 Ductile Iron Cover
EPDM resilient sealing parts.
304SS Guide Shafts
HDPE float cylinders.
SST316 small orifice.
Polyester coating
All materials are certified for potable-water applications.

Design Features:

Combination air valve that incorporates the Kinetic and Automatic orifices as an integral unit in a closed housing, protecting it against accidental or deliberate damage.

Standard, integral flanged connection. Any international flange standard can be supplied to rated pressure of 16bar (230psi)/ 25bar (350psi) / 40 bar (580 psi). Select the relevant value.

It should be a simple design with minimal parts for operation and maintenance

At no point the flow section area is less than 100% of the nominal diameter.

The flow passage must be Streamlined, unobstructed.

Floats made of naturally-buoyant material (specific weight lower than water). Air-filled bodies that may crash or deform under pressure are not allowed.

Floating is additionally- supported by open air-traps within the main float.

Only the top float is subjected to pressure differential. It is a solid robust item, tested at 150% of rated valve pressure.

Hydraulic sealing of main orifice provides drip-tight closure at very low pipeline pressure.

A solid back-up of the main orifice seal, on the orifice flange, provides a mechanical stop to the top float following high-pressure stress of the resilient seal. Thus, resilient seal is operating within its elastic memory zone.

The floats, shaped as buoyant cylinders, centrally- guided, top and bottom, by stainless steel 304 shafts, which are not located in air flow area.

The top float is connected to the main float in such a way, that the distance between the two may vary by a few mm.

The gap is used to open the small orifice, when the main float is losing it's buoyancy due to low water level. A very wide, resilient, smooth flat face seal ensures drip-tight sealing at very low pipe pressure.

The cross-section area of the small orifice in the top float is calculated to ensure separation of the floats, even at high pressures, when the main float is losing its buoyancy.

The small orifice is made of SST316 and has a 'self-cleaning effect' design, ensuring that the small orifice is not clogged by small particles. Its narrow passage is very short and enlarged to a bigger diameter immediately. Under pressure, this causes an air jet that removes any debris and dirt. No plastic small orifice is permitted as it may wear out by the high flow velocities.

In case of requested service, all parts can be replaced conveniently by unskilled personnel using ordinary tools.

A shield disc at the bottom, having a larger diameter than the float cylinder, provides protection against premature closing due to a high outflow of the air.

The cover of the valve and the seal flange are shaped in a way that any "blow up" of water during valve closure is diverted sideways.

The cover design of the standard valve enables the attachment of a "Surge Arresting" device as an additional option. This can be done at the site, without having to replace or temporarily remove the valve from the line.

Valve body can contain, on request, two 1/4" tapped inspection ports, above and below the float.

The valve body is coated by electro statically-applied, oven- baked Polyester coating. Fusion- bonded Epoxy and other coatings are available on request.

The valve should be approved for operation in potable water system by an internationally recognized regulator (WRAS, NSF)

38. Installation of District Meter Areas and Simulation of Distribution Network

Creation & Establishment of DMA's :-

The scope of work to be executed as a part of this item are establishment of the DMA / zones / subzones by measuring the inflow, outflow, pressure, water consumption, water quality etc. with all necessary work to facilitate the work within the scheduled period as mentioned. The Contractor need to provide all the necessary manpower, materials, equipment's etc. for implementation of the services listed below. The detailed scope is as follows:

- Validation of the Network like boundaries, pipeline network, valves, washout etc
- Consumer survey & geo-coding :- number of current consumers: location of 77370 connection consumers in the all DMAs (i.e selected area of PCMC) .
- Flow and pressure measurements by installing flow and pressure measuring devices.

- Review of existing functioning of the area with valves, supply hours, and updating of map.
- Updating of the network map: GIS map of the network. The cost of tracing equipment's, all the trial pits required for validation of the network etc.
- Develop a Record Plan for each DMA zone which will include a schematic diagram of the feeder and distribution network including sizes and materials, inflow meters location, boundary valves, other valves, major consumers etc.
- Establishment of the consumption in each of the DMA's zones
- Condition assessment of pipe & preparation of Repair & Rehabilitation plan.
- Assessment of the various baseline levels in the zones.
- Leak Detection by suitable latest technique to do the pipe condition assessment and find out the leakages in the network.
- Zero pressure test for assessing hydraulic discretion.
- Critical Pressure Monitoring Stations - 5 nos. per DMA for assessing leakages and network calibration
- Identification of location for installation of isolation valves, DMA meters at entrance of each DMA.
- STEP test shall be carried out for determination of NRW in each DMA.
- Isolation valves must be designed and shown in GIS based Hydraulic Model to facilitate STEP test.
- Valve closing and opening schedule should be prepared and shown on the drawings of each operation zone.

Cost under this item includes:-

1. Experts services
2. Survey & investigation
3. Software & hardware's
4. Report generation
5. Manpower & equipments
6. All item other than bill of quantity
7. Training

The scope of work to be executed as a part of this item is design and freezing of boundary of DMA's within operational zones using the existing assets of the Water Distribution System. With

the isolation of DMA's if any area affected for water supply, Contractors shall need to make temporary arrangement of water supply for the affected area. It also includes the new proposal of the pipe line, valves etc. complete to establish the hydraulically discrete areas. The detailed scope is as below :

- Development of the Hydraulic Model and Hydraulic Analysis by providing Water Gems software of unlimited nodes and pipes.
- Hydraulic analysis shall be done through latest version of Water Gems software. No separate payment shall be made.
- Detailed design of:

  i. all pipelines that have to be laid

  ii. location and installation details of new boundaries valves

  iii. DMA inflow point arrangement design, pressure reducing valve chamber complete with all pipe work and structural design; inflow meter and PRV specifications; location and design of above ground instrumentation

  iv. standard design and map with location of all customer connections to be relocated

  v. all other civil, mechanical, installation or plumbing works that might be required
- Formation of District Meter Areas
- Preparation and submission of Systematic Improvement Plan (SIP)
- Identification of Average Zonal Pressure (AZP) and Critical Pressure Points (CPP) for each of the Pilot zones.
- Final output of DMA establishment is carrying out Zero pressure test in a hydraulic distribution area.

Payment Terms :-

- This cost includes completion of all works related DMA Establishment including isolation and freezing of final boundary map for DMA, completion of all survey & investigations, creation of hydraulically discrete network, zero pressure test, consumer survey, as built drawing, hydraulic modeling, submission of revised SIP & drawings etc. complete. This shall be paid on demonstration of all establishment works and certification of same from the Engineer-in-charge.

  1. 60% on Approval of Systematic Improvement Plan (SIP).
  2. 30% on freezing of DMA boundary, establishment of DMA.
  3. 10% on successfully carrying out Zero Pressure Test.

39. PUSHING OF M.S. PIPE

The pipes pushed through the Railway / Road embankment should have minimum cushion of 2.0 m (As shown in thr Railway's approved Drawing) above the pipes. The cautionary boards should be kept at sufficient distance from the point of crossing. The pushing should be done with the use of hydraulic jacks / winch machine as per the standard procedure of the Railways, Every precaution should be taken that while pushing no settlement takes place in the track / road the embankment should be protected with sand bags to avoid any slippage during working. The temporary thrust bed / thrust walls constructed for pushing should be dismantled after completion of pushing work. The M.S. pipe barrels shall be field welded with electric are welding machine. The entire work should be carried as per the latest specifications of the Railway Department for pushing of pipe work. Jacking of the M.S. Pipes to form the opening under the Railway track under running traffic condition maximum allowable deviations from the theoretical alignment will be limited to 200 mm horizontally and 100 mm vertically. Any deviation beyond this tolerance will be rectified by the tenderer at his own cost. Any temporary structures such as thrust walls etc shall be dismantled immediately after completion of the pushing work. Minor seepage water which can be dewatered manually be bucket etc shall be done by the contractor and no extra payment will be paid for this however if the subsoil water is heavy and needs dewatering by pumps than it will be paid as per regular practice of MJP.

Mode of Payment

Payment shall be made on item wise basis.

Lowering, laying of M.S. Pipe line clearing vegetation etc.

Contractor shall clear that site of work of all grass shrubs, trees stumps rubbish etc, at his own cost before the start of work and after every monsoon, till the defect liability period. The cleared grass, tree etc. shall be disposed off by the contractors as directed by the Engineer.

All useful timber shall be loaded, transported, unloaded and stacked at a place as directed by Engineer without any extra charges.

Regulation of the forest department wherever applicable shall be strictly followed by the contractor. On completion of the work the contractor shall return to M.C. a place directed by the Engineer all surplus material such as a pipe special with a list of all the material so returned the contractor shall return to the M.C. all mild steel scrap that may have been remained during the progress of work.

The contractor shall clear the site of all rubbish building material debris excavated material etc, and restore the site to near clean and tidy condition to the full satisfaction of the Executive Engineer.

The pipe line being laid under this contract is below or above ground for pipe line portion to be laid above ground the pipe line shall be supported on concrete chairs indicative longitudinal sections of the pipe line has been shown on the drawing accompanying the contract. The supports to be casted to the true alignment and or levels as per detail drawing prepared while laying. The Engineer may make modifications in the alignment or levels at his discretion, depending on the site conditions.

The contractor shall use theodolite to fix the alignment and levels of the support. All survey work for fixing the alignment and level shall be done by the contractor, therefore contractor shall have in his employment experience Engineer for his work. The contractor will have to arrange for site rails required. The chairs shall be casted in any particular section serially so that laying of pipes can be started as soon as sufficient numbers of chairs are ready. Program of casting of chairs shall be in with accordance with the approval program of laying of pipe line. Pipe support consisting of chair either on prepared formation or on plain C.C. piers shall be constructed as shown in the drawing or as specified here in after and as directed by the Engineer.

Construction of the thrust block and anchor blocks shall be done in two stages viz. firstly the portion below the invert of the pipe line shall be casted. Design of the individual thrust block and deflection / fixity points shall be given by the engineer. The distance between two successive fixity points shall generally not exceed 300 meters. Expansion joints shall be provided mid way two fixity points more than 50 meter apart in case of above ground pipe laying.

The mode, number and the location of the construction of fixity points shall be decided by the engineer and his decision shall be final and binding on the contractor.

Additional specifications for laying of M.S. pipe line.

To facilitate welding and epoxy painting at the circumferential field joints pits shall be excavated at such location at the bottom and on the sides. The size of the pit shall be 600 mm in width on each side 600 mm in depth and 1000 mm long in suppression of IS 5022 Para 3.23. This excavation shall also be paid under the relevant item for excavation in trenches.

Warped for deform timber shall not be used for shoring. Shoring shall project at least 150 cms, Above ground and shall extend trench as approved by the engineer Planks shall be

placed close enough to avoid any running in the sand or earth through the joints. For walling pieces round timber shall not be allowed. Spacing of the struts shall be as per the requirements of the design of shoring.

Refilling Of Trenches of Pipe Line And Trench Gallery

After jointing of pipe line refilling of trenches with available excavated stuff shall be done. The available excavated stuff shall be laid in layers. Each layer shall be watered and compacted before the upper layer is laid till the required level is reached. First two layers shall be free from stones or chips or any harmful material, to protect the pipe from damage. Only soil or soft murum shall be used for filling. Originally filling shall be done 30 to 40 cm above natural ground or road level. Sinking below the road or ground level, if noticed till the completion of work, the contractor shall have to make it level at his cost.

This item includes Cleaning useful excavated material of rubbish, braking clods, stone etc. Conveying the useful excavated material up to 200 m and filling in layer, watering & compacting. All labour, equipment and other arrangements necessary for the satisfactory completion of the item.

MODE OF MEASUREMENT AND PAYMENT

Dimensions shall be measured correct to two places of decimals of a meter and individual quality shall be calculated correct to two places of decimals of running meter.

The pipes pushed through the Railway / Road Embankment should have minimum cushion of 2.00 m (As shown in the Railway's approved Drawing) above the pipes. The cautionary boards should be kept at sufficient distance from the point of crossing. The pushing should be done with the use of Hydraulic Jacks / Winch Machine as per the standard procedure of the Railway's. Every precaution should be taken that while pushing no settlement takes place in the track/ Road. The embankment should be protected with sand bags to avoid any seepage during working. The temporary thrust bed / thrust wall constructed for pushing should be dismantled after completion of pushing work. The M.S. Pipe barrels shall be field welded with electric arch welding machine . the entire work should be carried as per the latest specification of the Railway Department for pushing of pipe work. Jacking of the M.S. Pipes to form the opening under the Railway track under running traffic condition maximum allowable deviations from the Theoretical alignment will be limited to 200 mm Horizontally and 100 mm Vertically. Any deviation beyond this tolerance will be rectified by the tenderer at his own cost . Any temporary structures such as thrust walls etc. shall be dismantled immediately after completion of the Pushing work. Minor seepage water which can be dewatered manually by bucket etc shall be done by the contractor and no extra payment will be paid for this however if the subsoil water is heavy and needs dewatering by pumps than it will be paid as per regular practice of MJP.

40. PROVIDING AND MAKING B.B.M ROAD SURFACE

Providing and making B.B.M Road surface with seal coat of excavated trenches of water lines and sewer lines in three layers consisting of necessary excavation of trenches with 0.30m of murum filling in trench. Above it two layers of 60mm trap/granite/gneiss/quartzite stone metal of 0.15m thick and hard murum (1/4 qty. of 60mm metal) each as a first and second layers. 40mm trap granite/gneiss/quartzite stone metal of 0.10m thick and soft murum (1/4 qty. of 40mm metal) as a third layer. and above it 75mm thick BBM with seal coat, compaction of final layer, including leads and lifts, conveying, and stacking, spreading, watering and necessary excavation and removing the surplus material etc. complete as directed by Engineer-in charge.
The item shall be executed as per respective and equivalent IS / MORTH / IRC standards.

41. DISPOSING OFF THE SURPLUS EXCAVATED STUFF

After completion of work the surplus excavated material shall be disposed off by the contractor from the site as directed by the Engineer-in-charge by truck upto 5 Km including loading, unloading and stacking as directed by Engineer- in- charge.

The conrtractor shall ensure that no excavated material which is suitable for and required to be re-use in the work, transport unless ordered by The Engineer-in-charge.

The material not useful for work to be disposed of to any tipping location designated by the Engineer-in-charge, at a distance up to 20 km by most direct practicable route. Material disposed of at Engineer's tip at a distance greater than 20 km shall qualify for additional payment at rate entered in current schedule of rates. The material so deposited shall be shaped up or spreaded and leveled as directed by Engineer-in-charge.

42. PROVIDING AND CONSTRUCTING B.B. MASONRY VALVE CHAMBER

The work which shall be carried out as per Construction Specification contained in this section, involves construction of masonry Chamber at site as instruction of site in charge.

Manholes:

Masonry Chambers will be provided at where it necessary. However if required the same has to be provided in the road. The walls will be built up of solid masonry blocks. The top will be covered with heavy duty removable RCC slabs. This type of Chamber will be used when manholes are provided in footpath. The roof will also be heavy duty RCC slab with two openings.

Specification for masonry chamber:

a) chambers, due to constraints of the location, may have to be constructed on the road. The wall, roof and floor thickness will be 20 cm. The Manhole chamber with above said measurement should be constructed with solid masonry structure. The top of the manhole should be covered

with SFRC covers slabs. The RCC slabs so covered should be flush with the level of the adjacent ground; footpath etc., the drawing for manhole may be referred.

b) All chambers / manholes shall be made water proof using water proofing compound. Necessary care shall be taken at construction joints to make the jointing chamber water proof. Whenever required, special water proofing treatment like gunting chemical water proofing treatment, cement based water proofing treatment, polythene sheet water proofing treatment etc., may be resorted as per direction of Engineer-in-charge.

c) The Manhole chamber with the said measurement should be constructed using with 75 class designation brick work in cement mortar 1:4 (1 cement : 4 coarse sand). The top of the manhole should be covered with RCC slabs of size 15cm (thick) × 40 cm (width).

d) Curing of concrete: After the concrete hardens, it shall be protected from quick drying with moist gunny bags, sand or any other materials approved by Site Engineer. The curing shall be done for a minimum period of 5 days or as determined by the Site Engineer.

e) Finishing chambers / pedestal: The internal faces of roof, walls and neck of chamber and exposed areas of pedestals shall be finished smooth with cement mortar 1:3 (1 cement: 3 coarse sand), finished smooth with a floating coat of neat cement.

f) Finishing of outer surface of chambers: Finishing of outer face of the chamber shall be done with 12 mm thick cement plaster 1:3 (1 Cement: 3 fine sand).

g) Finishing of floor of chambers: The floor of manhole shall be finished with 40 mm thick (av) cement concrete flooring by providing adequate slope.

h) Vertical Racking: Regarding Vertical Racking arrangement:-Vertical Racking arrangement has been changed. Ladder in minimum three steps may be provided for going inside & coming outside from the manhole using 12mm dia M.S. rod on shorter walls and on opposite side and fixing it in masonary (as per drawing given).

The arrangement for pipe openings shall be done

Frame and cover assembly: The frame for the cover shall be fixed as per standard drawings. The top level of frame shall be flush with road level or footpath level as the case may be.

Cover Lifting arrangement:

Cover lifting arrangement may be as per drawing given. dia is to be provided so that the cover may be lifted easily.

i) Loading : The manhole cover and frame shall be able to withstand heavy duty grade of loading conforming to relevant IS Code, square type and shall be galvanized according to ISO : 1460 R & R 1461 or IS 4736.

j) Marking: Each manhole cover and frame shall have a permanent marking sunk cast on them providing following information. Year of manufacture. Figure of PCMC emblem.

Stores to be procured by the Contractor

All materials for use shall be new and duly tested as per approved standards and shall comply the material specifications. Where no spec. is specified, it shall conform to BIS/ISI/PWD standards.

Construction of chambers (manhole) should be done as per the specification at places as instructed by the Site Engineer. The cost shall be paid at, with count on basic unit. In case dimensional variation is required due to site condition, the payment will be proportional to the volume of chamber.

Specification for stone aggregates, coarse sand, fine sand

Stone aggregate : Stone aggregate to be used in the work shall be hard broken stone and shall be conform to PWD specification.

Coarse Sand: Coarse sand to be used shall conform to PWD specifications.

Fine Sand: Fine sand for finishing to be used in the work shall conform to PWD specifications

Note : Where only one variety of sand is available, the sand will be sieved for use in finishing work as directed by the Engineer-in-charge in order to obtain smooth surface and nothing extra will be paid on this account.

Testing of Material : To have the quality control on the material used for construction OF manhole; Contractor will prepare Cubes of a size as desired by site in charge using the same material which is used for construction of manhole. These cubes will be sent for testing by an authorized testing laboratory for verifying the quality of material.

Final Inspection :- No work shall be treated as complete until acceptance testing and quality control checks are completed and found satisfactory.

All the defects pointed out by Engineer-in-charge shall be rectified and got re-tested by the contractor at his own cost before the work is treated as completed. The responsibility of non-clearing the defects and thus non-completion of work shall always rest with the contractor.

The rejection of the work shall be intimated to all concerned to ensure prompt action.

Engineering Instruction:

A. Safety Precaution while constructing Chamber

General :

Where a road or footpath is to be kept opened up in the course of work, special care shall be taken to see that proper protection is provided to prevent any accidents from occurring. Work shall be done in such a manner that it will not unduly inconvenience pedestrians or occupants of buildings or obstruct road traffic.

Danger from falling Material:

Care shall be taken to see that apparatus, tools or other excavating implements are not left in a dangerous or insecure position as to fall or be knocked into the trench thereby injuring any workmen who may be working inside the trench.

Danger of Cave in :

When working in deep trenches in loose soil, timbering up the side will prevent soil subsidence. The excavated material shall be kept far enough from the edge of the trench or pit. Vehicles or heavy equipment must not be permitted to approach too close to the construction site.

Precaution while working on Road:

The flags and the lamps shall be placed in conspicuous position so as to indicate the pedestrians and drivers of vehicles the full extent, i.e. both width and length of the obstruction. The distance between lamps or between floors shall not generally exceed 1.25 meters along the width and 6 meters along length of the obstruction in non-congested areas, but 4 meters along the length in congested areas. If the excavation is extensive, sufficient notices to give adequate warning of the danger shall be displayed conspicuously not less than 1.25 meters above the ground and close to the excavation.

Where any excavation is not clearly visible for a distance of 25 meters to traffic approaching from any direction or any part of the carriage way of the road in which the excavation is not clearly visible for a distance of 25 mtrs. to traffic approaching from any direction or any part of the carriage way of the road in which the excavation exists, a warning notice shall be placed on the kerb or edge of all such roads from which the excavation is not visible. Such warning shall be placed at a distance of 25 meters from the excavation or as near the distance as is practicable but not less than 10 meters from the junction of an entering or intersecting road with in the road in which the excavation exists.

All warnings, in these cases shall have a red background and shall be clearly visible and legible. All warning lamps shall exhibit a red light, but white lights may be used in addition to facilitate working at night. Wherever required a passage for pedestrians with foot bridge shall be provided. At excavations tools and all materials likely to offer obstruction shall be properly folded round and protected.

While permission for manhole work will be taken by PCMC but the manhole should be properly covered while no work is going on to avoid any accident. Contractor shall be solely responsible in case of laxity on his part.

Contractor shall provide the caution board of appropriate size at his own cost on all the sides of the manhole stating “Caution, PCMC manhole work is progress.”

Damage to Utilities:

The damage to the exposed utilities shall be contractor's responsibility. Round the clock safety of utilities shall be sole responsibility of the contractor and the damage cost shall be deducted from the contractor. While constructing manholes the utilities should be properly accommodated in manholes.

The work is to be done in workman like manner as per type designs of the PCMC and as directed. The Cost of extra excavation in all strata which in addition to the pipe trench excavation is included in this item, Size of chamber mentioned in tender item are the internal dimensions of the chamber. The size of chamber shall be selected to accommodate sluice valve or air valve and facilitate replacement / repairs any time without breaking the chamber.

The brickwork & other items required to be executed for construction shall confirm to the standard specifications detailed in the RED book of Govt. PWD dept. and cover slab 20 cm thick in M-200 mix.
The finished top of the chamber shall be flush with road surface and shall not cause any inconvenience to the traffic.

42. SLIP ON FLANGE WITH HDPE STUB END

HDPE Stub ends shall be square ended conforming to IS: 8008 Part I & VI Specifications. Stub ends will be welded on the pipe. Flange will be of slip on flange type as described below:

Slip-on flanges shall be metallic flanges covered by epoxy coating or plastic powder coating. Slip-on-flanges shall be conforming to standard mating relevant flange of valves, pipes etc. Nominal pressure rating of flanges will be PN10.

43. Providing Pressure Reducing Valves

Item includes :- Providing Valve of approved make from PCMC

The Pressure Reducing Valve shall reduce higher pressure to lower preset downstream pressure regardless of fluctuating demand or varying upstream pressure head.

Main Valve:

The main valve shall be a center guided, diaphragm actuated globe valve of either oblique (Y) or angle pattern, design. The body shall have a replaceable, raised, stainless steel

seat ring. The valve shall have an unobstructed flow path with no stem guides, bearings, or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs. shall be Duplex coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline.

Actuator: The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the diaphragm and the main valve. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

Control System: The control system shall consist of a 2-Way adjustable, direct acting, pressure reducing pilot valve, a needle valve, isolating cock valves, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested and factory adjusted to customer requirements.

Quality Assurance: The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve.

Material of construction :

Body, Cover & Stem Cap in Ductile Iron ASTM A 536 65/45/12. Stem, Seat Ring, Spring of SS: 316. Diaphragm, Seals, O-Rings EPDM/Buna N. The Valve body will be straight type and not Y type. The SS: 316 Seat Rings shall be guaranteed for life of the Valves for potable water use only. The Valve shall have removable Stem Cap for in line inspection and easy maintenance. The painting shall be NSF 61 fusion bonded epoxy coating safe for drinking water. All external fasteners shall be SS: 304.

The valves shall be accepted after the third party inspection by SGS, RITES or any other agency authorized by PCMC, the charges for the same shall be borne by the contractor

Pimpri- Chinchwad Municipal Corporation

WATER SUPPLY DEPARTMENT

BASIC DESIGN REQUIREMENT & OBLIGATORY LEVELS OF ESR

AND

SPECIAL OBLIGATORY CONDITIONS FOR WATER RETAINING STRUCTURE

The basic design requirements, criteria and dimension mentioned hereafter shall be strictly adhered to.

The intending tenderer should acquainted himself thoroughly with the site conditions as well as needs of MJP before tendering and designing the schedules. The contractor should make his own arrangement about probable depth and strata for resting foundations.

OBLIGATORY LEVELS AND REQUIREMENTS (Parameters)

(As per Annexure-I)

DETAILS OF RCC BPT/MBR/ESRs AT VARIOUS LOCATIONS TABLE

R.C.C. BPT:-

S.No	Location of GSR/ Sump / BPT	Cap. in Liters	Avg. Ground Level	Low supply level and sull supply level and Numbers
1.			M	

Note: *No change in these levels will be permitted & RCC design will not be accepted by MJP if changes are made.*

Note: *No change in these levels will be permitted & RCC design will not be accepted by MJP if changes are made.*

DESIGN CRITERIA & ASSUMPTIONS

DESIGN STANDARDS

The structural design of the tank shall confirm to the following standard specifications

and code of practice of the BIS,IS:456-Code of practice of plain and reinforced cement concrete (latest revision),

IS:3370 –Code of practice for concrete structures for storage liquids Part-I to IV(latest revision),

IS : 875-Code of Practice for structural safety of building, loading standards (latest edition),

Part-I…….Dead Load
Part-II……Imposed Load
Part-III……Wind Load

IS : 1893-Criteria for earthquake resistance design of structures (latest edition)

IS:1682-1985 -Code of Practice for criteria for design of RCC staging for overhead water tanks (latest edition) and various standards issued by BIS.

DESIGN OF STRUCTURES

The above Indian Standards current on the date of tender shall be applicable to the design of structure. Item which is not specifically covered by Indian Standard Code of Practice, reference shall be made to the relevant standard specifications.

Construction of various capacities RCC MBR/ESR / SUMP

1. The reservoir will be a covered RCC container supported on RCC column footing and termed ate braces, etc as per drawing.

2. Suitable RCC spiral stair case should be provided with landing parapet, RCC pardi for approach to the Gallery and top of the ESR,RCC cantilever catwalk (gallery) of 1.20 m width, GI pipe railing shall be provided at floor level, preferably at junction of floor slab and vertical walls and GI pipe railing with RCC post of 1.0 m c/c interval at the roof slab level of the container.

Ventilators shall be provided on top slab of ESR. One number of C.I.manhole frame and cover shall be provided and fixed in the roof of the tank. One S.S. ladder shall be provided and fixed for access into the tank through manhole left in

the Roof. Ladders shall be provided as per specifications. Water level indicator (Mercury) assembly of approved type shall be provided and installed.

Lightening arrestor as per IS specifications and confirming to IE rules shall be provided and fixed. Vertical & horizontal pipe of CI,D/F flanged pipes ,M.S./C.I.specials of required sizes for inlet, outlet & overflow arrangements together with suitable Sluice Valves shall be provided as per drawings. For washout , one tee shall be fixed on the outlet pipe with one valve of suitable .. Sluice Valves of required size shall be fixed for inlet, outlet & washout. These valves shall be supplied by the contractor ,confirming to relevant IS code and of makes approved by MJP.

Required no. of B.B. masonry chambers of suitable sizes directed with C.I.manhole frame &covers shall be provided & constructed at suitable locations for Sluice Valves. Water proof cement plaster of CM(1:2) proportion ,20 mm thick shall be provided for inside surface of water tank ,including roof slab bottom &epoxy painting in two coats be provided as per specifications.

Outside surface of tank, exposed faces, columns, braces, catwalk bottom portion of slab & exposed surface of the tank shall be provided with cement plaster of CM(1:3) proportion ,20 mm thick with smooth finish\and then 3 coats of water proof cement paint approved by MJP shall be rendered.
Letters indicating capacity of tank, name of scheme and the year of construction shall be either embossed or engraved on vertical wall of tank and shall be painted with suitable shade of oil paint in 2 coats.

On the completion of work hydraulic test or water –tightness test shall be given as per standard specification. Therefore required water arrangements shall be made by the contractor at his own cost.

Since this a lump sum offer, the interim payments will made at different stages of works contract, as per break-up schedule enclosed. Which is to be approved by the competent authority.

Since this is water retaining structure, contractor shall give a satisfactory hydraulic test of the tank. This test shall be considered as water tightness test and accepted if the structure appears bone dry from outside after filling the water

up to full supply level & the drop in water level is not more than 40 mm in 7 days. For this purpose the water filling arrangements shall be made by the contractor at his own cost,including cost of water pumping arrangements; etc.

If during testing any damage occurs to the structure, it will be responsibility of the contractor to rectify the same. Until satisfactory water tightness test is given on completion of work, interim payments to be made at different stages of works as per break-up of payment schedule enclosed.

MATERIALS REQUIRED FOR CONSTRUCTION

1. *Sand, Metal& Bricks*

Sand, metal & bricks of best quality will be insisted. Samples of these will have to be got approved prior to use on work.

2. *Cement*

OPC of 53 grade in jute/polyethylene bags (weighing 50 Kg each)shall be used for all water retaining Structures & for all works. The cement shall be used of following brands (1) Ultratech, (2) Birla and (3) Ambuja. Super plasticizer in the proportion of 0.5 % (0.25Kg/cement bag) should be used.

3. *Reinforcement*

Tor steel of 500 grade & mild steel grade-I shall only be used as per design. /The steel to be used shall be of grade Fe-250, Fe-450 as per design.

The Contractor shall have to procure the steel from open market .The steel procured by Contractor shall be only tested one and the Contractor shall produce manufacturer's test certificate without which it shall not be accepted. Further the Contractor shall arrange to get tested any sample from steel brought at site by him in laboratory at his cost and results should be submitted to the MJP. Defective steel brought by Contractor shall be rejected and will not be allowed to be used.Test certificate stating the chemical composition & characteristics of the product should also be produced.

At least three samples of each diameter should be tested from every 5 tons (MT) or part thereof. Tested lots only will be permitted to be used.

4. *Concrete*

The PCC and RCC work shall be as per IS 456:2000.(OR LATEST REVISION) Concrete mixer shall be used for preparing concrete.

Vibrator shall be used to consolidate concrete while placing in position. Mix design will be allowed only if required for minimum infrastructure like weigh batching plant, Needle vibrator and proper form work is provided.

While concreting, representative samples in form of Test Cubes shall be taken by the MJP supervisor and shall be tested under his supervision, charges of testing shall be borne by the Contractor .Frequency of taking cubes(sampling, accepting criteria, standard deviation values, carting of concrete cubes ,test procedure etc.) should be followed by contractor as per IS:456.

5. ***Water Level Indicator Assembly***

Mercury water level indicator with 15 mm dia. required GI pipes (medium duty), stop cocks (2 nos.), necessary fixtures suitable for staging height upto 15 M and water depth up to 5 M to represent depth of water in tank, etc. shall be provided and fixed by the Contractor as per direction of MJP. The indicator should be fixed to exterior face of column at about 1.5 M above ground level at site or as per requirement of Engineer –in-charge.

6. ***Lightening Arrestor***

Lightening arrestor conforming to IS and Indian Electricity Rules shall be provided. The lowermost portion of tape for 2 metres above ground level and 2 meters below ground level shall be enclosed by 50 mm GI pipe of 'M' class.

7. ***Pipe Railing at free end of Catwalk***

Railing shall be of GI pipes 'A' class not less than 25 mm diameter in two rows and shall be fixed in position to RCC posts or M.S. angle posts of size 65 mm x65 mm x 6 mm,1.0 metre in height, located at a maximum distance of 1.5 M C/C. The railing and the posts shall be provided with two coats of oil paint of approved shade.

8. ***RCC Spiral Staircase***

Suitable RCC spiral stair case should be provided with landing parapet, RCC pardi for approach to the Gallery and top of the ESR,RCC cantilever catwalk (gallery) of 1.20 m width, GI pipe railing shall be provided at floor level, preferably at junction of floor slab and vertical walls and GI pipe railing with RCC post of 1.0 m c/c interval at the roof slab level of the container.

9. ***S.S. Ladder in container***

Two nos of heavy type S.S. Ladder & of required length & design as approved by Department shall be provided by the contractor for each ESR. This shall be for the access inside the tank .The contractor shall furnish to the MJP the various manufacturers of the ladder.

10. ***Centering Work***

Before starting the work of ESR, the Contractor should submit design of centering and its detailed drawing for approval by MJP. This set of drawings shall

be kept at site. This condition shall be applicable for the ESR with Contractor's design.

Designing, Providing & Constructing RCC ESRs Own Design

Specification and Design Criteria for RCC ESR/MBR/GSR/Sump with Contractor's own Design-Designing, Providing and Constructing RCC ESR/MBR

1. ***General Note***

1.1 The Contractor shall quote his offer in Schedule 'B' for the complete work of constructing RCC ESR to be carried out as per his own design based on given data i.e. he shall tender the offer in Schedule 'B' for construction of elevated tank of required capacity including fixing pipes, specials, valves and providing and fixing, lightning conductor, C.I. manhole frame and cover, water level indicator ventilator, etc. complete with his own design and drawings.

The design shall be got checked from the institutes like Government Engineering College. Remarks shall be complied and scrutiny charges shall be borne by the Contractor.

1.2 The Contractor shall submit the name, qualifications and experience of Design Engineer who has prepared detailed RCC calculations or how will prepare design and drawings on acceptance of the tender. The authorised representative of the designer will have to inspect and certify the works at foundation level and every beam level.

1.3 The design Engineer has to prepare and submit a note on design methodology and construction and drawings in two copies through the contractor. The note should indicate general description, and salient features of the design covering the following points

a) Capacity
b) Shape and type
c) Staging height of tank indicating various levels
d) Safe bearing capacity assumed in the design of safe bearing capacity of strata based on actual investigation report of laboratory and type of foundation provided with proper justification.
e) Maximum and minimum subsoil water level.
f) Site plan showing location of ESR.

g) Line diagram showing dimensional and sectional elevation with important levels.

h) Design parameters proposed to be adopted for detailed design.

1.4 This not on design will be subjected to through check by the Engineer-In-Charge of the owner and the tender will be accepted and work order issued by the competent authority only after verification that the design to be offered will fulfill the requirements of the design as per tender specifications.

1.5 After acceptance of tender, the Contractor will have to submit three copies of detailed design and drawings of the structure within 15 days of acceptance of the tender.

1.6 The Design Engineer will be required to attend the office of Engineer-in-Charge for preliminary discussion for scrutiny remarks, etc. whenever required with all reference data, books, IS specifications, etc. at his own cost.

1.7 It will be binding on the Design Engineer of contractor to clarify, modify, redesign and prepare drawing after compliance of scrutiny remarks by the owner or his representative such as an Engineering College, within 15 days of communication of remarks. Even though design will be approved by owner, it will be the entire responsibility of the Design Engineer and the Contractor.

1.8 On approval of the design, contractor shall supply, free of cost, eight sets of design and drawing duly bound for use of the Owner. The Contractor shall also furnish the details of steel requirement along with programme of execution for completion of work within the time limit stipulated in the tender.

1.9 Security deposit of the tenderer shall be forfeited if he fails to modify his design as per scrutiny remarks within specified time after levy of compensations as per tender agreement.

1.10 Even though the design and drawing submitted by the Contractor are approved by the Owner/Engineer-in-Charge, the Contractor will not be relieved of his contractual obligations to hand over the structure in sound condition, duly tested.

1.11 In case of any damage/failure either during construction, testing or after commissioning, whether due to faulty design or defective construction, all repairs or reconstruction of the structure shall have to be carried out by the contractor,

entirely at his risk and cost. No claim for such repairs/reconstruction shall be entertained.

1.12 The design should be with consideration of uplift pressure & seismic pressure.

Design Conditions

The Contractor shall quote with his own design with following conditions:

1. The design of R.C.C. ESR shall be carried out by a designer having minimum Qualification of Post Graduate in Structural Engineering. He shall sign the design and affix his name and stamp.
2. The design shall be carried out in conformity with following IS code.
   a) IS 456:2000
   b) IS 3370 -Part I and IV
   c) IS 875: 1987 Part I to Part IV
   d) IS 11682:1985 for RCC staging of overhead tanks.
   e) IS 1893:1984 with inclusion of seismic zones as per latest circular.
   f) IS 1786 for cold worked steel high grade deformed bars
   (Tor steel of Fe-415 grade & mild steel grade-I shall only be used.)
   g) IS 13920:1993 -for ductile detailing, applicable for ESRs under seismic zone III, IVand V. (Recent editions of IS shall be referred.)
   h) B.S.I. publication S.P. 34 (S and T) 1987.
   i) IS;13928:Ductile detailing of RCC structure.

3. **Foundation for ESR**

   The foundation should have the required safe bearing capacity. Minimum depth of foundation shall satisfy the following criteria.
   a) Depth in soft rock shall not be less than 1M or depth in hard rock shall not be less than 0.5 M.
   b) The total depth in all strata put together shall not be less than 1.50M.
   c) In B.C. Soil, raft shall be provided at minimum of 3M,No extra payment shall be given to the contractor on increase in depth of foundation.
4. The free board shall be included in the depth of water for design purposes.
5. Minimum free board shall be 300 mm; measured below bottom of roof beam.
6. Maximum actual water depth shall not exceed 5.0 M.
7. Clear cover for reinforcement shall be provided as below :
   a) Footing/Raft 50 mm. at bottom and sides & 40 mm. at top
   b) Columns 40 mm.
   c) Braces, beams, slab (Bottom and roof), 40 mm vertical wall, gallery.

8. Minimum thickness of container members shall be as below.

a) Bottom slab and vertical wall 200 mm.

b) Roof slab 120 mm.

9. The design and casting of container members which includes bottom and roof beams, bottom slab, roof slab, vertical wall and gallery, shall be done in M-30 grade of concrete

10. The staging of ESRs (Columns, braces, footing/Raft) shall be designed in M-25 Grade of concrete, however, casting shall be done in M-300 grade of concrete. The concrete of grade M-15 shall be used for PCC work.

11. The staging shall be designed for ductile detailing as per IS 13920/1993,wherever applicable.

12. The width of braces shall be maximum of the following in case of Earth Quake Zone (as applicable) and above.

a) 250 mm.

b) There shall be a minimum distance of 75 mm between two adjacent reinforcement bars provided in the braces as well as beams.

13. Minimum width of brace – 300 mm.

14. Width to depth ratio in case of braces shall preferably be more than 0.30

15. Increase in permissible stresses in braces, for Earth Quake/ Wind force design, will not be allowed.

16. The centre to centre distance between braces shall not exceed 4.50 M for ESR/MBR of capacity less than 5 lakh liters and 6.0 M for ESR/MBR of capacity above 5 lakh liters. At the joints of braces and columns, the links to the column bars shall be tied properly and this shall be thoroughly checked before concreting.

17. Wherever annular raft is provided, the inside and outside width of raft shall be provided in such a way that the centre of gravity of upward reaction shall co-inside with column/raft beam centre.

18. Uplift pressure on the foundation of structure should be considered as per available water table at site in rainy season However, minimum uplift up to 50% of depth of foundation below ground level should be considered in the designs.

19. Epoxy paint as per specifications & 20 mm. thick cement plaster with CM 1:2 proportion with water proof compound shall be provided to the container from inside (including roof beams and roof slabs/dome, etc.)

20. The shape of container may be square or circular. Similarly the column shape may also be square or circular.

21. Minimum size of column (width or diameter) shall not be less than 400 mm. columns, if required to be provided inside container, for supporting roof ring beam/ dome/ slab, may be provided as per design requirements, with minimum size (width or diameter) requirements of 200 mm. Centering should be designed

by the contractor . Same should be approved by the Competent authority before construction. Only steel/ plywood centering shall be used. For design having more than 6 columns, provision of internal bracing is obligatory. All columns shall have the same foundation level as far as possible. In any case the foundation level difference between any two columns shall not exceed 1.50. In such case 'Sway Analysis' of the staging shall be done and additional reinforcement or increase in sizes shall be provided if necessary. When safe bearing capacity of foundation is less than 15Tones/m2 only raft foundation should be provided.

22. Minimum dia. of main bars in the footing shall be 10 mm. and minimum clear distance between reinforcing bars shall not be more than 180 mm.

23. Water density shall be taken as 1000 Kg./Cum and live load on gallery shall be considered as 300 Kg./ m2. Minimum load of water proof treatment on roof slabs be taken as 100 Kg./ m2

24. The diameter, weight per metre, tensile strength and minimum elongation properties of steel, brought by the contractor/supplied by the department, shall be got tested from the approved laboratory before using it. It shall be used only when the test report indicates that the steel is in accordance with the I.S. specifications and design presumptions.

25. i) The inlet, outlet, overflow and bypass piping shall be of cast iron D/F. pipes only.

    ii) Spout type overflow arrangement shall not be allowed. Overflow arrangement shall be from top to bottom as a vertical pipe assembly with proper drainage arrangement.

    iii) For all duck foot bends for inlet, outlet and overflow arrangements, individual columns with footings resting at foundation level of ESR, columns/raft shall be provided.

    iv) The manhole frame and covers, provided in the roof slab, shall be of cast iron only. Mild steel covers shall not be allowed.

    The above four conditions i.e. 25 (i), 25 (ii), 25 (iii), 25(iv) shall be followed without substitutes and equals. No M.S. piping and spout type overflow arrangement shall be accepted, even if rebates, etc. are offered.

    v) Inlet, outlet, bypass and scour valves with chambers shall be provided. The horizontal piping for inlet,, outlet, overflow, bypass upto 8 M from outer brace shall be provided \ and laid without any extra cost.

    vi) Lightening conductor, water level indicator, central ventilator and M.S. ladders/RCC staircase shall be provided as per department specification.

26. The design submitted by the Contractor, shall be got checked from the nearest Government Engineering College/ Government Polytechnic/ reputed Engineering College/reputed Consultants, for which the scrutiny charges shall be borne by the contractor. The delay in checking designs from third party as above shall be

treated as the delay on the part of contractor for operation of tender clauses.

27. Size of inlet,outlet,overflow,bypass piping and valves including scour valve shall be specified as per actual requirements & makes of valves shall also be approved by the Engineer-In-Charge.
28. Capacity of the container of the tank shall be the volume of the water it can store between the designed full supply level and the lowest supply level.
29. Height of staging shall be the vertical difference between lowest supply level and the average ground level and the site of tank.
30. ***Rectification of Defective Members***
    If it is found that certain members are defective and are found giving acoustical or vibration disturbances even though these may be structurally sound, rectification of such members should be done by the contractor free of charge and to the satisfaction of Engineer-In-Charge.

CRITERIA FOR DESIGN OF RCC ESR

1. The structural design of water tank shall confirm the following standard specification & codes of practice of IS.(latest revisions or editions).
   IS:456-Code of practice for plain & reinforced concrete
   IS:875-Code of practice for structural safety of building standards
   IS:3370-Code of practice for concrete structures for storage of liquids(Pat-I to IV)\
   IS:1893-Criteria for earth quake resistant design of structures.
2. Capacity of the container of the tank shall be the volume of the water it can store between the designed FSL & LSL.

2.1 Free board is the indication of space provided above FSL & shall be measured at a vertical distance above FSL up to soffit of beam supporting the roof slab/dome. Free board shall be minimum 30 cm below soffit of beam or slab, in case of domed roof ; Free board may be reduced up to 15 cm.

2.2 The walls of the container shall be designed for free board full condition.

2.3 The tank foundation & other members of the structure shall also be designed for free board full condition.

2.4 Part of the tank in contact with stored water &enclosing water vapor above FSL shall also be constructed in M30 grade of concrete.

2.5 The allowable bearing pressure or safe bearing capacities are indicated in the annexure. The tenderer is, however advised to verify actual strata before tendering & designing the structure 7 offer suitable modification with full justification.

2.6 Notwithstanding anything mentioned above if directed by Engineer-in-Charge the contractor Shall carryout strata exploration mentioned in Para 0.2 of IS:1892:1979 through a Govt. Lab. And adopt bearing capacity so arrived for

design.

2.7 The factor of safety shall be adopted as per clause 6.1 of IS:6403:1971.

2.8 If the foundation consists of individual column footing, minimum clear distance between enter of column shall be equal to the twice the width of footing & clear distance between edges of footing shall not be less than width of footing.

All columns shall have same foundation level as possible. In any case the foundation level difference between any 2 columns shall not exceed 1.50 M . In such a case sway analysis of the staging shall be done & additional reinforcement or increase in size shall be provided if necessary.

2.9 The foundation should be checked for negative pressure on soil due to combined direct & bending stresses .Negative pressure shall not be allowed on the foundation soil. 2.10 Classification of soil & characteristics of soil relevant to SBC & ABB shall be as per soil

investigation reports of Govt.institution/Govt.approved investigators.

2.11 For the design of foundation of the solid raft type, the plate theory shall be adopted.

2.12 In normal circumstances, min 100 mm thick PCC with 100 mm projection all around in M10 with coarse aggregate as metal shall be provided as leveling course. Where injurious soils aggressive water anticipated the leveling course shall be of not weaker than M15 & if necessary Sulphate resisting or other special cement shall be used & the thickness of leveling course shall not be kept less than 150 mm.The ground level within the foundation area of structure shall be consolidate properly with suitable slope to drain out rain water outside the foundation zone.

2.13 In the vicinity of mines, collieries & blasting sites or areas which may be subjected to blast or shock,the tank shall be designed for dynamic forces adopted to shock.

2.14 Column may be assumed as fixed at the top of footing,

2.15 Following shall be the minimum thickness of various members of the tank container.

Roof Slab……120mm
Bottom slab…….200mm
Roof Dome……..100mm
Vertical Wall container……...200mm

3. ***Loads***

3.1 For all RCC & PCC components unit weight of concrete shall be taken as 2500 Kg/M3 & 2400Kg/M3 respectively.

3.2 Water load as snow load shall be taken as per IS: 875:1964 or Latest revision,

Seismic forces shall be as per IS:12893(its latest revision).

4. ***Design***

4.1 Shape of the structure shall be most economically as directed by Engineer-in-charge. & shall be selected depending upon site conditions.

4.2 Design shall be based on worst possible combination of various loads, moments, shears & resultant stresses in the tank in following cases:

1) tank full
2) tank empty
3) uplift pressure, if any.

Tank full means depth of water inside the container is up to full height of container including free board.

4.3 Design shall be based on accepted bases & methods of design as well as the provisions of IS:3370,IS:456,IS:1343,code of practice for pre-stressed concrete IS:2210 (all latest editions shall be referred.)

4.4 Design of members more than those excluded by Cl.5.4 above (i.e.roof walls, floors etc. of the container) shall be based on consideration of adequate resistance undertaking as well as adequate strength. Calculation of stresses shall be as per Para 3:3:2 of IS:3370,Part-II (latest version)

5 ***Permissible Stresses in Concrete for resistance to Cracking.***

5.1 For calculation resistance of members to Cracking the permissible stresses tension (direct & due to bending) & shear shall confirm to the values specified in table 1 of IS:3370 (Part-II)" The permissible tensile stresses due to bending apply to the face of the member n contact with the liquid". In members with thickness less than 225 mm & in contact with the liquid on one side, these permissible stresses in bending shall apply also to the face remote from liquid.

5.2 ***For Strength Calculation***

For Strength Calculation, the permissible concrete stresses shall be in accordance with Para 44 of IS: 456:2000 where the calculated shear stress in concrete alone exceeds the permissible value, reinforcement acting in conjunction with diagonal compression in concrete shall be provided to take the whole of the shear. The maximum reinforcement shall confirm Cl.25.5.1.1&25.5.1.2 of IS: 456:2000.

6. ***Permissible stresses in steel.***

6.1 For Strength Calculation,(concrete assumed to be cracked)the Permissible stresses in steel reinforcement shall be as per Table II of IS:3370(PartII)(its latest revision).For Tor steel the stress shall beas per IS:1786:1979 for cold worked steel high strength deformed bars for concrete reinforcement or its latest revision.

6.2 The modular ratio ‘m’ for different concrete mixes shall be as under.

Grade of Concrete	Modular Ratio ‘m’
M15	19
M20	13
M25	11

6.3 Modulus of Elasticity of concrete EC shall be taken as 5700 ECk where EC is the characteristic cube strength of concrete in N/mm2 as per Cl.5.23.1 of IS:456.

7. ***Age Factor***

7.1 Age Factor for increasing strength shall not be considered for the design.

8. ***Units***

Design should be in Metric units only.

9. ***Detailing***

9.1 Minimum reinforcement for water retaining members Minimum reinforcement in walls, floors .roofs in each of 2 directions at right angles shall have an area of 0.3% of the concrete section in that direction for sections up to 100 mm thick. For thickness greater than 100 mm & less than 450 mm the minimum reinforcement in each of the 2 directions shall be linearly reduced from 0.3% for sections of 100 mm thick to 0.25 for 450mm thick section. For section of thickness greater than minimum reinforcement in each direction shall be kept at 0.2% .In concrete sections of thickness 225 mm or greater, two layers of reinforcing steel shall be placed one over each face the section in make up the minimum reinforcement specified in the clause.

9.2 The minimum reinforcement specified in 9.1 above may be decreased by 20% in case of high yield strength deformed bars conforming to IS: 1786 or IS 1139 (latest version of IS

shall be followed).

9.3 ***Covers to Reinforcement***

9.3.1 Minimum clear to reinforcement shall be per IS: 456 and IS: 3370 (latest version of IS shall be referred).

9.3.2 For members of structures in contact with water effective shall not be more than 60 mm. for bars subjected to pure tension the effective cover shall not be more than 75 mm

9.4 ***Spacing of Reinforcement***

9.4.1 Spacing of reinforcement shall be as per Para 25.3 of IS:456-1978

9.4.2 Spacing of lateral ties of column shall satisfy the provisions of Para 25.5.3.2 of IS:4562000.

9.4.3 Reinforcement steel which accounts for resisting moment, tension etc. i.e. other than temperature and shrinkage steel, shall comprise minimum 8 mm diameter, For ribbed bars and 10 mm diameter or mild steel bars, for compressive members, the minimum diameter of main reinforcement shall not be less than 12 mm.

NOTES

In case of dispute regarding interpretation of any of the above classes, the decision of the owner or his representative will be final and binding on the designer and contractor. In case of any clause not included in the above criteria, the decision of the owner or his authorized representative will be final and binding on the designer and contractor.

SCHEDULE OF INTERMEDIATE PAYMENTS FOR SUB-WORK OF MASTER BALANCING / ELEVATED SERVICE RESERVOIR

On approval of design	2%
Excavation and PCC	2%
On completion of Footing	5%
Staging half height	13%
Staging full height	14%
Bottom slab complete	22%
Vertical wall half height	7%
Roof slab	7%
On completion of spiral staircase / M.S ladder	7% 3%
On completion of plastering and finishing	1%
On erection of pipes valves and constructions of chambers	3%
Hydraulic testing	4%
Other Miscellaneous items as per A/T including snowcem, painting water level indicator, lighting Conductor, M.S. ladder and nameplate etc.	4%
Total	**100 %**

Note: *This is tentative and is to be approved by competent authority*

SCHEDULE OF INTERMEDIATE PAYMENTS
FOR SUB-WORK OF BPT / SUMP

On approval of design	2%
Excavation and PCC	2%
On completion of Bed concrete & Footing	10%
Vertical wall half height	17%
Vertical wall Remaining height	18%
Roof slab	10%
On supply pipes valves and specials	15%
Plaster finishing	5%
On erection of pipes valves and constructions of chambers	3%
Hydraulic testing	10%
Other Miscellaneous items as per A/T including painting water level indicator, lighting Conductor, M.S. / SS ladder and nameplate etc.	5%
Total	**100 %**

Note:

1) As provision for hydraulic testing is made in Sr. No. 9 above no further deduction from any of the other percentages is necessary towards hydraulic testing.
2) This is tentative and is to be approved by competent authority

DESIGN CRITERIA AND ASSUMPTIONS

DESIGN STANDARDS

The structural design of the tank shall conform to the following standard specifications and code of practice of the ISI, IS:456, codes of practice of plain and reinforced cement concrete (latest edition).

IS:3370 _ Code of practice for concrete Part-I to IV structures for storage of liquids (latest edition) ISI, IS:875 (Revised-1984).(Latest edition)

Part – I	Dead Load
Part – II	Imposed Load (87)
Part - III	Wind Load (87)

IS:1682-1985 Criteria for design of RCC staging for overhead water tanks issued by Bureau of Indian Standards.

DESIGN OF STRUCTURES

The above Indian Standards current on the date of tender shall be applicable to the design of structure on item not specifically covered by Indian Standard Code of Practice Reference shall be made to relevant standard specifications.

Construction of Various capacities RCC ESR

1. The reservoir will be a covered RCC container supported on RCC column with footing and intermediate braces, etc. as per drawing.

2. Suitable RCC spiral stair case should be provided with landing parapet RCC pardi for approach to the gallery and top of ESR. RCC cantilever catwalk (gallery) of 1.20 M width G.I. pipe railing shall be provided at floor level, preferably at junction of floor slab and vertical walls and G.I. pipe railing with RCC post of 1.0 M c/c interval at the roof slab level of container.

Ventilators shall be provided on top slab of ESR.

One number of C.I. manhole frame and cover shall be provided and fixed in the roof of tank.

One M.S. ladder shall be provided and fixed for access into the tank through manhole left in the roof. Ladders shall be provided as per specifications.

Water level indicator (Mercury) assembly of approved type shall be provided and installed.

Lightening arrestor as per IS specifications and confirming to IE Rules shall be provided and fixed.

Vertical and horizontal pipe of CID/F flanged pipes, M.S./C.I. specials of required sizes for inlet, outlet and overflow arrangements together with suitable sluice valves shall be provided as per drawings. For washout one tee shall be fixed on the outlet pipe with one valve of suitable diameter.

Sluice valves of required size shall be fixed for inlet, outlet and washout. These valves shall be supplied by the contractor, confirming to relevant IS and of makes approved by Maharashtra Jeevan Pradhikaran.

Required number of B.B, masonry chambers of suitable size as directed with C.I. manhole frames and covers shall be provided and constructed at suitable locations for sluice valves.

Water proof cement plaster of CM 1:2 proportion 20 mm thick shall be provided for inside surface of the tank, including roof slab bottom and epoxy painting in two coats be provided as per Specifications.

Out side surface of tank, exposed faces columns, braces, catwalk bottom portion of slab and exposed surface of the tank shall be provided with cement plaster 20 mm thick with CM 1:3 withsmooth finish and then 3 coats of approved water proof cement paint by the Maharashtra Jeevan Pradhikaran shall be rendered.

Letters indicating capacity of tank, name of scheme and year of construction shall be either embossed or engraved on vertical wall of tank and shall be painted with suitable shade of oil paint in 2 coats.

On completion of work hydraulic test or water tightness test shall be given as per standard specification. Therefore, required water arrangements shall be made by contractor at his own cost.

Since this is lump-sum offer, the interim payments will be made at different stages of works contract, as per break-up schedule enclosed. Which is to be approved by competent authority.

Since this is water-retaining structure, contractor shall give a satisfactory hydraulic test of the tank. This test shall be considered as water tightness test and accepted if the structure appears bone dry from outside after filling with water upto full supply level and the drop in water level is not more than 40 mm in 7 days. For this purpose the water filling arrangements shall be made by the contractor at his own cost, including cost of water pumping arrangements etc.

If during testing any damage occurs to the structure, it will be the responsibility of the contractor to rectify the same. Until satisfactory water tightness test is given on completion of work, interim payments to be made at different stages of works, as per schedule of break up of payment enclosed.

Maharashtra Jeevan Pradhikaran/…… Muncipal Corporation/Council

WATER SUPPLY DEPARTMENT

DETAILED SPECIFICATIONS

Due to Geographical situation the levels may vary, while execution of work. Hence, the agency is requested to get the levels confirmed. The material shall be procured after confirming and approval of actual head of pumps, make and size of all respective equipments by the Superintending Engineer (M). The pumping machinery and allied equipments will be allowed to supply after completion of head works, WTP so as to synchronize the commissioning of the scheme.

Agency has to submit the layout drawing of pumping machinery, sub-station and individual drawing of all equipments for approval well in time or as directed by the Executive Engineer (M).

Test Certificate and Manuals

The successful tenderer shall submit the test certificate for various components as called for in the specification if necessary and required by the Engineer. Certificate for material of construction of equipment shall be furnished. The successful tenderer shall also submit instruction manual in duplicate covering operation, maintenance and repairs of all equipments including wiring diagrams and charts in duplicate for periodical maintenance of equipment.

Rectification of any defects during guarantee period of pump, motor, transformer and all allied electrical and mechanical, civil work shall be carried out immediately, so that water supply should not be hampered.

The necessary opening required for erection of pump set, cable, entry pocket, cable duct etc. shall be discussed during joint visit, so that during casting of floor, beams suitable arrangement is made.

The guarantee period starts from date of commissioning of the equipment. The defect liability period for the pumping machinery will be counted from the date of Trial Run of entire scheme for a period of 12 months. During this period all wear and tear to pumping machinery is to be borned by the Contractor. Considering this offer may be quoted

Mode of Payment

Break-up of the payment admissible for pumping machinery and other Electrical, Mechanical items shall be as under :

- 70% against supply of material as per approval
- 15% after completion of erection at site
- 10% after satisfactory commissioning of equipments
- 5% after satisfactory operation of 12 months.

4.0 COPPER LIGHTENING CONDUCTOR

(Sub-Work No……, Item No……..)

The contractor shall ensure that any structure must or other installations provided by him is adequately designed to minimize damage to the works from lighting strike.

Any lighting conductor shall be design in accordance with the edition of the appropriate Indian Standard Code of Practice IS:2903:1969.

Mode of Measurement & Payment and Payment

The item shall measured and paid in per No. basis

6.0 PROVIDING AND FIXING M.S. LADDER

(Sub-Work No……, Item No……..)

6.1 Ladder shall be manufactured as per the details provided in the tender item. All the materials and labour required for executing the item are to be provided by the Contractor at his cost. The ladder shall be properly fixed at site as directed and the bottom and top shall be properly embedded in 1:2:4 CC block as directed at Contractor's cost. In order to have stiffness to the ladder, cross supports or stiffeners at suitable intervals as directed, shall be provided of suitable M.S. flats duly embedded in walls or welded to the ladder. The specification for this item as given in the Standard Specification Book (Red Book) published by PWD Department shall be followed.

Mode of Measurement & Payment & Payments

The item shall be measured and paid in Rmt basis.

7.0 RUBBLE STONE SOLING

Sub-work No……, Item No…….)

7.1 GENERAL

After the structural foundation, plinth construction and filling are completed, rubble soling of specified thickness shall be laid over the consolidated plinth filling, hand packed and compacted. The specification of the work as per Standard Specification Bd.A-12)

7.2 MATERIALS

The stones to be used shall be broken rubble with fairly regular shape and free from weathered, soft and decayed portion. The rubble shall be of sound stones of the type mentioned in the item and selected for their larger size. Stones shall be of the full height of the soling and the length and width shall not generally exceed 2 times the height. The stones to be used for wedging in the joints between larger stones, shall be chips of the largest size possible to fit in the interstices. All sound and suitable rubble obtained from the foundation excavation and approved by the Engineer shall be necessarily made use of first unless otherwise directed.

7.3 CONSTRUCTION

The bed on which rubble filling is to be laid shall be cleared of all loose materials, leveled, watered and compacted and got approved by the Engineer before laying rubble soling.

Rubble soling shall be laid to the specified thickness closely packed by hand and firmly with their broadest face downwards. The interstices between adjacent stones shall be wedged in with stones of the proper size and shape and well driven in with wooden mallets to ensure a tightly packed layer. Such wedging shall closely follow the placing of the larger stones. After hand packing and wedging, compaction of the soling shall be done thoroughly with lograrmmers. Adequate care shall be taken by the contractor while laying and compacting the rubble soling to see that the masonry or any part of the structure Is not damaged. Rubble soling shall be started only after the masonry is fully cured.

7.4 BROKEN RUBBLE

a) Supplying broken rubble of approved of approved quality and size at site.

b) All labour, material, tools and equipment for handling, laying, hand packing and compacting the rubble.

7.5 Any other incidental charges to complete the work as per sanctioned plan.

MODE OF MEASUREMENT & PAYMENT

Rubble soling shall be measured and paid in cubic meters limiting the dimensions to those shown on the drawings or as directed by the Engineer. The dimensions shall be measured correct to 2 places of decimals of a meter and quantities worked out correct to 2 places of decimals of a cubic meter. No deduction shall be made for voids.
The correct rate shall be for a unit of 1 cum

9.0 PROVIDING AND APPLYING WASHABLE OIL BOUND DISTEMPER.

(Sub-Work No. Item No.)

The surface to be distempered shall be cleaned and all cracks, boles and surface defects shall be repaired with gypsum and allowed to set hard. All irregularities shall be sand papered smooth and wiped clean. The surface so prepared must be completely dry and free from dust before distempering is commenced. In the case of walls newly plastered, special care shall be taken to see that it is completely dry before any treatment is attempted.

The washable oil bound distemper of the approved shade of colour conforming to IS:428:1969, shall be used after applying priming coat of petrifying liquid or other primer as may be recommended by the manufacturers of the distemper.

The rate shall include all labour, material, equipments and tools for carrying out the following operations.

- Providing the primer and distemper and mixing the distemper.
- Scaffolding
- Preparing the surface to receive the primer and finishing coats.
- Applying the priming coat
- Applying the distemper as specified above in the number of coats, mentioned in the item.
-

Mode of Measurement & Payment

This item will be measured and paid in Sqm basis.

11.0 PROVIDING PRESSURE GROUTING

(Sub Work No., Item No……)

Providing pressure grouting at a pressure of 0.56 kg/sqcm in required row /zigzag fashion as specified at 1.50 m interval as per site condition to stop leakages through water retaining structures to the entire satisfaction of the Engineer-in-charge including material compound ,hardening materials, compressor equipment including scaffolding smooth finishing etc. complete.

MODE OF MEASUREMENT

This item will be measured and paid as per Bag. basis.

12.0 DESILTING THE SUPPLY WELL

(Sub Work No., Item No.)

Desilting the Supply Well, Intake Well / Head Works, sump of water supply/ sewerage works etc. in wet or dry condition including lifts upto 9 M and lead upto 150 M as required beyond the work site, stacking, spreading, including necessary guarding, etc. complete, as directed by Engineer-in-charge.

MODE OF MEASUREMENT

This item will be measured and paid as per Cum. basis.

3. LOWERING AND FIXING OF SLUICE VALVES/KINETIC AIR VALVES

(Sub-work No., Item No.)

This item includes fixing of valves at work site including cost of transportation, loading, unloading, etc. all materials and labours required for fixing, including testing. The size of nuts, bolts and packing shall be as per IS specifications and suitable for the type of valves and as per the directions of the Engineer-in-charge. The location of the valves shall be decided by the Engineer-in-charge. Before any of these valves are fixed at the pre-determined position, these shall be cleaned, greased and it shall be checked that these are in proper working condition. Sluice valves shall be properly supported on wooden sleepers till the anchor blocks sets.

Sluice valve - PN ……	….. mm dia.
	……. mm dia
	……. mm dia
Air valve (Double Ball)	……mm dia
Kinetic Air valve PN-……	…… mm dia

Hydraulic Testing

The pipeline and valves should be hydraulically tested upto the required pressure as per IS, satisfactorily and leakages if any should be repaired at the time of hydraulic testing. The 10% amount of the lowering, laying and jointing the pipe shall be released after satisfactory hydraulic testing. Contractor should make his own arrangements at his own cost for water, for hydraulic testing of pipeline. He should not relay upon completion of the any other sub-works for such testing.

MODE OF MEASUREMENT

The item will be measured and paid on the No. basis. 90% payment will be made after lowering and fixing and remaining 10% will be released after satisfactory hydraulic test.

5. M.S. ROSE PIECES

(Sub-Work No…., Item No….),

The rose pieces shall be fabricated out of 10 mm thick M.S. plates. The strength diameter shall be 1% times the diameter specified in the Schedule-B. The holes to be drilled in strainer portion shall be of ……. mm diameter at …… cm center to center and shall be staggered. The inside and outside surfaces of the rose piece shall be applied with three coats of anticorrosive oil paint and provide closing plate. The item includes cost of all material and labor required for the work, and this item will be executed as directed by the Engineer-in-Charge.

Mode of Measurement & Payment

This item shall be measured and paid in weight per Kg. basis.

PROVIDING FUSION BONDED EPOXY COATING

(Sub-work No, Item No.),)

7.1 Providing fusion bonded epoxy coating to reinforcement bars as per ASTM-755 specification for a thickness of 175 (+50) microns including extra cost on account of careful handling, extra cost on account of using PVC coated binding wire in-stead of G. I. wire, extra cost on account of touch-up material supplied by coating agency and repair work extra cost account of transportation to and fro from steel yard at ---------- to …….. plant at Daman and Plant at Daman to work

site by trailer, loading, unloading, including all taxes (Central and Local), etc. complete

7.2 MODE OF MEASUREMENT AND PAYMENT

The item shall be measured and paid in weight per MT basis.

PROVIDING AND LAYING C.C.FLOORING

(Sub-work No., Item No.)

Providing and laying cement concrete flooring 40 mm thick with cement concrete M-25 laid to proper line, level and slope in alternate days including compaction, filling joints marking lines to give appearance of tiles 30cm x 30cm or other approved design, finishing smooth (with extra cement) in approved colour as directed and curing etc. complete.

MODE OF MEASUREMENT AND PAYMENT

The item shall be measured and paid in weight per Sqm. basis.

REFILLING OF TRENCHES OF PIPELINE

(Sub-work No., ItemNo.),

After lowering, laying, jointing and welding of pipe line, site gunitting and concreting work, refilling of trenches with available excavated stuff shall be done. The available excavated stuff shall be laid in layers of 15 cm to 20 cm. Each layer shall be watered and compacted before the upper layer is laid till the required level is reached. First 2 layers of 15 to 20 cms shall be free from stones or chips or any harmful material, to protect the pipe from damage.

Only soil or soft murum shall be used for filling.

Originally filling shall be done 30 to 40 cms above natural ground or road level. Sinking below the road or ground level, if noticed till the completion of work, the contractor shall have to make it level at his cost.

This item includes,..

a) Clearing useful excavated material of rubbish bracking clods, stone, etc.

b) Conveying the useful excavated material upto 500 M and filling in layers, watering and compacting.

c) All labour, equipment and other arrangements necessary for the satisfactory completion and completion of the item.

Mode of measurement and payment of the rate shall be for a unit of 1 Cum of compacted trench filling with approved excavated material. The measurement shall be net for the compacted filing and no deduction for shrinkage or voids shall be made. However, deduction for pipe volume will be made. Depth of filling for measurement will be limited from natural ground level only. No payment will be made for filling for 30 to 40 cms above natural ground level, if so insisted by the Engineer-in-charge.

Surplus excavated material is the property of Pradhikaran. So contractor is not empowered to sell this excavated material to any other agency.
This disposal will not be considered for initial 500 M lead from edge of pipe line trenches and so will not be paid for.

The material shall be conveyed by means of suitable devices/manner.

The material conveyed to the place of disposal shall either be stocked or spread as directed by Engineer-in-charge or his representative.

The route opening and maintenance, payment of any royalties, compensation to land owners and for damaged of any etc. during the process of conveyance etc. shall be the entire responsibility of the contractor.

90 % payment s made after completion of lowering ,laying and remaining 10% amount will be withheld till satisfactory hydraulic testing of pipe line is given.

Item No Reflux Valve :-

The item includes providing, erecting, jointing with jointing material and commissioning CI, double flanged Reflux Valve of 150 mm. dia. of PN1.6 rating The valve shall conform IS:5312 (part - I). The valves shall be provided with a concrete block for support. The minimum size of reflux valve shall be so selected that, the velocity of water shall not exceed 2.0 M/Sec.

Acceptable makes : As per latest approved list of MJP .

5. MURUM BEDDING

(Sub-Work No, Item No.),

General

The specification contained in the Standard Specification Volume-II published by Public Works and Housing Department, Govt. of Maharashtra, Chapter Bd.A-10, Page 263 shall apply. In addition to above, following specifications shall govern.
Murum bedding shall be done with approved quality of soft murum, selected from excavated stuff and approved by the Engineer-in-Charge. The murum shall be collected from available excavates stuff and to be utilized if murum is not available from selected excavated stuff, it should be brought from outside and rates payable will be as stipulated in the tender item. Thickness of murum bedding will be 15 cm.. The contractor shall be paid for one Cubic Meter of the filling laid and compacted and will be paid upto two place of decimal of Cum.
Murum bedding shall be laid in exact 15 cm thickness for full width of excavation, it shall be well rammed with hand rammers so that pipe line is laid on firm bedding. Collection of murum from excavated stuff and carting upto the work site is included in the item and contractor shall make his own arrangement for procurement and carting of murum at his cost.

Mode of Measurement and Payment

Quantity shall be measured in Cubic Meter. The dimensions shall be measured upto two Decimal of Cubic meters and quantity shall be calculated upto two places of Decimal of Cubic meter. Payment for murum bedding will be made after lowering, laying and jointing of the pipe.

10. B.B. MASONRY CHAMBER

(Sub-Work No. , Item No),

Providing and constructing B.B. masonry valve chambers of internal size …. x ….. and ….. x …… m or as size as per Schedule-B and as per approved drawing for ESR/MBR/WTP etc.

The work is to be carried out as per type design or drawing of the department and as per detailed description of the item in Schedule-B of the tender. Sizes of chamber mentioned in the item are the clear internal dimensions of the chamber after completion of plastering. Unless otherwise mentioned in the wording of item in Schedule-B of the tender the rate for this item shall include following allied works.

a) The cost of extra excavation in all types of strata which is in addition to the line trench, refilling the sides and disposing off surplus stuff will be paid separately under relevant item.

Excavation covered by pipe line trenches coming under M.H. chamber shall not be admissible for payment.

b) Providing and casting at site 15 cm thick bed concrete in CC M-100 below external size of complete chamber.
c) Providing B.B. masonry side walls in 225 mm thick in CM 1:5
d) Providing 20 mm thick plaster in CM 1:3 from inside.
e) Providing cement plaster 20 mm thick in CM 1:3 from outside at least upto 30 cm below ground level.
f) Providing top coping 15 cm thick in M-150 with smooth finishing to surface.
g) Providing and fixing in position pre-cast RCC manhole frame cover.
h) Unless otherwise directed by the department the finished top of the chamber constructed on road surface and shall not cause hindrance to traffic.

Mode of Measurement

This item will be measured and paid as per number basis.

2. PROVIDING AND SUPPLYING C.I./D.I. FLANGED PIPES

Sub-Work No., Item No),

The item includes supply CI/DI flanged pipes as per latest IS and approved by Engineer-in-Charge. The cost of pipe should be including all taxes central and local, railway freight, transportation upto site of work or departmental store.

The item will be measured and paid as per running meter basis.

3. **PROVIDING AND SUPPLYING C.I.FLANGED / S/S SPECIALS**

(Sub-Work No., Item No),

The item includes supply CI flanged/s/s specials as per latest IS and approved by Engineer-in-Charge. The cost of specials should be including all taxes central and local, railway freight, transportation upto site of work or departmental store.

The item will be measured and paid as per kg. basis.

1.0 DISMENTLING OF ESR

(Sub Work No. , Item No.)

Dismantling of ESRs of various capacities and heights using crane (10 MT capacity) and handing over M.S./ C.I./ G.I. pipes, valves, bends, etc. to the Department However taking steel reinforcement by the dismantling agency including removing dismantled materials from site and disposing them at suitable place as directed, etc.complete. Capacity of E.S.R. upto 2 lakh literes and stagging upto 12.00 M height in conjusted area. Note:- Above 12 M staging height add 5% per meters staging of ESR of any capacity.

Mode of Measurement

This item will be measured and paid on per lit. basis.

2.0 **PROVIDING AND ERECTING WIRE FENCING**

(Sub Work No., Item No.)

2.1 Providing and erecting 1.5 meter high wire fencing with seven rows of barbed wire supported on mild steel angles (50 x 50 x 6 mm) at 2.5 meters centre to centre including excavating pit for foundation, fixing posts in cement concrete blocks of size 45 x45 x 45 cm, fastening the wire and painting the mild steel angles with one coat of red lead primer and two coats of painting etc. complete.

2.2 MODE OF MEASUREMENT

This item will be measured and paid as per Rm. basis.

PIMPRI- CHINCHWAD MUNICIPAL CORPORATION
Pimpri- Chinchwad Water Supply

Specification for Consumer Service connection

Providing and making MDPE pipe consumer service connection on HDPE pipe.

Providing and making MDPE pipe consumer service connection on HDPE pipes with the help of electro fusion machine or Ratchet and dye drill including all labour, MDPE pipe upto 10 m length, MDPE specials like double compression elbow, female threaded adopter with metal insert, UPVC compression in ball valve, HDPE (PN6) casing pipe of 32/40 mm for above ground mdpe pipe. The rate to include road cutting by mechanical means, labour required, excavation, fitting, refilling, closing water supply in that area, dewatering and restarting the water supply, transportation etc complete as directed by Engineer in-Charge.

Providing and making MDPE pipe consumer service connection on DI / CI pipe.

Providing and making MDPE pipe consumer service connection on DI pipes with the help of Ratchet and dye drill including all labour, MDPE pipe upto 10 m length, MDPE specials like double compression elbow, female threaded adopter with metal insert, UPVC compression in ball valve, HDPE (PN6) casing pipe of 32/40 mm for above ground mdpe pipe. The rate to include labour required, excavation, fitting, refilling, closing water supply in that area, dewatering and restarting the water supply, transportation etc complete as directed by Engineer in-Charge.

Mode of Measurement-

The measurement of this item shall be taken as per number basis of completed work as per description of item and specification. Payment will be made per number of service connections made. Unit Price includes labour required, excavation, fitting, refilling, closing the water supply in that area, dewatering and restarting the water supply, transportation. 15% amount shall be with held till satisfactory hydraulic testing.

a. TECHNICAL SPECIFICATIONS FOR ELECTROFUSION TAPPING SADDLE FOR HOUSE SERVICE CONNECTION

All the Electrofusion fittings included in this document should be designed for use in water distribution systems and be manufactured/supplied by manufacturers having ISO 9001: 2000 certification for their quality systems. The products should comply with the following specific requirements.

1. The products shall comply with the requirements of BS EN 12201-3: 2003, ISO 4427-3 or ISO 8085-3.
2. All the fittings shall be of SDR 11 rating.
3. The EF Tapping Saddles used for drinking water applications should have undergone type test by WRc-NSF, U.K according to BS 6920 in any of their Certified Laboratories like WRc – NSF/DVGW/KIWA/SPGN/CIPET and certificate of Compliance to be produced for the following parameters:
   a. Odour & Flavour of Water
   b. Appearance of Water
   c. Growth of Micro Organism
   d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)
   e. Extraction of Metals
4. All the EF Tapping Saddle shall be manufactured by injection moulding using virgin compounded PE 80 (MDPE) polymer having a melt flow rate between 0.5 – 1.1 grams/10 minutes and shall be compatible for fusing on either PE 80 or PE 100 distribution mains manufactured according to the relevant national or international standards. The polymer used should comply with the requirements of BS 3412 and/or BS EN 12201-1.
5. The EF Tapping Saddle intended for water distribution applications shall be coloured blue for the clear identification of the services.
6. All the EF Tapping Saddle should be individually packed so that they can be used instantaneously at site without additional cleaning process. The protective packing should be transparent to allow easy identification of the fittings without opening the bags.

7. The electro fusion tapping saddle should be with only a single heating coil to fully electro fuse the fitting to the adjoining pipe or pipe component as applicable. The heating coils shall be terminated at terminal pins of 4.0mm diameter, protected with terminal shrouds.
8. No heating element shall be exposed and all coils are to be integral part of the body of the fitting. The insertion of the heating element in the fitting should be part of the injection molding process and coils inserted after the injection molding process or attached to the body of the fitting as a separate embedded pad etc. are strictly not acceptable.
9. The brand name, size, raw material grade, SDR rating and batch identification are to be embedded as part of the injection moulding process. Each fitting should also be supplied with a barcode sticker for fusion parameters attached to the body for setting the fusion parameters on an automatic fusion control box. The barcode sticker should also include the fusion and cooling time applicable for the fitting for the manual setting of a manual fusion control box.
10. The fittings should be V-regulated type designed to fuse at a fusion voltage of 40 volts AC.
11. The heating elements should be designed for fusion at any ambient temperatures between -5 to +40 degree centigrade with auto temperature compensation using automatic Barcode reader fusion machine i.e. without any compensation of fusion time for different ambient temperatures.
12. A limited path style fusion indicator acting for each fusion zone as visual recognition of completed fusion cycle should be incorporated into the body of each fitting near the terminals. The fusion indicators should not allow the escape of the molten polymer through them during or after the fusion process.
13. The EF tapping saddles should have female threaded outlet to connect necessary compression fitting for further extension of connection.
14. The female threaded outlet should be from sizes ½” to 2” BSP to suit the required House service connections.
15. The outlets should be reinforced with thick female threaded metal inserts of SS 304 grade.
16. The Electro fusion Tapping saddle should be the top loading type which are to be clamped on the mains for fusion using the custom made top loading clamps exerting 1500N (150 kilograms approximately) top load.

17. The pipe fixation shall be achieved by external clamping devices only. The integral fixation devices i.e. Saddles with wrap around clamps made of polyethylene, nylon or any such other material are not acceptable.
18. The EF Tapping Ferrule should be supplied with suitable adaptors for proper positioning of the top loading clamp into the saddle.
19. The tapping on the PE mains shall be achieved by a custom built metal cutter supplied by the manufacturer.
20. The torque required to operate the cutter after fusion on the PE mains should not exceed 45 N-m.
21. The cutter should be designed in such a way that the cut coupon is not allowed to fall into the pipeline and is retained inside the body of the cutter providing a positive sealing of the hole in the cutter head for pressure testing.

b. TECHNICAL SPECIFICATIONS FOR COMPOSITE STRAP SADDLE FOR HOUSE SERVICE CONNECTIONS ON DI PIPES

General Specifications:

1. Clamp saddles for service connection from water distribution mains shall be of wrap around design, wide skirt and wide straps support, which shall reinforce the pipe while providing excellent stability to the saddle.
2. Clamp Saddles for service connections shall be of fastened strap type with threaded outlet for service connection.
3. The service connection threading sizes shall be conforming to IS: 554
4. Clamp saddles shall be suitable for DI pipes of nominal size 3” (NB 80) to 12” (NB 300) with nominal service connection size from ½” (NB 15), ¾” (NB 20), 1” (NB 25), 1 ¼” (NB 32), 1 ½” (NB 40) and 2”(NB 50).
5. The wrap around straps shall be plastic type for firm grip on pipe as well as to protect the coating on the pipe. The strap design shall be such that metallic part of the saddle, if any, shall not come in direct contact with pipe and must insulate the un-identical metals. The saddles shall be single strap type upto pipe sizes of NB 600 and service outlet of ½”, ¾” and 1”.

6. The saddles shall be double strap type for pipe sizes above NB 600 or when the service outlet is 1 ¼”, 1 ½” or 2”.
7. Fasteners shall be threaded type. Fasteners of size ½” (M12) shall be used for saddles of size up to 4” (NB 100) and Fasteners of size 5/8” (M16) shall be used for saddles of size 6” (NB 150) and above.
8. The sealing between the saddle and mains shall be obtained by using a profiled elastomer seal matching to the curvature of the pipe.
9. The seal shall be of elastomer type, suitable for all potable water applications.
10. The Material of construction of the body, fasteners etc. shall be of a non-corrosive material such as engineering plastic (PE/PP) or stainless steel or a combination of both.
11. The design of the saddle body should be such that, the service connection outlet metal insert shall project out towards pipe side and align with the hole drilled on the pipe to ensure positive locking against rocking or creeping on the pipe, as might be caused by vibration, pressure or excessive external loading.
12. The clamp saddles shall be suitable for maximum working pressures up to 16 bars.

Material and Design Specifications:

Saddle Body:

Non corrosive Engineering Plastic body moulded with Stainless steel threaded metal insert for tapping outlet. Also, the stirrup metal plate shall be duly embedded in the plastic body, except at the place of fastener lugs. All metal parts shall be made of SS 202 / 304 or higher grades. Threading size and dimensions shall conform to IS: 554. The body shall have retaining cavity housing for internal and external retention of the elastomeric seal. Sealing shall be achieved by pressure exerted by body while fastening the saddle straps & body on the pipe.

Saddle Strap:

Saddle straps shall be made of plastic with or without metal reinforcement depending on size and injection moulded to prevent galvanic corrosion over the long service life. In case of metal reinforcement, the metal should not come in direct contact with pipe.

Saddle Seal:

It shall be virgin rubber SBR Grade 30 / NBR (NSF 61 approved). It shall be of type pressure activated hydro-mechanical design. It shall be contoured gasket to provide a positive

initial seal which increases with increase in the line pressure. Gasket shall be gridded mat, with tapered ends, with the outlet section having O-ring contacting the saddle body multiple O-rings contacting the pipe, preferably with a Stainless steel reinforcing ring insert moulded to prevent expansion under pressure.

Fasteners:

Stainless Steel Type 202, NC rolled thread,
Tightening torque for ½" (M12) Fastener: 14-15 kg.m and
for 5/8" (M 16) Fastener: 21-23 kg.m

c. COMPRESSION FITTINGS :

Compression fittings used for House service connection comply as per ISO 14236/ ISO17885

Material of Construction

Compression fittings material shall confirm to ISO14236.Clause -5.

A .Body-Polypropylene

b. Nut / Cap –Polypropylene.

c. Clip Ring-POM (Acetylic resin)

d. Packing bush- Polypropylene

e. "O" ring – NBR

f. Threaded metal inserts –SS 304 with BSP Threads

Pressure testing

The pressure rating of compression fittings as per clause 8 of ISO 14236 which shall be PN16

Dimensions:

The Dimension of compression fittings shall be as per clause 7.1 of ISO 14236

Effects on Quality of Water

The Compression fittings intended for conveyance of Potable water for Human consumption to be tested to comply with BS 6920 specifications in any of the laboratories like DVGW / KIWA / SPGN / WRc –NSF / CIPET and certificate of compliance to be produced for the following parameters :

a. Odour & Flavour of Water.

b. Appearance of Water.

c. Growth of Micro Organism

d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)

e. Extraction of Metals.

For clear identification of the water services, the nuts of the fittings should be coloured blue while the body to be black. All fittings with threaded ends should be with BSP threads.

d. UPVC BALL VALVES (STOP COCKS)

Ball Valves used for HOUSE Service Connections comply with ISO 4422 Part 4/ ISO:1452 part 4.

Ball Valves with one end compression for HOUSE Service Connections comply to ISO 4422, Part 4 & ISO 14236.

Material of Construction:

Ball Valve material shall confirm to as per clause 4 of ISO 4422.

a. Body and Handle - UPVC

b .Seals - PTFE

c .O-rings – NBR/EPDM

d. Material of Construction for compression end will as per specifications for compression fittings.

Pressure Rating

The Pressure of the Ball Valve shall be as per ISO 4422 shall be PN 16.

Dimensions:

The Dimensions of the Ball Valve shall be as per Table 3 of ISO 4422.

Effects on Quality of Water

The Ball Valves intended for conveyance of Potable water for Human consumption to be tested to comply with BS 6920 specifications in any of the laboratories like DVGW / KIWA / SPGN / WRc –NSF and certificate of compliance to be produced for the following parameters :

a. Odour & Flavour of Water.
b. Appearance of Water.
c. Growth of Micro Organism
d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)
e. Extraction of Metals.

e. MDPE Pipes

These specifications are for MDPE Blue PE 80 Pipes for House Service Connections of Dia 20 mm to 32 mm OD.

Raw Material

Raw material used to Manufacture MDPE Blue Pipes shall be Virgin Natural Resin PE 80 containing those anti – oxidants, UV Stabilisers & Pigments necessary for Manufacturing of pipes. The Density of Pipes shall be in the Range 0.926 to 0.940 g/cm3 confirming to ISO 4427 Standard. The PE 80 Resin shall have MRS of 8 Mpa.

Effects on Water Quality :

The MDPE PE 80 Blue Pipes shall confirm to clause 3.5 of ISO 4427 for conveyance of Water for Human Consumption. Also the pipes intended for conveyance of Potable water for Human consumption to be tested to comply with BS 6920 specifications in any of the laboratories like DVGW/KIWA/SPGN/WRc-NSF/CIPET and certificate of compliance to be produced for the following parameters

a. Odour & Flavour of Water
b. Appearance of Water
c. Growth of Micro Organism
d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)
e. Extraction of Metals

Pressure Rating:

The Pressure rating of MDPE Blue PE 80 Pipes shall be confirming to Clause 4.1 of ISO 4427:1996.

Colour of Pipes:

The Colour of MDPE PE 80 Pipes shall be BLUE confirming to Clause 3.2 of ISO 4427 : 1996.

Dimensions:

The pipe dimensions shall be as per latest revisions of Clause 4.1 of ISO 4427 : 1996 and pipes upto diameters 32 mm shall be supplied in Coils of 300 mtrs. The internal diameter, wall thickness, length and other dimensions of pipes shall be as per relevant tables of ISO 4427:1996. Each pipe shall be of uniform thickness throughout its length.

The wall thickness of the PE 80 Pipes shall be as per the table given below:

Nominal Dia of MDPE Pipe (mm)	PR rating	Wall thickness	
		Minimum	Maximum
20	PN 16	2.3	2.8
25	PN 12.5	2.3	2.8
32	PN 12.5	3.0	3.5

The dimension tolerances shall be as per ISO 4427 clause 4.1.3

f. Brass Ferrule- Regulating Type

Manufacture and workmanship

All castings shall be sound, free from laps, blow holes and pittings; and both the external and internal surfaces shall be clean, smooth and free from sand. They shall be neatly dressed and no castings shall be burned, plugged, stopped or patched.

Bodies, plugs and other parts shall be truly machined so that when assembled the parts shall be axial, parallel and cylindrical, with surfaces smoothly finished

Material of Construction as per IS 2692:1989

Brass Ferrule material shall confirm to IS 319 Grade I or II.

a. Cap – Brass

b. Body – Brass.

c. Plug – Brass

d. Washer Plate – Brass

e. Metal Washer – Brass

f. Seal – NBR

g. Washer Nut – Brass.

h. Cap Washer – PE Blend.

Size

The threaded outlet of the ferrules shall be from sizes ½” to 1” BSPT to suit the required house service connections.

Type

Brass ferrules shall be of regulating type.

Pressure testing

The pressure rating of brass ferrule shall be as per clause 10.1 of IS 2692:1989 which shall be PN10.

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

PIMPRI CHINCHWAD WATER SUPPLY SCHEME

TQ. Pimpri- Chinchwad DIST.Pune

NAME OF WORK : Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Phase 1nd 2 of Pimpri Chinchwad city under AMRUT Programme.

UNDERTAKING FOR GUARANTEE

I/ We Guarantee that

1. I/We will replace, repair and adjust free of all charges to the employer any part of the work which fails to comply with the specifications of amendment to such specification as referred to in specifications attached to tender, fair wear and tear expected until the completion and for a period of 60 Months for Sub work A & B from the date of acceptance certificate issued under Article-24 of General Conditions of Contract.

2. All the works will be reliable.

3. All the works will be of a type which has been proved in service to be suitable for the duty required by the specifications and will be manufactured and tested in accordance with the appropriate standard specifications approved by the Engineer-in-Charge.

4. I/We accept and abide by the clause relating to quality and guarantee of work.

BIDDER’S SIGNATURE

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

PIMPRI CHINCHWAD WATER SUPPLY SCHEME

TQ. Pimpri- Chinchwad DIST.Pune

NAME OF WORK: Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Phase 1nd 2 of Pimpri Chinchwad city under AMRUT Programme.

DECLARATION

I/We Guarantee that

I/We hereby declare that I/We have made myself / ourselves thoroughly conversant with the local conditions regarding all materials and labor on which, I/We have based our rates from this work. The specifications and requirements for this work have been carefully studied and understood by me/us before submitting the tender.

I/We undertake to use only the best materials, to be approved by the Executive Engineer in-Charge of the work or his duly authorized representative before starting the work and also to abide by this decision.

I/We hereby undertake to pay the labor engaged on the work as per minimum wages Act 1984 applicable to the zone concerned or any other as applicable.

BIDDER’S SIGNATURE

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

PIMPRI CHINCHWAD WATER SUPPLY SCHEME

Name of Work.:- Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Phase 1nd 2 of Pimpri Chinchwad city under AMRUT Programme.

UNDERTAKING FOR GUARANTEE

I / WE GUARANTEE THAT

1. I / WE will replace, repair and adjust free of all charges to the employer any part of the work which fails to comply with referred to in our specifications attached to tender, fair wear and tear accepted until the completion and for a period of four years from the date of acceptance certificate issued under clause 20 of the conditions of contracts.

2. All the work will be reliable.

3. All the work will be of a type, which has been proved in service to be suitable for the duty required by the specification and will be manufactured and tested and approved by the Engineer In-charge.

4. I / WE accept and abide by the clause relating to quality and guarantee of work for complete defect liability of sixty months from the date of submission.

BIDDER’S SIGNATURE

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

PIMPRI CHINCHWAD WATER SUPPLY SCHEME

TQ. Pimpri- Chinchwad DIST.Pune

NAME OF WORK : Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Phase 1nd 2 of Pimpri Chinchwad city under AMRUT Programme.

DECLARATION

1. The local condition regarding all materials such as stone, murum, sand, availability of water, electricity and labor etc. on which I /WE have based our rates for this work. The specifications and requirements of lead for this work have been carefully studied and understood by me before submitting the tender. I /WE undertake to use only the best materials, to be approved to the Executive Engineer In-charge of the work or his duly authorised representative, before starting the work and also to abide by his decision.

2. I / WE hereby undertake to pay the labor engaged on the work as per “Minimum Wages Act 1984” applicable to the zone concerned or any the Act applicable.

BIDDER’S SIGNATURE

SCHEDULE-B

Attached separately as Volume 2

Pimpri- Chinchwad Municipal Corporation

Name of work : Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of Phase 1nd 2 of Pimpri Chinchwad city under AMRUT Programme.

NOTES ON SCHEDULE – " B "

1) Rate mentioned in schedule are inclusive of the following
   a) Carting of materials including loading & unloading etc of the same to the site of the work & inclusive of all mining royalty no extra payment shall be made against royalty charges
   b) Dewatering during entire construction & diversion of flow of water till the completion of work
   c) All the taxes etc for providing the material by the contractor at site.

2) All the work shall be carried out as per red book of standard specifications latest edition & or as directed by the Engineer- in – charge

3) The work is inclusive of clearance of site prior to the commencement of the work & on its completion in all respects & shall hold good for all conditions of weather & approach road condition etc.

4) The quantities indicated are likely to vary on plus / minus side for which no extra claim shall be entertained subject to the provision of clause 38 of agreement form. Quantities exceeding over estimate quantities as per clause 38 will be paid after approval from the competent authority.

5) Water for construction & testing purposes will be arranged by the contractor at his own cost. Municipal Corporation will not supply or take any responsibility thereof.

6) Rates given in schedule 'B' for supply of all types of pipe specials & valves etc. are inclusive of transportation upto the site of work.

7) All the materials brought on site of work should conform to relevant I.S. specifications of latest edition. Cement & reinforcement supplied by the contractor shall be got tested from Govt. recognized institute / VNIT / Polytechnic etc. at the cost of contractor & should submit the test result before its uses. After confirmation of test results as per I.S. material will be allowed for use.

8) Payment :- Agency shall procure the material like pipes, specials valves etc by computing actual quantity required for the work. Payments for excess material procured by the agency will not be considered for payments.

9) In all cases of providing all types of pipes, valves, C.I. S/S specials, C.I. Mechanical joints & specials 60% payment will be released on receipt of material along with manufactures test certificate, & inspection certificate of Third Party (SGS / RITES / any other agency authorized by PCMC). The inspection charges of the Third Party have to be paid by the Contractor.

10) 25% Payment will be released after lowering laying & jointing is completed.

11) 15% Payment will be released on completion of satisfactory hydraulic testing & test certificate is recorded in measurement book.

12) 15% payment for successful hydraulic testing will be with held & will be paid only after satisfactory hydraulic testing is given for items of lowering laying jointing & testing of pipes, specials & valves etc.

13) 5% amount of all R.C.C. item will be kept with held for the receipt of satisfactory cube testing result from Govt. Recognized Institution / VNIT / Polytenic etc.

14) Payment of excess quantities in various items of tender will be regulated as per prevailing M.J.P. Circular.

15) All Valves (Sluice / Butterfly / Air) should be of PN 16 Pressure rating.

16) The cost of preparation of bed for laying of all types of pipes (MS / DI / HDPE) should be included in the cost of lowering, laying and jointing of the particular type of pipes.

PIMPRI CHINCHWAD MUNICIPAL CORPORATION, PIMPRI, PUNE - 18				
WATER TREATMENT PLANT, SECT 23, NIGDI				
Name of Work :- Implementation of Pressurized Water Supply , Reduction in Non Revenue Water (NRW) and Improving the Coverage in various Water Zones of of Pimpri Chinchwad city under AMRUT Programme.				
ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Item No.1 :-				
Excavation for foundation/pipe trenches in earth, soils of all types, sand, gravel and soft murum, including removing the excavated material upto a distance of 50 metres and lifts as below, stacking and spreading as directed, normal dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.				
(MJP CSR 15-16, I.No.1, P.No.35)				
Lift 0 to 1.5 m	80420	Cum	143.85	11568417.00
Lift 1.5 to 3 m	8000	Cum	156.45	1251600.00
Item No.2 :-				
Excavation for foundation/pipe trenches in hard murum including removing the excavated material upto a distance of 50 M and lifts as below, stacking and spreading as directed by Engineer-in-charge, normal dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.				
(MJP CSR 15-16, I.No.2, P.No.35)				
Lift 0 to 1.5 m	147306	Cum	163.8	24128722.80
Lift 1.5 to 3 m	12400	Cum	176.4	2187360.00
Item No.3 :-				
Excavation for foundation/pipe trenches in hard murum and boulders, W.B.M. road including removing the excavated material upto a distance of 50 M beyond the area and lifts as below, stacking and spreading as directed by Engineer-in-charge, normal dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.				
(MJP CSR 15-16, I.No.3, P.No.35)				
Lift 0 to 1.5 m	77655	Cum	183.75	14269106.25
Lift 1.5 to 3 m	8000	Cum	196.35	1570800.00
Item No.4 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation asphalt road including removing the excavated material upto a distance of 50 M beyond the area and lifts as below, stacking as directed by Engineerin-charge, normal dewatering, preparing the bed foundation and excluding backfilling, etc. complete.				
(MJP CSR 15-16, I.No.5, P.No.35)				
Lift 0 to 1.5 m	143200	Cum	451.5	64654800.00
Lift 1.5 to 3 m	13000	Cum	471.45	6128850.00
Item No.5 :-				
Excavation for foundation/pipe trenches in hard rock and concrete road by chiselling, wedging, line drilling by mechanical means or by all means other than blasting including trimming and levelling the bed, removing the excavated material upto a distance of 50 M beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.				
(MJP CSR 15-16, I.No.7, P.No.36)				
Lift 0 to 1.5 m	113622	Cum	765.45	86971959.90
Lift 1.5 to 3.0 m	28000	Cum	785.4	21991200.00
Item No.6 :-				
Refilling the trenches with available excavated stuff with soft material first over pipeline and then hard material in 15 cm layers with all leads and lifts including consolidation, surcharging, etc. complete.				
(MJP CSR 2015-16, I.No.15 / P.No.38)				
	538000	Cum	65.1	35023800.00
Item No.7 :-				
Providing and supplying ISI standard D.I specials and fitting with sealing rubber gasket of S.B.R. complete with cast iron follower gland and M.S. bolts coated or otherwise protected from rusting and suitable for D.I. pipes including cost of labour, materials, and transportation to stores / site, loading and unloading including all taxes etc. complete as per I.S.-9523.				
For all types of specials, bends, tees, etc.				
(MJP CSR 15-16, I.No.10 / P.No.69)				
80 to 300 mm dia.	151700	Kg	101.7	15427890.00
350 mm dia. & above	180000	Kg	123.5	22230000.00
Item No.8 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supplying ISI standard MS specials of required thickness with 3 coats of approved make epoxy paint (Shalimar, Ciba or Mahindra & Mahindra make) from inside and outside including all taxes (Central and local), octroi, inspection charges, transportation to stores / site, and stacking etc. complete. Double flanged specials of all diameter/ all socketted specials or socketted branch flanged specials of all diameters / plain ended specials or plain ended branch flanged specials of all diameters.				
(MJP CSR 15-16, I.No.7 / P.No.68)				
	188000	Kg	64.2	12069600.00
Item No.9 :-				
Lowering laying in position to correct line and level including M. S. specials with / without any outcoating such as distance pieces, straps, bends, tapers, etc. on pedestals or chairs upon formation. The rate to include loading, unloading hoisting, marginal cutting wherever required, assembling and tack welding, and transportation upto 500M etc. complete.				
(MJP CSR 15-16, I.No.2 / P.No.206)				
From 750 mm to 1000 mm dia (8 mm to 12 mm thk)	200	Rmt	886.2	177240.00
From 500 mm to 750 mm dia (5 mm to 8 mm thk)	200	Rmt	589.05	117810.00
Item No.10 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supplying at site of ductile iron / spheroidal graphite (S.G.) iron D/F non-rising spindle resilient seated glandless sluice valves with handwheel & without bypass arrangement. Valves in accordance with BS 5163 of PN-10/ 16 rated, with body and bonnet of ductile iron confirming to IS 1865 Gr. 500/7 or Gr.400/15. Wedge fully encapsulated WRAS approved EPDM rubber (approved for drinking water), Wedge nut of brass, shaft of stainless steel1.4021/1.4104, stem seals min. 3 nos. of NBR, internal fasteners of stainless steel A2. Body & Bonnet coated inside & outside with electrostatically applied epoxy powder coated blue colour (suitable for drinking water) as per DIN 30677-2 & GSK guidelines with a coating thickness of min. 250 microns. Valves should be full bore & tight shut-off. Flange drilling as per IS 1538 raised face & pressure testing at manufactures works shall be done as per IS 14846. Including all taxes and transportation charges etc. complete.				
(MJP CSR 15-16, I.No.6, P.No.160)				
80 mm dia sluice valve	10	No.	12495	124950.00
100 mm dia sluice valve	244	No.	15480	3777120.00
150 mm dia sluice valve	138	No.	21592	2979696.00
200 mm dia sluice valve	61	No.	34269	2090409.00
250 mm dia sluice valve	4	No.	60712	242848.00
300 mm dia sluice valve	104	No.	81384	8463936.00
350 mm dia sluice valve	35	No.	186265	6519275.00
400 mm dia sluice valve	23	No.	224763	5169549.00
450 mm dia. sluice valve	20	No.	307116	6142320.00
500 mm dia. sluice valve	17	No.	387849	6593433.00
600 mm dia. sluice valve	12	No.	561134	6733608.00
Item No.11 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supplying at site of ductile iron / spheroidal graphite (S.G.) iron D/F double eccentric resilient seated short body butterfly valves with gear box & handwheel, without bypass arrangement. Valves in accordance with BS EN 593 of PN 10/16 rated, with body & disc of ductile iron confirming to EN 1563/IS 1865 Gr.500/7 or Gr.400/15, Body seat of intergral SG Iron/S.S. AISI 316, seal retaining ring of steel C45/S.S. 1.4436, Shaft of S.S. 1.4021, Periferial disc seal and "O" rings of WRAS approved EPDM rubber (suitable for drinking water), Internal fasteners of stainless steel A2. Body & disc coated inside & outside with electrostactically applied epoxy powder coated blue colour. (suitable for drinking water.) as per DIN 30677-2 & GSK guidelines with a coating thickness of min. 250 microns. Valves should be 100% tight shut-off. Face to face is per IS 13095 short body. Flange drilling as per IS 1538 raised face & pressure testing at manufactures works shall be done as per IS 13095. Including all taxes and transportation charges etc. complete.				
(MJP CSR 15-16, I.No.5, P.No.159)				
300 mm dia.	103	No	144863	14920889.00
350 mm dia.	7	No	171248	1198736.00
400 mm dia.	22	No	195427	4299394.00
450 mm dia.	10	No	264900	2649000.00
500 mm dia.	10	No	317534	3175340.00
600 mm dia.	8	No	474638	3797104.00
700 mm dia.	4	No	668304	2673216.00
800 mm dia.	6	No	817480	4904880.00
900 mm dia.	1	No	990522	990522.00
Item No.12 :-				
Providing PRV with straight type body and rolling diaphragm 150 mm and above				
(As per Approved Rate Analysis)				
100	5	No	228300	1141500.00
150	4	No	329250	1317000.00
200	8	No	536400	4291200.00
300	6	No	1151237	6907422.00
400	5	No	1766176	8830880.00
Item No 13 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supplying at site ductile iron / Spheroidal Graphite (S.G.) iron single / Double chamber tamper proof air valve without isolating sluice valve. Valves in accordance with BSEN 1074-4 of PN 10/16 rated, with body and bonnet of ductile iron confirming to EN 1563/IS 1865 Gr. 500/7 or Gr.400/15 floats, float guide, seat ring of stainless steel 1.4436/1.4306, seat ring gasket of WRAS approved EPDM rubber (suitable for drinking water), internal fasteners of stainless steel A2. Body & Bonnet coated inside & outside with electrostatically applied epoxy powder coated blue colour (suitable for drinking water) as per DIN 30677-2 & GSK guidelines with a coating thickness of min. 250 microns. Flange connections as per IS 1538 raised face & pressure testing at manufactures works shall be done as per IS 14845. Including all taxes and transportation charges etc. complete.				
(MJP CSR 15-16, I.No.7 / P.No.161)				
80 mm	19	No	22820	433580.00
150 mm	8	No	29041	232328.00
100 mm	48	No	28071	1347408.00
200 mm	5	No	40610	203050.00
Item No.14 :-				
Lowering, laying and jointing in position following C.I. D/F Reflux valves, Butterfly valves and Sluice valves including cost of all labour jointing material, including nut bolts and giving satisfactory hydraulic testing etc.complete. (Rate for all class of valves.)				
(MJP CSR 15-16, I.No.4, P.No. 159)				
80 mm dia	20	No.	1587.6	31752.00
100 mm dia	267	No.	2073.75	553691.25
150 mm dia	144	No.	3260.25	469476.00
200 mm dia	66	No.	3391.5	223839.00
250 mm dia	4	No.	4418.4	17673.60
300 mm dia	206	No.	4584.3	944365.80
350 mm dia	42	No.	5649	237258.00
400 mm dia	45	No.	6815.55	306699.75
450 mm dia.	30	No.	8108.1	243243.00
500 mm dia.	15	No.	8396.85	125952.75
600 mm dia.	15	No.	8911.35	133670.25
700 mm dia.	4	No.	9607.5	38430.00
800 mm dia.	3	No.	12610.5	37831.50
900 mm dia.	1	No.	13380.15	13380.15
Item No. 15 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Lowering, laying and jointing with SBR rubber gaskets D.I. K-9/CI S/S pipes of various classes with CI/MS specials of following diameter in proper position, grade and alignment as directed by Engineer in charge including conveyance of material from stores to site of work, including cost of jointing materials and rubber rings labour, giving hydraulic testing etc. complete.				
(MJP CSR 15-16, I.No.2a / P.No. 63)				
(without cost of rubber rings as one ring is provided with each pipe)				
150 mm dia	697	Rmt	77.7	54156.90
250 mm dia.	111	Rmt	135.45	15034.95
300 mm dia.	87674	Rmt	147	12888078.00
350 mm dia.	6844	Rmt	182.7	1250398.80
400 mm dia	31532	Rmt	219.45	6919697.40
450 mm dia	5081	Rmt	219.45	1115025.45
500 mm dia	15685	Rmt	254.1	3985558.50
600 mm dia	6182	Rmt	333.9	2064169.80
700 mm dia	2178	Rmt	430.5	937629.00
800 mm dia	126	Rmt	590.1	74352.60
900 mm dia	423	Rmt	704.55	298024.65
1000 mm dia	1038	Rmt	833.7	865380.60
Item No. 16 :-				
Making cross connection to existing transmission main of any type including excavation, breaking and removing existing pipes, lowering, laying of specials and pipes in their position, refilling, closing the water supply in that area, dewatering and restarting the water supply etc. complete as directed by Engineer in charge for following diameters of existing pipeline, irrespective of diameter of branch line 9the number of joints involved will be paid separately depending upon the nature of joints and required pipes, valves and specials will be supplied free of cost at stores).				
(MJP CSR 15-16, I.No.10 / P.No.55)				
100 mm dia	450	No	2073.75	933187.50
150 mm dia	253	No	2563.05	648451.65
200 mm dia	145	No	2668.05	386867.25
250 mm dia.	1	No	3142.65	3142.65
300 mm dia.	129	No	3813.6	491954.40
350 mm dia	10	No	4641	46410.00
400 mm dia.	53	No	5458.95	289324.35
450 mm dia	8	No	6272.7	50181.60
500 mm dia	29	No	7775.25	225482.25
600 mm dia	13	No	13463.1	175020.30
700 mm dia	6	No	16651.95	99911.70

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
800 mm dia	2	No	26994.45	53988.90
900 mm dia	1	No	35515.2	35515.20
1000 mm dia	2	No	49854	99708.00
Item No. 17 :-				
Supplying of C.I. mechanical compression Flanged / Socket Tail Pieces (Popular known as I-TM flanged / socket tail piece) suitable for making flanged connection with the plain barrel of C.I. spun pipes (As per IS 1536/2001) and D.I. pipes (As per IS 8329/2000). The tail piece to be suppplied complete with sealing rubber gasket of S.B.R. cast iron follower glands and mild steel nut bolts. The whole assembly should be mechanically and hydraulically tested as per provisions laid down in IS 1530/1993. The rates are inclusive of cost of material, forwarding charges, sales tax, loading, transportation and unloading at departmental store etc. complete as directed.Consignes but exclusive of octroi Duty and any other Govt. levies etc.				
(MJP CSR 15-16, I.No.1 / P.No.173)				
100 mm	490	No	1313	643370.00
150 mm	244	No	2363	576572.00
200 mm	56	No	3062	171472.00
250 mm	78	No	4619	360282.00
300 mm	469	No	5170	2424730.00
350 mm	118	No	6819	804642.00
400 mm	438	No	8901	3898638.00
450 mm	86	No	10448	898528.00
500 mm	188	No	13129	2468252.00
600 mm	132	No	16835	2222220.00
700 mm	16	No	22961	367376.00
750 mm	12	No	27902	334824.00
Item No. 18 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and making B.B.M Road surface with seal coat of excavated trenches of water lines and sewer lines in three layers consisting of necessary excavation of trenches with 0.30m of murum filling in trench. Above it two layers of 60mm trap/granite/gneiss/quartzite stone metel 0f 0.15m thick and hard murum (1/4 qty.of 60mm metal) each as a first and second layers. 40mm trap granite/gneiss/quartzite stone metal of 0.10m thick and soft murum (1/4 qty.of 40mm metal) as a third layer. and above it 75mm thick BBM with seal coat, compaction of final layer, including leads and lifts, conveying, and stacking, spreading, watering and necessary excavation and removing the surplus material etc.complete as directed by Engineering-in chrage.				
(As per Approved Rate Analysis)				
	324074	Sq.m	571	185046254.00
Item No. 19 :-				
Providing and supplying in standard lengths Polyethelene Pipes, conforming to IS-4984/ 14151/12786/13488 with necessary jointing material like mechanical connectors i.e. thread/insert joint/quick release coupler joint/compression fitting joint or flanged joint, including all local & central taxes, transportation & freight charges, inspection charges, loading/ unloading charges, conveyance to the departmenal stores/ site and stacking the same inclosed shade duly protecting from sunrays and rains, etc. complete. without ED				
(MJP CSR 2015-16, I.No.1c, P.No.129)				
P.E. 100				
10 Kg/sq.cm				
110 mm dia.	222013	Rmt	364	80812732.00
160 mm dia	63861	Rmt	760	48534360.00
200 mm dia	69368	Rmt	1130	78385840.00
Item No 20 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supply of electro fusion fittings in accordance with BS EN 12201:Part-3 suitable for drinking water with in black/blue colour manufactured from compounded PE100 virgin polymer and compatible with PE100 pipes, in pressure rating SDR11 with min PN 12.5 rated for water application and shall be inclusive of all cost such as testing, all taxes related to central, state and municipal, inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete.				
(MJP CSR 2015-16, I.No.2, P.No.137)				
A. Couplers				
110 mm dia.	2200	Nos	564	1240800.00
160 mm dia	5000	Nos	1334	6670000.00
200 mm dia	11500	Nos	2151	24736500.00
B. Equal TEE				
110 mm dia.	888	Nos	1913	1698744.00
160 mm dia	270	Nos	4573	1234710.00
200 mm dia	246	Nos	9207	2264922.00
C. Elbow 90 degree				
110 mm dia.	1097	Nos	545	597865.00
160 mm dia	556	Nos	1518	844008.00
200 mm dia	289	Nos	2277	658053.00
D. Elbow 45 degree				
110 mm dia.	1072	Nos	545	584240.00
160 mm dia	416	Nos	1278	531648.00
200 mm dia	238	Nos	1760	418880.00
D) Reducers				
160 x 110	290	Nos	1164	337560.00
200 x 160	140	Nos	1717	240380.00
D) END CAP				
110 mm dia.	620	Nos	419	259780.00
160 mm dia	260	Nos	940	244400.00
200 mm dia	100	Nos	1747	174700.00
Item No. 21 :-				
Providing and installation Pipe ends and slip on flange (PE 100, HDPE) to connect HDPE to metal pipe including all local and central taxes etc.				
(As per Approved Rate Analysis)				
110 mm dia.	450	No	377.87	170041.50
160 mm dia	300	No	888.7	266610.00
200 mm dia	175	No	1560.48	273084.00
Item No. 22 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Lowering, laying and jointing HDPE/ MDPE pipes in proper position including all specials by compresion fitting / electrofusion and butt fusion jointing procedure including hyd. testing as per relevent IS code complete with all materials for jointing procedures like electro fusion machine, ele. mirror/ heater, butt fusion welding machine with hyd. jack, top loading clamp, etc pump and accessories for hyd. testing and all laour as directed by engineer in charge as per IS 7634 Part II.				
(MJP CSR 2015-16, I.No.3, P.No.133)				
110 mm	219779	Rmt	64.05	14076844.95
160 mm	63194	Rmt	105	6635370.00
200 mm	69015	Rmt	116.55	8043698.25
Item No. 23 :-				
Dewatering the excavated trenches and pools of water in the building trenches/ pipeline trenches, well works by using pumps and other devices including disposing off water to safe distance as directed by Engineer-in-charge (including cost of machinery, labour, fuel) etc complete.				
(MJP CSR 2015-16, I.No.14, P.No.38)				
	35000	Hp/hr	63	2205000.00
Item No. 24 :-				
Cutting and champhering of pipes of following dia including cost of all materials and labour involved etc. complete as directed by Engineer-in charge(for all class of pipes.)				
(MJP CSR 15-16, I.No. 23/ P.No.169)				
150 mm dia.	37	No	65.1	2408.70
250 mm dia.	2	No	119.7	239.40
300 mm dia.	254	No	141.75	36004.50
350 mm dia.	150	No	144.9	21735.00
400 mm dia.	135	No	183.75	24806.25
450 mm dia.	81	No	214.2	17350.20
500 mm dia.	36	No	256.2	9223.20
600 mm dia.	31	No	311.85	9667.35
700 mm dia.	15	No	367.5	5512.50
800 mm dia.	3	No	479.85	1439.55
900 mm dia.	1	No	528.15	528.15
1000 mm dia.	2	No	574.35	1148.70
Item No. 25 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Supply of C.I. Mechanical compression collar couplings (Populary known as Jiffy TM collar coupling) suitable for C.I. Spun pipes (As per IS 15362001) and D.I. Pipes (As per IS 8329-2000) complete with sealing rubber gasket of S.B.R., cast iron follower glands and mild steel nut bolts. The whole assembly should be mechanically and hydrualically tested to the provision as laid down in IS 1538/1993. The rates are including cost of material, forwarding charges, sale tax, loading, transportaion and unloading at departmental store etc. complete.Consignes but exclusive of octroi Duty and any other Govt. levies etc.				
(MJP CSR 15-16, I.No.2 / P.No.173)				
150 mm	4	No	1399	5596.00
300 mm	104	No	3275	340600.00
350 mm	10	No	4037	40370.00
400 mm	20	No	6283	125660.00
450 mm	6	No	7054	42324.00
500 mm	32	No	9640	308480.00
600 mm	11	No	12025	132275.00
700 mm	2	No	15710	31420.00
Item No. 26 :-				
Valve Chamber with Precast steel fibre reinforced concrete frame & covers (S.F.R.C. frame and covers) :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:3:6 proportion PCC bedding, excluding excavation, B.B. masonry in C.M. 1:5 Proportion precast S.F.R.C. frame and cover, etc. complete as directed by Engineer-in-charge.				
(MJP CSR 2015-16, I.No.3, P.No.271)				
a) 0.9 m x 0.9 m x 1.2 m	33	No	12957	427581.00
b) 1.2 m x 1.2 m x 1.5 m	74	No	17883.6	1323386.40
c) 1.5 m x 1.5 m x 1.5 m	94	No	23745.75	2232100.50
d) 1.50 m x 1.50 m x 2.1 m	30	No	28288.05	848641.50
Item No. 27 :-				
Providing and laying in situ,following grade of plain cement concrete of trap granite / quartzite / gneiss metal for foundation and bedding including normal dewatering formwork compaction and curing etc. complete.				
(PWD DSR/2015-16/BD-E-CD-3/160)				
1:2:4 (M150)	6500	Cum	5178.23	33658495.00
Item No. 28 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and casting in situ Cement Concrete of trap/ granite / quartzite / gneiss metal of approved quality for RCC works as per detailed drawings and designs or as directed by Engineerin- charge including normal dewatering, centering, form work, compaction, finishing the formed surfaces with CM 1:3 of sufficient minimum thickness if special finish is to be provided and curing, etc. complete. (By weigh batching and mix design for M-250 and M-300 only. Use of L&T, A.C.C., Ambuja, Birla Gold, Manikgad, Rajashree, etc. cement is permitted.) (Excluding M.S. or Tor reinforcement)				
(PWD DSR/2015-16/BD-F-3/298)				
RCC footing M20 with crushed sand	3500	Cum	5411.26	18939410.00
Item No. 29 :-				
Providing and fixing in position TMT - FE - 500 steel bar reinforcement of various diameters for RCC piles, caps, footings, foundations, slabs, beams, columns, canopies, staircases, newels, chajjas, lintels, pardies, copings, fins, arches, etc. as per detailed designs, drawings and schedules; including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required, etc. complete. (including cost of binding wire)				
(PWD DSR/2015-16/Bd-F-17/308)				
T.M.T. FE - 500	70	M.T.	54600	3822000.00
Item No. 30 :-				
Manufacturing Providing and supplying spirally welded , ERW , SAW fabricated M.S. Pipe (commercial quality) including procurement of plates , gas cutting to required size , rolling tack welding asembling in suitable lengths to form pipes , welding on automatic welding machine and forming 'V' edges on both ends of pipes , povding and applying epoxy paint of shalimar or ciba make as per specifications including all taxes (central and local) railway fright , insurance unloading from railway wagon , loading in to truck transportation to store / site / unloading stacking etc. complete. as per IS-3589 and IS-5504 as applicable as per specifications. (No negative tolerence in thickness is permissible)				
(MJP CSR 15-16, I.No. 2 / P.No.191)				
600 mm (I.D.) 12 mm thick	250	Rmt	9266	2316500.00

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
600 mm (I.D.) 10 mm thick	3000	Rmt	7696	23088000.00
500 mm (I.D.) 10 mm thick	6000	Rmt	6435	38610000.00
300 mm (I.D.) 10 mm thick	120	Rmt	3911	469320.00
750mm (I.D.) 10 mm thick	1000	Rmt	9589	9589000.00
800 mm (I.D.) 12 mm thick	60	Rmt	12294	737640.00
1000 mm (I.D.) 12 mm thick	1500	Rmt	15322	22983000.00
Item No. 31 :-				
Transporting within 500 meters,laying in position to correct line and level M. S. pipes with / without any outcoating, on prepared bedding in trenches including marginal cutting wherever required, assembling tack welding the same. The rate to include loading, unloading, hoisting, etc. complete as specified.				
(MJP CSR 15-16, I.No. 5A / P.No.209)				
Above 500 mm upto 750 mm dia (5mm to 8 mm thk)	9430	Rmt	431.55	4069516.50
From 750 mm upto 1000 mm dia (8 mm to 12 mm thk)	2500	Rmt	648.9	1622250.00
Item No. 32 :-				
Transporting within 500 meters,laying in position to correct line and level M. S. specials pipes with / without any outcoating, such as distance pieces, straps, bends, tapers, etc. on prepared bedding in trenches including marginal cutting wherever required, assembling tack welding, the same. The rate to including loading, unloading, hoisting, etc. complete as specified.				
(MJP CSR 15-16, I.No. 6 / P.No.210)				
From 750 mm upto 1000 mm dia (8 mm to 12 mm thk)	200	Rmt	908.25	181650.00
Above 500 mm upto 750 mm dia (5mm to 8 mm thk)	200	Rmt	603.75	120750.00
Item No. 33 :-				
Pushing of M.S. Pipe of following Dia. For road crossing and Railway crossing by Push Through method in all types of Strata by using hydraullic jack and drilling machine of required diameter , below 3.0 m depth including lowering , laying , jointing of M.S. casing pipe including cost of labour , fuel and material , required welding machinery , tripod , chain pulley block , crane , blower etc. tracsportation and dewatering etc. complete as directed by Engineer - In- Charge but excluding cost of M.S. Pipes.				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
(MJP CSR 15-16, I.No. 14 / P.No.58)				
500 mm to 1000 mm dia.	160	Rmt	29313.9	4690224.00
Item No. 34 :-				
Lowering, laying in position to correct line and level, M.S. pipes with / without any outcoating on pedestals or chairs upon prepared formation. The rate to include loading, unloading, hoisting, marginal cutting wherever required, assembling, tack welding and transportation upto 500 M, etc. complete as specified.				
(MJP CSR 15-16, I.No. 1 / P.No.205)				
A. 5 mm to 8 mm thick				
Above 250 mm upto 500 mm dia	120	Rmt	366.45	43974.00
Above 500 mm upto 750 mm dia	9250	Rmt	420	3885000.00
B. Above 8 mm upto 12 mm thick				
From 750 mm upto 1000 mm dia	2530	Rmt	633.15	1601869.50
Item No. 35 :-				
Welding in all positions with required number of runs, for M.S. pipes internally and/ or externally including gauging wherever necessacery, fixing appurtenances and other acessoceries in connection with pipe laying work as per specifications.				
(MJP CSR 15-16, I.No. 7 / P.No.211)				
Butt Joint				
Plate Thickness 10 mm	5350	Rmt	879.9	4707465.00
Plate Thickness 12 mm	1830	Rmt	941.85	1723585.50
Item No. 36 :-				
Gas cutting (either square cut or V cut) pipes, plates, etc. of thickness.				
(MJP CSR 15-16, I.No. 12(ii) / P.No.213)				
Above 5 mm upto 10 mm	4055	Rmt	92.4	374682.00
Above 10 mm upto 14 mm	850	Rmt	119.7	101745.00
Item No. 37 :-				
Providing and applying epoxy paint of approved make (Shalimar, ciba or mahindra & mahindra) to concrete surface of RCC ESR or GSR or any other structure including cleaning the surface by scrapping and air blower to the satiafaction of Engineer in charge necessacery scaffolding etc. complete with all leads and lifts and giving satisfactary hydraullic testing for water tightness as per IS codes.				
(MJP CSR 15-16, I.No. 6 / P.No.266)				
For New Surfaces - Two coats	9346.86	Sq.m	570.15	5329112.23
Item No. 38 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Disposing off the surplus excavated stuff upto 5 km range beyond initial lead included in the excavation item				
(MJP DSR 15-16, Statement VI, Page No.22)				
upto 5 km	19200	Cum	279.72	5370624.00
upto 10 km	6320	Cum	395.57	2500002.40
Item No. 39 :-				
HSC on HDPE Pipe with / without road crossing : Providing and making MDPE pipe consumer service connection on HDPE pipes with the help of electro fusion machine or Ratchet and dye drill including all labour, MDPE pipe upto 10 m length, MDPE specials like double compression elbow, female threaded adopter with metal insert, UPVC compression in ball valve, HDPE casing pipe of 32/40 mm for above ground mdpe pipe. The rate to include road cutting by mechanical means, labour required, excavation, fitting, refilling, closing water supply in that area, dewatering and restarting the water supply, transportation etc complete as directed by Engineer in-Charge.				
(As per PCMC Approved RA)				
With Road Crossing				
i) 15 mm	14336	Nos	3790	54333440.00
ii) 20 mm	156	Nos	4178	651768.00
iii) 25 mm	1122	Nos	4613	5175786.00
Without Road Crossing				
i) 15 mm	14336	Nos	2501	35854336.00
ii) 20 mm	156	Nos	2850	444600.00
iii) 25 mm	1122	Nos	3196	3585912.00
Item No. 40 :-				
HSC on DI Pipe with / without road crossing : Providing and making MDPE pipe consumer service connection on DI pipes with the help of Ratchet and dye drill including all labour, MDPE pipe upto 10 m length, MDPE specials like double compression elbow, female threaded adopter with metal insert, UPVC compression in ball valve, HDPE casing pipe of 32/40 mm for above ground mdpe pipe. The rate to include labour required, excavation, fitting, refilling, closing water supply in that area, dewatering and restarting the water supply, transportation etc complete as directed by Engineer in-Charge.				
(As per PCMC Approved RA)				
With Road Crossing				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
i) 15 mm	21168	Nos	3444	72902592.00
ii) 20 mm	244	Nos	3897	950868.00
iii) 25 mm	1658	Nos	4381	7263698.00
Without Road Crossing				
i) 15 mm	21168	Nos	2156	45638208.00
ii) 20 mm	244	Nos	2568	626592.00
iii) 25 mm	1658	Nos	2964	4914312.00
Item No. 41 :-				
Establishment of District Meter Areas and Simulation of Distribution Network				
1. Baseline validation of project area, map updating on GIS, updating pipe line network of project areas. etc.				
2. Topographic Survey, Consumer Survey of the project areas.				
3. Formation of DMA				
4. Experts Services - 1 Nos, Simulation of Pure water transmission mains & distribution network, Hydraullic Modelling and Design of the Distribution Network using WaterGems software.				
5. Submission for approval of Rehabilitation Plan for the project Area				
(As per Approved Rate Analysis)				
	77370	per connection	873.82	67607453.40
Item No. 42 :-				
Designing (aesthetically) & constructing R.C.C. Elevated service reservoir of following capacity with R.C.C. staging consisting of columns, interval and external bracing spaced vertically at no more than metres centre to centre, including excavation in all type of strata: foundation concrete cement plaster with water proofing compound to the inside free of the container including refilling excavation pits/trenches, disposing off surplus excavated stuff within a lead of 50 m, labour and material charges for lowering laying /erecting hoisting and jointing				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
for lowering laying /erecting hoisting and jointing for pipe assembly of inlet, outlet washout, overflow to by pass arrangement, as per departmental desigine, providing and fixing accessories such as M.S. Ladder outside, stainless steel Ladder in contenor for entering into container: C.I. Manhole frame and cover water level indicator, lightening conductor G.I. pipe railing around R.C.C. walk way at bottom of container, and at top as well providing spiral stair case from ground level to the roof, M.S. Grill gate of 2.0 m. hight with locking arrangment with approved disigined, B.B. masonry chambers for air valves, domed ventilating shafts, providinfg and applying three coats of Acrylie emulsion with silicon additives paint to the structure including roof slab epoxy painting to internal surface and anti termite treatment for underground parts of the structure and giving satisfactory water tightness test as per IS code .The job to include painting the name of the scheme and other details on the reservoir as per the directions of Engineer-in-charge (MJP CSR 2015-16, P.No. 259, I.No.1)				
Note : 1) The design of the structure be in accordance with relevant I.S. specification (IS 456-1978, IS 875-1987, IS 3370 -2009, or revised)				
2)The design shall satisfy stipulations as per IS: 1893-1984 & IS: 13920/1993 for seismic forces and IS: 11682-1985 for R.C.C. staging of overhead tanks				
3) For design having more than 6 columns, provision of internal bracing in obligatory, External bracking is also obligatory.				
4) For entire structure shall be in M : 300 mix only. However concrete in contact with water such as container, base slab, wall, roof slab & footing in water borne area shall be in M-300				
5) Plain round mild steel bars Grade I conforming I.S.-432 PART-I or high yield strength deformed bars conforming to IS: 1786 or IS: 1139 shall be used: Grade II mild steel bars will not be allowed				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Grade II mild steel bars will not be allowed.				
6) Irrespective of type of foundation proposed in the design (individual footing, combined footing, annular raft etc) one set of bracings be provided at ground level				
7) These rates include providing, M.S. ladder for E.S.R's upto 2 lakhs liters capacity and providing sprial staircase for E.S.r. above 2 lakhs liters capacity.				
8) Stagging shall have to be designed with stresses of M-200 for ESR. However all RCC construction should be done in M-250 except concrete in contact with water shall be designed & constructed in M-300				
9) These rates are including the cost of uplift pressure if any and entire dewatering during execution. In case of water logging area where water is struck at shallow depth extra provision of dewatering shall be made as per site condition.				
10) All condition given in the Member Secretary's Circular No. MJP/TS-I/350 /1668 dt. 2.8.97 and MJP/S-I/350 /2127 dt. 13.7.99 shall be strictly followed and additional cost, if any due to these conditions in included in the rates mentioned below.				
11) 75% part rate shall be payable for reinforced cocnete and plastering items of containers of E.S.R. till satisfactory hydraulic testing for water tightness is given; and till that work shall be treated as incomplete.				
12) The rates as indicated in the table are exclusive of cost of pipes, specials and valves required for inlet, outlet, washout, overflow and bye-pass arrangements. The scope of pipe assembly work shall be upto 5 metres beyond outside face of columns.				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
13) For ESR upto 500cum capacity C.I.D. double flanged pipes upto 300mm dia shall be provided and C.I.Specials shall be used.For ESR above 500 cum capacity C.I./M.S. pipes assembly with minimum 8mm thick ness up to 500mm dia. And minimum 10mm thickness above 500mm dia can be used with proper anti-corrosive epoxy teratment from inside and outside.				
14) Below mentioned rates are for foundation, with individuals footing with bearing capacity of 30 tonnes per square metre. For raft foundations, these rates shall be increased by 7.5% wheresafebearing capacity (SBC) is 5 M.T. per Sq.m and by 5% where SBC is more than 5 MT/Sqm. and upto 10MT/Sq.m. This percentage of 5% or 7,5% is applicable for estimation of amount of L.S. items ESR for Extra item due to change from individual footing foundation to raft actual increase in concrete and steel quantities be paid as per relevent DSR Item.				
15) The rates shall be increase by 30% for brearing piles upto depth of 10m and for further increased in depth by 5M each it shall be increased by another 10% These rates are applicable where raft is not reasible for pile foundation sulfate resistant cement shall only be used. Single pile for the column is not permitted Group of piles shall be designed with pile cap for each column of ESR.				
16) These rates are applicable for staging height of 12 M These rates shall be increased or decreased for per metre variation in the staging height as below				
12 to 16 M staging 2% per metre				
16 to 20m staging 3% per meter				
20 M and above 4% per metre				
For 17m stagging height percentage calculation will be like below				
12 to16m = 4 x 2 = 8%				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
16 & 17 m = 1 x 3 = 3% Total = 11%				
For 21 m stagging height, percentage calculation will be like below				
12 to 16m = 4 x 2 = 8%				
16 to 20m = 4 x 3 = 12%				
20 to 21m = 1 x 4 = 4% Total = 24%				
17) Following rates are for seismic zone-III for Zone-IV these rates shall be increased by 5% and for Zone-II, these rates shall be decreased by 5% concerned Executive Engineer shall confirm the seismic zone for the scheme from seismic zones plan before estimation and adopt appropriate rates as per actual seismic zones(Seismic maps attached in this C.S.R.)				
Notes :				
1) Conditions from Sr.No.1 to 11 shall form a part and parcel of the tender papers and shall be included in the DTP for works of R.C.C.E.S.R.				
2) Condition from Sr.No.12 to 17 are for estimation purpose only and shall not be appear in the tender.				
A.)Kalkhadak New ESR - Capacity 20 Lakh Litres, STG HT. 22 m.				
Total	1	Job	12697551.55	12697551.55
B.) New Jadhavwadi1 ESR's - Capacity 20 Lakh Litres, STG HT. 18 m.				
Total	2	Job	11308756.85	22617513.70
C.)Punawale ESR - Capacity 20 Lakh Litres, STG HT. 20 m.				
Total	1	Job	11903954.58	11903954.58
D.) Pimpale saudagar ESR - Capacity 20 Lakh Litres, STG HT. 21 m.				
Total	1	Job	12300753.07	12300753.07
E.) Mahindra & Mahindra ESR - Capacity 20 Lakh Litres, STG HT. 25 m.				
Total	1	Job	13887947.01	13887947.01
F.) E1 ESR for Sec.28 - Capacity 20 Lakh Litres, STG HT. 12 m.				
Total	1	Job	9919962.15	9919962.15
G.) Anna Saaheb Magar Stadium - Capacity 20 Lakh Litres, STG HT. 25 m.				
Total	1	Job	13887947.01	13887947.01
H.) EWS ESR - Capacity 20 Lakh Litres, STG HT. 25 m.				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Total	1	Job	13887947.01	13887947.01
Item No. 43 :-				
Designing (aesthetically), and constructing RCC ground service reservoirs / RCC sumps in M-300 mix. of required capacity including excavation in all types of strata, foundation concrete, container walls, bottom slab top RCC roof slab / or dome, 20 mm thick cement plaster with water proofing compound in CM 1:3 proportion. to inside face of the container,including epoxy paint from inside including refilling and disposing of surplus stuff within lead of 50 M, all labour and material charges, for laying and jointing of pipe assembly for inlet, outlet washout, over flow and bye-pass arrangement consisting of C.I./ M.S. D/F. pipes, specials and valves of given diameters, providing and fixing accessories such as M.S. ladder outside, **Stainless Steel Ladder in container,** C.I. Manhole frame and cover, water top slab, B.B. masonry chamber for all valves, ventilating shafts, including giving satisfactory hydraulic test and water tightness test as per IS code and providing three coat of **Acrylic emulsion with silicon additives paint** to all expose surface of structure including roof surface etc. complete as per design data, criteria, obligatory requirements and detailed specifications.				
Anti terminite treatment shall be given for under ground portion of the structure.				
1) The designing shall be in accordance with various rel evant I.S. specification (I.S. 456/2000, I.S. 875 - 1987, I.S.3370-1965 or revised.)				
2) Only M.S. bars grade I confirming to I.S. 432 part-I or high yield strength deformed bars confirming to I.S. 1786 or I.S.1139 shall be used grade II M.S. bars shall not be used.				
3) Entire structure shall be in M - 300 only.				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
4) The scope of pipe assembly work shall be upto 5 metre beyond outside face of the wall, cost of pipes valves and specials is not included in the rate but labour cost for laying and jointing is included.				
5) The G.S.R. / Sump above 15 lakh litres capacity shall be in two compartments.				
6) The job includes designing the structure for uplift pressure and dewatering if required using entire execution and disposal of surplus excavated stuff with in lead of 50 metres as directed by Engineer-incharge. If up lifts considered in design then these rate shall be increased by 7.5%.				
7) G.S.R. outlets shall be with bell mouth of approved partern in bottom slab and cost of designing bell mouth is included in the rate. Sump well includes cost of suction pit required at bottom.				
8)For pipe diameters upto 300 mm only CI pipes and CI specials shall be used. For pipe diameters above 300mm, M.S. pipes and specials minimum 10 mm thick shall be used with proper anticorrosive epoxy treatment from in side and outside.				
9) Cost of pump house is not included in these rates.				
10) Above rates are applicable for seismic zones-2,3 and 4				
11) 75% part rate shall be payable for reinforcement,concrete and plastering items of all types of G.S.R.s. and sumps till satisfactory hydraulic testing for water tightness test is given and till that work shall be treated as incomplete				
10% shall be added for sump if overhead pump house is proposed				
Condition from Sr. No. 1 to 11 shall form a part and parcel of tender and must be included in the Draft tender papers for work of R.C.C. GSRs and sump.				
(MJP CSR 2015-16, P.No. 255, I.No.1)				
A. Sumps at EWS scheme & Mahindra & Mahindra - Sump Capacity for 10 lakh litre.,				
Total	2	Job	3997052.85	7994105.70
Item No 44 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and supplying ISI standard Welded D.I. double flanged pipes including all taxes (central & local), railway freight, insurance, unloading from railway wagon, loading into truck, transport to store/site, unloading, stacking, etc. complete as directed by Engineer-in-charge (for 2.75 M bare pipe).				
(MJP CSR 15-16, I.No. 11 / P.No.70)				
150 mm (Washout Line)	50	Rmt	2151	107550.00
500 mm	234	Rmt	10294	2408796.00
600 mm	210	Rmt	13554	2846340.00
800 mm	76	Rmt	22294	1694344.00
Item No 45 :-				
Providing and applying with mechanical arrangement 1:3 proportion cement sand gunite, 40 to 50 mm thick to M.S. pipe surface under 2.1 kg per sqcm to 2.80 kg. per sqcm pressure including removing the loose materials as directed by Engineer in charge and including scrapping the surface with wire brushes, degreasing, cleaning by compressed air and providing fixing BRC fabric no.14 as reinforcement, curing for 21 days, disposing off the rebound materials within a lead of 50 m. etc. complete as directed by Engineer in charge.				
(MJP CSR 15-16, I.No. 18 / P.No.215)				
	22591	Sqm	418.95	9464499.45
Item No 46 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and making inner cement mortar lining to M.S. pipes with mechanical devices in cement mortar 1:1 proportion, including cost of all materials, labour, special sand required, machinery, power generation, all equipments and taking necessary access openings and manholes, cuts at suitable intervals as directed by Engineer-in-charge and rewelding the same after done with doubler plates pipes including necessary excavation, refilling concerte breaking and remaking if any, breaking guniting and remaking the same, repainting whereven required with epoxy paint in 3 coats, all dewatering including emptying the pipeline and refilling the same after done with (water to be supplied by department free of cost within 5 km. lead at fixed point and all other arrangements to be done by agency), including carrying out "C" value performance test of pipeline, complete job as per the directions of the Engineer-in-charge.				
(MJP CSR 15-16, I.No. 22 / P.No.216)				
i) 9 mm thick for pipes upto 700 mm dia.	17458	Sqm	328.65	5737571.70
ii) 12 mm thick for pipes above 700 mm dia.	4803	Sqm	380.1	1825620.30
Item No 47 :-				
Hydraulic testing of M.S. pipeline to specified pressure including cost of all materials and labour and water for testing for the length upto 1 km., using reciprocating type pumps which should be able to provide specified test pressure gauges and other necessary equipments, labour, operation charges, etc. required for testing. The rate under this item shall also include cost of retesting, if necessary.				
(MJP CSR 15-16, I.No. 17 / P.No.214)				
Upto 600 mm dia (for 4 Kms lead)	5	Km	41689.2	208446.00
Above 900 mm upto 1050 mm dia (I.D.) (for 2 kms lead)	1.5	Km	41949.6	62924.40
Upto 600 mm dia (for 2 Kms lead)	3	Km	41273.4	123820.20
Above 600 mm upto 750 mm dia (I.D.)	1	Km	41126.4	41126.40
Item No 48 :-				

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm 8 guage thick and fixed 75 mm above Ground level vertical M.S Angle of 40 x 40 x 6 mm size embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M.c/c with iron bar 16 mm dia as hold fast including welding link with angle frame at 30 cm c/c nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm Angles both sides at every corner or bends embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete.				
Spec. No.: As directed by Engineer in charge.				
(PWD DSR/2015-16/BD-W-1 Miscellaneous/BDW)	1000	Rmt	1779.75	1779750.00
Item No 49 :-				
Providing and fixing M.S. gate 2.5 m wide for compound with 40 mm dia M.S. black pipe medium class, approved grill work, RCC M-150 side pillars of 25 cm x 40 cm x 2.5 m height, its foundation, finishing, painting etc. complete.				
(MJP CSR 15-16, P.No. 53, I.No.3)	2	No	24136.35	48272.70
Item No 50 :-				
Providing and fixing wicket gate 1.0 m wide for compound with 40 mm dia. M.S. black pipe medium class, approved grill work, RCC M-150 side pillars of 25 cm x 40 cm x 2.5 m height, its foundation, finishing, painting etc. complete.				
(MJP CSR 15-16, P.No.53, I.No.4)	2	No	7644	15288.00
Item No 51 :-				
Providing D.I.K-7 pipes of following grades with internal cement mortar lining and including all taxes, insurance, railway freight, unloading from railway wagon, loading into truck, transport to departmental stores/site, unloading, stacking etc. complete. (IS: 8329-2000 Latest Version)				
(MJP CSR 16-17, P.No. 65, I.No. 3)				
DI K - 7				
150 mm dia K-7	711	Rmt	1070	760770.00
250 mm dia K-7	113	Rmt	1807	204191.00
300 mm dia K-7	85812	Rmt	2245	192647940.00
350 mm dia K-7	6440	Rmt	2947	18978680.00
400 mm dia K-7	28730	Rmt	3390	97394700.00
450 mm dia K-7	4630	Rmt	4100	18983000.00

ABSTRACT				
Particulars of item	**Quantity**	**Unit**	**Rate**	**Amount**
500 mm dia K-7	15732	Rmt	4785	75277620.00
600 mm dia K-7	5700	Rmt	6245	35596500.00
700 mm dia K-7	2220	Rmt	8530	18936600.00
800 mm dia K-7	128	Rmt	10805	1383040.00
900 mm dia K-7	431	Rmt	13240	5706440.00
1000 mm dia K-7	10	Rmt	16400	164000.00
DI K - 9				
300 mm dia K-9	3380	Rmt	2736	9247680.00
400 mm dia K-9	170	Rmt	3989	678130.00
500 mm dia K-9	94	Rmt	5586	525084.00
600 mm dia K-9	65	Rmt	7391	480415.00
1000 mm dia K-9	1050	Rmt	17441	18313050.00
Item No 52 :-				
Charges towards Royalty	267842	Cum	141.34	37856788.28
			Total	**2126732133**