



महाराष्ट्र जीवन प्राधिकरण

मुख्य अभियंता, औरंगाबाद यांचे कार्यालय

वेदांत नगर, देवगिरी कॉलेज जवळ, औरंगाबाद-431 002 (महाराष्ट्र)

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तांत्रिक मान्यता

विषय:- अमृत २.० अभियानांतर्गत लातूर शहर वाढीव पाणी पुरवठा योजनेस तांत्रिक मान्यता प्रदान करणे बाबत

संदर्भ:- १) कार्यकारी अभियंता लातूर शहर महानगर पालिका यांचे पत्र क्र. ७७९३ दि. २६.१२.२०२२

२) या कार्यालयाचे पत्र क्र. तांशा-३/८५ दि. ०४.०१.२०२३

३) अधीक्षक अभियंता म.जी.प्रा. म.नि.सं.व संकक्ष मुंबई यांचे पत्र क्र. २२ दि. १७.०१.२०२३

४) या कार्यालयाचे पत्र क्र. तांशा-३/२५७ दि. १७.०१.२०२३

५) अधीक्षक अभियंता म.जी.प्रा.मंडळ लातूर यांचे पत्र क्र. तांशा-१/३४१ दि. १६.०३.२०२३

६) नगर विकास विभागचा शासन निर्णय क्र. अमृत २०२२/प्रक्र१४१/नवि-३३ दि. १४.०७.२०२२

७) या कार्यालयाचे तांत्रिक मान्यतेचे आदेश क्र. ९८३ दि. २३.०३.२०२३

८) आयुक्त लातूर शहर महानगर पालिका लातूर यांचे पत्र क्र. ५२३३ दि. २२.०८.२०२३

९) या कार्यालयाचे तांत्रिक मान्यतेचे आदेश क्र. तांशा-३/२५१६ दि. २८.८.२०२३

१०) कार्यकारी अभियंता (पापु) लातूर शहर महानगर पालिका लातूर यांचे पत्र क्र. ५८१५ दि. १२.९.२०२३

अमृत २.० अभियानांतर्गत लातूर शहर वाढीव पाणी पुरवठा योजनेची अंदाजपत्रके व आराखडे संदर्भ क्र. १ अन्वये या कार्यालयास प्राप्त होती. सदर प्रस्ताव संदर्भ क्र. २ अन्वये मध्यवर्ती कार्यालयास तांत्रिक तपासणी साठी सादर केला होता. या प्रस्तावास या कार्यालयाचे पत्र संदर्भ क्र. ९ अन्वये रु. ५४९.३२४६ कोटी एवढ्या किंमतीस तांत्रिक मान्यता देण्यात आली होती. आता सदर प्रस्ताव संदर्भ क्र. १० अन्वये या कार्यालयास सादर केला आहे. त्यानुसार राज्यस्तरीय उच्चाधिकार सुकाणु समितीने निर्देश दिल्याप्रमाणे Phase-१ करिता रु. २५९.२१५२ कोटी व Phase - २ करिता रु. २९०.१०९४ कोटी असून दोन्ही टप्प्यांची एकूण किंमत रु. ५४९.३२४६ कोटी इतकी आहे.

सदर अमृत २.० अभियानांतर्गत लातूर शहर वाढीव पाणी पुरवठा योजनेच्या Phase-१ करिता रु. २५९.२१५२ कोटी व Phase - २ करिता रु. २९०.१०९४ अशा एकत्रित ढोबळ किंमत रु. ५४९.३२४६ कोटीच्या (अक्षरी रु. पाचशे एकोणपन्नास कोटी बत्तीस लक्ष शेहेचाळीस हजार) प्रस्तावास तांत्रिक मान्यता प्रदान करण्यात येत आहे. प्रस्तावाची नोंद फॉर्म क्र. ८५ अनु क्र. २० माहे सप्टेंबर २०२३ नुसार घेण्यात येत आहे. या कार्यालयाचे पत्र संदर्भ क्र. ९ अन्वये देण्यात आलेली या पूर्वीची तांत्रिक मान्यता रद्द करण्यात येत आहे.

अटी व शर्ती:-

- १) सदर योजनेस महानगर पालिका लातूर यांनी सादर केलेल्या ठराव क्र. ७० दि. १४.०२.२०२३ अन्वये तांत्रिक मान्यता देण्यात येत आहे.
- २) मांजरा धरणातून उपरोक्त योजनेच्या पाणी मागणी प्रमाणे पाणी आरक्षण प्रस्ताव मंजूर करून घेणे बंधनकारक राहील.
- ३) अमृत योजना व समांतर योजना दोन्ही योजनेचा देखभाल व दुरुस्ती खर्च भागविण्याच्या दृष्टीने आवश्यक पाणी पट्टी कर लागू करण्यासाठी म.न.पा. लातूर चा ठराव करून त्याची अंमलबजावणी करणे बंधनकारक राहील.
- ४) यांत्रिकी कामांची संकल्पने व आराखडे अधीक्षक अभियंता (यां.) म.जी.प्रा. नागपूर यांचेकडून कार्यान्वयी अंदाजपत्रके प्रमाणित करून घेण्यात यावीत.
- ५) योजनेची अंमलबजावणी अमृत २.० च्या मार्गदर्शक सुचना नुसार व वरील संदर्भीय क्र. ६ येथील शासन निर्णय नुसार करण्यात यावी.
- ६) आयुक्त म.न.पा. लातूर यांनी प्रस्तावीत योजनेसाठी लागणारी जागा जसे जलशुद्धीकरण केंद्र, जलकुंभ यासाठीच्या जागा म.न.पा.च्या मालकीच्या व ताब्यात असल्याबाबत दि. १४.०२.२०२३ अन्वये प्रमाणीत केल्यानुसार सदर जागा उपलब्धतेची सर्वस्वी जबाबदारी म.न.पा.ची राहील.

- ७) योजनेतील पाईप, व्हॉल्व स्पेशल्स इ. तपासणी शासन मान्य अथवा प्राधिकरणाच्या मान्यता प्राप्त त्रयस्थ यंत्रणे मार्फत करण्यात यावी.
- ८) प्रस्तावीत योजनेमुळे अस्तीत्वातील उपांगांचा पुनर्वापर होण्याच्या दृष्टीने पर्यायी उपाय योजना अथवा वापर करण्याच्या दृष्टीने योग्य ती कार्यवाही करण्यात यावी.
- ९) तांत्रिक मान्यता प्रस्तावात अंतर्भूत जॅकवेल, जलकुंभ, पंपगृह, जलशुद्धीकरण केंद्र ई. सर्व आर.सी.सी. कामांची संकल्पने शासकीय अभियांत्रिकी महाविद्यालय/शासन मान्यता प्राप्त शासकीय संस्थेकडून पडताळणी करून घेऊन त्यास सक्षम अधिकाऱ्याची मंजूर घ्यावी. तदनंतरच कामे हाती घ्यावीत.
- १०) म.न.पा. लातूर व तसेच तांत्रिक सल्लागार यांनी प्रकल्प अहवालात जो डाटा प्रमाणित करून दिलेला आहे त्या आधारे प्रस्तावाची तांत्रिक तपासणी करण्यात येऊन तांत्रिक मान्यता प्रदान करण्यात येत आहे. तथापि निविदा काढण्यापुर्वी कार्यव्ययी अंदाजपत्रक तयार करण्यात यावे व त्यास सक्षम अधिकारी यांची मंजूरी घेण्याची सर्वस्वी जबाबदारी प्रकल्प व्यवस्थापन सल्लागार व म.न.पा. लातूर यांची राहिल.
- ११) म.न.पा. लातूर यांनी वार्षिक पाणी मागणी करिता पाणी आरक्षण प्रस्ताव सुधारीत मागणी प्रमाणे संबंधीत यंत्रणेकडे सादर करावा व सदर पाणी मागणी प्रस्ताव मंजूर करून घेतल्यानंतरच योजनेसाठी कार्यादेश देण्यात यावेत.
- १२) शासन परिपत्रक दि. २९.२.२०१२ नुसार सदर प्रकल्पाच्या अंमलबजावणी करिता ई-निविदा प्रणालीचा अवलंब करणे बंधनकारक राहिल.
- १३) काम सुरु करण्यापुर्वी सर्व उपांगांच्या जागा ताब्यात घेण्याची सर्वस्वी जबाबदारी म.न.पा. लातूर व प्रकल्प व्यवस्थापन सल्लागार यांची राहिल.
- १४) कार्यव्ययी अंदाजपत्रक तयार करून योजनेच्या किंमतीत वाढ होत नाही याची खात्री करूनच निविदा कार्यवाही सुरु करावी. किंमतीत वाढ होत असल्यास शासनाची सुधारीत प्रशासकीय मान्यता घेण्यात यावी.
- १५) प्रस्तावासाठी आवश्यक रस्ते/कॅनॉल ई. क्रॉसींगसाठी तसेच रस्ते ओलांडणे, सार्वजनिक बांधकाम विभागाच्या रस्त्याच्या बाजूला पाईप अंथरणे या बाबतची संबंधित खात्याकडून परवानगी प्राप्त करून घेण्यात यावी.
- १६) तांत्रिक मान्यता प्राप्त प्रस्तावात तांत्रिक बदल करू नयेत. आवश्यक असल्यास बदलास सक्षम अधिकाऱ्यांची मंजूरी घेण्यात यावी.
- १७) प्रकल्पाचे काम सुरु असताना कामाच्या ठिकाणी भेट पुस्तीका ठेवण्यात यावी व तांत्रिक तपासणी अंती अथवा भेटी देणाऱ्या तसेच कामाच्या गुणवत्तेबाबत तपासणी करणाऱ्या अधिकाऱ्यांनी सुचविलेल्या शिफारशी बाबत अथवा गुणवत्तेबाबत नोंदी नोंद पुस्तीकेत करून त्याप्रमाणे केलेल्या कार्यवाही बाबत नोंद पुस्तीकेत नमुद करण्यात यावी व सदर नोंद पुस्तीका जतन करून ठेवण्यात यावी
- १८) प्रस्तावात अंतर्भूत कामाचे Structural design शासकीय अभियांत्रिकी महाविद्यालय/शासन मान्यता प्राप्त शासकीय संस्थेकडून करून घेण्याची सर्वस्वी जबाबदारी म.न.पा. लातूर व प्रकल्प व्यवस्थापन सल्लागार यांची राहिल.
- १९) प्रशासकीय मान्यतेच्या सर्व अटींची पूर्तता करण्याच्या अधीन राहून तांत्रिक मान्यता देण्यात येत आहे.
- २०) योजना सुरु करताना लागणारे साहित्य जसे सिमेंट, वाळू, सळई व काँक्रीट क्युब हे शासकीय मान्यता प्राप्त संस्थेकडून तपासणी करून घ्यावीत.
- २१) प्रस्तावित कामे water supply manual व सार्वजनिक बांधकाम विभागाचे रेड बुक क्र. १ व २ मध्ये नमुद केलेल्या स्पेसिफिकेशन नुसार व प्रचलित भारतीय मानकानुसार करण्यात यावे.
- २२) योजनेतील सर्व कामे प्रचलित भारतीय मानका प्रमाणे (IS code) करण्यात यावीत.
- २३) लिड चार्जेस व दरपृथःकरण अहवाल तांत्रिक सल्लागार/म.न.पा.अभियंता यांनी प्रमाणित केल्याप्रमाणे अंदाजपत्रकात अंतर्भूत करण्यात आलेले आहेत. तथापि कार्यव्ययी अंदाजपत्रक करताना याबाबत पुनःच पडताळणी करून कमीत कमी अंतरावरून बांधकाम साहित्य उपलब्ध होईल याची पडताळणी कार्यकारी अभियंता सार्वजनिक बांधकाम विभाग यांचे प्रमाणपत्रे घेऊन त्याप्रमाणे lead charges सुधारीत करणे बंधनकारक राहिल.

- २४) प्रस्तावात अंतर्भूत कालबाह्य जलकुंभ पाडण्यापूर्वी शासकीय अभियांत्रिकी महाविद्यालय यांच्या कडून Audit करून घेण्यात यावे व त्यांच्या सल्ल्यानुसारच पुढील कार्यवाही करणे बंधनकारक राहिल.
- २५) अस्तीत्वातील वापरण्याजोगे सर्व उपांगांचा वापर करणे व वापर करण्यापूर्वी त्याची योग्यता तपासणी करण्याची सर्वस्वी जबाबदारी म.न.पा.ची राहिल.
- २६) तांत्रिक मान्यता हि अंदाजपत्रकात नमुद दरसुची दरापुरतीच राहिल. मंजूर अंदाजपत्रका प्रमाणे व त्या मर्यादेत प्रत्यक्ष झालेल्या (executed) परिमाणाप्रमाणे देयके अदा करण्याची जबाबदारी म.न.पा. लातूर व प्रकल्प व्यवस्थापन सल्लागार यांची राहिल.
- २७) Reinstating of road चे दरपृथक्करण व आवश्यकता यासाठी पुनःच कार्यव्ययी अंदाजपत्रक करताना फोटोग्राफ व्दारे पडताळणी करून तद्नंतरच अंदाजपत्रके करण्यात यावी.
- २८) प्रस्तावित योजनेत ज्या बाबी ढोबळ मानाने प्रस्तावित केलेल्या आहेत त्या बाबींची सविस्तर अंदाजपत्रके निविदा प्रक्रियेपूर्वी तयार करण्यात येउन त्यास सक्षम अधिकाऱ्याची मंजूरी घेउनच निविदेत समाविष्ट करण्यात याव्यात.
- सोबत:- गोषवारा

५५

(आर. एस. लोलापांडे)
मुख्य अभियंता

जाक्र/मुअमजीप्राऔ/तांशा-३/ 2726/२०२३

दि. 14 SEP 2023

प्रत- १) मा. सदस्य सचिव म.जी.प्रा. मुंबई यांना माहितीस्तव सादर.

२) आयुक्त म.न.पा. लातूर यांना माहितीस्तव देऊन कळविण्यात येते की अंदाजपत्रकाचे १% प्रमाणे तांत्रिक तपासणी शुल्क रु. ४,६१,४९,२४१/- इतक्या रकमेचा भरणा कार्यकारी अभियंता म.जी.प्रा. विभाग लातूर यांचेकडे करून अहवाल या कार्यालयास सादर करण्यात यावा. सोबत- अंदाजपत्रके व आराखडे

३) अधीक्षक अभियंता म. जी. प्रा. मंडळ लातूर यांना माहितीस्तव व आवश्यक कार्यवाहीस्तव.

४) अधीक्षक अभियंता म.नि.सं. व सं. कक्ष मुंबई यांना माहितीस्तव.

५) कार्यकारी अभियंता म. जी. प्रा. विभाग लातूर यांना माहितीस्तव व आवश्यक कार्यवाहीस्तव.

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

PHASE - I & II

Civil And Mechanical Part Wise Cost Abstract as per MJP SSR 23-24 & PWD SSR 22-23

Sr. No.	Name of Sub-works	PHASE-I	PHASE-II	TOTAL
	CIVIL PART	Cost in INR	Cost in INR	Cost in INR
1	Working Survey	25,00,000		
2	Intake Well (6.00 M Dia)	33,97,500		
3	Inspection Well (5.00 M Dia)	16,94,800		
4	Connecting Main (1400 MM Dia L = 80 M) TWO ROWS	1,00,07,000		
5	Jack well & Pump House (15.00 M Dia)	3,69,30,300		
6	Approach Bund (Length 70 m)	27,73,600		
7	Meter Room At Head Work	5,49,100		
8	Raw Water Rising Main (HW To M.S. Shaft) (1000 MM DIA D.I.K- 9 PIPES. L - 3615 M)	12,53,04,500		
9	M.S. Shaft	45,20,500		
10	Raw Water Gravity Main (M.S. Shaft to WTP) (1200MM Dia = 25390 M, 1100 MM Dia.=20500 & 700 MM Dia=800M D.I.K-7 PIPES)	1,99,06,02,100		
11	Water Treatment plant capacity 91.0 MLD (Conventional type)		20,34,93,200	20,34,93,200
12	Recirculation Well At WTP		55,74,519	55,74,519
13	Raw Water Rising Main (Recirculation well to Lip of Aeration) (200 mm dia DI K- 9.Length = 100 M)		7,77,900	7,77,900
14	Meter Room At Water Treatment Plant		5,55,600	5,55,600
15	Pure water Rising Main (WTP to MBR) (1000 mm dia D.I. K - 9 L = 1500 M)		5,44,65,700	5,44,65,700
16	R.C.C. MBR. 19.2 Lakhs Ltrs Two Nos.		8,45,11,100	8,45,11,100
17	Meter Room at MBR		5,56,200	5,56,200
18	Pure water Gravity Main. (MBR to All ESR) (1200 mm dia to 300 mm dia DI K-7 pipes length of 20735 m)		53,91,80,400	53,91,80,400
19	R.C.C. ESRs		21,93,08,300	21,93,08,300
20	Meter Room at ESR		69,21,600	69,21,600
21	Distribution System (700 mm to 350 mm dia DI K-7 pipe length of 22.37 Km and 315 to 100 mm dia HDPE pipe length of 301.94 Km)		88,25,85,100	88,25,85,100
22	Trial Run for Three Months		3,32,50,300	3,32,50,300
	MECHANICAL PART			
23	Raw water P/M at Head work to MS Shaft (495 HP(3+2))		6,52,29,093	6,52,29,093
24	Recycling P/M on recirculation well near WTP (30HP(1+1))		17,86,258	17,86,258

25	Pure water P/M WTP to MBR (495HP(3+2))		5,77,23,727	5,77,23,727
26	Solar Power Plant at Headworks & WTP		8,61,77,320	8,61,77,320
27	SCADA		6,70,57,224	6,70,57,224
28	Smart Metering		5,52,20,442	5,52,20,442
29	Augmentation of existing Pumping Machinery		5,87,70,744	5,87,70,744
30	MSEDCEL Provision at Head Work & WTP		1,35,00,000	1,35,00,000
	Total Cost	2,17,82,79,400	2,43,66,44,727	4,61,49,24,127
	GST 18%	39,20,90,292	43,85,96,051	83,06,86,343
	Technical Sanction Charges 1%	2,17,82,794	2,43,66,447	4,61,49,241
	Labour Insurance 1% (Only on PWD Rates)		14,87,286	14,87,286
	Total Rs:	2,59,21,52,486	2,90,10,94,511	5,49,32,46,997


Commissioner
Latur City Municipal Corporation
Latur




Executive Engineer (W.S.)
LATUR CITY MUNICIPAL CORPORATION
LATUR

Phase I RS. 259.2152 cr.
Phase II RS. 290.1094 cr.
Total RS. 549.3246 cr.
Rs. Five hundred twenty nine
core thirty two lakh twenty
Six thousand.

Technically sanctioned for amount of
Rs. (Nett) and Rs. 549.3246 cr. (Gross) as
Per entry taken in form 85, Sr.No. 20 Subject
to Conditions vide letter no. CEMJPABD/TB-3
/ 2726 / Dt. 14-09-2023

XX

Chief Engineer
Maharashtra Jeevan Pradhikaran
Aurangabad



DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME FOR LATUR CITY MUNICIPAL CORPORATION

Submitted by,



LifeFirst

Concepts & Technologies Pvt. Ltd.

1st Floor, Pawar, Baugh, B T Kawade Road, Ghorpadi, Pune - 411001

March, 2023

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EXECUTIVE SUMMARY

OBJECTIVES

The main objectives of the project are:

1. To ensure safe and equitable water supply to the entire population in Latur City.
2. Assures better demand management due to effective control.
3. No contamination in the drinking water.
4. Increases accessibility of water which eventually results for good sanitation practices.
5. To ensure Steady pressure in the pipes to increase life of distribution networks.
6. To ensure the technical and economical sustainability of the water supply service.

Main Problems of Latur City Water Distribution

The Latur water supply system is affected by many problems which are due to the uneven topography of the town, inadequate capacity of storage, no proper zone planning, pumping & transmission system, distribution management and segregated settlement of the citizens. This irregular development determined the progressive accumulation of the following problems and deficiencies of the water supply service:

- The marginal parts of the town receive water in insufficient quantity and pressure and distributed over few hours per day, on the contrary, some low-lying areas are benefited by large availability and adequate pressure.
- Large Water Supply Zones.
- No measurement at any level.
- The system is presently affected by a high level of Non-Revenue Water and water losses largely.
- Very old RCC /Partly AC/ PVC pipelines.
- Water is supplied once a week.

THE PROPOSED PROJECT

Generalities

The main components of the proposed project are listed in the following to illustrate the main features and the extension of the interventions.

Population and Water Demand

Population projections were elaborated based on the past Census results and adopting various statistical methods. The following values, after comparison with results of similar studies, were finally adopted for the population in Latur City.

Year	2011	2027	2042	2057
Population	382940	526166	659006	790459

The population was then subdivided in the various wards considering the densities observed in the 2011 Census and evaluating the possible increase of density in the next periods considering the indications of the development potential.

The water demand for the domestic use and other non-domestic utilizations was then worked out considering the consumption levels recommended by CPHEEO.

For the Domestic consumption, the daily value of 135 lpcd was adopted as average unit consumption. Goss Demand was evaluated assuming 15% losses in the system till year 2057. The obtained values of the gross water supply demand for the various years are as follows:

Sr No.	Design Year	Current Year 2022	Present Stage 2027	Intermediate Stage 2042	Ultimate Stage 2057	Unit
1	Population	481577	526166	659006	790459	Souls
2	Rate of water supply	135	135	135	135	Ltrs/head/day
3	Daily water requirement	65012895	71032410	88965810	106711965	Ltrs / day
4	Floating population	40000	43704	54737	65656	Souls
5	Rate of water supply for floating	25	25	25	25	Ltrs /head/day
6	Daily water requirement. For Floating Pop.	1000000	1092590	1368433	1641397	Ltrs/day
7	Institutional Demand (as per sheet attached)	19410605	21207824	26562118	31860507	Ltrs/day
8	Bulk Demand	3468192	4674088	5947733	7206250	Ltrs/day
9	Net Total Daily Demand	88891692	98006912	122844094	147420119	Ltrs/day
10	Gross Demand at Service Reservoirs (@10% Losses Distribution)	98.77	108.90	136.49	163.80	MLD
11	Gross Demand at Pure Water Transmission Main after MBR (@1.5% Losses in Pure Water Gravity Main)	100.27	110.55	138.57	166.29	MLD
12	Gross Demand at WTP Outlet up to MBR (@0.5% Losses in Pure Water Rising Main)	100.78	111.11	139.27	167.13	MLD
13	Gross Demand at WTP Inlet (@2% Losses in WTP)	102.83	113.38	142.11	170.54	MLD

14	Gross Demand at Raw Water Main (@0.86% Losses in Gravity main from SHAFT to WTP)	103.73	114.36	143.34	172.02	MLD
15	Gross Demand at Headworks (@ 0.14% Losses in Raw Water Rising Main)	103.87	114.52	143.54	172.26	MLD
16	Fire Demand $(100 \times \text{pop})^{1/2}$ (To be considered for SR Capacity only)	2194486	2293831	2567111	2811510	Ltrs/ day

Proposed Raw Water Transmission System

- As the existing Intake well and Jackwell is not sufficient considering year 2057 requirement, a new Intake well with Inspection well & Jackwell is proposed near the existing Intake well & Jackwell with proposed 2 nos. of RCC-NP3 connecting mains of 1400mm diameter with a length of 80m each beyond existing approach channel of 660 m length.

Sr. No.	Particulars	Details	Unit
1	Gross Daily demand at Head Works (Ultimate Stage Year 2057)	172.262	MLD
2	Gross Demand cater by Existing Head Works	89.240	MLD
3	Balance Demand to be cater by New Head Works	83.022	MLD
4	Hours of Flow	20.000	Hrs
5	Rate of Pumping	4151.08	M3/Hr
6	Design Discharge with 2 Vol flow	199.25	MLD
7	Total Flow (Q)	2.31	Cum / sec.
8	Assumed number of pipes	2.00	Nos.
9	Flow through each pipe	1.15	Cum / sec.
10	Assume Diameter of each pipe	1400.00	mm
11	Area of Pipe	1.54	m ²
12	Velocity	0.75	m/sec
The velocity falls within the range of 0.6 m/sec (Non-silting) to 0.9 m/sec (non-scoring). Thus provide 2nos of RCC-NP3 Connecting main of 1400mm diameter of 80m length.			

- A new Jackwell is proposed near the existing Jackwell to cater balance demand of year 2057.

Sr. No.	Particulars	Details	Unit
1	Total gross demand at Headworks	172.262	MLD
2	Gross Demand cater by Existing Head Works	89.240	MLD
3	Balance Demand to be cater by New Head Works	83.022	MLD
4	Hours of Pumping	20	Hrs.
5	Detention Period	15.00	Minutes
6	Diameter of Jack well Proposed	15.00	m
7	Invert of Connecting Main near Intake well	627.50	m
8	Length of Conn Main	80.00	m
9	Invert of connecting main near Jackwell	627.20	m
10	L.S.L. of Jackwell	621.20	m
11	Bed R.L. of Jack well	618.75	m

12	Foundation R.L. of Jack well	618.75	m
13	H.F.L. of River	644.50	m
14	Floor of Pump House	644.50	m
15	Top of Pump House	655.00	m
16	G.L. at Jack well	640.00	m
17	Depth of Jack well Below GL	21.00	m
18	Corbel beam top R.L.	652.50	m
19	Dia. of Pump House proposed	15.00	m

- New pumps are proposed for intermediate stage i.e. Year 2042 on the new Jackwell to lift the water from Jackwell to MS Shaft.

Sr. No	Particulars	Details
1	Head, m	85
2	Discharge, m ³ /hr	1067
3	Capacity of Pump	495 HP
4	Diameter of Rising Main, (mm)	1000 (Proposed)
5	Material of Rising Main	DI K-9
6	Pumping Time	20 Hrs
7	No. of Pumps	3 (Working) + 2 (Standby)

- New rising main of 1000 mm DI K-9 of 4.5 Km is proposed to supply raw water from New Jackwell to the MS Shaft near to the old MS Shaft.

Sr. No	Particulars	Details
1	Dia of Pipe, mm	1000
2	Class of Pipe	DI K-9
3	Total Discharge, m ³ /hr	3202.22
4	Length of Rising Main, m	4450
5	GL of SHAFT, m	674.43
6	FSL of SHAFT, m	694.43
7	Total Head on R/M, m	85

- Considering 15 years required capacity, new raw water MS Shaft is proposed near existing Shaft. Volume of outer diameter is greater than inner diameter of Shaft hence design of MS Shaft is safe.

Sr. No	Particulars	Details
1	Design Discharge, MLD	99.624
2	Inlet Pipe Dia, mm	1000
3	Total discharge through 300 mm dia pipe, Ltrs	9962400
4	Total volume of Inner dia of pipe per meter, M ³	0.785
5	Considering Outer dia, mm	1500
6	Total Volume of outer dia of pope per meter, M ³	1.76625
7	Net volume of outer dia, M ³	0.98125

- Further downstream of MS Shaft, the new Raw Water Gravity main is proposed from MS Shaft to the Harangul WTP. Utilising the balance capacity of existing gravity main from

existing MS Shaft upto existing WTP premises, the pipe of 1000 DI K-7 is proposed around 45.0 km in length.

Sr. No	Particulars	Details
1	Dia., mm	1000
2	Class of Pipe	DI K-7
3	Total Discharge, m ³ /hr	3213.78
4	Length of Gravity Main, m	4500.00
6	Lip of Aeration Fountain, m	632.00
7	Static Head on Gravity Main, m	42.00

Proposed WTP

It is proposed to construct the 15 years deficit treatment capacity with 20% over loading i.e. 91 MLD near the existing Harangul WTP. Decision regarding additional treatment capacity considering year 2057 demand shall be taken after 15 years based on actual demand & space availability.

Sr. No	Particulars	Details
1	GL at WTP, m	627.00
2	Lip Aeration Fountain, m	632.00
3	Capacity of WTP, MLD	91.00

Pure Water Transmission System

- Five pumps with 3 working & 2 standby are proposed to supply pure water from treated water sump to MBR through 1000 mm DI K-9 pipe.

Sr. No	Particulars	Details
1	Head, m	65
2	Discharge, m ³ /hr	1400.00
3	Capacity of Pump	495 HP
4	Diameter of Rising Main, (mm)	1000
5	Material of Rising Main	DI K-9
6	Pumping Time	20 Hrs
7	No. of Pumps	3 (Working) + 2 (Standby)

Sr. No	Particulars	Details
1	Dia of Pipe, mm	1000.00
2	Class of Pipe	DI K-9
3	Total, Discharge, m ³ /hr	4200.65
4	Length of Rising Main, m	1500.00
5	Lowest Invert Level of R/M, m	619.00
6	FSL of MBR, m	678.00
7	GL @ MBR, m	645.00
8	Total Head on R/M, m	65.00

- Considering only 15 years deficit demand, the new two MBR of capacity 1.92 ML each is proposed near to existing MBRs.

Sr. No	Particulars	Details
1	Location	Near Existing MBR
2	Capacity, ML	1.92 X 2
3	Staging Height, m	27
4	Av. GL, m	645.00
5	LSL, m	672.00
6	FSL, m	678.00

- The proposed network comprises of pipes diameter ranging from 300mm upto 1200mm. All pipes proposed are of DI-K7 material. The total length of the pure water transmission system is of 39.61 Km of which proposed network is of 19.92 Km length.

Diameter mm	DI
300	1996
350	236
400	2492
450	1171
500	3744
600	607
800	381
900	1797
1200	7501
Grand Total	19925

Smart Metering for one Zone 24X7 Water Supply System

As per the guidelines from AMRUT-II scheme, it is suggested to convert one DMA of min 2000 connections in to 24X7 Water Supply system. Rajdhani Water Supply zone with total connections of 3798 is considered for converting it to 24X7 as this zone can be isolated from all other zones as it has separate ESR. Smart static meters for consumer with AMI system is considered.

Reservoirs

Capacities of all the existing reservoirs are not sufficient enough to cater the demand for intermediate as well as ultimate stage hence few additional reservoirs are proposed to be constructed considering Intermediate stage requirement i.e. Year 2042.

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr No.	Zone Name	SR Name	Type of SR ESR/GSR	SR Status Existing / Proposed	Planned WTP	Gross Demand (ESR Wise) (MLD)		SR Capacity Existing (ML)	SR Capacity Proposed (ML) 2042	GL (m)	LDL (m)	FSL (m)	STAGING (m)
						2042	2057						
1	Nanded Naka	Nanded Naka New Existing	ESR	Existing	Proposed	12.25	14.70	4.00		633.50	649.50	654.50	16.00
		Nanded Naka Old Existing	ESR	Existing	Proposed	4.29	5.14	1.40		633.50	649.50	654.50	16.00
		Nanded Naka Proposed	ESR	Proposed	Proposed	2.14	2.57		0.70	633.50	649.50	654.50	16.00
2	Dalda Factory	Dalda Factory	ESR	Existing	Existing	4.66	5.60	1.75		628.86	649.86	654.86	21.00
3	Basweshwar Colony	Basweshwar Colony	ESR	Existing	Existing	4.35	5.22	2.10		623.25	638.25	643.25	15.00
4	Sarasvati Colony	Sarasvati Colony	ESR	Existing	Existing	11.84	14.21	4.10		634.00	647.28	652.28	13.28
5	M.J.P. Old	M.J.P. Old	ESR	Existing	Existing	4.19	5.03	1.40		636.00	658.00	664.00	22.00
6	M.J.P. New	M.J.P. New Existing	ESR	Existing	Existing	4.44	5.33	1.50		634.55	652.55	656.55	18.00
		M.J.P. New Proposed	ESR	Proposed	Proposed	2.96	3.55		1.00	625.00	649.00	654.00	24.00
7	Government Quarter	Government Quarter Existing	ESR	Existing	Existing	6.36	7.63	2.10		637.50	652.50	657.50	15.00
		Government Quarter Proposed	ESR	Proposed	Existing	3.63	4.36		1.20	637.50	652.50	657.50	15.00
8	Arvi (Keshav Nager)	Arvi (Keshav Nager) Existing	ESR	Existing	Proposed	10.74	12.89	3.50		623.00	645.00	650.00	22.00
		Arvi (Keshav Nager) Proposed	ESR	Proposed	Proposed	1.23	1.47		0.40	623.00	645.00	650.00	22.00
9	Rajdhani	Rajdhani	ESR	Existing	Existing	6.46	7.75	2.10		635.30	650.30	655.30	15.00
10	Gandhi Chowk	Gandhi Chowk Existing	ESR	Existing	Existing	9.73	11.68	3.20		634.00	652.00	657.00	18.00
		Gandhi Chowk Proposed	ESR	Proposed	Existing	3.65	4.38		1.20	634.00	652.00	657.00	18.00

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr No.	Zone Name	SR Name	Type of SR ESR/GSR	SR Status Existing / Proposed	Planned WTP	Gross Demand (ESR Wise) (MLD)		SR Capacity Existing (ML)	SR Capacity Proposed (ML)	GL (m)	LDL (m)	FSL (m)	STAGING (m)
						2042	2057						
11	Kripa Sedan Garden	Kripa Sedan Garden Proposed -I	ESR	Proposed	Proposed	11.21	13.45		1.85	630.00	646.00	652.00	16.00
		Kripa Sedan Garden Proposed - II	ESR	Proposed	Proposed	11.21	13.45		1.85	630.00	646.00	652.00	16.00
12	Labour Colony	Labour Colony Proposed -I	ESR	Proposed	Proposed	10.21	12.26		1.70	624.00	642.00	648.00	18.00
		Labour Colony Proposed -II	ESR	Proposed	Proposed	10.21	12.26		1.70	624.00	642.00	648.00	18.00
13	SSC Board	SSC Board Proposed	ESR	Proposed	Proposed	8.25	9.90		2.70	620.00	642.00	648.00	22.00
14	APMC Market	APMC Market Proposed	ESR	Proposed	Proposed	6.73	8.07		2.20	616.00	632.00	638.00	16.00
15	Basav Colony	Basav Colony Proposed	ESR	Proposed	Proposed	7.16	8.59		2.40	629.50	645.50	651.50	16.00
Total						136.49	163.80	27.15	18.90				

Proposed Distribution Network

- All the proposed water supply zones are proposed to be isolated in the immediate stage to improve the existing water supply system and same is proposed to be keep for intermediate as well as for ultimate stage.
- All the existing pipes which are of materials AC, PVC, CI and which are very old are proposed to be discarded from the system and new pipes are proposed instead. Details of the distribution network is given below.
- DI K-7 pipe is considered above 300 mm dia and HDPE pipe is considered for below 300 mm dia.

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr. No.	Zone Name	Summary of Overall Distribution Pipes																			Grand Total
		80	100	110	125	140	150	160	180	200	225	250	280	300	350	400	450	500	600	700	
1	APMC Market		11283	9708	733	1101	3651	2058	788	2905	578	1408	435	919	1078	391		288			37324
2	Arvi	7767	20701	12985	1561	2030	3720	1157	966	4026	2387	1551	42	417	1295	2234			22		62861
3	Basav Colony	38	4759	12617	1989	2586	763	1237	717	1971	457	2280	71		117		675	426			30703
4	Basweshwar Colony		6726	15066	776	2630	345	1277	940	1603	729	2141	905	474	405	1560					35577
5	Dalda Factory		4520	4840	376	1525	255	610	77	1771	317	420	223	1392		620	391	423			17760
6	Gandhi Chowk		7023	11598	1215	6464	748	1457	1382	2848	615	477	25	646		1402	618	203	772		37493
7	Gov. Quarter	155	7420	21454	890	2001	1448	2319	816	2071	1026	1226	69	949	1101	1023	1686	16	11		45681
8	Kripa Sadan		7847	15083	2349	3063	728	3182	1518	2522	394	933	628	901	140	1305	4	176	19		40792
9	Labour Colony		3925	8794	676	2055	338	2729	510	3860	623	2181	77	530	436	233		15	11		26993
10	MJP New	212	4344	7590	719	1854	157	1844	809	1376	753	633	578	637	310	1879					23695
11	NM Old		5002	8461	1085	2356	245	668	187	1045		1346	398	55		544			50		21442
12	NN Old & New	399	6272	18566	1376	3804	911	1328	1194	5000	1504	1931	676	2643	526	2344	230	210	1066	15	49995
13	Rajdhani		4042	8204	128	3784	441	660	568	2754	366	1117	140	681		408	96	138	36		23563
14	Saraswathi Colony	3100	28781	4904	668	2663	4991	2092	930	3948	1297	1549	140	878	252	641	409		364		57607
15	SSC Board		1613	15371	784	3133	599	1428	784	1985	1053	712	897	1064	517	107			18		30065
Grand Total		11671	124258	175241	15325	41049	19340	24046	12186	39685	12099	19905	5304	12186	6177	14691	4109	1895	2369	15	541551

Sr. No.	Zone Name	Summary of Retained Pipes (Length in Meter)														Total
		80	100	110	150	160	180	200	250	300	350	400	450	500	600	
1	APMC Market		11283		3651	733		842	753	722	1078					19062
2	Arvi	7767	20701		3720	214		2912	859	212	1295	395			22	38097
3	Basav Colony	38	4759		763			1422	1997		117		675			9771
4	Basweshwar Colony		6726		345	699	299	377		467	405	934				10252
5	Dalda Factory		4520		255	528		636		1392		25		423		7779
6	Gandhi Chowk		7023		748		268	1087		119				90	43	9378
7	Gov. Quarter	155	7420		1448	1154	66	498	50	821	1101	35				12748
8	Kripa Sadan		7847	2978	728	2169	72	1728	723	725	114	520				17604
9	Labour Colony		3925		338	1807	77	2658	1624	222	436			15		11102
10	MJP New	212	4344		157			209	340	21	310					5593
11	NM Old		5002	12	245	329	64	351	308	55		39				6405
12	NN Old & New	399	6272		911	405		2250	439	1231	526	231	139		74	12877
13	Rajdhani		4042		441	306		378	448	305		131	76		36	6163
14	Saraswathi Colony	3100	28781		4991	1246	496	3384	594	835	252	199	409		364	44651
15	SSC Board		1613		599	821	142	463	681	918	517					5754
Grand Total		11671	124258	2990	19340	10411	1484	19195	8816	8045	6151	2509	1299	528	539	217236

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr. No.	Zone Name	Summary of Replaced Pipes (Length in Meter)																Total
		110	125	140	160	180	200	225	250	280	300	350	400	450	500	600	700	
1	APMC Market	7486	34	889			819		493	397	197		391					10706
2	Arvi	10734	1298	2030	564	15			394	42	205		1805					17087
3	Basav Colony	11796	1831	2436	1134	701	394	457	277	71								19097
4	Basweshwar Colony	15066	354	2257	578	334	917	514	1632	905	7		626					23190
5	Dalda Factory	4793	141	1486	82	77	1135	165	346	223			595	391				9434
6	Gandhi Chowk	10743	910	6244	1260	676	1506	487	465	25	527		1392	618	113	729		25695
7	Gov. Quarter	19947	808	1878	1022	571	1416	611	950	43	121		988	1686		11		30052
8	Kripa Sadan	10732	1622	3033	941	994	794	216	135	70	102	26	740					19405
9	Labour Colony	8182	676	2055	865	296	1157	361	508	75	288							14463
10	MJP New	7362	698	1758	1288	592	1167	553	193	578	616		925					15730
11	MJP Old	8449	438	2356	339	114	694		1038	398			505			50		14381
12	NN Old & New	18456	1098	3258	724	1104	2559	1135	1350	267	1412		1832	91	210	992	15	34503
13	Rajdhani	8103	128	3784	347	481	2169	366	669	140	376		277	20	138			16998
14	Saraswathi Colony	3118	52	1045	114	103	62	257	65									4816
15	SSC Board	14855	434	2995	566	517	1157	754	29	209	139		36					21691
Grand Total		159822	10522	37504	9824	6575	15946	5876	8544	3443	3990	26	10112	2806	461	1782	15	277248

Sr. No.	Zone Name	Summary of Totally New Proposed Pipes (Length in Meter)															Total
		110	125	140	160	180	200	225	250	280	300	400	450	500	600		
1	APMC Market	2222	699	212	1325	788	1244	578	162	38				288		7556	
2	Arvi	2251	263		379	951	1114	2387	298			34				7677	
3	Basav Colony	821	158	150	103	16	155		6					426		1835	
4	Basweshwar Colony		422	373		307	309	215	509							2135	
5	Dalda Factory	47	235	39				152	74							547	
6	Gandhi Chowk	855	305	220	197	438	255	128	12			10				2420	
7	Gov. Quarter	1507	82	123	143	179	157	415	226	26	7			16		2881	
8	Kripa Sadan	1373	727	30	72	452		178	75	558	74	45	4	176	19	3783	
9	Labour Colony	612			57	137	45	262	49	2	20	233			11	1428	
10	MJP New	228	21	96	556	217		200	100			954				2372	
11	MJP Old		647			9										656	
12	NN Old & New	110	278	546	199	90	191	369	142	409		281				2615	
13	Rajdhani	101			7	87	207									402	
14	Saraswathi Colony	1786	616	1618	732	331	502	1040	890	140	43	442				8140	
15	SSC Board	516	350	138	41	125	365	299	2	688	7	71			18	2620	
Grand Total		12429	4803	3545	3811	4127	4544	6223	2545	1861	151	2070	4	906	48	47067	

BACKGROUND

1 BACKGROUND

1.1 ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION (AMRUT)

Hon'ble Prime Minister launched AMRUT 2.0 on 1 October, 2021. It aims to develop water secure cities in the spirit of Aatma Nirbhar Bharat. It targets to provide reliable 2.68 crore new water tap connections to all in about 4,800 statutory towns. Also, it proposes to get universal household coverage of sewerage/ septage services in 500 AMRUT cities through 2.64 crore new sewer connections. Rejuvenation of water bodies, green spaces and parks are other components of this Mission. Outcome based funding is its major feature. Total indicative outlay for AMRUT 2.0 is ₹ 2,99,000 crore which includes allocation for projects of ongoing AMRUT Mission to the tune of ₹ 22,000 crore for two years from FY 2021-22 to FY 2022-23 and the rest is for five years. Total indicative central share is ₹ 86,760 crore including ₹ 10,000 crore for AMRUT projects.

Earlier, to facilitate ease of living to citizens, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), was launched in 500 cities on 25 June 2015, as a first focused national water Mission.

AMRUT aimed to provide universal coverage of water supply by providing 1.39 crore household tap connections. Likewise, coverage of sewer/ septage connections were proposed to increase from 31% to 62% by providing 1.45 crore connections. So far, 1.12 crore tap connections and 87 lakh sewer connections have been provided. Sewage treatment plants of capacity 1,800 MLD have been created; out of this 907 MLD is being reused. This Mission has decreased disease load and improved quality of life of all, especially women in terms of time and energy saved to be put to constructive use.

Sustainable Development Goal 6.4 aims to substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity, by 2030. In order to meet (SDG 6), and to extend ease of living in water sector from 500 to all statutory towns, Atal Mission for Rejuvenation and Urban Transformation 2.0 (AMRUT 2.0) has been launched. This will also ensure 100% coverage of sewerage/ septage management in 500 AMRUT cities.

AMRUT 2.0 is a step towards **Aatma Nirbhar Bharat** with aim of **making the cities 'water secure'** and providing functional water tap connections to all households. This will be achieved through

circular economy of water by effecting water source conservation, rejuvenation of water bodies and wells, recycle/ reuse of treated used water, and rainwater harvesting by involving **community at large**. This Mission will be run as people's program i.e. **Jan Aandolan**. Mission also targets to provide 100% sewage/ septage management in 500 AMRUT cities.

1.2 STUDY ASSUMPTIONS AND/OR LIMITATIONS

DPR itself specifies about the preliminary study of the project. The DPR should mainly comprises of different alternatives, options related to the overall concept of the project. The purpose of the DPR is to finalize the techno - commercially viable option considering the lifecycle cost including the operation and maintenance. The DPR is prepared based on the reconnaissance survey and existing information of the villages, basic design parameters, block cost of various alternatives. The outcome will be the broad concept and option which will be further adopted for preparation of the detailed project report after approval from the concerned authorities.

Study Assumptions are detailed below based on the guidelines and reference of CPHEEO manual but not limited to those.

Table 1-1: Study Assumption and / or limitation

Sr. No.	Parameter	Unit	Description
1	Design Period		30 Years
	Base year/Commissioning Year		2027
	Intermediate stage		2042
	Ultimate stage		2057
2	Net Domestic water allowance	Lpcd	135
3	System Losses		
	Design year-2057	%	15
4	Clear water pumping hours	Hours	20
5	Stand by pump capacity	%	100
6	Hydraulic Retention Time of sumps	min	60
7	Hydraulic Retention Time of MBRs	min	60
8	Hydraulic Retention Time of SHAFT	min	30
9	Storage capacity of Service Reservoir		8 hours of daily water demand, i.e. 33% of demand (Based on Mass Curve Analysis)
10	Peak factor for distribution		3.0
11	Pipe Material for Pumping main		DI K-9
12	Pipe Material for Gravity main		HDPE up to 315 mm
			DI K-7 from 315 to 1200 mm
13	Minimum Diameter of Transmission Mains	mm	300

Sr. No.	Parameter	Unit	Description
14	Coefficient of Friction-“C”		
	HDPE		145
	Ductile Iron-CM lined		140
	Mild Steel-CM lined		140
	Cast Iron pipes-New (unlined)		100
	Cast iron pipes-Old (unlined)		80
15	Terminal pressure in distribution Network	m	Normal 12m, but not below 10m

1.3 LIMITATION

- a) Contour Survey map provided by LCMC.
- b) Satellite Image provided by LCMC.
- c) Water treatment is considered for surface source as per the general guideline given in the CPHEEO manual.
- d) Existing data furnished is based on the data provided by the LCMC during site visit.
- e) Existing water supply system details has also been referred from the data given by LCMC.
- f) Location of WTP and ESR are considered as per the land availability shown by LCMC.
- g) Change in any location of the water supply components will lead to change in hydraulic design of project.

GENERAL REPORT

2 GENERAL REPORT

3.1 LATUR – GENERAL

Latur city is a district head quarter located in the Marathwada region covering an area of @ 32.00 Sq. kms and present population of 3.82 lakhs (2011 census) The city is anticipated to witness a significant decadal growth in population of about 52%.

The Latur Municipal Corporation (LCMC) is responsible for water supply to Latur City. Being the district headquarters, the city is an important administrative centre that houses many regional offices of the Govt. a majority of the working population in Latur is employed in the tertiary sector. In addition, Latur City Municipal Corporation (LCMC) estimates that Latur has a floating population of about 15,000 that visit the city for various trade and commerce related activities.

Latur acts as an important centre of trade, commerce, and services for the surrounding villages of not only the Latur district, but also those of the neighbouring district of Osmanabad in Maharashtra and Bidar district of the Karnataka state. In comparison with cities in Marathwada and comparable cities in Maharashtra Latur appears to be on high growth trajectory as it has been consistently attracting investments as well as immigration of people.

In the last decade Latur's economy was primarily driven by investments in infrastructure, employment in Govt. sector, trade and commerce and construction activities. The presence of educational institutes of repute, coupled with quality health care facilities and infrastructure services makes the city an attractive destination.

Topography: Latur town is situated on a plateau with a ridgeline running west east through the centre of the town. The town is sloping towards south. The range of ground levels is from R.L. 610 RL 637 with an average R.L. of 615 Mtr. above MSL. The town is spread to a large extent in the east – west direction on compared to the north-south direction.

The maximum and minimum rainfall is 1313 mm and 527 mm respectively.

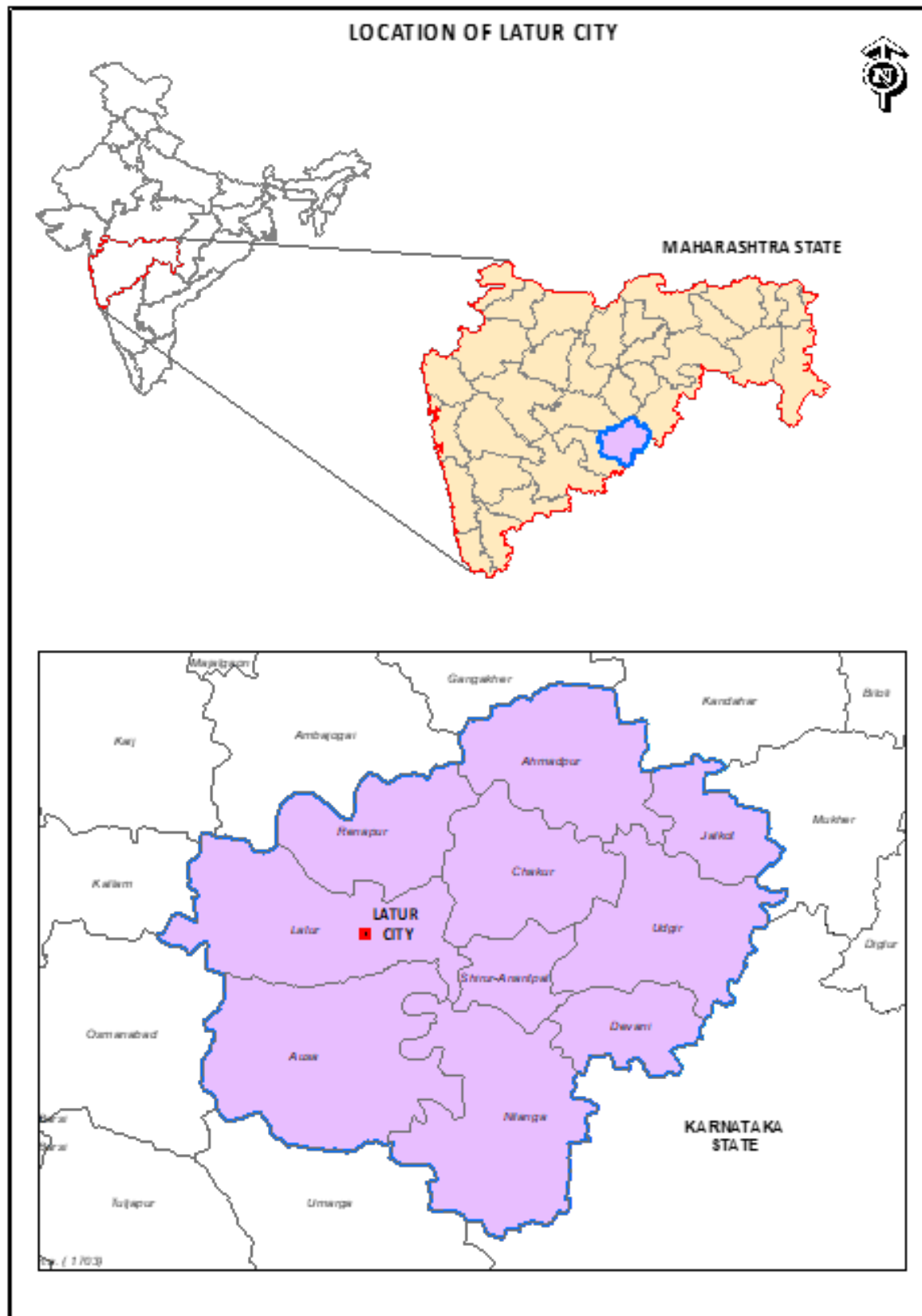


Figure 2.1: Location Map of Latur

3.2 GEOGRAPHY AND CLIMATE

Latur is situated 636 meters above mean sea level, on the Balaghat plateau, near the Maharashtra–Karnataka state boundary.

3.2.1 Temperature

Temperatures in Latur range from 13 to 41 °C, with the most comfortable time to visit in the winter, which is October to February. The highest temperature ever recorded was 45.6 °C. The lowest recorded temperature was 2.2 °C. In the cold season the district is sometimes affected by cold waves in association with the eastward passage of western disturbances across north India.

3.2.2 Rainfall

Most of the rainfall occurs in the monsoon season from June to September. Rainfall varies from 9.0 to 693 millimetres per month. Average annual rainfall is 725 millimetres.

3.3 TOPOGRAPHY

Latur is in the Marathwada region, the southeast part of Maharashtra State. Parbhani is located towards the north of the district, Nanded on its northeast, Bidar (Karnataka State) on the east and northeast, Osmanabad towards its south and west and Beed district towards its southeast.

3.4 DEMOGRAPHY

3.4.1 Overview

The Latur City Municipal Corporation is divided into 62 Ward for which elections held every 5 years. As per the Population Census 2011, the total population of LMC is 3,82,940 of which 1,97,737 are males while 1,85,203 are females with total 74,557 families residing.

In 2011, literacy rate of LMC was 84.22 %, Male literacy stands at 88.96 % while female literacy rate was 79.20 %. The census population of town is given in table below:

Table 2-1: Decadal Census Population

Sr. No.	Year	Population	Growth Rate per Decade
1	1981	111986	
2	1991	197408	0.76
3	2001	299985	0.52
4	2011	382940	0.28

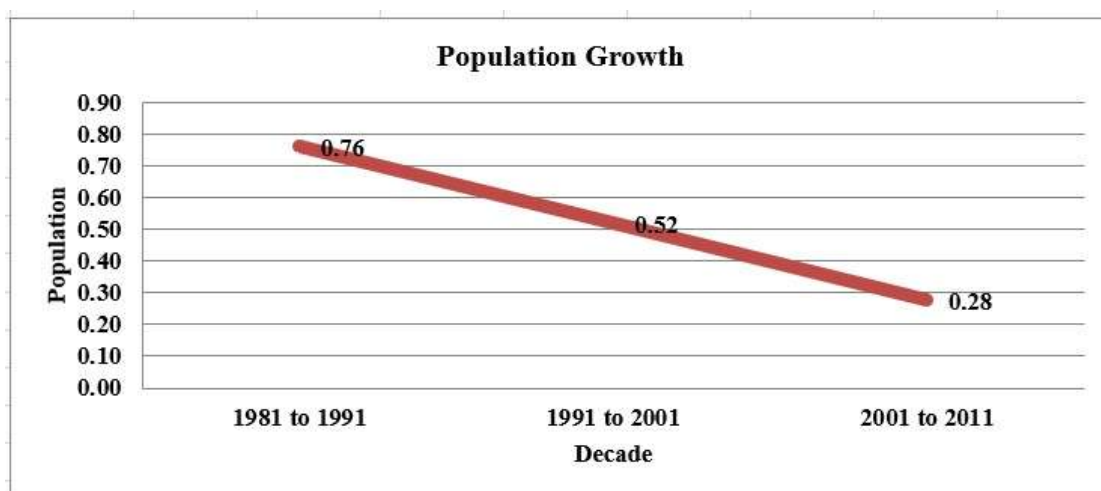
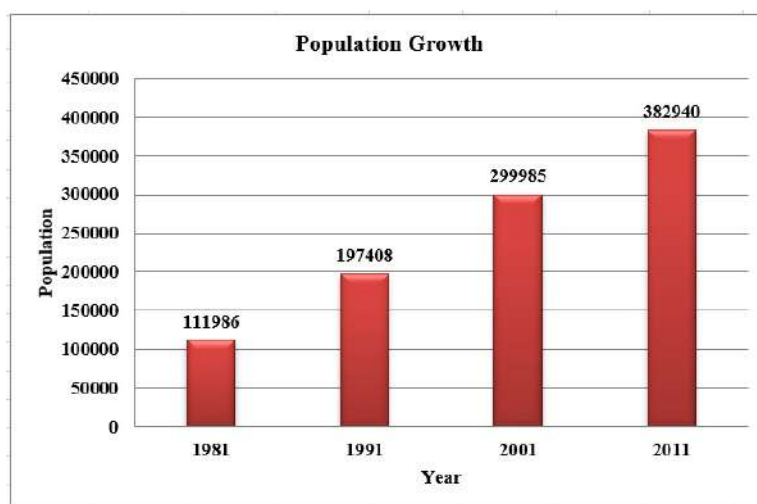


Figure 2.2: Decadal Population Growth Rate

3.4.2 Wardwise Population

The Latur City Municipal Corporation is divided into 62 Ward. The Ward wise population of town is given in table below.

Figure 2.3: Ward wise Population

SR. NO.	WARD NO	POPULATION AS PER CENCUS 2011	NUMBER OF HOUSEHOLDS
1	1	8332	1723
2	2	8137	1553
3	3	3950	587
4	4	8299	1511
5	5	8347	1666
6	6	4835	936
7	7	6831	1289
8	8	9235	1762
9	9	3594	630
10	10	3457	646
11	11	4711	896
12	12	9360	1594
13	13	7499	1389
14	14	3503	640
15	15	5508	966
16	16	4469	776
17	17	4559	715
18	18	3718	680
19	19	6062	1175
20	20	6708	1361
21	21	9606	2014
22	22	6925	1337
23	23	5597	1174
24	24	5735	1194
25	25	6046	1212
26	26	5818	1136
27	27	4441	864
28	28	3859	671
29	29	4918	959
30	30	5093	941
31	31	3591	664
32	32	3637	732
33	33	5075	903
34	34	9487	1637
35	35	3739	650
36	36	4335	743
37	37	9117	1719
38	38	6796	1235
39	39	3944	744
40	40	5290	994
41	41	3465	689
42	42	4211	850
43	43	5008	1048
44	44	5667	1176
45	45	6340	1261
46	46	9057	1803

SR. NO.	WARD NO	POPULATION AS PER CENCUS 2011	NUMBER OF HOUSEHOLDS
47	47	2680	549
48	48	15804	3316
49	49	7216	1427
50	50	8905	1866
51	51	5440	1129
52	52	5896	1288
53	53	4706	1032
54	54	5590	1205
55	55	7654	1624
56	56	8215	1697
57	57	6012	1247
58	58	6607	1259
59	59	4149	844
60	60	9270	1815
61	61	8764	1733
62	62	8121	1681
Total		382940	74557

3.4.3 Language

‘Marathi’ is the local language which is usually followed for communication.

EXISTING WATER SUPPLY SYSTEM

4 EXISTING WATER SUPPLY SYSTEM

4.1 PRESENT WATER SUPPLY SYSTEM

4.1.1 Sai Headworks

At present there are three different water sources (Sai Headworks, Nagzari Headworks and Dhanegaon Headworks) to Latur City Municipal Corporation.

The following presents the technical details of the scheme along with year of commissioning of said works.

Table 4-1: Sai Headworks Scheme (Original Scheme)

Sr. No.	Particulars	Particulars
1	Source	K T Weir on Manjra River, height 1.2 Mtr with MS drop gates
2	Headworks	Inspection well 4 Nos. 2 Mtr, Dia 450 mm connecting main and 500 mm dia slotted pipe trenches gallery & 5 Mtr dia intake well
3	Pumping Machinery	35 HP Vertical Turbine 2 Sets, 150 HP Horizontal split casing centrifugal pumps 2 sets
4	Settling Tank	Near Sai Headworks, one tank of capacity 272700 Ltrs. (Not in Use)
5	Pure water Tank	Near Sai Headworks, one tank of capacity 272700 Ltrs.
6	Pressure Filter	Near Sai Headworks, Candy type 3 Nos. (Not in working Condition)
7	Pure Water Raising Main	(H/W to Gandhi Chowk GSR) of 450 mm dia CILA of length 8650 Mtr.
8	GSR	2.27 ML in Stone Masonry of size 20x37.5 Mtr. With 3 Mtr. Height
9	Distribution System	RCC & CI pipelines of 300 mm to 80 mm dia total length of 135 Km

Table 4-2 Sai Headworks Scheme (Work executed under Stage II Part I (1970))

Sr. No.	Particulars
1	RCC elevated storage reservoir at Gandhi Chowk, 1.8 ML capacity with staging height of 14.5 Mtr. With water depth of 6.00 Mtr.

Table 4-3 Sai Headworks Scheme (Scheme executed from Nagzari Headworks (1972)) Works executed under Stage – II Part II

Sr. No.	Particulars
1	Source: Construction of K T Weir on Manjara River capacity 3.39 M ³
	Augmentation Works (Works under Stage III Part I (1983))
2	Headworks down stream of Nagzari Weir Intake well of 3 Mtr dia with 700 mm dia Connecting main length of 57.00 Mtr
3	Jack Well and Pump House at Nagzari of 9.0 Mtr dia
4	Pumping Machinery 250 HP vertical turbine -3 sets
5	Raw water Rising Main/Pumping Main from Nagzari Headworks to Warwanti WTP of 600 mm dia C.I. LA class pipe length 5160 Rmt.
6	Water Treatment Plant at Warwanti village of capacity 19.20 MLD conventional type

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

7	Pure water Pumping Machinery at WTP with 350 centrifugal coupled pump, 2 set discharge cap 8 lakh Ltrs/Hr
8	Pure water Rising Main from Warwanti 600 mm dia C.I. "A" class pipe WTP to ESR Length of 4700 Rmt
9	Elevated Storage Reservoir at Barshi Road capacity of 1.4 ML
10	ESR at Nanded Naka capacity of 1.4 ML
11	Pure water Gravity Main from ESR at Barshi Road to GSR at Gandhi Chowk 600 mm dia prestressed cement concrete pipe length of 2980 Rmt (this is now replaced by MS and BWSC pipes)

Table 4-4 Sai Headworks Scheme (Scheme executed from Nagzari Headworks (1972)) Works executed under Stage – III Part II (1988)

Sr. No.	Particulars
1	Replacement of Pure Water Gravity Main from Shivaji chowk to Gandhi chowk, previously 600 mm PSC pipe replaced by 600 mm dia MS pipe of length of 1580 Rmt

Table 4-5 Sai Headworks Scheme (Scheme executed from Nagzari Headworks (1972)) Works executed under Stage – III Part III (1989)

Sr. No.	Particulars
1	Improvement to K.T. Weir at Sai, Height of K.T Weir increased from 1.2 Mtr to 2.0 Mtr
2	Pump house at Sai Headworks, Construction of new Pump House / repairs of old Pump House
3	Raw Water Pumping Machinery at Sai Headworks, Replaced by 35 HP Pumps 2 sets discharge 4.1 Lakh Ltrs/ Hr
4	Water Treatment Plant at Arvi (Ambajogai Road), Conventional type 9.84 MLD capacity
5	Pure Water Pumping Machinery at WTP (Sai) 150 HP Pumps 2 sets centrifugal coupled

Table 4-6 Distribution Works (Works executed under Stage IV Part I) (1990)

Sr. No.	Particulars
1	Additional distribution pipeline in Nanded Naka area, above 200 mm dia C.I. pipe and below 200 mm dia A.C. pipe distribution lines total length of 35 Km

Table 4-7 Distribution Works (Works executed under Stage IV Part II) (1993 to 2001)

Sr. No.	Particulars
1	Pure water Gravity Main from Gandhi Chowk to Dalda factory ESR, 600 mm dia 450 mm dia & 400 mm dia D.I. pipe Length 900 Rmt
2	R.C.C. E.S.R.'s at Ashok Hotel, capacity of 2.1 ML & at Dalda Factory, capacity of 1.75 ML
3	Additional distribution system above 200 mm dia C.I. pipe and below 200 mm dia A.C. pipe distribution lines total length of 180 Km
4	Replacement of 35 HP VT pump sets at Headworks

4.1.2 Dhanegaon Head works

Table 4-5: Latur Water Supply Scheme Stage V (2005)

Sr. No.	Source	Particulars
1	Manjra Dam	4 X 6 Mtr Elliptical shape
2	Connecting Main	1800 mm dia RCC pipe of two parallel pipes of length 92.50 M and beyond approach channel of 660 Mtr of length
3	Inspection Wells	Elliptical size 6 X 2 Mtr dia 2 Nos.
4	Approach Bund	Length of 65 Mtr.
5	Jack Well & Pump House	Elliptical shape, size of 17.15 X 6.35 Mtr and depth of 21.50 Mtr with 23.50 Mtr & 11.50 Mtr. Overhead Pump House with height of 10.75 Mtr.

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6	Raw Water Pumping Machinery	700 HP VT pumps with VSS HT motors 3 sets discharge capacity of 17 lakh Ltrs/hr.
7	Raw water Raising Main	From Headworks to MS Shaft at Dhabapati 965 mm dia MS pipe of height 3615 Mtr. & MS pipe shaft at Dhabapati, 1500 mm dia MS pipe of height 5 Mtr.
8	Raw Water Gravity Main	Upto Harangulphata, 1219 mm dia 7.9 thick MS pipe of length 43.50 m Harangulphata to Harangul WTP, 1118 mm dia 7.9 thick MS pipe of length 3.1 Km Harangulphata to Warwanti, 610 mm dia 7.9 thick MS pipe of length 2.60 Km Warwanti WTP to Arvi WTP, 500 mm dia K-9 pipe of length 5.40 Km
9	Water Treatment Plant	At Harangul (bk) village, Conventional type of 80 MLD capacity along with recirculation arrangement.
10	Pure water Pumping Machinery	442 HP VT pumps with VSSHT motors discharge capacity of 11.23 lakhs Ltrs/hr., 3 sets with 50% standby
11	Pure water Raising Main	762 mm dia 9.5 mm thick MS pipe length of 2.22 Km
12	Master Balancing Reservoirs	Near Harangul Railway Station, 2 Nos. of Capacity of 3.125 ML
13	Pure Water Gravity Main	MBR to Gandhi chowk ESR, 1158 mm to 1016 mm dia MS pipe length of 10 Km Shivaji chowk to Saraswathi colony, 457 mm dia MS pipe length of 625 Mtr Saraswathi colony ESR to Basweshwar colony, 323 90 mm dia MS pipe length of 1175 Mtr Gandhi chowk to Nanded ESR, 610 mm dia MS pipe length of 860 Rmt 559 mm dia MS pipe length of 1680 Rmt 457 mm dia MS pipe length of 50 Rmt

Sr. No.	Particulars	Capacity	Staging Height
1	Govt. Qty. Campus	2.2 ML	15.00 Mtr. and water depth of 5 Mtr.
2	Saraswathi Colony	4.1 ML	13.28 Mtr. and water depth of 5 Mtr.
3	Basweshwar Colony	2.1 ML	15.00 Mtr. and water depth of 5 Mtr.
4	Arvi Booster Campus	3.5 ML	23.30 Mtr. and water depth of 5 Mtr.
5	Nanded Naka	4.0 ML	16.00 Mtr. and water depth of 5 Mtr.

Rehabilitation of Old Water Works

Sr. No.	Particulars
1	Pumping Machinery at Sai Headworks & Arvi Booster, replacement of 150 centrifugal Pump – 4 Sets
2	Pumping Machinery at Nagzari Headworks, replacement of 25 HO centrifugal (P/W)
3	Replacement of PSC line from MJP, 600 mm dia BWSC pipe length of 1400 Rmt office to Shivaji chowk

4.1.3 Atal Mission for Rejuvenation and Urban Transformation AMRUT (Phase I, Part I)

Table 4-1: Mechanical Works

Sr. No.	Particulars
1	Renovation works of Warwanti WTP
2	Renovation works of Arvi WTP
3	Providing & fixing water lubricated V T Pump & allied equipment for Warwanti WTP
4	Providing & fixing water lubricated V T Pump & allied equipment of Arvi WTP
5	Providing & Erecting V T Pump set & equipment for Harangul Sump at WTP
6	Temporary discounted reconnection charges for P/W P/M at Warwanti
7	Solar Power Plant at Existing Harangul WTP
8	SCADA & Automation, DMA Meters for reducing NRW

Table 4-2: Part I Mechanical Works (Recapitulation)

Sr. No.	Particulars	Amount
1	Estimate of providing and erecting & Glandless wall of WTP with dismantling existing wall at Harangul WTP	7597982.00
2	Estimate for renovation of WTP with providing, erecting equipment and repair to existing equipment at Warwanti WTP	5211021.00
3	Estimate for renovation of WTP with providing, erecting equipment's & repairs allied equipment's & Arvi WTP	3402539.00
4	Estimate for providing and fixing water lubricated VT pump and allied equipment for Warwanti WTP	7388598.00
5	Estimate for providing and fixing W/L VT Pump and allied equipment for Arvi WTP	3786057.00
6	Estimate for providing and erecting VT pump set and equipment's for Sump at Harangul WTP	5718542.00
7	Estimate for providing and fixing SCADA automation for Headworks, Harangul WTP Pure water, Warwanti & Arvi etc.	8674983.00
8	Estimate for providing and fixing SCADA automation for Headworks, WTP & Pure Water & Arvi Booster WTP	6912766.00
9	Estimate of providing and fixing SCADA automation of Headworks, WTP & Pure Water @ Arvi Booster WTP	10638579.00
10	Temporary disconnected reconnection charges for Pure Water Pumping Machinery @ Warwanti WTP consumer No. 610299001671	6855733.00
	Total	6,61,86,800.00

4.1.4 Atal Mission for Rejuvenation and Urban Transformation AMRUT (Phase I, Part II)

Table 4-1: Part I Civil Works

Sr. No.	Particulars
1	Working Survey
2	ESR capacity 1.5 ML with staging height 19.00 Mtr. backside of Usha Kiran theatre
3	Pure water R/M MJP (old) ESR to MJP (New) ESR – 300 mm DI K-9 pipe, length of 1550 Rmt
4	Remodelling works of Distribution System (DI K-7 > 200 mm dia < HDPE length of 145.23 Km
5	Replacing existing Air Valves with tamper proof Air Valves on Raw & Pure water Gravity Main
6	Construction of Sump & Pump House at existing Arvi WTP of capacity of 0.5 ML & 16 M dia
7	Construction of Sump & Pump House at existing Harangul WTP of capacity of 0.8 ML & 16 M dia
8	Repair of Arvi & Warwanti WTP

Table 4-2: Part II Civil Works (Recapitulation)

Sr. No.	Particulars	Amount
1	Working Survey	937225.00
2	Estimate of ESR capacity of 1.5 ML with staging height of 19.00 m backside of Usha Kiran theatre	11983850.00
3	Estimate of Pure Water R/M MJP (old) ESR to MJO (new) ESR 250 mm DI K-9 pipe, length of 1550 Rmt	5182300.00
4	Remodelling works of Distribution System	279023400.00
5	Replacing existing Air Valves with Tamper proof Air Valves on Raw & Pure Water Gravity Main	1710500.00
6	Construction of Sump & Pump House at existing Arvi WTP of capacity of 0.5 ML and 11.50 m dia	3778600.00

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Sr. No.	Particulars	Amount
7	Construction of Sump & Pump House at existing Harangul WTP of capacity of 0.8 ML and 16.00 m dia	5343700.00
8	Repair of Arvi & Warwanti WTP	1680800.00
	Total	30,96,40,375.00

Sr. No.	Particulars	Amount
1	Total Amount Mechanical & Civil Works	37,58,27,175.00
2	Add for PV claim	1,27,96,391.00
	Total	38,86,23,566.00
3	Solar Power Plant	8,62,50,000.00
	Total	47,48,73,566.00
	Add 3% ETP Charges	1,42,46,207.00
	Grand Total	48,91,19,773.00
	Say	48,91,20,000.00

This scheme is completed in year 2023.

Table 4-6: Summary of Existing Service Reservoirs

Sr. No.	SR Name	Type of SR ESR/GSR	SR Status Existing / Proposed	SR Capacity Existing (ML)	GL (m)	LDL (m)	FSL (m)	STAGI NG (m)
1	Nanded Naka New Existing	ESR	Existing	4.00	633.50	649.50	654.50	16.00
2	Nanded Naka Old Existing	ESR	Existing	1.40	631.50	647.50	653.50	16.00
3	Dalda Factory	ESR	Existing	1.75	628.86	649.86	654.86	21.00
4	Basweshwar Colony	ESR	Existing	2.10	623.25	638.25	643.25	15.00
5	Sarasvati Colony	ESR	Existing	4.10	634.00	647.28	652.28	13.28
6	M.J.P. Old	ESR	Existing	1.40	636.00	658.00	664.00	22.00
7	M.J.P. New Existing	ESR	Existing	1.50	634.55	652.55	656.55	18.00
8	Government Quarter Existing	ESR	Existing	2.10	637.50	652.50	657.50	15.00
9	Arvi (Keshav Nager) Existing	ESR	Existing	3.50	623.00	645.00	650.00	22.00
10	Rajdhani	ESR	Existing	2.10	635.30	650.30	655.30	15.00
11	Gandhi Chowk Existing	ESR	Existing	3.20	634.00	652.00	657.00	18.00
	Total			27.15				

4.1.5 Findings & Necessity of the proposed Scheme

In the Consumer Survey total of registered properties with water connections are 62226 Nos. All the consumers have now been mapped and given unique GSI ID for identification and billing.

There are 5 to 6% losses are found in water transmission mains due to tapering of Air valves. To arrest the losses installation of Bulk meters and to minimize these losses tamper proof Air valves are proposed in this

proposal. Mainly leakages are due individual connections and the deterioration of valves, which are not provided with road boxes, resulting in problems to vehicular traffic. Also, the problem of unequal pressure and quantity in distribution system is observed the reason found to be in uncontrolled extensions of 80 mm dia pipes. The distribution system comprises of very old RCC /Partly AC/ PVC Lines. These lines require frequent maintenance due to which there is disturbance in water supply, water contamination problems and wastage of pure water subsequently loss of revenue.

The water auditing up to consumer end is not useful at this stage as distribution system is being modified with respect to rezoning and hydraulic modelling being done. Hence Hydraulic modelling of exiting distribution zones is done in Water Gem software and recommendations reviewed. It is found necessary that.

- 1) MJP ESR distribution network between old Harangul Road to ring road up to Bodhi chowk is now proposed to be covered through Govt. colony ESR. South side of Prakash Nagar and Khadgaon road area is now proposed to shift East side distribution zone of Ambajogai road (i.e., Khorli Galli) is now proposed to be covered through Arvi E.S.R on new Khadgaon road proposed ESR.
- 2) Rajdhani ESR distribution network in Gandhi Nagar Ravindra Nath Tagor Nagar is now proposed to be covered through Gandhi chowk ESR.
- 3) Dalda Factory ESR distribution Network in Motinagar area (Khaneri road both sides) is now proposed to cover through Gandhi chowk ESR.
- 4) Basवेश्वर Colony ESR distribution network from Basवेश्वर chowk to Kava Road is now proposed to cover through Dalda factory ESR.
- 5) At low pressure problem zones, it is necessary to have parallel distribution lines.
- 6) For water contamination problems old RCC/PVC pipe in the distributions need to be replaced.
- 7) After 2004 (completion of stage V) newly developed areas of Latur city within municipal limit there is no distribution pipelines hence it needs to be covered with piped water supply.

4.1.6 Proposed Scheme

Population of Latur city as per census 2011 is 3,82,940 souls. Considering present stage for this project is year 2027. The population is 5,26,166 souls. Projected population at immediate stage is 6,59,006 souls for the year 2042 and designed stage population at the year 2057 is 7,90,459 souls. All the distribution system proposed in this proposal are designed for ultimate stage population of 790459 souls for the year 2057.

The Proposed works are as below:

Sr. No.	Particulars	Description
1	Manjra Dam	Intake well in submergence of the dam at 6 Mtr dia

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr. No.	Particulars	Description																																												
2	Connecting Main	1400 mm dia RCC NP-3pipe of two parallel pipes of length 80 Mtr and beyond existing approach channel of 660 Mtr length																																												
3	Inspection Well	Size of 6 Mtr dia 1 No.																																												
4	Approach Bund	Approach bund of 70 Mtr length																																												
5	Jackwell & Pump House	Circular shape, size of 15.00 Mtr dia and depth of 21.5 Mtr with 25.00 Mtr with 25 Mtr 15.00 Mtr overhead Pump House with height of 11.00 Mtr.																																												
6	Raw Water Pumping Machinery	495 HP VT pumps with VSS HT motors (3+2) sets discharge capacity of 10.67 lakh Ltrs/Hr.																																												
7	Raw Water Raising Main	From Headworks to MS Shaft 1000 mm dia DI K-9 pipe of length 3600 Mtr. From MS Shaft of 1500 mm dia MS pipe of height 20 Mtr.																																												
8	Raw Water Gravity Main	From MS Shaft to Harangul WTP 1000 mm dia DI K-7 pipe of 45.0 Km From Harangul phata to Harangul WTP 700 mm dia DI K-7 pipe length of 0.7 Km Harangulphata to Warwanti existing 610 mm dia 7.9 mm thick MS pipe Warwanti WTP to Arvi WTP existing 610 mm dia pipe of 2.6 Km & 500 mm dia DI K-9 pipe of length 5.4 Km																																												
9	Water Treatment Plant	Conventional type 91 MLD capacity along with recirculation arrangement near existing WTP at Harangul																																												
10	Pure Water pumping Machinery	495 HP VT pumps with VSSHT motors discharge capacity of 14.84 lakh Ltrs/Hr. (3+2) sets with 50% standby																																												
11	Pure Water Raising Main	1000 mm dia DI K-9 pipe of length 1.5 Km																																												
12	Master Balancing Reservoirs	2 Nos. of Capacity 1.92 MLD with 27 Mtr. Staging Height near the existing MBR																																												
13	Pure Water Gravity Main	MBR to all ESR's 1200 mm to 300 mm dia DI K-7 pipe length of 19.92 Km																																												
14	RCC Storage Reservoirs	<table><tr><th>Sr. No.</th><th>SR Name</th><th>SR Existing Capacity (ML)</th><th>STAGING (m)</th></tr><tr><td>1</td><td>Nanded Naka</td><td>0.70</td><td>16.00</td></tr><tr><td>2</td><td>M.J.P. New</td><td>1.00</td><td>24.00</td></tr><tr><td>3</td><td>Government Quarter</td><td>1.20</td><td>15.00</td></tr><tr><td>4</td><td>Arvi</td><td>0.40</td><td>22.00</td></tr><tr><td>5</td><td>Gandhi Chowk</td><td>1.20</td><td>18.00</td></tr><tr><td>6</td><td>Kripa Sadan</td><td>1.85 X 2</td><td>16.00</td></tr><tr><td>7</td><td>Labour Colony</td><td>1.70 X 2</td><td>18.00</td></tr><tr><td>8</td><td>SSC Board</td><td>2.70</td><td>22.00</td></tr><tr><td>9</td><td>APMC Market</td><td>2.20</td><td>16.00</td></tr><tr><td>10</td><td>Basav Colony</td><td>2.40</td><td>16.00</td></tr></table>	Sr. No.	SR Name	SR Existing Capacity (ML)	STAGING (m)	1	Nanded Naka	0.70	16.00	2	M.J.P. New	1.00	24.00	3	Government Quarter	1.20	15.00	4	Arvi	0.40	22.00	5	Gandhi Chowk	1.20	18.00	6	Kripa Sadan	1.85 X 2	16.00	7	Labour Colony	1.70 X 2	18.00	8	SSC Board	2.70	22.00	9	APMC Market	2.20	16.00	10	Basav Colony	2.40	16.00
Sr. No.	SR Name	SR Existing Capacity (ML)	STAGING (m)																																											
1	Nanded Naka	0.70	16.00																																											
2	M.J.P. New	1.00	24.00																																											
3	Government Quarter	1.20	15.00																																											
4	Arvi	0.40	22.00																																											
5	Gandhi Chowk	1.20	18.00																																											
6	Kripa Sadan	1.85 X 2	16.00																																											
7	Labour Colony	1.70 X 2	18.00																																											
8	SSC Board	2.70	22.00																																											
9	APMC Market	2.20	16.00																																											
10	Basav Colony	2.40	16.00																																											
15	Distribution System	700 mm to 350 mm dia DI K-7 pipe length of 22.37 Km and 315 to 100 mm dia HDPE pipe length of 301.94 Km																																												
16	Smart Metering for one zone 24X7	15 to 25 mm Smart Ultrasonic Water Meters for Rajdhani Water Supply Zone total quantity of 3798 meters with AMI system																																												
17	SCADA	Full SCADA system is considered from Headworks to all ESRs																																												
18	Augmentation of existing Mechanical Works	Air blowers, wash water pumps, with allied electrical & mechanical equipment's at existing Headworks																																												

All above said works are proposed in this scheme as per MJP CSR 21-22 & PWD DSR 22-23. Distribution system is designed for ultimate stage population (year 2057) and as per design parallel & additional pipelines are proposed in this scheme. As per projected population the design of gravity main is checked and gap is found at ultimate stage as per this design parallel gravity main is required for ultimate stage for regular water supply to the consumer with required pressure and quantity Twelve ESRs having capacity as above is proposed in this proposal and parallel gravity main which will require for ultimate stage is considered in this proposal. This parallel gravity main required for ultimate stage should be considered in Stage-II of Latur Water supply scheme under Amrut programme.

DESIGN METHODOLOGY

5 DESIGN METHODOLOGY

5.1 PER CAPITA WATER SUPPLY

Piped water supply for communities should provide adequately for the following as applicable:

- Domestic needs such as drinking, cooking, bathing, washing, flushing of toilets,
- Gardening and individual air conditioning.
- Institutional needs.
- Public purposes such as street washing or street watering,
- Industrial and commercial uses
- Fire fighting
- Requirement for livestock; and
- Minimum possible UFW

For Latur city, the domestic water demand is worked out on the basis of 135 LPCD and UFW as 15 percent. This makes per capita gross water supply of 158.82 lpcd. Below are the details.

Table 5-1: System losses

System Losses	
Distribution System	10%
Transmission mains and Feeder Mains	3%
Water treatment Plant	2%
Total	15%

5.2 FIRE DEMAND

A provision in Kilo Ltrs per Day based on the formula of $100 \times \text{SQRT}(P)$, Where P = Population in thousand is considered. This is only coincidental draft and one third of the firefighting demand form part of the service storage.

5.3 INDUSTRIAL AND INSTITUTIONAL REQUIREMENT

The per capita rate of supply recommended includes the requirements of small industries (other than factories). Based on the nature and magnitude of Industry total water demand can be worked out based on water requirement per unit of production as stated in CPHEEO manual, Para 2.2.8.3 d).

5.4 DESIGN PERIOD FOR DIFFERENT ELEMENT OF WATER SUPPLY SYSTEM

Based on the recommendations in the CPHEEO Manual on water supply, following design periods is suggested for different components of water supply system:

Table 5-2 : Design Period for different Element of Water supply system

Components of Water Supply System	Design Years
Water Treatment plant	15 Years
Canal Outlets	30 Years
Raw and Clear water main pipelines	30 Years
Distribution System	30 Years
Clear water ground/overheads water tanks	15 Years
Pumps house Buildings	30 Years
Pumping Equipment (E & M)	15 Years

(Source: - CPHEEO manual for water supply)

Since this project consist of single city water supply scheme, as per CPHEEO guidelines distribution & transmission network are also designed for 30 years.

5.5 PLANNING STAGES

The stages considered for the planning and hydraulic modelling of water supply scheme are as follows;

- Immediate Stage - 2027
- Intermediate Stage - 2042
- Ultimate Stage - 2057

5.6 RESIDUAL PRESSURE

Distribution System was designed for minimum residual pressure head of 10 m.

5.7 PEAK FACTOR

For existing water supply scenario, peak factor of the system is calculated as per actual water supply hours, whereas for future planning, peak factor will be provided as per norms considering water district wise population. In adopting peak factor, Zonal Population will be considered. Peak factor recommended for design of the distribution network is 3.

Table 5-3 : Peak factor

Sr. No	Population	Peak Factor
1	Up to 50,000	3
2	50,000 to 100000	2.5
3	Above 200000	2

(Source: - CPHEEO manual for water supply)

5.8 PIPE MATERIAL

All the existing pipes which are of materials AC, PVC, GI, CI and which are very old are proposed to be discarded from the system and new pipes are proposed instead. The distribution network is proposed is of HDPE material and the transmission pipes proposed is of DI material. The various C-values adopted for various pipe materials are as follows.

Table 5-4 : Recommended C Values (CPHEEO)

Pipe Materials	Recommended C Values	
	New Pipes	Design Purpose
Unlined Metallic Pipes		
Cast Iron, Ductile Iron	130	100
Mild Steel	140	100
Galvanized Iron Above 50 Mm	120	100
Galvanized Iron 50 Mm Dia and Below Used for House Service Connections	120	55
Centrifugally Lined Metallic Pipes		
Cast Iron, Ductile Iron and Mild Steel Pipes Lined with Cement Mortar or Epoxy		
Upto 1200 Mm Dia	140	140
Above 1200 Mm Dia	145	145
Projection Method Cement Mortar Lined Metallic Pipe		
Cast Iron, Ductile Iron and Mild Steel Pipe	130	110
Non-Metallic Pipes		
RCC Spun Concrete		
Prestressed Concrete		
Upto 1200 Mm Dia	140	140
Above 1200 Mm Dia	145	145
Asbestos Cement	150	140
PVC GRP and Other Plastic Pipes	150	145

5.9 CONSUMPTION PATTERN

The flow condition was simulated for a conservative theoretical hourly demand pattern having the peak flow equal to 3.0 times the average day demand. Below Table 5-5 and Figure 5.1 shows the hourly variation in the multiplier throughout the 24 hours.

Table 5-5: 24 x 7 Pattern

Time from Start (hours)	Multiplier
1	0.2
2	0.2
3	0.2
4	0.2
5	0.2
6	0.6
7	3
8	3
9	3
10	1.8
11	1.2
12	1
13	0.5
14	1.2
15	0.5
16	0.5
17	1
18	1.5
19	2
20	0.6
21	0.6
22	0.6
23	0.2
24	0.2

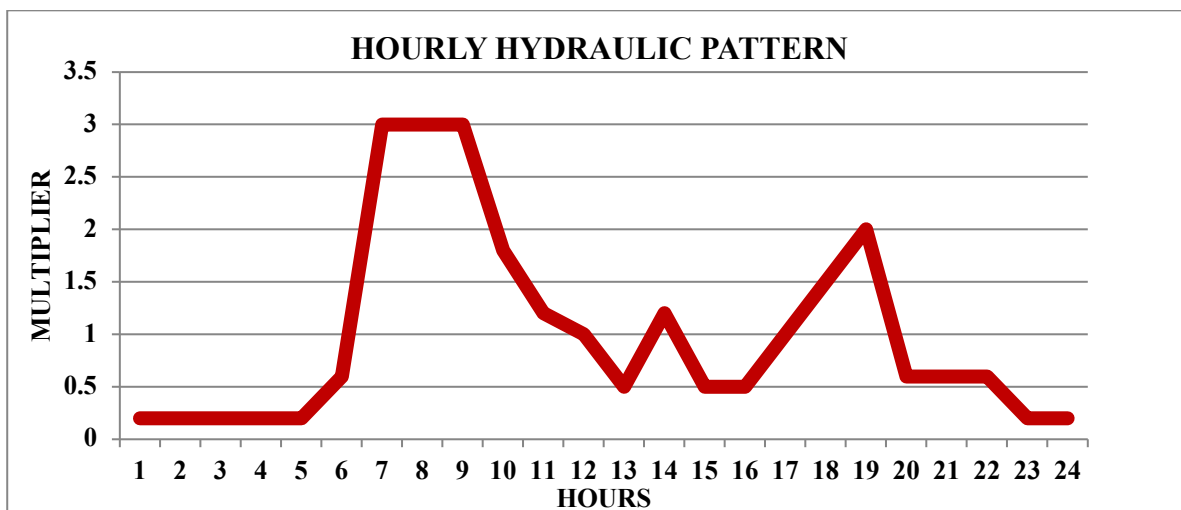


Figure 5.1: Consumption Pattern

POPULATION PROJECTION

6 POPULATION PROJECTIONS

6.1 DOMESTIC POPULATION

Numerous methods are described in Central Public Health Environmental Engineers Organization (CPHEEO) Manual on water supply and treatment to forecast the population for a locality / area based on the previous decadal population figures. The selection of method of forecast depends on the following factors.

- Project area
- Past growth
- Future developments in the town
- Industrialization
- Urbanization

Some of the methods used in the population forecast are given below.

1. Arithmetic Increase Method
2. Incremental Increase Method
3. Geometric Increase Method
4. Decreasing Rate of Growth Method
5. Graphical Method
6. Graphical Method based on Single city
7. Graphical Method based on cities with similar growth pattern
8. The Logistic Method
9. Method of density

Analysis and identification of new tank locations and capacities population projection & Water Demand allocation is adopted as per DPR i.e. 'Amrut Mission Improvement in Water Supply system'. While the forecast of the prospective population of a projected area at any given time during the period of design can be derived by any one of the foregoing methods appropriate to each case, the density and distribution of such population within the several areas, zones or districts will again have to be made with a discerning judgment on the relative probabilities of expansion within each zone or district, according to its nature of development and based on existing and contemplated town planning regulations. Wherever population growth forecast or master plans prepared by town planning or other appropriate authorities are available, the decision regarding the design population should consider as per AMRUT DPR.

The various available Numerical & Graphical methods are used to compute the population figures for Latur town from the past census data. However, these demographic projections will help us in getting an idea about the population trends. The percentage rate of growth or decrease is shown in table considering the population figures from 1981 to 2011.

Table 6-1 : Percentage rate growth

Sr. No.	Year	Population	Growth Rate per Decade
1	1981	111986	
2	1991	197408	0.76
3	2001	299985	0.52
4	2011	382940	0.28

Hence, its decided and agreed with client that the population projected using average of three method will again reworked with the current 2022 year's population factors and same is adopted for final projections of population for next 30 years.

So, for finding out the future population, we took censuses data from client and calculate the future population for immediate stage (2027), intermediate stage (2042) and for the ultimate stage (2057) by using the following methods.

Table 6-2 : Population forecasting by various methods

Sr. No.	Year	Arithmetic Increase Method	Incremental Increase Method	Geometrical Increase Method	Average of all	Average of AP & I.I.
1	2022	482290	480865	588785	517313	481577
2	2027	527449	524883	715941	589424	526166
3	2032	572608	568593	870559	670587	570600
4	2042	662926	655087	1287182	868398	659006
5	2057	798403	782515	2314208	1298375	790459

From the above population forecast computations, it is observed that the Average of Arithmetic and Incremental Increase method provide reasonable population figures in the analysis. These figures are estimated considering the rapid Urbanization, adopted same as per DPR for the present study.

6.1.1 Ward Wise Population Projections

The ward wise projected population figures for immediate year 2027, intermediate year 2042 and ultimate year 2057 are evaluated by considering the probable increase in density for every ward with respect to the present population obtained and the ward area for all the 62 wards of LMC. Which are shown in table

Table 6-3 : Ward wise Population Projection

Ward No.	Equivalent Residential Area (Ha)	Year 2011		Year 2027		Year 2042		Year 2057	
		Pop	Density	Pop	Density	Pop	Density	Pop	Density
1	116.25	8332	72	11448	98	14339	123	17199	148
2	148.06	8137	55	11180	76	14003	95	16796	113
3	128.66	3950	31	5427	42	6798	53	8154	63
4	44.11	8299	188	11403	259	14282	324	17131	388
5	19.59	8347	426	11469	586	14364	733	17230	880
6	29.49	4835	164	6643	225	8321	282	9980	338
7	26	6831	263	9386	361	11756	452	14100	542
8	64.44	9235	143	12689	197	15893	247	19063	296
9	8.81	3594	408	4938	560	6185	702	7419	842
10	11.98	3457	289	4750	397	5949	497	7136	596
11	9.7	4711	486	6473	667	8107	836	9724	1002
12	26.31	9360	356	12861	489	16108	612	19321	734
13	24.72	7499	303	10304	417	12905	522	15479	626
14	19.51	3503	180	4813	247	6028	309	7231	371
15	9.59	5508	574	7568	789	9479	989	11370	1186
16	7.31	4469	611	6140	840	7691	1052	9225	1262
17	7.78	4559	586	6264	806	7846	1009	9411	1210
18	45.19	3718	82	5109	113	6398	142	7675	170
19	18.31	6062	331	8329	455	10432	570	12513	683
20	17.94	6708	374	9217	514	11544	644	13847	772
21	80.37	9606	120	13199	164	16531	206	19829	247
22	201.04	6925	34	9515	47	11917	59	14294	71
23	29.67	5597	189	7690	259	9632	325	11553	389
24	28.04	5735	205	7880	281	9869	352	11838	422
25	27.69	6046	218	8307	300	10405	376	12480	451
26	9.31	5818	625	7994	858	10012	1075	12009	1290
27	23.88	4441	186	6102	256	7643	320	9167	384
28	29.46	3859	131	5302	180	6641	225	7966	270
29	16.29	4918	302	6757	415	8463	520	10152	623
30	18.61	5093	274	6998	376	8765	471	10513	565
31	7.01	3591	512	4934	704	6180	882	7412	1057
32	8.06	3637	451	4997	620	6259	776	7507	931
33	7.03	5075	722	6973	993	8734	1243	10476	1491
34	47.28	9487	201	13035	276	16326	345	19583	414
35	8.78	3739	426	5137	585	6434	733	7718	880
36	9.17	4335	473	5956	650	7460	814	8948	976
37	101.82	9117	90	12527	123	15690	154	18819	185
38	10.39	6796	654	9338	899	11695	1126	14028	1350
39	26.63	3944	148	5419	203	6787	255	8141	306
40	35.26	5290	150	7269	206	9104	258	10920	310
41	15.56	3465	223	4761	306	5963	383	7152	460
42	27.58	4211	153	5786	210	7247	263	8692	315
43	16.74	5008	299	6881	411	8618	515	10337	618
44	18.24	5667	311	7787	427	9752	535	11698	641
45	15.34	6340	413	8711	568	10911	711	13087	853

Ward No.	Equivalent Residential Area (Ha)	Year 2011		Year 2027		Year 2042		Year 2057	
		Pop	Density	Pop	Density	Pop	Density	Pop	Density
46	18.31	9057	495	12444	680	15586	851	18695	1021
47	31.29	2680	86	3682	118	4612	147	5532	177
48	104.38	15804	151	21715	208	27197	261	32622	313
49	29.82	7216	242	9915	333	12418	417	14895	500
50	46.01	8905	194	12236	266	15325	333	18382	399
51	28.31	5440	192	7475	264	9362	331	11229	397
52	66.8	5896	88	8101	121	10146	152	12170	182
53	30.81	4706	153	6466	210	8099	263	9714	315
54	22.31	5590	251	7681	344	9620	431	11539	517
55	36.05	7654	212	10517	292	13172	365	15799	438
56	30.47	8215	270	11288	371	14137	464	16957	557
57	20.84	6012	289	8261	396	10346	497	12410	596
58	14.54	6607	454	9078	624	11370	782	13638	938
59	95.13	4149	44	5701	60	7140	75	8564	90
60	21.47	9270	432	12737	593	15953	743	19135	891
61	251.86	8764	35	12042	48	15082	60	18091	72
62	204.36	8121	40	11158	55	13976	68	16763	82
Total	2655.72	382940		526166		659006		790459	

6.1.2 Floating population

Floating population is considered as 40,000 person per day in year 2022 and projection done based on overall % increment in decade for immediate stage (2027), intermediate stage (2042) and for the ultimate stage (2057).

6.2 DEMAND CALCULATION

The water demand has been calculated zone wise for the years 2027, 2042 and 2057 and the total demand of Master Plan Area comprises of the various Water Supply Zone. From demand calculations, it's very easy to find out the capacity of proposed WTP and ESR. Below are the water demands for three stages i.e.

- Immediate Stage (2027)
- Intermediate Stage (2042)
- Ultimate Stage (2057)

The detail of demands is as follows

6.2.1 Domestic water demand

Total domestic demand is calculated consider 135 lpcd with 15% system losses. Below table shows ward wise total domestic demand.

Table 6-4 : Total Domestic Demand

Ward No.	Population			Domestic Net Demand (MLD)			Domestic Gross Demand (MLD)		
	2027	2042	2057	2027	2042	2057	2027	2042	2057
1	11448	14339	17199	1.55	1.94	2.32	1.82	2.28	2.73
2	11180	14003	16796	1.51	1.89	2.27	1.78	2.22	2.67
3	5427	6798	8154	0.73	0.92	1.1	0.86	1.08	1.29
4	11403	14282	17131	1.54	1.93	2.31	1.81	2.27	2.72
5	11469	14364	17230	1.55	1.94	2.33	1.82	2.28	2.74
6	6643	8321	9980	0.9	1.12	1.35	1.06	1.32	1.59
7	9386	11756	14100	1.27	1.59	1.9	1.49	1.87	2.24
8	12689	15893	19063	1.71	2.15	2.57	2.01	2.53	3.02
9	4938	6185	7419	0.67	0.83	1	0.79	0.98	1.18
10	4750	5949	7136	0.64	0.8	0.96	0.75	0.94	1.13
11	6473	8107	9724	0.87	1.09	1.31	1.02	1.28	1.54
12	12861	16108	19321	1.74	2.17	2.61	2.05	2.55	3.07
13	10304	12905	15479	1.39	1.74	2.09	1.64	2.05	2.46
14	4813	6028	7231	0.65	0.81	0.98	0.76	0.95	1.15
15	7568	9479	11370	1.02	1.28	1.53	1.20	1.51	1.80
16	6140	7691	9225	0.83	1.04	1.25	0.98	1.22	1.47
17	6264	7846	9411	0.85	1.06	1.27	1.00	1.25	1.49
18	5109	6398	7675	0.69	0.86	1.04	0.81	1.01	1.22
19	8329	10432	12513	1.12	1.41	1.69	1.32	1.66	1.99
20	9217	11544	13847	1.24	1.56	1.87	1.46	1.84	2.20
21	13199	16531	19829	1.78	2.23	2.68	2.09	2.62	3.15
22	9515	11917	14294	1.28	1.61	1.93	1.51	1.89	2.27
23	7690	9632	11553	1.04	1.3	1.56	1.22	1.53	1.84
24	7880	9869	11838	1.06	1.33	1.6	1.25	1.56	1.88
25	8307	10405	12480	1.12	1.4	1.68	1.32	1.65	1.98
26	7994	10012	12009	1.08	1.35	1.62	1.27	1.59	1.91
27	6102	7643	9167	0.82	1.03	1.24	0.96	1.21	1.46
28	5302	6641	7966	0.72	0.9	1.08	0.85	1.06	1.27
29	6757	8463	10152	0.91	1.14	1.37	1.07	1.34	1.61
30	6998	8765	10513	0.94	1.18	1.42	1.11	1.39	1.67
31	4934	6180	7412	0.67	0.83	1	0.79	0.98	1.18
32	4997	6259	7507	0.67	0.84	1.01	0.79	0.99	1.19
33	6973	8734	10476	0.94	1.18	1.41	1.11	1.39	1.66
34	13035	16326	19583	1.76	2.2	2.64	2.07	2.59	3.11
35	5137	6434	7718	0.69	0.87	1.04	0.81	1.02	1.22
36	5956	7460	8948	0.8	1.01	1.21	0.94	1.19	1.42
37	12527	15690	18819	1.69	2.12	2.54	1.99	2.49	2.99
38	9338	11695	14028	1.26	1.58	1.89	1.48	1.86	2.22
39	5419	6787	8141	0.73	0.92	1.1	0.86	1.08	1.29
40	7269	9104	10920	0.98	1.23	1.47	1.15	1.45	1.73
41	4761	5963	7152	0.64	0.8	0.97	0.75	0.94	1.14
42	5786	7247	8692	0.78	0.98	1.17	0.92	1.15	1.38
43	6881	8618	10337	0.93	1.16	1.4	1.09	1.36	1.65
44	7787	9752	11698	1.05	1.32	1.58	1.24	1.55	1.86
45	8711	10911	13087	1.18	1.47	1.77	1.39	1.73	2.08
46	12444	15586	18695	1.68	2.1	2.52	1.98	2.47	2.96

Ward No.	Population			Domestic Net Demand (MLD)			Domestic Gross Demand (MLD)		
	2027	2042	2057	2027	2042	2057	2027	2042	2057
47	3682	4612	5532	0.5	0.62	0.75	0.59	0.73	0.88
48	21715	27197	32622	2.93	3.67	4.4	3.45	4.32	5.18
49	9915	12418	14895	1.34	1.68	2.01	1.58	1.98	2.36
50	12236	15325	18382	1.65	2.07	2.48	1.94	2.44	2.92
51	7475	9362	11229	1.01	1.26	1.52	1.19	1.48	1.79
52	8101	10146	12170	1.09	1.37	1.64	1.28	1.61	1.93
53	6466	8099	9714	0.87	1.09	1.31	1.02	1.28	1.54
54	7681	9620	11539	1.04	1.3	1.56	1.22	1.53	1.84
55	10517	13172	15799	1.42	1.78	2.13	1.67	2.09	2.51
56	11288	14137	16957	1.52	1.91	2.29	1.79	2.25	2.69
57	8261	10346	12410	1.12	1.4	1.68	1.32	1.65	1.98
58	9078	11370	13638	1.23	1.53	1.84	1.45	1.80	2.16
59	5701	7140	8564	0.77	0.96	1.16	0.91	1.13	1.36
60	12737	15953	19135	1.72	2.15	2.58	2.02	2.53	3.04
61	12042	15082	18091	1.63	2.04	2.44	1.92	2.40	2.87
62	11158	13976	16763	1.51	1.89	2.26	1.78	2.22	2.66
	526166	659006	790459	71.03	88.97	106.71	83.55	104.62	125.53

6.2.2 Non – Domestic Demand

For finding out the non – domestic water demand client has provided details of institutional properties and the same data used to calculate the maximum nondomestic demand for immediate stage (2027), intermediate stage (2042) and for the ultimate stage (2057).

Table 6-5 : Non - Domestic Demand

Sr. No.	Particular	Nos.	Capacity (Persons)	Rate of Water Supply (Ltr/day)	Daily Net Demand (Ltr)	Daily Gross Demand (Ltr)
1	Lodges	364	20	180	1,310,400.00	1,541,647.06
2	Hostels	50	500	135	3,375,000.00	3,970,588.24
3	Restaurants	178	15	70	186,900.00	219,882.35
4	School, Collages	531	500	45	11,947,500.00	14,055,882.35
5	Office & Banks etc.	197	20	45	177,300.00	208,588.24
6	Cinema & Conference Hall	59	500	15	442,500.00	520,588.24
7	Hospitals With Beds	360	15	340	1,836,000.00	2,160,000.00
8	Nurses Home & Medical Quarters	5	200	135	135,000.00	158,823.53
Total Demand in Ltrs for 2022					19,410,600.00	22,836,000.00
Total Demand in MLD for 2022					19.41	22.84
Demand (MLD) 2027					21.21	24.95
Demand (MLD) 2042					26.56	31.25
Demand (MLD) 2057					31.86	37.48

6.2.3 Total Water Demand

The total demand for immediate stage (2027), intermediate stage (2042) and for the ultimate stage (2057) are as follows;

Table 6-6 : Total Water Demand

Sr No.	Design year.	Current Year 2022	Present Stage 2027	Intermediate Stage 2042	Ultimate Stage 2057	Unit
1	Population	481577	526166	659006	790459	Souls
2	Rate of water supply	135	135	135	135	Ltrs/head/day.
3	Daily water requirement.	65012895	71032410	88965810	106711965	Ltrs/ day
4	Floating population	40000	43704	54737	65656	Souls.
5	Rate of water supply for floating	25	25	25	25	Ltrs/head/day
6	Daily water requirement. For Floating Pop.	1000000	1092590	1368433	1641397	Ltrs/ day
7	Institutional Demand (as per sheet attached)	19410605	21207824	26562118	31860507	Ltrs/ day
8	Bulk Demand	3468192	4674088	5947733	7206250	Ltrs/ day
9	Net Total Daily Demand	88891692	98006912	122844094	147420119	Ltrs/ day
10	Gross Demand at Service Reservoirs (@10% Losses Distribution)	98.77	108.90	136.49	163.80	MLD
11	Gross Demand at Pure Water Transmission Main after MBR (@1.5% Losses in Pure Water Gravity Main)	100.27	110.55	138.57	166.29	MLD
12	Gross Demand at WTP Outlet up to MBR (@0.5% Losses in Pure Water Rising Main)	100.78	111.11	139.27	167.13	MLD
13	Gross Demand at WTP Inlet (@2% Losses in WTP)	102.83	113.38	142.11	170.54	MLD
14	Gross Demand at Raw Water Main (@0.86% Losses in Gravity main from SHAFT to WTP)	103.73	114.36	143.34	172.02	MLD
15	Gross Demand at Headworks (@0.14% Losses in Raw Water Rising Main)	103.87	114.52	143.54	172.26	MLD
16	Fire Demand $(100 \times \text{pop})^{1/2}$ (To be considered for SR Capacity only)	2194486	2293831	2567111	2811510	Ltrs/ day

6.2.4 Ward wise Demand Calculation

Total calculated demand is further distributed ward wise in proportion to the present demand. Below table show the bifurcation of Domestic & No-Domestic demand for each ward separately.

Ward No.	Residential Area (Ha)	Year 2027	Year 2042	Year 2057	Year 2027	Year 2042	Year 2057	Year 2027	Year 2042	Year 2057	Year 2027	Year 2042	Year 2057	Year 2027	Year 2042	Year 2057
		2027	2042	2057	2027	2042	2057	2027	2042	2057	2027	2042	2057	2027	2042	2057
1	116.25	1.55	1.94	2.32	0.18	0.22	0.26	0.02	0.02	0.03	0.05	0.06	0.06	1.74	2.18	2.55
2	148.06	1.51	1.89	2.27	0.22	0.27	0.33	0.03	0.04	0.05	0.05	0.05	0.06	1.76	2.21	2.65
3	128.66	0.73	0.92	1.10	0.14	0.17	0.20	0.02	0.02	0.03	0.02	0.03	0.03	0.89	1.11	1.33
4	44.11	1.54	1.93	2.31	0.60	0.75	0.89	0.03	0.03	0.04	0.05	0.06	0.06	2.16	2.71	3.26
5	19.59	1.55	1.94	2.33	0.32	0.40	0.48	0.02	0.02	0.03	0.05	0.06	0.06	1.88	2.36	2.84
6	29.49	0.90	1.12	1.35	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.04	0.90	1.12	1.35
7	26.00	1.27	1.59	1.90	0.36	0.45	0.54	0.01	0.01	0.01	0.04	0.05	0.05	1.63	2.05	2.47
8	64.44	1.71	2.15	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.07	1.71	2.15	2.57
9	8.81	0.67	0.83	1.00	0.20	0.25	0.30	0.02	0.02	0.03	0.02	0.02	0.03	0.89	1.11	1.33
10	11.98	0.64	0.80	0.96	0.28	0.36	0.43	0.02	0.02	0.03	0.02	0.02	0.03	0.94	1.18	1.42
11	9.70	0.87	1.09	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.87	1.09	1.31
12	26.31	1.74	2.17	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.07	1.74	2.17	2.61
13	24.72	1.39	1.74	2.09	0.28	0.36	0.43	0.04	0.05	0.06	0.04	0.05	0.06	1.72	2.15	2.57
14	19.51	0.65	0.81	0.98	0.27	0.34	0.40	0.02	0.02	0.03	0.02	0.02	0.03	0.94	1.17	1.40
15	9.59	1.02	1.28	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.04	1.02	1.28	1.53
16	7.31	0.83	1.04	1.25	0.15	0.19	0.23	0.02	0.02	0.03	0.03	0.03	0.03	1.00	1.25	1.50
17	7.78	0.85	1.06	1.27	0.44	0.55	0.65	0.04	0.05	0.06	0.03	0.03	0.03	1.32	1.66	2.00
18	45.19	0.69	0.86	1.04	1.11	1.39	1.67	0.06	0.08	0.09	0.02	0.02	0.03	1.86	2.33	2.80
19	18.31	1.12	1.41	1.69	0.62	0.78	0.94	0.03	0.03	0.04	0.04	0.04	0.04	1.77	2.22	2.67
20	17.94	1.24	1.56	1.87	0.25	0.32	0.38	0.02	0.02	0.03	0.04	0.04	0.05	1.51	1.90	2.29
21	80.37	1.78	2.23	2.68	0.63	0.79	0.95	0.03	0.03	0.04	0.06	0.06	0.07	2.44	3.06	3.69
22	201.04	1.28	1.61	1.93	0.70	0.88	1.05	0.02	0.02	0.03	0.04	0.05	0.05	2.00	2.51	3.03
23	29.67	1.04	1.30	1.56	0.37	0.47	0.56	0.05	0.06	0.08	0.03	0.04	0.04	1.46	1.83	2.20
24	28.04	1.06	1.33	1.60	0.10	0.13	0.15	0.02	0.02	0.03	0.03	0.04	0.04	1.18	1.48	1.78
25	27.69	1.12	1.40	1.68	0.19	0.24	0.29	0.03	0.03	0.04	0.04	0.04	0.04	1.34	1.68	2.02
26	9.31	1.08	1.35	1.62	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.04	1.08	1.35	1.62
27	23.88	0.82	1.03	1.24	0.68	0.85	1.02	0.02	0.02	0.03	0.03	0.03	0.03	1.52	1.91	2.30
28	29.46	0.72	0.90	1.08	1.08	1.35	1.62	0.04	0.05	0.06	0.02	0.03	0.03	1.84	2.30	2.76
29	16.29	0.91	1.14	1.37	0.78	0.97	1.17	0.03	0.04	0.05	0.03	0.03	0.04	1.72	2.16	2.60
30	18.61	0.94	1.18	1.42	0.11	0.13	0.16	0.02	0.02	0.03	0.03	0.03	0.04	1.07	1.34	1.61
31	7.01	0.67	0.83	1.00	0.33	0.42	0.50	0.02	0.02	0.03	0.02	0.02	0.03	1.02	1.27	1.52
32	8.06	0.67	0.84	1.01	0.72	0.90	1.08	0.02	0.02	0.03	0.02	0.02	0.03	1.41	1.76	2.11
33	7.03	0.94	1.18	1.41	0.33	0.41	0.50	0.01	0.01	0.01	0.03	0.03	0.04	1.28	1.60	1.92
34	47.28	1.76	2.20	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.07	1.76	2.20	2.64
35	8.78	0.69	0.87	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.03	0.69	0.87	1.04
36	9.17	0.80	1.01	1.21	0.51	0.64	0.77	0.02	0.02	0.03	0.03	0.03	0.03	1.34	1.67	2.00
37	101.82	1.69	2.12	2.54	0.57	0.71	0.85	0.02	0.02	0.03	0.05	0.06	0.07	2.28	2.85	3.42
38	10.39	1.26	1.58	1.89	0.50	0.63	0.75	0.02	0.02	0.03	0.04	0.05	0.05	1.78	2.23	2.68
39	26.62	0.72	0.92	1.12	0.72	0.91	1.10	0.02	0.02	0.02	0.02	0.02	0.02	1.48	1.87	2.26

	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012	2012
42	27.58	0.78	0.98	1.17	0.38	0.48	0.57	0.02	0.02	0.03	0.03	0.03	0.03	1.18	1.48	1	1
43	16.74	0.93	1.16	1.40	0.90	1.13	1.35	0.06	0.08	0.09	0.03	0.03	0.04	1.89	2.36	2	2
44	18.24	1.05	1.32	1.58	0.57	0.71	0.85	0.02	0.02	0.03	0.03	0.04	0.04	1.64	2.05	2	2
45	15.34	1.18	1.47	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.05	1.18	1.47	1	1
46	18.31	1.68	2.10	2.52	0.07	0.08	0.10	0.01	0.01	0.01	0.05	0.06	0.07	1.75	2.20	2	2
47	31.29	0.50	0.62	0.75	0.11	0.14	0.16	0.01	0.01	0.01	0.02	0.02	0.02	0.61	0.77	0	0
48	104.38	2.93	3.67	4.40	0.36	0.45	0.54	0.02	0.02	0.03	0.09	0.11	0.12	3.31	4.15	4	4
49	29.82	1.34	1.68	2.01	0.44	0.55	0.66	0.02	0.02	0.03	0.04	0.05	0.05	1.80	2.25	2	2
50	46.01	1.65	2.07	2.48	0.62	0.78	0.93	0.04	0.05	0.06	0.05	0.06	0.07	2.31	2.90	3	3
51	28.31	1.01	1.26	1.52	0.19	0.23	0.28	0.02	0.02	0.03	0.03	0.04	0.04	1.21	1.52	1	1
52	66.80	1.09	1.37	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	1.09	1.37	1	1
53	30.81	0.87	1.09	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.87	1.09	1	1
54	22.31	1.04	1.30	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.04	1.04	1.30	1	1
55	36.05	1.42	1.78	2.13	0.70	0.87	1.05	0.02	0.02	0.03	0.05	0.05	0.06	2.13	2.67	3	3
56	30.47	1.52	1.91	2.29	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.06	1.52	1.91	2	2
57	20.84	1.12	1.40	1.68	0.43	0.54	0.65	0.03	0.04	0.05	0.04	0.04	0.04	1.58	1.98	2	2
58	14.54	1.23	1.53	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.05	1.23	1.53	1	1
59	95.13	0.77	0.96	1.16	1.49	1.87	2.25	0.02	0.02	0.03	0.02	0.03	0.03	2.28	2.86	3	3
60	21.47	1.72	2.15	2.58	0.60	0.75	0.89	0.02	0.02	0.03	0.06	0.06	0.07	2.33	2.92	3	3
61	251.86	1.63	2.04	2.44	0.60	0.75	0.91	0.04	0.05	0.06	0.05	0.06	0.06	2.27	2.84	3	3
62	204.36	1.51	1.89	2.26	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.06	1.51	1.89	2	2
Total	2655.72	71.03	88.97	106.71	21.21	26.56	31.86	1.07	1.34	1.61	2.29	2.57	2.81	93.31	116.87	140	140

6.2.5 Zone wise Demand Calculation

The study area is further divided into 15 water supply zones which are elaborated in detail in chapter no. 6. For all the proposed zones, zone wise demand calculated for the year 2027, 2042 and 2057 considering all the demands i.e. Domestic demand, Non-Domestic Demand and Floating population demand. Table 6-8 below shows the gross demand for the year 2042 and 2057.

Table 6-8: Zone wise Projected Water Demand & Population

Sr No.	Zone Name	Population		Gross Demand (@10% Distribution Losses) (MLD)	
		2042	2057	2042	2057
1	Nanded Naka	85792	102856	17.77	21.31
2	Dalda Factory	21426	25687	4.438	5.323
3	Basweshwar Colony	19982	23956	4.139	4.964
4	Sarasvati Colony	54398	65218	11.267	13.515
5	M.J.P. Old	19260	23091	3.989	4.785
6	M.J.P. New	34010	40775	7.04	8.45
7	Government Quarter	45873	54997	9.50	11.40
8	Arvi (Keshav Nager)	54985	65921	11.39	13.66
9	Rajdhani	29680	35583	6.147	7.374
10	Gandhi Chowk	61480	73708	12.73	15.27
11	Kripa Sedan Garden	51466	61703	10.66	12.79
12	Labour Colony	46911	56241	9.72	11.65
13	SSC Board	37889	45425	7.85	9.41
14	APMC Market	30898	37043	6.40	7.68
15	Basav Colony	32883	39423	6.81	8.17
Total		659006	790459	136.49	163.80

FORMATION OF WATER SUPPLY ZONES/DMA'S

7 FORMATION OF WATER SUPPLY ZONES/DMA'S

7.1 FORMATION OF WATER SUPPLY ZONES

7.1.1 Concept & Methodology

The project area is divided into number of water supply zones and all water supply zones are planned be supplied by a single service reservoir. The formation of water supply zones is done based on the following considerations-

A. Utilization of existing service reservoirs

Every effort is made to maximize the utilization of the storage capacity and the hydraulic levels of the reservoirs. The zone area is selected to ensure that the hydraulic levels result in adequate terminal pressures in the distribution system.

The size and alignment of the existing distribution mains is another factor considered for this exercise.

B. Selection of zone boundaries

Apart from the considerations of the storage capacity, the hydraulic levels and the pipe alignment the zone boundaries are finalized considering the natural and/or artificial barriers such as natural drainage channels viz. Rivers & Nallas, irrigation canals, Highways and express ways, major city roads. The selection of zone boundaries is made to avoid the major undulations and to limit the distance of the zone boundary from the service reservoir.

7.2 PROPOSED WATER SUPPLY ZONES

Present water supply system is being served by existing 11 service reservoirs. However, the zones are not isolated from each other which generally results in inefficient & inadequate water supply throughout the city. Also, there are 5 new reservoirs in construction which were identified in earlier studies to fill the reservoir capacities gap. Considering the 11 existing reservoirs and 5 under construction reservoirs, the proposed water supply system is divided into 15 new water supply zones. These 15 zones will be identical in nature and isolated from each other by means of boundary isolation valves. Below Figure 7.1 shows the proposed water supply zones. FORMATION OF DISTRICT METERED AREAS (DMA'S)

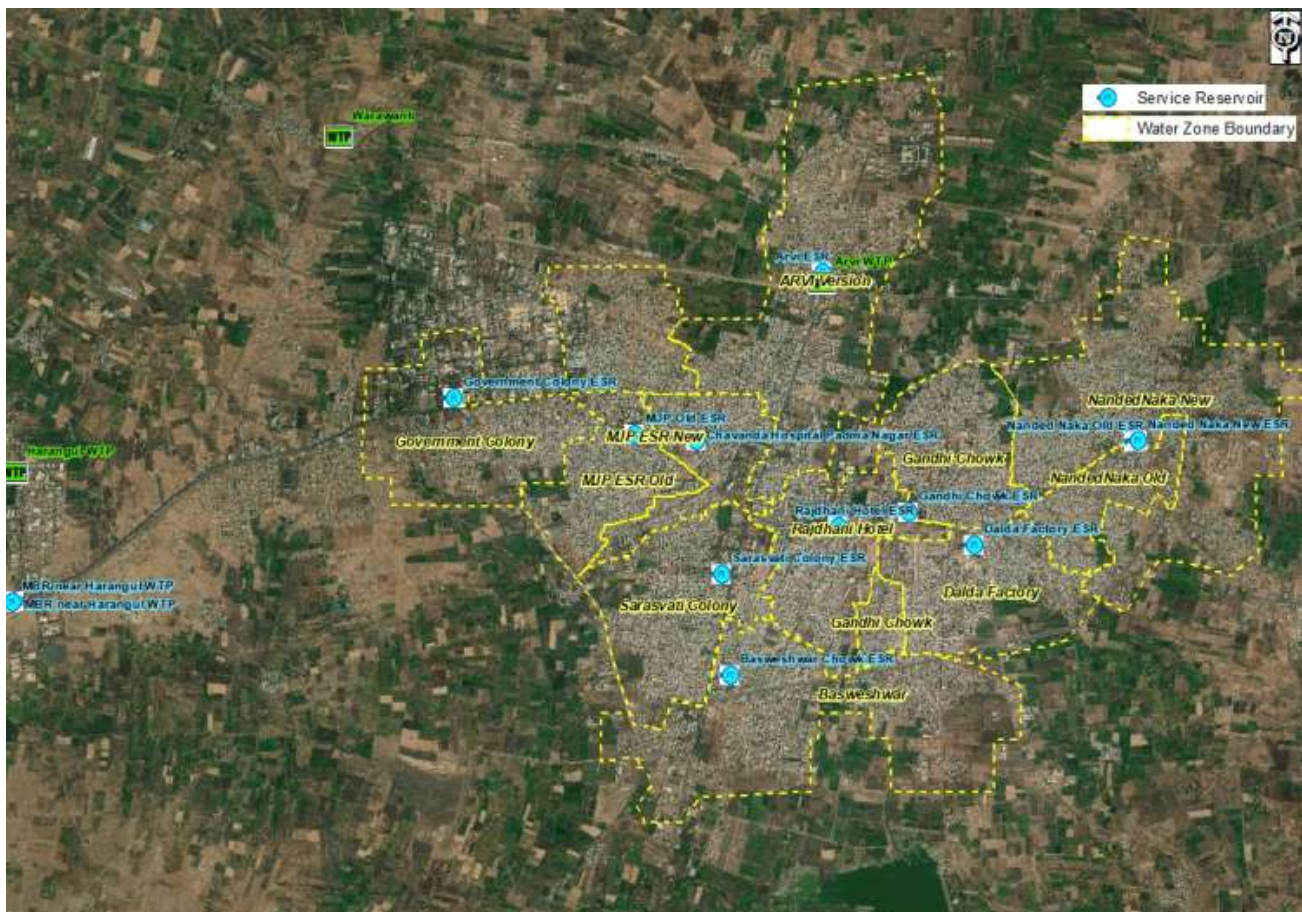


Figure 7.1: Proposed Water Supply Zone Map

In order to solve the main problems affecting water distribution in city, i.e. the low water pressure in several parts of the network, one key factor is the establishment of District Metering Areas. The DMA are also the essential elements required for achieving the equitable water pressures, reduction of NRW and the active leakage control which are the main objectives of the project.

A District Metered Area (DMA) is a sub zone within a water distribution network that can be hydraulically isolated and for which water consumption is monitored using water meters. All the inlet and outlets are provided with bulk flow meters and all the user connections are fully metered.

The water distribution can be better managed for flow, pressure, and control of the NRW if the network is divided in smaller areas fed from preferably one inlet and no or minimum number of outlets. A typical DMA scheme is shown in the Figure 7.2

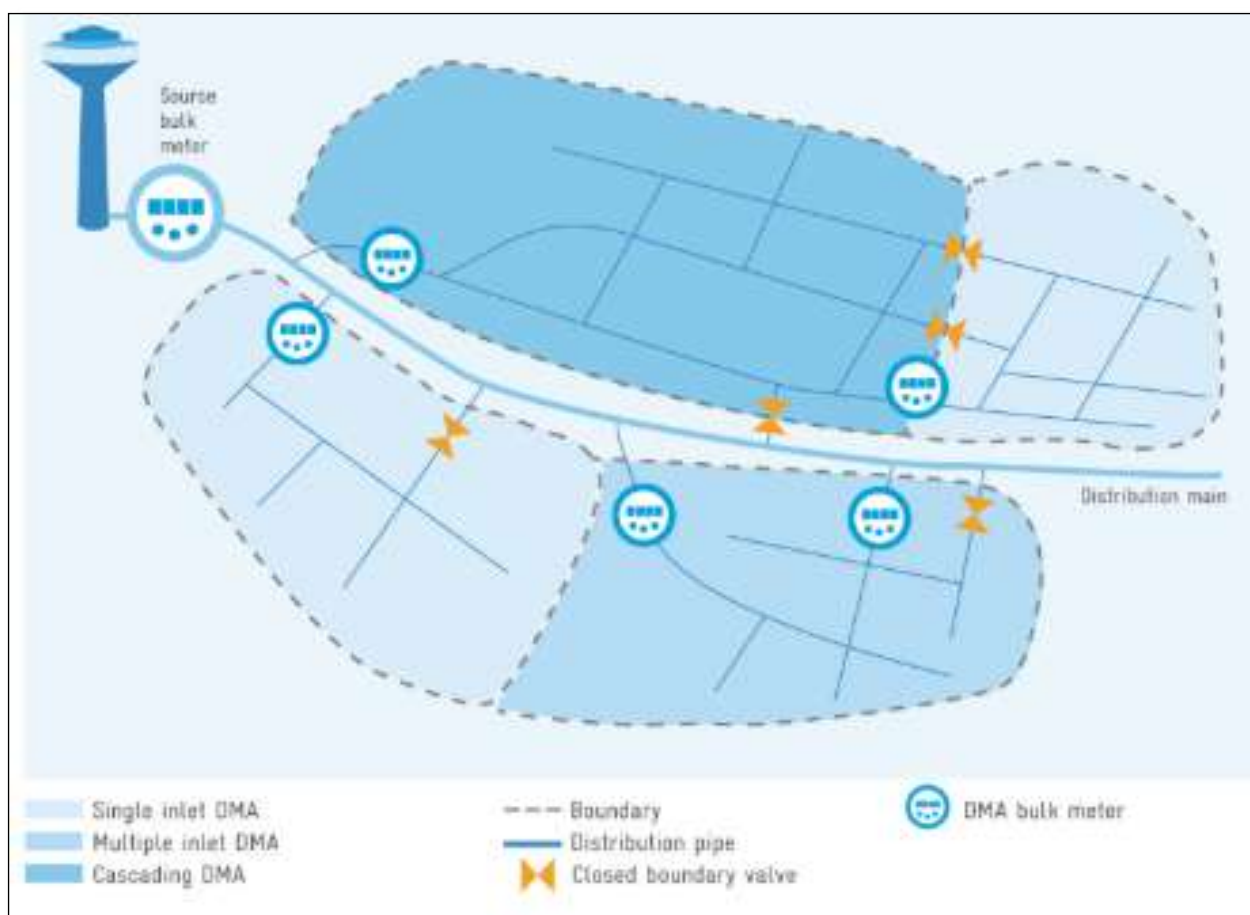


Figure 7.2: Typical DMA structure

The volume of water entering the DMA, the one leaving the DMA (if it also has outlets) and the total consumption of all the consumers are compared allowing to estimate the water balance and, hence the Non-Revenue Water within the DMA. The pressure at the inlet points and at other critical nodes in the DMA is also measured, which allows to monitor the actual performance of the water distribution within the network.

The DMA size should ideally include between 1000 to 5,000 connections and should present moderate ground level differences. However, the topography and the configuration of the existing network play an important role in the definition of the DMA borders.

Ideally each supply zone, i.e. the area served by one SR, could form one DMA, but in many cases it was necessary to consider more DMAs in the same supply zone, when this was particularly large or if the morphology is quite irregular. This is also required due to limitations on the availability of the sites for additional service reservoirs. The DMAs are also formed within the zone if excessive pressures may develop in part of the area, which shall be isolated to form a separate DMA. A pressure reducing valve (PRV) is sometimes used at the inlet of such DMAs to reduce the pressure, were excessive. Here in this city all water zones are treated as a single DMA.

Sl. No.	Zone Name	SR Name	Type of SR ESR/GSR	Existing / Proposed	Planned WTP	Population		Distribution Losses) (MLD)		Demand (MLD)		Required (ML)		Capa Exist (ML)
						2042	2057	2042	2057	2042	2057	2042	2057	
1	Nanded Naka	Nanded Naka New Existing	ESR	Existing	Proposed	85792	102856	17.77	21.31	0.37	0.41	6.05	7.24	
		Nanded Naka old Existing	ESR	Existing	Proposed									
		Nanded Naka Proposed	ESR	Proposed	Proposed									
2	Dalda Factory	Dalda Factory	ESR	Existing	Existing	21426	25687	4.438	5.323	0.093	0.102	1.51	1.81	
3	Basweshwar Colony	Basweshwar Colony	ESR	Existing	Existing	19982	23956	4.139	4.964	0.086	0.095	1.41	1.69	
4	Sarasvati Colony	Sarasvati Colony	ESR	Existing	Existing	54398	65218	11.267	13.515	0.235	0.258	3.83	4.59	
5	M.J.P. Old	M.J.P. Old	ESR	Existing	Existing	19260	23091	3.989	4.785	0.083	0.091	1.36	1.63	
6	M.J.P. New	M.J.P. New Existing	ESR	Existing	Existing	34010	40775	7.04	8.45	0.15	0.16	2.40	2.87	
		M.J.P. New Proposed	ESR	Proposed	Proposed									
7	Government Quarter	Government Quarter Existing	ESR	Existing	Existing	45873	54997	9.50	11.40	0.20	0.22	3.23	3.87	
		Government Quarter Proposed	ESR	Proposed	Existing									
8	Arvi (Keshav Nager)	Arvi (Keshav Nager) Existing	ESR	Existing	Proposed	54985	65921	11.39	13.66	0.24	0.26	3.88	4.64	
		Arvi (Keshav Nager) Proposed	ESR	Proposed	Proposed									
9	Rajdhani	Rajdhani	ESR	Existing	Existing	29680	35583	6.147	7.374	0.128	0.141	2.09	2.50	
10	Gandhi Chowk	Gandhi Chowk Existing	ESR	Existing	Existing	61480	73708	12.73	15.27	0.27	0.29	4.33	5.19	
		Gandhi Chowk Proposed	ESR	Proposed	Existing									
11	Kripa Sedan Garden	Kripa Sedan Garden Proposed	ESR	Proposed	Proposed	51466	61703	10.66	12.79	0.22	0.24	3.63	4.34	
12	Labour Colony	Labour Colony Proposed	ESR	Proposed	Proposed	46911	56241	9.72	11.65	0.20	0.22	3.31	3.96	
13	SSC Board	SSC Board Proposed	ESR	Proposed	Proposed	37889	45425	7.85	9.41	0.16	0.18	2.67	3.20	
14	APMC Market	APMC Market Proposed	ESR	Proposed	Proposed	30898	37043	6.40	7.68	0.13	0.15	2.18	2.61	
15	Basav Colony	Basav Colony Proposed	ESR	Proposed	Proposed	32883	39423	6.81	8.17	0.14	0.16	2.32	2.78	
Total						659006	790459	136.49	163.80	2.85	3.12	44.19	52.91	

HYDRAULIC MODELING

8 HYDRAULIC MODELING

8.1 HYDRAULIC MODELING CONCEPT & SCENARIOS:

Hydraulic analysis is carried out using highly accomplished advanced Water Network Modelling Software i.e. Water GEMS & Branch.

The input data required for exercising the network model includes the following –

- Reservoir details such as capacity and hydraulic levels
- Pipe data to include material, diameter, Hazen Williams C, status-existing or proposed
- Nodal data-ground elevation, water demand, peak factor

The output of the network analysis is produced in the form of excel sheet. The output consists of two parts. The first part is the pipe data and output, which mainly includes-

- Label of the pipe
- Start and end node
- Pipe diameter, material, C value and length
- Flow, velocity and head loss
- Status of pipe, existing or proposed

The other part of the output is the Nodal data, which mainly includes-

- Node label
- Ground elevation
- Nodal demand
- Hydraulic grade level and the terminal pressure

Hydraulic model is simulated for steady state analysis (SSA) for obtaining the pipe sizes during peak flow demand. Similarly, the model is run for Extended Period Simulation (EPS) to know / observe the behaviour of entire network for 24 hours with varying hourly peak factor throughout the day. This analysis is essential to know the minimum pressure in the network during peak hours and maximum pressure during non-peak hours i.e. Mid Night Flow (MNF) condition. This will help to provide better control on flow & pressure in the network during whole day by introduction of Pressure Reducing Valves (PRV) / Sluice Valves with throttling / Orifice Plate / Pipe in Pipe etc.

Hydraulic Model is prepared for entire city as base model and various alternative and scenario are created as per requirement. Existing distribution network model is run for actual water supply zone, with actual quantity and schedule of supply. Also, model is prepared as per existing DMA and run for various alternatives.

The list of the Model and scenarios are given below:

- 1) Existing System
- 2) Proposed System
 - a) Immediate Stage (2027)
 - b) Intermediate Stage (2042)
 - c) Ultimate Stage (2057)

8.2 HYDRAULIC MODEL OF PROPOSED SYSTEM

It is proposed to improve and augment the existing intermittent water supply scheme to 24 x 7. The proposed augmentation is designed for the ultimate stage i.e. year 2057 and the forecasted population for year 2057 is 7,90,459. Total Gross water demand of year 2057 is worked out to be 172.12 MLD. It is proposed to utilize maximum components of the existing scheme, but the distribution network of the city is too old and difficult for operation & maintenance. Also, due to this old network, the NRW is quite high for the city. Hence as per the suggestions from the city all the distribution network is proposed to be replaced with new pipes except the newly laid network of HDPE & DI pipes.

8.3 HYDRAULIC MODELLING

Latur Water Distribution System is analysed for Ultimate Stage 2057. As per CPHEEO manual recommendations, distribution network is designed for ultimate stage and the results of the same model are observed for immediate & intermediate stages.

Criteria for constructing models for all the stages were same. The details are described below.

- i. Formulate water supply zones.
 - ii. Use all the existing ESRs for storage and distribution.
 - iii. Use all sources of water
 - iv. Avoid distribution of water from transmission line.
 - v. Calculate gross demand including non-domestic demand with 15% losses and fire demand.
-

- vi. Calculate maximum demands and allocate them to each node to identify the pressures when all the connections are active.
- vii. Ensure water reaches consumers with a residual pressure of 12m H₂O during peak hours.
- viii. Design a cost optimized design of the entire distribution system with a peak factor of 3.

The demand allocation to the nodes is done by thiessen polygon method which will assure the accuracy of demand allocation. Below Figure 8.1 describes how the thiessen polygons are formed for demand allocation.

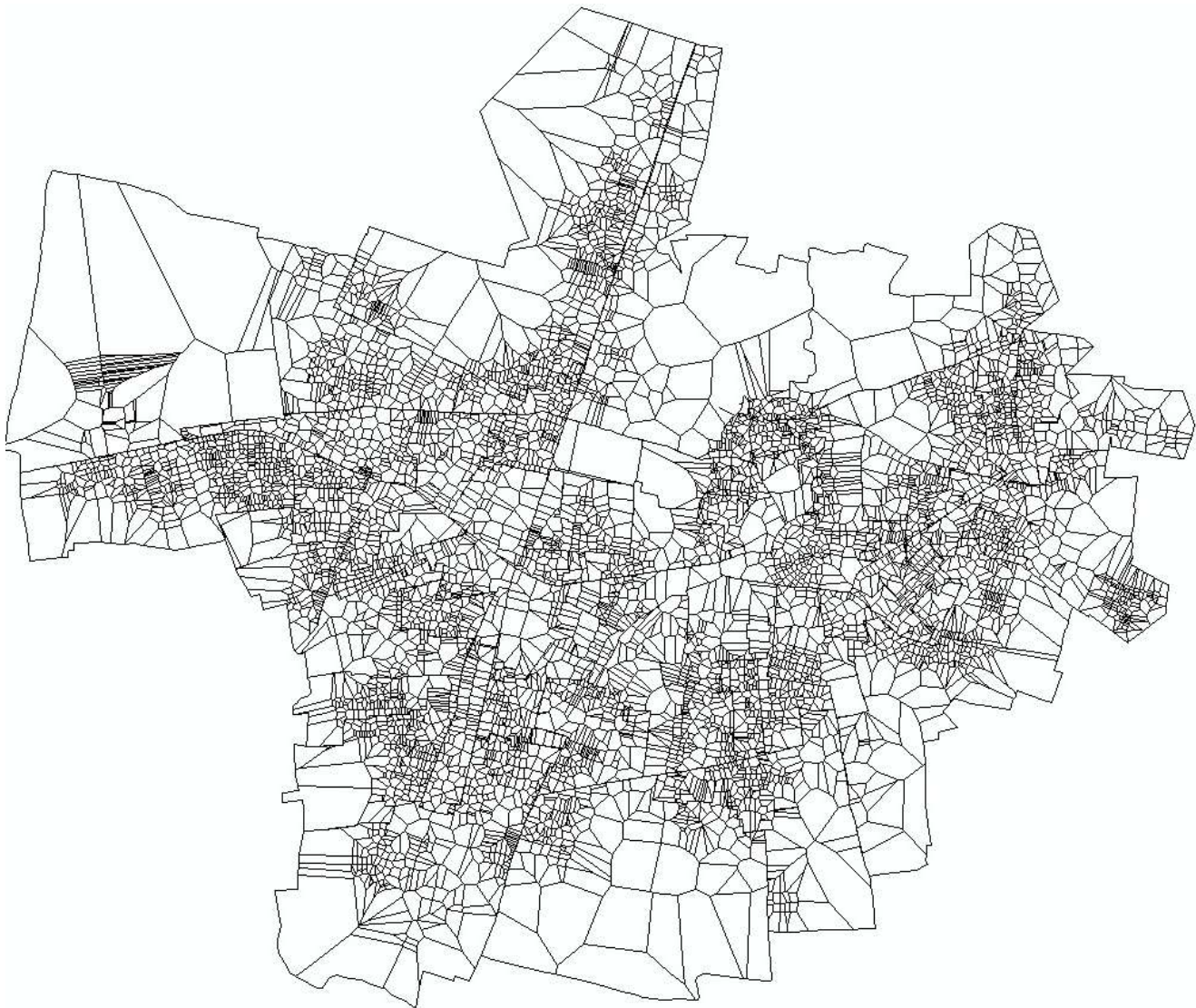


Figure 8.1 Thiessen Polygons

DEMAND USED FOR SYSTEM DESIGN

SYSTEM COMPONENTS WITH DESIGN DEMANDS

Sr No.	Design Year	Status	Planning Stages (Year)	Intermediate Stage 2042	Ultimate Stage 2057	Unit
1	Distribution System (@10% Losses Distribution)		Ultimate Stage (2057)		163.80	MLD
2	Pure Water Gravity Main after MBR (@1.5% Losses in Pure Water Gravity Main)		Ultimate Stage (2057)		166.29	MLD
3	Gross Demand at MBR		Intermediate Stage (2042)	139.27	167.13	MLD
		Demand Cater by Existing MBRs (3.125 ML x 2 Nos.) (2 hrs Capacity)	Intermediate Stage (2042)	60.00	60.00	MLD
		Proposed MBR to be designed for (2hrs Capacity)	Intermediate Stage (2042)	79.27	107.13	MLD
4	Pure Water Rising Main - WTP Outlet up to MBR (@0.5% Losses)		Ultimate Stage (2057)	139.27	167.13	MLD
		Demand cater by existing Pure Water Rising Main (Ex WTP to Ex MBR)	Ultimate Stage (2057)	62.08	62.08	
		Proposed Pure Water Rising Main (Proposed WTP to Proposed MBR)	Ultimate Stage (2057)	77.19	105.05	
5	Pure Water Pumping Machinery - WTP Outlet up to MBR (@0.5% Losses)		Intermediate Stage (2042)	139.27	167.13	MLD
		Demand cater by existing Pumping Machinery	Intermediate Stage (2042)	64.00	64.00	MLD
		Proposed Pumping Machinery to be designed for	Intermediate Stage (2042)	75.27	103.13	MLD
6	WTP (@2% Losses in WTP)		Intermediate Stage (2042)	142.11	170.54	MLD
		Demand cater by existing Harangul WTP	Intermediate Stage (2042)	64.00	64.00	MLD
		Proposed WTP to be designed for	Intermediate Stage (2042)	78.11	106.54	MLD
7	Gross Demand at Raw Water Gravity		Ultimate Stage (2057)	143.34	172.02	MLD

	main (@0.86% Losses)	Demand cater by existing Raw Water Gravity Main	Ultimate Stage (2057)	87.49	87.49	MLD
		Required Demand for Raw Water Gravity Main (Proposed SHAFT to Proposed WTP)	Ultimate Stage (2057)	55.85	84.53	MLD
		Extra Capacity available in Existing Raw Water Gravity Main (Eliminating Varvanti WTP)	Ultimate Stage (2057)	23.49	23.49	MLD
		Balance Demand from Proposed Gravity Main (Branch to be taken from old RWGM to Proposed WTP)	Ultimate Stage (2057)	32.36	61.04	MLD
8	Gross Demand at SHAFT (@0.14% Losses)		Intermediate Stage (2042)	143.54	172.26	MLD
		Demand cater by Existing SHAFT (1.00 ML X 2 Nos) (30 min Capacity)	Intermediate Stage (2042)	89.12	89.12	MLD
		New SHAFT to be designed for	Intermediate Stage (2042)	54.42	83.14	MLD
9	Raw Water Rising Main (@0.14% Losses)		Ultimate Stage (2057)		172.26	MLD
		Demand cater by existing Raw Water Rising main (Existing Jackwell to Existing SHAFTs)	Ultimate Stage (2057)		89.24	MLD
		Balance Demand for Proposed Rising Main (Proposed Jackwell to Proposed SHAFT)	Ultimate Stage (2057)		83.02	MLD
10	Raw Water Pumping Machinery (@0.14% Losses)		Intermediate Stage (2042)	143.54		MLD
		Demand cater by existing Raw Water Pumping Machinery (Existing Jackwell to Existing SHAFTs)	Intermediate Stage (2042)	89.24		MLD
		Balance Demand for Proposed Pumping Machinery (Proposed	Intermediate Stage (2042)	54.30		MLD

		Jackwell to Proposed SHAFT)				
11	Gross Demand at Jackwell (@0.14% Losses)		Ultimate Stage (2057)		172.26	MLD
		Demand cater by existing Jackwell	Ultimate Stage (2057)		89.24	MLD
		Balance Demand for Proposed Jackwell	Ultimate Stage (2057)		83.02	MLD
12	Gross Demand at Intake well (@0.14% Losses)		Ultimate Stage (2057)		172.26	MLD
		Demand cater by existing Intake well	Ultimate Stage (2057)		89.24	MLD
		Balance Demand for Proposed Intake well	Ultimate Stage (2057)		83.02	MLD

DESIGN CALCULATION OF APPROACH CHANNEL

DESIGN OF APPROACH CHANNEL L-150M

Sr. No.	Description		Values	Unit
1	Gross demand @ head works		172.26	MLD
2	Hours of pumping		20	Hrs.
3	Hourly discharge		10766250	Lit/Hr.
			2.991	m ³ /s
4	Design Discharge (2 V.F.)		344.52	MLD
			5.981	m ³ /s
5	Bed Width		4.0	m
6	Water depth		2.0	m
7	Bed slope (Horizontal) 1 in - S		900	
8	Side slope (Vertical) 1 in		1.5	
	Length of channel		660.0	Rmt
9	Manning's co-efficient - n		0.03	
10	Area - A		8.00	m ²
11	Wetted perimeter - P		11.21	m
12	Hydraulic mean depth R = A / P		0.71	m
	Manning's Formula			
13	Velocity V =	$1/n \times R^{2/3} \times (1/S)^{0.5}$		
		= 0.89	m/s	
14	Actual Discharge = A x V			
		= 7.10	m ³ /s	
	Available discharge is more than required			OK
Hence Existing Approach channel is sufficient				

VOLUMETRIC DESIGN CLACULATION OF INTAKE WELL

VOLUMETRIC DESIGN OF INTAKE WELL				
1	Daily demand		83.02	MLD
2	Pumping Hours		20.00	Hrs.
3	Design Demand		199.25	MLD
4	Rate of pumping		138.37	Cum/Min.
		Say	139.00	Cum/Min.
5	Detention period assumed		0.50	Min.
6	Capacity of Intake well		69.50	Cum
7	Provide diameter of Intake well		6.00	m
8	Hence min. depth will be		2.46	m
		Say	3.00	m
So provide intake well of size 6.00 M dia and 5.00 M depth.				
a.	Sill Level		632.80	M
b.	MDDL		635.72	M
c.	Top RL of Intake well		637.50	M
d.	Rose piece RL	628.0, 629.50 & 631.0		M
e.	Bottom RL of Intake Well		624.50	M
f.	Average GL @ Intake well site		633.50	M

DESIGN OF ROSE PIECES AT HEADWORKS

DESIGN OF ROSE PIECES @ HW

1	FTL of Dam	RL	594.05	M
2	Sill level	RL	589.33	M
3	Rate of pumping	=	4151000	Lit/hr.
4	Capacity of rose piece (assumed)By considering factor of safety of '2'	=	8302000	Lit/hr.
5	Assuming diameter of holes	=	25.00	mm
6	Velocity of water in the pipe = V	=	1.20	m/sec.
	$Q = A \times V$			
7	Area of pipe	=	1.92	Sqm.
	'Say 'A'	=	1.92	Sqm.
8	Diameter of pipe required	=	1.56	M
	Say	=	1.60	M
	Hence provide 900mm diameter rose piece			
9	Assuming diameter of holes	=	25.00	mm
a	Area of each hole	=	0.000491	Sqm.
b	No .of hole required	=	4096.00	Holes
c	Add 10% for blockage	=	409.60	Holes
	Say	=	4505.60	Holes
d	Consider 40 Rows of 100 holes@50mmc/c	=	4000.00	Holes
	front portion		600.00	Holes
	total holes		4600.00	Holes
e	No. of Rose pieces	=	3.00	Nos.
f	Length of Rose piece	=	1.60	M

DESIGN OF CONNECTING MAIN

DESIGN OF CONNECTING MAIN

1	Gross Daily demand at Head Works (Ultimate Stage Year 2057)	172.262	MLD		
2	Gross Demand cater by Existing Head Works	89.240	MLD		
3	Balance Demand to be cater by New Head Works	83.022	MLD		
4	Hours of Flow	20.000	Hrs		
5	Rate of Pumping	4151.08	M3/Hr		
6	Design Discharge with 2 Vol flow	199.25	MLD		
7	Total Flow (Q)	2.31	Cum / sec.		
8	Assumed number of pipes	2.00	Nos.		
9	Flow through each pipe	1.15	Cum / sec.		
10	Assume Diameter of each pipe	1400.00	mm		
11	Area of Pipe	1.54	m ²		
12	Velocity	0.75	m/sec	< 0.9m/s	Hence, safe
The velocity falls within the range of 0.6 m/sec (Non-silting) to 0.9 m/sec (non-scoring). Thus provide 2no.s of RCC NP-III Connecting main of 1400mm diameter of 80m length					

DESIGN OF JACK WELL

DESIGN OF JACK WELL

Sr. No.	Particulars	Details	Unit
1	Total gross demand at Headworks	172.262	MLD
2	Gross Demand cater by Existing Head Works	89.240	MLD
3	Balance Demand to be cater by New Head Works	83.022	MLD
4	Hours of Pumping	20	Hrs.
5	Rate of Pumping	4151.08	M3/Hr
6	Detention Period	15.00	Minutes
7	Required Discharge	1037.77	Cum
8	Assume Diameter of Jack well	15.00	m
9	Actual area provided for Jack well	176.72	m ²
10	Depth of Jack well required	5.87	m
	Say	6.00	m
11	Invert of Connecting Main near Intake well	628.00	m
12	Length of Conn Main	80.00	m
13	Slope provided (1:100)	0.01	
14	Invert of connecting main near Jackwell	627.20	m
15	L.S.L. of Jackwell	621.20	m
16	Assume silt pocket depth	1.00	m
17	Assume additional depth to account pump vertex	1.00	m
18	Bed R.L. of Jack well	619.20	m
19	Foundation R.L. of Jack well	618.75	m
20	H.F.L. of River	644.50	m
21	Floor of Pump House	644.50	m
22	Height of Pump house	10.50	m
23	Top of Pump House	655.00	m
24	Depth of Jack well below pump floor level	25.75	m
25	G.L. at Jack well site	640.00	m
26	Depth of Jack well Below GL	20.80	m
	Say	21.00	m
27	Corbel beam top R.L.	652.50	m
28	Dia. of Pump House proposed	15.00	m

DESIGN OF RAW WATER PUMPING MACHINERY

DESIGN OF RAW PUMPING MACHINERY

Sr. No.	Particulars	Details	Unit
1	Total gross demand at Headworks (Intermediate Stage 2042)	143.54	MLD
2	Gross Demand cater by Existing Head Works	89.24	MLD
3	Balance Demand to be cater by New Head Works (Intermediate Stage 2042)	54.30	MLD
4	Balance Demand to be cater by New Head Works including minor losses (Multiplied demand by 1.053)	57.18	MLD
1	Rate of Pumping	2859.12	m3/hr
	Add 12% extra	343.09	m3/hr
	Total Rate of pumping	3202.22	m3/hr
2	Static Head		
	1) FSL of SHAFT	694.43	m
	2) Lowest suction level in the well	621.20	m
	3) Hence , Static Head (a – b)	73.23	m
3	Frictional Head		
	1) Design Discharge in MLD	57.18	MLD
	2) Length of main	4500	m
	3) Diameter, type and class of pipe	1000	mm dia DI K-9
	4) Hazen Williams constant	140	
	5) Rate of frictional loss.	1.47	
	6) Total Frictional loss (b x f)	6.63	
	7) Add 10 % for specials	0.66	m
	8) Total friction Head	7.29	m
4	Velocity head at reservoir	4	m
5	Total Head on pump	84.52	m
	Say	85.00	m
6	Nos. of Working Pumps proposed	3.00	
7	Rate of pumping per pumps	1067.41	m3/hr
8	Power Required	353.17	KW
9	Total H.P. Proposed per pump	537.66	BHP
10	<u>Description of pumps</u>		
	Hence provide 5 Nos of 495 H.P V.T. pumps (3 Working + 2 Standby) of discharging cap of 1067 m3/hr against total head of 85 m.		

DESIGN OF RAW WATER RAISING MAIN

WATER HAMMER CALCULATIONS OF DI PIPES (K-9)

DESIGN OF PROPOSED RAW WATER RISING MAIN

From Jack Well to MS Shaft @ CH.4500M at. Dhabapati

Water Hammer Calculations of DI Pipes (K-9)

	DESIGNED DISCHARGE			99.626	MLD	FSL OF SHAFT @ch 4500			694.43	
	STATIC HEAD			59.00	M	Lowest level on rising Main			635.75	
	LENGTH			4500	M				58.68	
	RESIDUAL HEAD			4	M					
	THICKNESS	NORMAL	RATE OF	WORKING	ALLO.	VELCITY OF	WATER	TOTAL	ALLOWABLE	SUITABILITY
DIA		VELOCITY	FRICTION	PR	PR.	WAVE PR	HAMMER	PR	PR.	
IN MM	IN MM	M/S	(C=140)			TRAVEL (A)				
100	6.1	146.89	109323.24	541213.02	640	1301.05	19481.11	560694.13	770.00	NO
150	6.3	65.28	15173.40	75171.32	640	1254.68	8349.71	83521.03	770.00	NO
200	6.4	36.72	3737.53	18563.78	620	1212.81	4539.98	23103.76	770.00	NO
250	6.8	23.50	1260.66	6303.26	540	1184.35	2837.40	9140.66	740.00	NO
300	7.2	16.32	518.75	2630.80	490	1160.67	1931.01	4561.81	650.00	NO
350	7.7	11.99	244.85	1275.01	450	1143.31	1397.48	2672.49	590.00	NO
400	8.1	9.18	127.78	695.50	420	1126.10	1053.85	1749.35	510.00	NO
450	8.5	7.25	72.00	419.39	400	1111.17	821.63	1241.02	480.00	NO
500	9	5.88	43.10	276.34	380	1100.57	659.17	935.51	460.00	NO
600	9.9	4.08	17.73	150.79	360	1080.92	449.58	600.37	430.00	NO
700	10.8	3.00	8.37	104.44	340	1065.33	325.54	429.98	410.00	NO
750	11.3	2.61	5.98	92.61	330	1059.73	282.09	374.70	390.00	NO
800	11.7	2.30	4.37	84.62	320	1052.65	246.28	330.90	380.00	NO
900	12.6	1.8	2.46	75.18	310	1042.13	192.65	267.83	370.00	NO
1000	13.5	1.47	1.47	70.29	300	1033.27	154.72	225.01	360.00	YES
1100	14.4	1.21	0.93	67.59	290	1025.70	126.93	194.51	350.00	YES
1200	15.3	1.02	0.61	66.00	291	1019.15	105.97	171.97	351.00	YES

(Note :- As Economical Dia. Statement Shows 1000 Mm Dia D.I.K -9 Pipe is Suitable. Hence 1000 Mm Dia D.I.K.-9 Pipe Is Proposed.)

DESIGN OF RAW WATER RAISING MAIN

DESIGN OF ECONOMIC SIZE OF PUMPING MAIN

DESIGN OF PROPOSED RAW WATER RISING MAIN

From Jack Well to Shaft @ CH.4500M at Dhabapati

Design of Economic Size of Pumping Main

1	Water requirement :	Year	Discharge		P I P E D A T A				
A.	Initial	2027	25.280	MLD					
B.	Intermediate	2042	54.300	MLD	DIAMETER	MATERIAL	CLASS	HWC	RATE
C.	Ultimate	2057	83.020	MLD	MM.				Rs/M
2	Pumping main	Length	4500	M	1000.00	DI	K9	140	27750.00
3	Static head for pump	ST. Head	72.23	M	1100.00	DI	K9	140	33193.00
4	Design period	Year	30	yr.	1200.00	DI	K9	140	38427.00
5	Combined eff. of pump set	EFF. %	70	%	997.00	MS	9.5 tk	140	32709.00
6	Cost of pumping unit	Rs./KW	14700		1048.00	MS	9.5 tk	140	34567.00
7	Interest rate	Interest	9.00	%	1099.00	MS	9.5 tk	140	36227.00
8	Life of elec. motors	P. Years	15	yr.					
9	Energy charges	P/KWH	900.00	paise					
10	Pumping hours for discharge at the end of 15 years	Pumping-Hours	20	hrs					

CALCULATIONS:

		1 st 10 years		2 nd 10 years	
1	Discharge at Start of period	25.280	MLD	54.30	MLD
2	Discharge at the end of 15 years	54.300	MLD	83.02	MLD
3	Average Discharge	39.790	MLD	68.66	MLD
4	Average pumping hours during the period	14.66	hrs	16.54	hrs
5	KW required at combined efficiency of pumping set	10.56	* H1	16.15	* H2
6	Average annual charges for electrical energy Rs	48175.36	* KW1	54371.57	* KW2

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

TABLE 1 - VELOCITY AND HEADLOSSES FOR DIFFERENT PIPE SIZES

Sr. No.	Pipe size in mm	Frictional Head losses per 1000 m		Velocity in m/ sec		Total head(m) for 4500 m length including 72.23 m static head					
		1 st stage flow	2 nd stage flow	1 st stage flow	2 nd stage flow	1 st stage flow			2 nd stage flow		
						Frictional loss	Other* losses	Total losses H1	Frictional loss	Other* losses	Total losses H1
1	1000	0.67	1.47	0.96	1.47	3.02	0.30	75.55	6.63	0.66	79.52
2	1100	0.42	0.93	0.79	1.21	1.90	0.19	74.32	4.17	0.42	76.81
3	1200	0.28	0.61	0.67	1.02	1.24	0.12	73.60	2.73	0.27	75.23
4	997	0.68	1.49	0.97	1.48	3.06	0.31	75.60	6.73	0.67	79.63
5	1048	0.53	1.17	0.87	1.34	2.40	0.24	74.87	5.28	0.53	78.03
6	1099	0.42	0.93	0.80	1.22	1.91	0.19	74.33	4.19	0.42	76.83
* Other losses = 10% of frictional loss											

TABLE 2 - KILOWATTS & COST OF PUMP SETS REQUIRED FOR DIFFERENT PIPE SIZES AND PIPE COST

Sr. No.	PIPE Size in mm	Class of Pipe	1st stage flow of 54.30 million ltrs/day			2nd stage flow of 83.02 million ltrs/day			Cost of pipe per unit length (Rs)	Cost of 4500 meter pipe line THS Rs.
			H1 Total Head in Meters	Kw required plus % 100 standby	Pump cost @ Rs. 14700 per Kw Rs. THS	H2 Total Head in Meters	Kw required plus % 100 standby	Pump Cost @ Rs. 14700 per Kw Rs. THS		
1	1000	K9	76.00	1606	23608	80.00	2584	37985	27750	124875
2	1100	K9	74.00	1563	22976	77.00	2487	36559	33193	149368.5
3	1200	K9	74.00	1563	22976	75.00	2423	35618	38427	172921.5
4	997	9.5 tk	76.00	1606	23608	80.00	2584	37985	32709	147190.5
5	1048	9.5 tk	75.00	1585	23300	78.00	2520	37044	34567	155551.5
6	1099	9.5 tk	74.00	1563	22976	77.00	2487	36559	36227	163021.5

TABLE 3 - COMPARATIVE STATEMENT OF OVERALL COST OF PUMPING MAIN FOR DIFFERENT PIPE SIZES

1 st stage flow 54.30 MLD					2 nd stage flow 83.02 MLD					
Sr. No.	Cost of Pump sets	Annual Energy Charges	Capitalised Energy Charges	Capitalised total Cost	Cost of Pump Sets	Annual Energy Charges	Capitalised Energy Charges	Capitalised total Cost	Capitalised total Cost for 30 years	PIPE Size in MM
	THS	THS	THS	THS	THS	THS	THS	THS	THS	
	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	
1	23608	38685	311828	460311	37985	70248	566247	165885	626196	1000.00
2	22976	37649	303477	475822	36559	67611	544991	159658	635480	1100.00
3	22976	37649	303477	499375	35618	65871	530966	155549	654924	1200.00
4	23608	38685	311828	482627	37985	70248	566247	165885	648512	997.00
5	23300	38179	307749	486601	37044	68508	552222	161776	648377	1048.00
6	22976	37649	303477	489475	36559	67611	544991	159658	649133	1099.00
***	TABLE 3 shows that the most economical size of MAIN is 1000 mm costing Capitalised							Rs.	626196.00	

SALIENT FEATURES OF RAW WATER RAISING MAIN FROM JACKWELL TO MS SHAFT

**SALIENT FEATURES OF
RAW WATER RISING MAIN FROM PROPOSED JACKWELL TO
PROPOSED MS SHAFT**

Sr. No.	Particulars	Details	Unit
1	Gross Daily demand at Head Works (Ultimate Stage Year 2057)	172.26	MLD
2	Gross Daily demand at Head Works (Intermediate Stage Year 2042)	143.54	MLD
3	Gross Demand cater by Existing Rising Main	89.24	MLD
4	Balance Demand to be cater by New Rising Main (Ultimate Year 2057)	83.02	MLD
5	Balance Demand to be cater by New Rising Main (Intermediate Year 2042)	54.30	MLD
6	Length of Rising Main	3600.00	m
7	Proposed Dia (Ultimate year 2057)	1000.00	mm
8	Material	DI K9	
9	Flow	3202.22	m ³ /hr
10	BHP (Intermediate year 2042)	537.66	HP
11	Head	85.00	m
12	Working	3.00	Nos.
12	Standby	2.00	Nos.

DESIGN OF M S SHAFT

DESIGN OF M.S. SHAFT

Sr. No.	Particulars	Details	Unit
1	Design Discharge	99.624	MLD
2	Inlet Pipe Dia	1000	MM (ID)
3	Total discharge through 300 mm dia pipe	99624000	LITERS
4	Total volume of inner dia of pipe per meter	0.785	M3
5	Considering outer dia	1500	MM (ID)
6	Total volume of outer dia of pipe per meter	1.76625	M3
7	Net volume of outer dia	0.98125	M3

Note: Vol. of outer diameter is greater than inner dia of shaft hence design of M.S.

DESIGN OF RAW WATER GRAVITY MAIN FROM MS SHAFT TO WTP

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Existing

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

100	1.26	0.000	674.43	4.00
1	1.26	0.000	626.00	4.00
2	1.26	0.000	624.00	4.00
3	1.26	-94.520	628.00	4.00
4	1.26	-936.961	632.00	4.00

Output Data File : KKKK.OUT 03 March 2023 Page # 1

Echoing Input Variables

Title of the Project : Design of Gravity main BPT
to WTP
Name of the User : LMC
Number of Pipes : 4
Number of Nodes : 5
Number of Commercial Diameters : 13
Peak Design Factor : 1.26
Minimum Headloss in m/km : .000001
Maximum Headloss in m/km : 11
Minimum Residual Pressure m : 4
Type of Formula : Hazen's

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

Output Data File : KKKK.OUT 03 March 2023 Page # 2

Reference Node Data

Node No.	Grade Line m
100	674.43

Pipe Data

Pipe No.	From Node	To Node	Length m	Diameter mm	Hazen's Const	Status (E/P)
1	100	1	43500.00	1183.2	0.00000	E
2	1	2	2600.00	590.0	0.00000	E
3	2	3	5400.00	500.0	0.00000	E
4	1	4	3100.00	1082.2	0.00000	P

Commercial Diameter Data

Pipe Dia. Int. (mm)	Hazen's Const	Unit Cost Rs /m	length
500.0	140.00000	7392.00	
590.0	140.00000	18228.00	
600.0	140.00000	9765.00	
700.0	140.00000	13246.00	
800.0	140.00000	17405.00	
900.0	140.00000	21103.00	
1000.0	140.00000	25261.00	
1082.2	140.00000	30726.00	

Node Data

Node No.	Peak Factor	Flow lps	Elevation m	Res. Press m	Meet Res. Pres (Y/N)?
1100.0	140.00000	33427.00			
1183.2	140.00000	38862.00			
1200.0	140.00000	38818.00			
1300.0	140.00000	41000.00			
1400.0	140.00000	45000.00			

Branched Water Distribution Network Design OutPut

Pipe Details

Pipe Length Status	From Node	To Node	Peak Flow (lps)	Diam (mm)	Hazen's Const	HL (m)	HL/1000 (m)
43500.00 E	100	1	1299.666	1183.2	140.00000	35.49	0.82
2600.00 E	1	2	119.095	590.0	140.00000	0.76	0.29
5400.00 E	2	3	119.095	500.0	140.00000	3.51	0.65
3100.00 P	1	4	1180.571	1082.2	140.00000	2.94	0.95
797.83 P				700.0	140.00000	0.52	0.65

Node Meet Res. No.	Peak Flow (lps)	Elevation (m)	H G L (m)	Cal Pres (m)	Spc Pres (m)
100 S	1299.666	674.43	674.43	0.00	4.00
1	0.000	626.00	638.94	12.94	4.00
2	0.000	624.00	638.19	14.19	4.00
3	-119.095	628.00	634.68	6.68	4.00
4 T	-1180.571	632.00	636.00	4.00	4.00

Cost Summary

Diameter (mm)	Length (m)	Cost (1000 Rs)	Cum. Cost (1000 Rs)
700.0	797.83	10568.06	10568.06

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

Output Data File : KKKK.OUT 03 March 2023 Page # 3

Pipe-wise Cost Summary

Pipe No	Diameter (mm)	Length (m)	Cost (1000 Rs)	Cum. Cost (1000 Rs)
4	700.0	797.83	10568.06	10568.06

Node Details

Proposed

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

1	1.26	0.000	626.00	4.00
2	1.26	-962.269	632.00	4.00

Output Data File : KKK111.OUT 03 March 2023 Page # 1

Reference Node Data

Node No.	Grade Line m
100	674.43

Echoing Input Variables

Title of the Project : Design of Gravity main BPT to WTP
 Name of the User : LMC
 Number of Pipes : 2
 Number of Nodes : 3
 Number of Commercial Diameters : 10
 Peak Design Factor : 1.26
 Minimum Headloss in m/km : .0001
 Maximum Headloss in m/km : 11
 Minimum Residual Pressure m : 4
 Type of Formula : Hazen's

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

Output Data File : KKK111.OUT 03 March 2023 Page # 2

Commercial Diameter Data

Pipe Dia. Int. (mm)	Hazen's Const	Unit Cost Rs /m length
500.0	140.00000	7392.00
600.0	140.00000	9765.00
700.0	140.00000	13245.00
800.0	140.00000	17405.00
900.0	140.00000	21103.00
1000.0	140.00000	25261.00
1100.0	140.00000	33193.00
1200.0	140.00000	38427.00
1300.0	140.00000	42000.00
1400.0	140.00000	48000.00

Pipe Data

Pipe No.	From Node	To Node	Length m	Diameter mm	Hazen's Const	Status (E/P)
1	100	1	43500.00			
2	1	2	3100.00			

Node Data

Node No.	Peak Factor	Flow lps	Elevation m	Res. Press m	Meet Res. Pres (Y/N)?
100	1.26	0.000	674.43	4.00	

Branched Water Distribution Network Design Output

Pipe Details

Pipe No.	From Node	To Node	Length Status (E/P)	Peak Flow (lps)	Diam (mm)	Hazen's Const	HL (m)	HL/1000 (m)
1	100	1	17317.82	1212.459	1100.0	140.00000	17.72	1.02
2	1	2	26182.18	1212.459	1100.0	140.00000	3.17	1.02

Node Details

Node No.	Peak Flow (lps)	Elevation (m)	H G L (m)	Cal Pres (m)	Spc Pres (m)
100 S	1212.459	674.43	674.43	0.00	4.00
1	0.000	626.00	639.17	13.17	4.00
2	-1212.459	632.00	636.00	4.00	4.00

Diameter (mm)	Length (m)	Cost (1000 Rs)	Cum. Cost (1000 Rs)
1100.0	20417.82	677728.69	677728.69
1200.0	26182.18	1006102.44	1683831.13

BRANCH: Branched Water Distribution Design Program - (C) The World Bank

Output Data File : KKK111.OUT 03 March 2023 Page # 3

Pipe-wise Cost Summary

Pipe No	Diameter (mm)	Length (m)	Cost (1000 Rs)	Cum. Cost (1000 Rs)
1	1100.0	17317.82	574830.38	574830.38
2	1200.0	26182.18	1006102.56	1580933.00
	1100.0	3100.00	102898.30	1683831.25

Cost Summary

DESIGN OF WTP

STATEMENT SHOWING CAPACITY OF WTP

Sr. No.	Particulars	Details	Unit
1	Demand @ ESR end considering 10% transmission losses in distribution	142.11	MLD
2	Hours of pumping	20	Hours
3	Total Daily Demand	170.53	MLD
4	Capacity of W.T.P. required	171.00	MLD
5	Deduct Capacity of existing WTP	80.00	MLD
6	Capacity of proposed WTP	91.00	MLD

DESIGN OF RECIRCULATION SYSTEM FOR WTP

DESIGN OF RECIRCULATION SYSTEM FOR WTP 91.00 MLD CAPACITY

1	Area of one Filter bed one section			8.8 x6.5m	114.4	sqm
2	Rate of back wash				600	lit/sqm/min
3	Duration of wash				10	minutes
4	Water required for back wash of one filter bed of two sections			(114x600x10x1)	686400	Ltrs
5	Ground level @well				627	M
6	Invert of last chamber				624.5	M
7	Depth of water				4.50	M
8	Capacity of well	0.8	15	15	4.50	
	Provided Capacity for wash water				794.8125	Cum
	Provided Capacity for wash water				686400	Ltrs
9	Turbidity of back washed water(assumed)				1000	Ppm
10	sludge to be produced				10	kg/ml
11	Total sludge to be produced				910	kg/day
12	Total sludge to be produced 3 month				81900	Kg
13	Specific gravity of sludge				1600	kg/cum
14	Volume required for sludge				51.1875	Cum
15	Depth required for sludge for 15 m inner dia of well				4.176	M
				Say	4.5	M
	Toral Capacity of well required water &sludge				687244	Ltrs
16	Total Capacity of well	0.8	15	15	794.8125	
	Provided Capacity for wash water & sludge				794.81	Cum
	Provided Capacity for wash water & sludge				795000	Ltrs
17	Total depth of well below invert				4.50	M
18	Bottom level				620.00	M
19	Total depth of well below invert of pipe				4.65	
20	Total depth of well				8.15	M
21	Internal dia of well				15	M

Provided capacity of well is more than required Hence O K

DESIGN OF PURE WATER RAISING MAIN FROM WTP TO MBR WATER HAMMER CALCULATIONS OF DI PIPES (K-9)

DESIGN OF PROPOSED PURE WATER RISING MAIN

From WTP To MBR @ Harangul

Water Hammer Calculations of DI Pipes (K-9)

	DESIGNED DISCHARGE			3.180	MLD	LIP OF AF			632.00	
	STATIC HEAD			7.00	M	Lowest level on rising Main			625.00	
	LENGTH			100	M				7.00	
	RESIDUAL HEAD			4	M					
	THICKNESS	NORMAL	RATE OF	WORKING	ALLO.	VELCITY OF	WATER	TOTAL	ALLOWABLE	SUITABILITY
DIA		VELOCITY	FRICTION	PR	PR.	WAVE PR	HAMMER	PR	PR.	
IN MM	IN MM	M/S	(C=140)			TRAVEL (A)				
100	6.1	4.69	185.54	31.41	640	1301.05	621.83	653.24	770.00	NO
150	6.3	2.08	25.75	13.83	640	1254.68	266.52	280.35	770.00	NO
200	6.4	1.17	6.34	11.70	620	1212.81	144.91	156.61	770.00	YES
250	6.8	0.75	2.14	11.24	540	1184.35	90.57	101.80	740.00	YES
300	7.2	0.52	0.88	11.10	490	1160.67	61.64	72.73	650.00	YES
350	7.7	0.38	0.42	11.05	450	1143.31	44.61	55.65	590.00	YES
400	8.1	0.29	0.22	11.02	420	1126.10	33.64	44.66	510.00	YES
450	8.5	0.23	0.12	11.01	400	1111.17	26.23	37.24	480.00	YES
500	9	0.19	0.07	11.01	380	1100.57	21.04	32.05	460.00	YES
600	9.9	0.13	0.03	11.00	360	1080.92	14.35	25.35	430.00	YES
700	10.8	0.10	0.01	11.00	340	1065.33	10.39	21.39	410.00	YES
750	11.3	0.08	0.01	11.00	330	1059.73	9.00	20.01	390.00	YES
800	11.7	0.07	0.01	11.00	320	1052.65	7.86	18.86	380.00	YES
900	12.6	0.1	0.00	11.00	310	1042.13	6.15	17.15	370.00	YES
1000	13.5	0.05	0.00	11.00	300	1033.27	4.94	15.94	360.00	YES
1100	14.4	0.04	0.00	11.00	290	1025.70	4.05	15.05	350.00	YES
1200	15.3	0.03	0.00	11.00	291	1019.15	3.38	14.38	351.00	YES

(Note :- As Economical dia Statement Shows 1000 Mm Dia D.I.K -9 Pipe is Suitable .Hence 1000 Mm Dia D.I.K.-9 Pipe Is Proposed.)

DESIGN OF RAW WATER PUMPING MACHINERY AT RECIRCULATION WELL

RAW WATER PUMPING MACHINERY AT R/WELL			
Sr. No.	Particulars	Details	Unit
1	Rate of Pumping	132500	Lit / hour
	Add 12% extra	15900.0	
	Total Rate of pumping	148400	Lit / hour
2	Static Head		
	1) LIP OF A/F WTP	632.00	M
	2) Lowest suction level @ Jack Well	621.20.00	M
	4) Hence , Static Head (a – b)	10.80	M
3	Frictional Head		
	1) Design Discharge in MLD	3.18	MLD
	2) Length of main	100	M
	3) Diameter, type and class of pipe	200	DI K-9
	4) Hazen Williams constant	140	
	5) Rate of frictional loss.	6.34	
	6) Total Frictional loss (b x f)	1.27	
	7) Add 10 % for specials	0.13	M
	8) Total friction Head	0.70	M
4	Velocity head at reservoir	4	M
5	Total Head on pump	15.50	M
	Say	16.00	M
6	B.H.P. Required	16.24	BHP
7	Total H.P. Proposed	16.00	BHP
8	Description of pumps		
	Hence provide 30 H.P Submersible pumps of total discharging cap of 148400 Ltrs / hour against total head of 16 M. (One working & one stand by)		

DESIGN OF PURE WATER RAISING MAIN FROM WTP TO MBR

WATER HAMMER CALCULATIONS FOR DI PIPES K-9

DESIGN OF PROPOSED PURE WATER RISING MAIN

FROM WTP TO MBR @ HARANGUL

WATER HAMMER CALCULATIONS OF DI PIPES (K-9)

	DESIGNED DISCHARGE			102.960	MLD	FSL OF MBR @ HARANGUL			678.00	
	STATIC HEAD			53.00	M	Lowest level on rising Main			625.00	
	LENGTH			1500	M				53.00	
	RESIDUAL HEAD			4	M					
	THICKNESS	NORMAL	RATE OF	WORKING	ALLO.	VELOCITY OF	WATER	TOTAL	ALLOWABLE	SUITABILITY
DIA		VELOCITY	FRICTION	PR	PR.	WAVE PR	HAMMER	PR	PR.	
IN MM	IN MM	M/S	(C=140)			TRAVEL (A)				
100	6.1	151.81	116195.46	191779.50	640	1301.05	20133.13	211912.63	770.00	NO
150	6.3	67.47	16127.22	26666.91	640	1254.68	8629.17	35296.08	770.00	NO
200	6.4	37.95	3972.48	6611.59	620	1212.81	4691.93	11303.52	770.00	NO
250	6.8	24.29	1339.90	2267.84	540	1184.35	2932.37	5200.21	740.00	NO
300	7.2	16.87	551.36	966.74	490	1160.67	1995.64	2962.38	650.00	NO
350	7.7	12.39	260.24	486.40	450	1143.31	1444.25	1930.65	590.00	NO
400	8.1	9.49	135.81	281.09	420	1126.10	1089.12	1370.21	510.00	NO
450	8.5	7.50	76.52	183.27	400	1111.17	849.13	1032.39	480.00	NO
500	9	6.07	45.81	132.58	380	1100.57	681.23	813.81	460.00	NO
600	9.9	4.22	18.85	88.10	360	1080.92	464.63	552.73	430.00	NO
700	10.8	3.10	8.90	71.68	340	1065.33	336.44	408.12	410.00	NO
750	11.3	2.70	6.36	67.49	330	1059.73	291.53	359.02	390.00	NO
800	11.7	2.37	4.64	64.66	320	1052.65	254.52	319.18	380.00	NO
900	12.6	1.9	2.62	61.32	310	1042.13	199.09	260.41	370.00	NO
1000	13.5	1.52	1.57	59.58	300	1033.27	159.89	219.48	360.00	YES
1100	14.4	1.25	0.98	58.62	290	1025.70	131.18	189.80	350.00	YES
1200	15.3	1.05	0.64	58.06	291	1019.15	109.52	167.58	351.00	YES

DESIGN OF PURE WATER RAISING MAIN FROM WTP TO MBR

DESIGN OF ECONOMIC SIZE OF PUMPING MAIN

DESIGN OF PROPOSED PURE WATER RISING MAIN

FROM WTP TO MBR @ HARANGUL

Design of Economic Size of PUMPING MAIN

1	Water requirement :	Year	Discharge		P I P E D A T A				
A.	Initial	2027	29.780	MLD					
B.	Intermediate	2042	57.940	MLD	DIAMETER	MATERIAL	CLASS	HWC	RATE
C.	Ultimate	2057	85.800	MLD	MM.				Rs/M
2	Pumping main	LENGTH	1500	M	1000.00	DI	K9	140	27750.00
3	Static head for pump	ST.HEAD	58.00	M	1100.00	DI	K9	140	33193.00
4	Design period	YEAR	30	yr.	1200.00	DI	K9	140	38427.00
5	Combined eff. of pump set	EFF. %	70	%	997.00	MS	9.5 tk	140	32709.00
6	Cost of pumping unit	Rs./KW	14700		1048.00	MS	9.5 tk	140	34567.00
7	Interest rate	INTEREST	9.00	%	1099.00	MS	9.5 tk	140	36227.00
8	Life of elec. motors	P. Yrs	15	yr.					
9	Energy charges	P/KWH	900.00	paise					
10	Pumping hours for discharge at the end of 15 years	PUMPING- HOURS	20	hrs					

CALCULATIONS:		1st 10 years		2nd 10 years	
1	Discharge at Start Of period	29.780	MLD	57.94	MLD
2	Discharge at the end of 15 years	57.940	MLD	85.80	MLD
3	Average Discharge	43.860	MLD	71.87	MLD
4	Average pumping hours during the period	15.14	hrs	16.75	hrs
5	KW required at combined efficiency of pumping set	11.27	* H1	16.69	* H2
6	Average annual charges for electrical energy Rs	49766.94	* KW1	55069.51	* KW2

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

TABLE 1 - VELOCITY AND HEADLOSSES FOR DIFFERENT PIPE SIZES

Sr. No.	Pipe size in mm	Frictional Head loss m per 1000 m		Velocity in m/ sec		Total head(m) for 1500 m length including 58.00 m static head					
		1 st stage	2 nd stage	1 st stage	2 nd stage	1 st stage flow			2 nd stage flow		
						Frictional loss	Other* losses	Total losses H1	Frictional loss	Other* losses	Total losses H1
1	1000	0.76	1.57	1.03	1.52	1.14	0.11	59.25	2.35	0.23	60.58
2	1100	0.48	0.98	0.85	1.25	0.71	0.07	58.79	1.48	0.15	59.62
3	1200	0.31	0.64	0.71	1.05	0.47	0.05	58.51	0.97	0.10	59.06
4	997	0.77	1.59	1.03	1.53	1.15	0.12	59.27	2.38	0.24	60.62
5	1048	0.60	1.25	0.93	1.38	0.90	0.09	58.99	1.87	0.19	60.06
6	1099	0.48	0.99	0.85	1.26	0.72	0.07	58.79	1.48	0.15	59.63

* Other losses = 10% of frictional loss

TABLE 2 - KILOWATTS & COST OF PUMP SETS REQUIRED FOR DIFFERENT PIPE SIZES AND PIPE COST

Sr. No.	PIPE size in mm	Class of Pipe	1st stage flow of 57.94 million ltr/day			2nd stage flow of 85.80 million ltr/day			Cost of pipe	Cost of 1500
			H1 total head in meters	Kw required plus 100 % Standby	Pump cost @ Rs. 14700 per Kw Rs. THS	H2 total head in Meters	Kw required plus 100% standby	Pump cost @ Rs. 14700 per Kw Rs. THS	Per unit length (Rs)	Meter pipe line THS (Rs)
				100			100			
1	1000	K9	59.00	1330	19551	61.00	2036	29929	27750	41625.0
2	1100	K9	59.00	1330	19551	60.00	2003	29444	33193	49789.5
3	1200	K9	59.00	1330	19551	59.00	1970	28959	38427	57640.5
4	997	9.5 tk	59.00	1330	19551	61.00	2036	29929	32709	49063.5
5	1048	9.5 tk	59.00	1330	19551	60.00	2003	29444	34567	51850.5
6	1099	9.5 tk	59.00	1330	19551	60.00	2003	29444	36227	54340.5

TABLE 3 - COMPARATIVE STATEMENT OF OVERALL COST OF PUMPING MAIN FOR DIFFERENT PIPE SIZES

	1 st stage flow 57.94 MLD				2 nd stage flow 85.80 MLD					
Sr. No.	Cost of Pump sets	Annual Energy Charges	Capitalised Energy Charges	Capitalised total cost	Cost of Pump sets	Annual Energy Charges	Capitalised Energy Charges	Capitalised total cost	Capitalised total cost for 30 years	Pipe Size in mm
	THS	THS	THS	THS	THS	THS	THS	THS	THS	
	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	(Rs)	
1	19551	33095	266768	327944	29929	56061	451890	132278	460222	1000.00
2	19551	33095	266768	336109	29444	55152	444563	130133	466242	1100.00
3	19551	33095	266768	343960	28959	54243	437236	127988	471948	1200.00
4	19551	33095	266768	335383	29929	56061	451890	132278	467661	997.00
5	19551	33095	266768	338170	29444	55152	444563	130133	468303	1048.00
6	19551	33095	266768	340660	29444	55152	444563	130133	470793	1099.00

*** TABLE 3 shows that the most economical size of MAIN is : 1000 mm costing Capitalised Rs. 460222.00

SALIENT FEATURES OF PURE WATER RAISING MAIN FROM WTP TO MBR

SALIENT FEATURES OF PURE WATER RISING MAIN FROM PROPOSED WTP TO PROPOSED MBR

Sr. No.	Particulars	Details	Unit
1	Gross Daily demand at PWRM (Ultimate Stage Year 2057)	167.13	MLD
2	Gross Daily demand at PWRM (Intermediate Stage Year 2042)	139.27	MLD
3	Gross Demand cater by Existing Rising Main	62.08	MLD
4	Gross Demand cater by Existing New Raising Main	11.25	MLD
5	Gross Demand cater by Existing Rising Main at Arvi WTP	8.00	MLD
6	Balance Demand to be cater by New Rising Main (Ultimate Year 2057)	85.80	MLD
7	Balance Demand to be cater by New Rising Main (Intermediate Year 2042)	102.96	MLD
8	Length of Rising Main	1500.00	m
9	Proposed Dia (Ultimate year 2057)	1000.00	mm
10	Material	DI K9	
11	Flow (Intermediate year 2042)	4200.65	m ³ /hr
12	BHP	539.34	HP
13	Head	65.00	m
14	Working	3.00	Nos.
15	Standby	2.00	Nos,

DESIGN OF PURE WATER PUMPING MACHINERY

DESIGN OF PURE WATER PUMPING MACHINERY

Sr. No.	Particulars	Details	Unit
1	Total gross demand at PWRM Pumping Machinery (Intermediate Stage 2042)	139.27	MLD
2	Gross Demand cater by Existing PWRM Pumping Machinery	64.00	MLD
3	Balance Demand to be cater by New PWRM Pumping Machinery (Intermediate Stage 2042)	75.27	MLD
4	Balance Demand to be cater by New PWRM Pumping Machinery including minor losses (Multiplied demand by 1.053)	79.26	MLD
1	Rate of Pumping	3962.88	m3/hr
	Add 6% extra	237.77	m3/hr
	Total Rate of pumping	4200.65	m3/hr
2	Static Head		
	1) FSL of MBR	678.00	m
	2) Lowest suction level in the WTP	620.00	m
	3) Hence , Static Head (a – b)	58.00	m
3	Frictional Head		
	1) Design Discharge in MLD	79.26	MLD
	2) Length of main	1500	m
	3) Diameter, type and class of pipe	1000	mm dia DI K-9
	4) Hazen Williams constant	140	
	5) Rate of frictional loss.	1.57	
	6) Total Frictional loss (b x f)	2.35	
	7) Add 10 % for specials	0.23	m
	8) Total friction Head	2.58	m
4	Velocity head at reservoir	4	m
5	Total Head on pump	64.58	m
	Say	65.00	m
6	Nos. of Working Pumps proposed	3.00	
7	Rate of pumping per pumps	1400.22	m3/hr
8	Power Required	354.28	KW
9	Total H.P. Proposed per pump	539.34	BHP
10	Description of pumps		
	Hence provide 5 Nos of 495 H.P Submersible pumps (3 Working + 2 Standby) of discharging cap of 1400 m3/hr against total head of 65m.		

Formula – 2

$$P \text{ in kW} = \frac{Q \times H \times \rho}{367 \times \eta}$$

Here

Q = Flow rate in m³/hr

H = Total developed head in meters

ρ = Density in kg/dm³ (1 kg/m³ = 0.001 kg/dm³)

η = Efficiency between 0 and <1 (not in %)

CAPACITY CALCULATION FOR PURE WATER MBR

CAPACITY CALCULATIONS FOR PURE WATER MBR			
Sr. No.	Particulars	Details	Unit
1	Location	Near Existing MBR	
2	Gross Daily demand at MBR (Intermediate Stage Year 2042)	139.27	MLD
3	Demand cater by Existing MBRs	62.50	MLD
4	Balance Demand to be cater by new MBR	76.77	MLD
5	Hours of Pumping	20.00	Hrs
6	Rate of Pumping	3.84	ML/Hrs
7	Average GL at site	645.00	m
8	LSL	672.00	m
9	FSL	678.00	m
10	Staging Height	27.00	m
11	Retention Time	1.00	Hrs
12	Required Storage Capacity	3.838	ML
13	Nos of MBR proposed	2.00	Nos.
14	Proposed Capacity for each MBR	1.92	ML
Thus, Provide 2 MBR of capacity 1.92 ML for 1 hr Capacity			

Provide 1MBRs of Capacity 1.92 ML with 27 m Staging height and 5m water depth

SUMMARY OF PROPOSED AND EXISTING ESR'S

8.4 RESERVOIRS

Capacities of all the existing reservoirs are not sufficient enough to cater the demand for intermediate as well as ultimate stage hence few additional reservoirs are proposed to be constructed. This has been also confirmed from the mass curve analysis done for each reservoir. Mass curves are developed for the design demand of year 2042 and confirmed the capacities of reservoirs.

It was understood from the LCMC that the reservoirs which were proposed in DPR submitted in 2021 are not yet constructed on ground. Thus, capacities of these earlier proposed ESRs are also evaluated and suggested necessary upsizing wherever required.

Zone-wise summary of service reservoirs for year 2042 is given in Table 8-1

Table 8-1 Summary of Existing and Proposed Service Reservoirs

Sr No.	Zone Name	SR Name	Type of SR	SR Status Existing / Proposed	Planned WTP	Gross Demand (ESR (MLD) Wise)		SR Capacity Existing (ML)	SR Capacity Proposed (ML) 2042	GL (m)	LDL (m)	FSL (m)	STAGING (m)
						2042	2057						
1	Nanded Naka	Nanded Naka New Existing	ESR	Existing	Proposed	12.25	14.70	4.00		633.50	649.50	654.50	16.00
		Nanded Naka Old Existing	ESR	Existing	Proposed	4.29	5.14	1.40		633.50	649.50	654.50	16.45
		Nanded Naka Proposed	ESR	Proposed	Proposed	2.14	2.57		0.70	633.50	649.50	654.50	16.00
2	Dalda Factory	Dalda Factory	ESR	Existing	Existing	4.66	5.60	1.75		628.86	649.86	654.86	21.00
3	Basweshwar Colony	Basweshwar Colony	ESR	Existing	Existing	4.35	5.22	2.10		623.25	638.25	643.25	15.00
4	Sarasvati Colony	Sarasvati Colony	ESR	Existing	Existing	11.84	14.21	4.10		634.00	647.28	652.28	13.28
5	M.J.P. Old	M.J.P. Old	ESR	Existing	Existing	4.19	5.03	1.40		636.00	658.00	664.00	22.00
6	M.J.P. New	M.J.P. New Existing	ESR	Existing	Existing	4.44	5.33	1.50		634.55	652.55	656.55	18.00
		M.J.P. New Proposed	ESR	Proposed	Proposed	2.96	3.55		1.00	625.00	649.00	654.00	24.00
7	Government Quarter	Government Quarter Existing	ESR	Existing	Existing	6.36	7.63	2.10		637.50	652.50	657.50	15.00
		Government Quarter Proposed	ESR	Proposed	Existing	3.63	4.36		1.20	637.50	652.50	657.50	15.00
8	Arvi (Keshav Nager)	Arvi (Keshav Nager) Existing	ESR	Existing	Proposed	10.74	12.89	3.50		623.00	645.00	650.00	22.00
		Arvi (Keshav Nager) Proposed	ESR	Proposed	Proposed	1.23	1.47		0.40	623.00	645.00	650.00	22.00
9	Rajdhani	Rajdhani	ESR	Existing	Existing	6.46	7.75	2.10		635.30	650.30	655.30	15.00
10	Gandhi Chowk	Gandhi Chowk Existing	ESR	Existing	Existing	9.73	11.68	3.20		634.00	652.00	657.00	18.00

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr No.	Zone Name	SR Name	Type of SR	Status of Existing / Proposed	Planned WTP	Gross Demand (ESR (MLD) Wise)		SR Capacity Existing (ML)	SR Capacity Proposed (ML)	GL (m)	LDL (m)	FSL (m)	STAGING (m)
						2042	2057						
		Gandhi Chowk Proposed	ESR	Proposed	Existing	3.65	4.38		1.20	634.00	652.00	657.00	18.00
11	Kripa Sedan Garden	Kripa Sedan Garden Proposed -I	ESR	Proposed	Proposed	11.21	13.45		1.85	630.00	646.00	652.00	16.00
		Kripa Sedan Garden Proposed - II	ESR	Proposed	Proposed	11.21	13.45		1.85	630.00	646.00	652.00	16.00
12	Labour Colony	Labour Colony Proposed -I	ESR	Proposed	Proposed	10.21	12.26		1.70	624.00	642.00	648.00	18.00
		Labour Colony Proposed -II	ESR	Proposed	Proposed	10.21	12.26		1.70	624.00	642.00	648.00	18.00
13	SSC Board	SSC Board Proposed	ESR	Proposed	Proposed	8.25	9.90		2.70	620.00	642.00	648.00	22.00
14	APMC Market	APMC Market Proposed	ESR	Proposed	Proposed	6.73	8.07		2.20	616.00	632.00	638.00	16.00
15	Basav Colony	Basav Colony Proposed	ESR	Proposed	Proposed	7.16	8.59		2.40	629.50	645.50	651.50	16.00
Total						136.49	163.80	27.15	18.90				

DISTRIBUTION SYSTEM

8.5 PROPOSED DISTRIBUTION SYSTEM

The methodology and the concept for formation of water supply zones and DMA is already explained in chapter 6. Zone wise water demand for each zone is presented in Table 7-1.

Existing distribution network of the town is analysed, and new pipes are proposed as per the design. Distribution network is designed for 24 x 7 water supply system considering the total demand of the town of year 2055. Hydraulic modelling for each water supply zone is completed separately consider each reservoir as their service points.

All the existing pipes which are of materials AC, PVC, PSC, CI and which are very old are proposed to be discarded from the system and new pipes are proposed instead. For the low-level area where pressure is exceeding the desired limit, Pressure Reducing Valves are proposed to maintain the equitable pressure in the system. Snapshot showing results of the hydraulic analysis of distribution network for ultimate stage is shown in Figure 8.2.

Also, the pressure variation across all water supply zones is depicted graphically in Figure 8.3. From the figure it can be seen that all the fifteen zones are having pressure ranges in the distribution network between 12 m of H₂O to 30 m of H₂O. Rarely few zones are exceeding pressures than 30m of H₂O.

The summary of the proposed distribution system is prepared to indicate the details of the existing and proposed pipes in the recommended distribution system of a DMA. Below table shows the overall summary pipes in the distribution network for ultimate year 2057. The total length of the distribution network is around 541 Km. The breakup of total distribution network in terms of pipe retained, replaced & newly proposed are shown in the table.

Hydraulic Modelling Outputs in the flex table of the distribution system analysis for ultimate stage is given in **Annexure No. 1**.

The distribution network drawings for each zone separately are provided in **Annexure no. 2**



Figure 8.2 Layout of Proposed Distribution Network

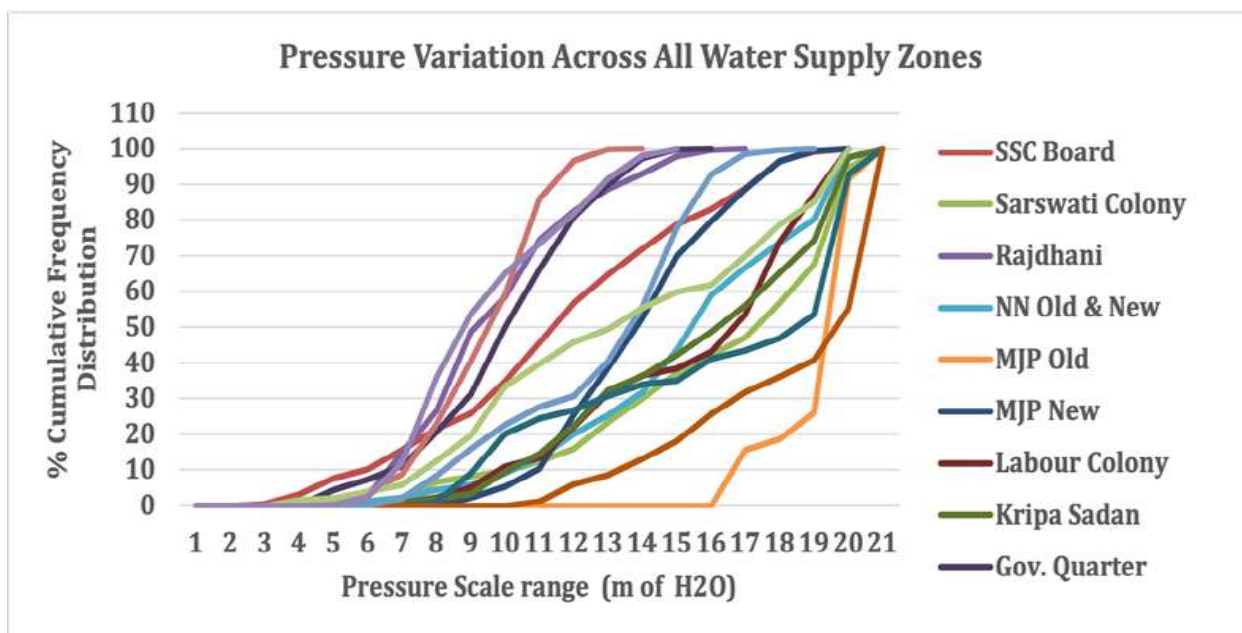


Figure 8.3 Pressure Variation Across All Water Supply Zones

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr. No.	Zone Name	Summary of Overall Distribution Pipes																			Grand Total
		80	100	110	125	140	150	160	180	200	225	250	280	300	350	400	450	500	600	700	
1	APMC Market		11283	9708	733	1101	3651	2058	788	2905	578	1408	435	919	1078	391		288			37324
2	Arvi	7767	20701	12985	1561	2030	3720	1157	966	4026	2387	1551	42	417	1295	2234			22		62861
3	Basav Colony	38	4759	12617	1989	2586	763	1237	717	1971	457	2280	71		117		675	426			30703
4	Basweshwar Colony		6726	15066	776	2630	345	1277	940	1603	729	2141	905	474	405	1560					35577
5	Dalda Factory		4520	4840	376	1525	255	610	77	1771	317	420	223	1392		620	391	423			17760
6	Gandhi Chowk		7023	11598	1215	6464	748	1457	1382	2848	615	477	25	646		1402	618	203	772		37493
7	Gov. Quarter	155	7420	21454	890	2001	1448	2319	816	2071	1026	1226	69	949	1101	1023	1686	16	11		45681
8	Kripa Sadan		7847	15083	2349	3063	728	3182	1518	2522	394	933	628	901	140	1305	4	176	19		40792
9	Labour Colony		3925	8794	676	2055	338	2729	510	3860	623	2181	77	530	436	233		15	11		26993
10	MJP New	212	4344	7590	719	1854	157	1844	809	1376	753	633	578	637	310	1879					23695
11	NM Old		5002	8461	1085	2356	245	668	187	1045		1346	398	55		544			50		21442
12	NN Old & New	399	6272	18566	1376	3804	911	1328	1194	5000	1504	1931	676	2643	526	2344	230	210	1066	15	49995
13	Rajdhani		4042	8204	128	3784	441	660	568	2754	366	1117	140	681		408	96	138	36		23563
14	Saraswathi Colony	3100	28781	4904	668	2663	4991	2092	930	3948	1297	1549	140	878	252	641	409		364		57607
15	SSC Board		1613	15371	784	3133	599	1428	784	1985	1053	712	897	1064	517	107			18		30065
Grand Total		11671	124258	175241	15325	41049	19340	24046	12186	39685	12099	19905	5304	12186	6177	14691	4109	1895	2369	15	541551

Sr. No.	Zone Name	Summary of Retained Pipes (Length in Meter)														Total
		80	100	110	150	160	180	200	250	300	350	400	450	500	600	
1	APMC Market		11283		3651	733		842	753	722	1078					19062
2	Arvi	7767	20701		3720	214		2912	859	212	1295	395			22	38097
3	Basav Colony	38	4759		763			1422	1997		117		675			9771
4	Basweshwar Colony		6726		345	699	299	377		467	405	934				10252
5	Dalda Factory		4520		255	528		636		1392		25		423		7779
6	Gandhi Chowk		7023		748		268	1087		119				90	43	9378
7	Gov. Quarter	155	7420		1448	1154	66	498	50	821	1101	35				12748
8	Kripa Sadan		7847	2978	728	2169	72	1728	723	725	114	520				17604
9	Labour Colony		3925		338	1807	77	2658	1624	222	436			15		11102
10	MJP New	212	4344		157			209	340	21	310					5593
11	NM Old		5002	12	245	329	64	351	308	55		39				6405
12	NN Old & New	399	6272		911	405		2250	439	1231	526	231	139		74	12877
13	Rajdhani		4042		441	306		378	448	305		131	76		36	6163
14	Saraswathi Colony	3100	28781		4991	1246	496	3384	594	835	252	199	409		364	44651
15	SSC Board		1613		599	821	142	463	681	918	517					5754
Grand Total		11671	124258	2990	19340	10411	1484	19195	8816	8045	6151	2509	1299	528	539	217236

DETAILED PROJECT REPORT ON AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Sr. No.	Zone Name	Summary of Replaced Pipes (Length in Meter)																Total
		110	125	140	160	180	200	225	250	280	300	350	400	450	500	600	700	
1	APMC Market	7486	34	889			819		493	397	197		391					10706
2	Arvi	10734	1298	2030	564	15			394	42	205		1805					17087
3	Basav Colony	11796	1831	2436	1134	701	394	457	277	71								19097
4	Basweshwar Colony	15066	354	2257	578	334	917	514	1632	905	7		626					23190
5	Dalda Factory	4793	141	1486	82	77	1135	165	346	223			595	391				9434
6	Gandhi Chowk	10743	910	6244	1260	676	1506	487	465	25	527		1392	618	113	729		25695
7	Gov. Quarter	19947	808	1878	1022	571	1416	611	950	43	121		988	1686		11		30052
8	Kripa Sadan	10732	1622	3033	941	994	794	216	135	70	102	26	740					19405
9	Labour Colony	8182	676	2055	865	296	1157	361	508	75	288							14463
10	MJP New	7362	698	1758	1288	592	1167	553	193	578	616		925					15730
11	MJP Old	8449	438	2356	339	114	694		1038	398			505			50		14381
12	NN Old & New	18456	1098	3258	724	1104	2559	1135	1350	267	1412		1832	91	210	992	15	34503
13	Rajdhani	8103	128	3784	347	481	2169	366	669	140	376		277	20	138			16998
14	Saraswathi Colony	3118	52	1045	114	103	62	257	65									4816
15	SSC Board	14855	434	2995	566	517	1157	754	29	209	139		36					21691
Grand Total		159822	10522	37504	9824	6575	15946	5876	8544	3443	3990	26	10112	2806	461	1782	15	277248

Sr. No.	Zone Name	Summary of Totally New Proposed Pipes (Length in Meter)															Total
		110	125	140	160	180	200	225	250	280	300	400	450	500	600		
1	APMC Market	2222	699	212	1325	788	1244	578	162	38				288		7556	
2	Arvi	2251	263		379	951	1114	2387	298			34				7677	
3	Basav Colony	821	158	150	103	16	155		6					426		1835	
4	Basweshwar Colony		422	373		307	309	215	509							2135	
5	Dalda Factory	47	235	39				152	74							547	
6	Gandhi Chowk	855	305	220	197	438	255	128	12			10				2420	
7	Gov. Quarter	1507	82	123	143	179	157	415	226	26	7			16		2881	
8	Kripa Sadan	1373	727	30	72	452		178	75	558	74	45	4	176	19	3783	
9	Labour Colony	612			57	137	45	262	49	2	20	233			11	1428	
10	MJP New	228	21	96	556	217		200	100			954				2372	
11	MJP Old		647			9										656	
12	NN Old & New	110	278	546	199	90	191	369	142	409		281				2615	
13	Rajdhani	101			7	87	207									402	
14	Saraswathi Colony	1786	616	1618	732	331	502	1040	890	140	43	442				8140	
15	SSC Board	516	350	138	41	125	365	299	2	688	7	71			18	2620	
Grand Total		12429	4803	3545	3811	4127	4544	6223	2545	1861	151	2070	4	906	48	47067	

SCADA

9 SCADA

Glossary of Terms

Terms	Meaning
CCR	Central Command Room
CIMS	Consumer Information Management System
CPHEEO	Central Public Health Engineering and Environment Organization
EFM	Electronic Flow meter
ESR	Elevated Storage Reservoir
GSR	Ground Storage Reservoir
ICT	Information and Communication Techniques
IED	Intelligent Electronic Device
IoT	Internet of Things
KPI	Key Performance Indicator
LPCD	Liters per Capita Per day
LPS	Liters per Second
MLD	Million Liters per day
MQTT	Message Queuing Telemetry Transport
NRW	Non-Revenue Water
PLC	Programmable Logic Controller
RTM	Radio Transceiver Module
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SQL	Structured Query Language
WMS	Water Management system

9.1 SCADA SYSTEM

The broad objective of SCADA of existing system & implementation on new proposed system.

SCADA system will be implemented at raw water pumping at Jack well, WTPs, Clear Water Pump House, MBR & inlet of existing & new proposed ESRs.

Following is the broad objective of SCADA system.

- Providing SCADA system for effective operation & maintenance, establish water balance and ensure complete employees satisfaction.
- The design of new system should be like existing WTP, for ease of operation & improvising the existing system by taking inputs from department.
- Installation & commissioning of Instrumentation like, Flow, Pressure, Level, Water Quality Analysers on entire water supply scheme.
- Automation of Pump House, ESRs and WTP operation from remote and local control room.
- Centralized control of PLCs/ RTUs/ actuators / valves
- Comprehensive Dashboard with Analytics
- Quicker decision making via visual notification of alarms and events
- Providing real-time alerts and insight on faults, inefficiencies, and water loss events
- SMS for alerts

PROPOSED MONITORING & CONTROL SYSTEM FOR WATER SUPPLY (RAW WATER, WTP, RAW & CLEAR PUMP HOUSE)

9.1 INTRODUCTION

Water generation & monitoring is possible using the subsystem referred as SCADA system required to be implemented for the Water Supply of Latur City by providing a central monitoring station located at a centralized location. The intention is to install the Local SCADA system for pumping operations at each WTPs and Raw Water Pumping Locations and to measure, record and monitor the parameters like flow, level, pressure, residual chlorine, pH, turbidity, kWh consumption, voltage, current, power factor etc. of existing WTPs and Pumping stations of Water Supply System for which necessary PLC, input & output signals, sensors and transmitters shall be provided along with suitable Telemetry / monitoring system based on GPRS communication.

9.2 PROPOSED MONITORING & SCADA SYSTEM

9.2.1 Project Scope

This part covers the general requirement for the design, supply, installation, test, trial and run of Instrumentation & SCADA for remote monitoring and control of pumping stations. Scope also includes the operation and maintenance of the proposed system for the period of five years. The scope includes the monitoring and recording of various parameters of WTPs like flow, pressure, level, water pH, water turbidity, residual chlorine etc. The intention is to automate and control the pumping operation like flow, pressure, sump level, RPM measurement and energy parameters like kWh consumption, voltage, current, power factor etc. for which necessary instrumentation and control along with SCADA system shall be provided at each pumping location. The pumping station shall be provided with HMI based in-plant SCADA system. All the control operations of pumping station shall be performed from local station as well as from Central Monitoring Station. Monitoring and recording of all this pumping data and parameters of WTPs and will be done at Central Control Station. Proposed Telemetry system shall be installed to interact with the remote location of all Raw Water & Clear Water Pumping Stations & WTPs.

Locations covered under Remote Telemetry System are: -

- Existing & proposed Raw Water Station at Intake
- Existing WTPs, (80 MLD & 9.84 MLD)
- New WTP, (66 MLD)
- Existing & proposed MBR
- Existing & Proposed ESRs

9.2.2 Functional Requirements of Monitoring & SCADA System

1. To provide continuous real time data monitoring, recording and control from control room of all Raw Water & Pure water pumping stations.
2. Status of pumps (running / stopped) at raw / pure water pumps.
3. To create & display mathematical model for online flow and efficiency computation for individual pump at each pumping station along with kWh/ ML Benchmark for each pumping station.
4. Monitoring of utilization of all major assets of the plant
5. Monitoring of WTP parameters of flow, pressure, level, water pH, water turbidity, residual chlorine etc. at each WTP location.

6. Monitoring and control of parameters of flow, pressure, sump level and energy parameters like kWh consumption, voltage, current, power factor etc. at each Water Treatment Plant & Pump location.
7. To provide alerts, in case of emergency, to the appropriate authorities to quickly initiate actions for disaster management.
8. Sending alarm SMS messages in case emergency to Latur Municipal Corporation engineers to connect them with the system on 24x7 basis.
9. Storage of process data and generation of log reports, water & power audit reports.
10. Status of the flow meters installed at various locations.

9.3 PROPOSED SYSTEM ARCHITECTURE

First level shall consist of primary sensors such as flow, pressure, temperature, level, vibration sensors & water quality Analysers. These field instruments will acquire plant information and will communicate the information to the next level of information processing system using standard 4-20 mA current signal along with digital signals for plant operation.

Second level will integrate the power parameters to acquire plant electrical data & shall communicate this information to next level of system i. e. central monitoring Station using reliable communication media based on telemetry system.

Third level shall consist of PLC/DCS hardware-based control system. This system will be programmed to execute functions like generating data from plant parameters which is required by pump house resource planning system software. The data from first level system will be acquired by this system. The system shall have capacity to handle adequate no. of inputs as required for pump house resource planning system. This level shall consist of HMI based software. It will offer all required supervisory control functions as well as provide GUI for plant personnel. This system shall be implemented using a standard make of SCADA software at local station. This system shall provide following major functions.

- a) Provide dynamic plant graphics as per process requirement.
- b) Various screens shall be developed on the SCADA system for remote monitoring and control of water pumping station.
- c) Flow (24 hrs.) of each pumping station.
- d) Pump efficiency (24 Hrs.) of each pumping station
- e) Frequency & other energy parameters (24 Hrs.) for each pumping station
- f) Sump & Tank level (24 Hrs.)

- g) Generation of process alarms including alarm management.
- h) Sending alarm SMS messages to WTP engineers to connect them on 24x7 basis with the system.
- i) Logging of process data & plant information.
- j) Generate historical and real time trends for process analysis.

9.4 PROPOSED MONITORING SCADA SYSTEM (MBR & EXISTING & PROPOSED ESR)

Introduction

Water distribution monitoring is possible using the subsystem referred as SCADA System shall be implemented for the Latur Municipal Corporation water supply system by providing a decentralized control at respected WTPs and detailed monitoring at central monitoring station located LCMC Head office or any other location suggested by LCMC & local displaying / indication of each location of water distribution components. This part of monitoring and control system will be executed in two phases.

The scope of the project includes measuring, recording, and monitoring the parameters like flow, level, pressure, and provide control of flow for outlet of each service reservoir through proposed flow control valves at Feeder mains to ESR inlet of each existing and upcoming ESRs & MBRs of Latur Water Supply for which necessary input & output signals, sensors and transmitters etc. shall be provided along with GPRS based communication information with WTPS & Central Monitoring System. PROPOSED MONITORING SYSTEM AND FUNCTIONS.

There are 11 Nos. existing & would be 12 upcoming ESRs which would be monitored by this system for various parameters like flow, level, pressure, etc and flow control would be provided from central monitoring system through operation of flow control valves. It is under scope of this project that the Implementing Agency should design, supply, install and give test for the proposed instrumentation and to provide input media to interface with these instruments and to communicate the data and information to Monitoring System with Radio Telemetry/GPRS communication System.

9.5 FUNCTIONAL REQUIREMENTS OF MONITORING AND CONTROL SYSTEM

1. To provide continuous real time data monitoring from Municipal head office of water

inventory & inflows at each ESR & water inventory at all reservoirs.

2. Water flow / discharge from WTP to various elevated service reservoirs
3. To provide levels data of each reservoir continuously for 24 Hrs.
4. To provide control of Flow Control valves from control room to control operation of reservoirs. Daily flow for all ESRs / GSRs with flow meter location by graphics display.
5. Graphical trending diagrams of water balance of all ESRs / GSRs.
6. Water Audit charts
7. LPCD for each zone- Bar chart
8. To provide alerts, in case of emergency, to the appropriate authorities to quickly initiate actions for disaster management.
9. Sending alarm SMS messages in case emergency to LCMC engineers to connect them with the system on 24x7 basis.
10. To generate, store and print valuable data regarding water distribution network in, easy to analyse, digital form which can be used for distribution chain optimization.
11. Generation of bulk water audit report (hourly / daily basis)

9.6 LIST OF INSTRUMENTATION FOR PROPOSED SYSTEM

The following is the list of major instruments to be provided for Raw water Pumps houses, WTPs, Clear Water Pump Houses locations.

Table 9-1 List of major instrumentation at Raw water, WTP and other locations

Sr. No.	Service	Instrument	Function of Instrument
1	Level at Raw & Clear Water Sumps & ESR	Level transmitter	Monitoring & Control. Tripping of pumps & generating alarms in case of overflow
2	Turbidity measurement of Raw & Clear Water at WTP	Turbidity Measurement	Monitoring & local Indication
3	Residual Chlorine at WTP	Residual Chlorine analyser	Monitoring & local Indication
4	Ph Measurement at WTP	Ph Meter	Monitoring & local Indication
5	Flow measurement at Outlet of RW/CWPH, Inlet & outlet of WTPs & inlet of ESRs	Electromagnetic Flow meter	Monitoring, local Indication & Data logging.
6	Pressure at Discharge of Pumps	Pressure Measurement	Local indication, Monitoring & alarm
7	Power Analyzer	Measurement of Power	Calculation of energy efficiency
8	Monitoring & control system at Local station for raw & clear water Pumps	PLC System with all accessories. Local SCADA system with communication interface, cable, software, other required accessories	Monitoring, logging & Supervisory control. Energy Efficient, Bench marking & Asset Management

Sr. No.	Service	Instrument	Function of Instrument
9	Communication	GPRS Communication Local connectivity with Hard wired via Ethernet, OFC, data card, switch	Network connectivity to established LAN. System communication and Transfer of data with central server. Required software and data base system for proper functionality of system.
10	Motorized Valves	Automatic Valves	Automatic operation of valves & Filter bed operation
11	Connectivity & Communication	Erection Hardware e.g. Cables, Cable tray, fittings, clamps, Support etc.	Required Hardware and instrument erection for erection & communication of all instruments

9.7 POWER SUPPLY

The voltage for control system and power supply for the instrumentation and control equipment shall be 24 V DC, the 24 V DC shall be derived from 230 V AC from LV switchboard of the Pure water pumping station using Switch Mode Power Supply and having a battery back-up. The DC power supply system shall consist of battery and battery charger and shall supply DC power for 4 Hours to the control system without interruption in case of failure of mains power supply.

9.8 COMMUNICATION INTERFACES FOR PLC

The PLC shall be provided with communication port with all hardware and software for interfacing with the following:

1. HMI based local SCADA system.
2. Remote telemetry system for remote location and OFC based communication for local WTP locations.
3. Temperature Scanners for temperature signals and alarms related to motor bearing and winding temperatures and pump bearing temperature.
4. Multifunction meters {as provided} for electrical parameters like input voltage, amperage, power consumption (kWh) and power factor of Incomer of individual motors and auxiliary transformers.
5. Flow indicator and integrators & all Instruments.
6. Valve Actuators
7. Digital Panel Indicators.

9.9 HMI BASED LOCAL SCADA SYSTEM

An HMI based local SCADA system shall be provided at each raw / pure water pumping station. PLC system shall be interfaced with this local SCADA system to execute control functions after receiving plant parameters from the field instruments. The data from the first level system will be acquired by this system. The local SCADA System shall be located in the control room of pump house. Control panel board shall be provided to mount all instruments and house all components of the instrumentation and control systems to execute control functions for the pumping operation and HMI based software for dynamic viewing of the plant process and operations. It will offer all required supervisory control functions as well as provide GUI for plant personnel. The system shall have all the facilities such as communication ports and modules for interfacing, data recording and display with the Central Monitoring System at control room of existing Central Control Room

Operating system, database software, server & PCs, monitoring & display software, pump house resource planning software etc. and all other required peripherals shall be covered under this project for achieving required functionality of the Local SCADA system at each location

9.10 COMMUNICATION MEDIA AND CHANNELS

Telemetry data and signal are travel through communication media such as wireless channels such as GPRS based technology. Wireless low-cost telemetry system shall be installed for communication for the proposed system. Remote telemetry systems offer an alternative to fiber lines, for the purpose of communication with remote sites.

9.11 ALARM SCHEDULE

The following alarms shall be communicated for the pumping station on the local PC based SCADA system,

- Motor tripped on overload (For each pump)
- Motor winding temperature high (For each pump)
- Motor winding temperature very high (For each pump)
- Motor bearing temperature high (For each pump)
- Pump bearing temperature high (For each pump)
- Motor Vibration high (For each pump-motor set)
- Low level in raw and pure water sump

- Low /High Pressure in raw and pure water pumping main
- Failure of Communication link between the following units:
 - PLC and Local SCADA system
 - PLC and temperature scanners
 - PLC and Multifunction meters as required
 - PLC and flow indicator and integrators
 - PLC trouble
 - Pump failed to start (For each pump)
 - Pump failed to stop (For each pump)
 - Motorized valve failed to open (For each valve)
 - Motorized valve failed to close (For each valve)
 - Pump start sequence failed to complete (For each pump)
 - Pump stop sequence failed to complete (For each pump)
- Air Blower pressure low
- Emergency stop operated
- MCB in Control Panel Tripped
- Mains power supply failed
- Battery and Battery Charger trouble
- SCADA system trouble
- UPS for SCADA system trouble
- Incomer power failure
- Any indoor CB on transformer out-comers trip
- Incomer- fault
- Transformer- fault.
- DG Set- fault.

This list is the minimum requirement and any additional alarms necessary for smooth operation of the plant shall be covered under the scope of this project. There shall be facility to disable / enable the alarms.

Table 9-2 : Summary of the list of main instruments in various system components as recommended in the SCADA

S. No	Area	Flow	Pressure	Level	Motor Control	Valve Control	Electrical Parameters	H MI	PL C	Mod em	Water Analyzers Turbi dity	Chlor ine	p H
1	Raw Pumping Station	√	√	√	√	√	√	√	√	√			
2	Transmission Line	√	√										
3	WTP							√	√	√			
3.1	Inlet	√									√	√	√
3.2	Flash Mixer				√		√						
3.2	Clarifier				√		√						
3.2	Outlet of Clarifier										√		
3.3	Filter Bed							√	√	√			
	Filter Bed		√										
	All Valves Automation					√	√						
3.3.1	Blower House				√	√	√						
3.3.2	Back Wash			√	√	√	√						
3.3.3	Outlet of Filter Bed												
3.3	Clear Water Sump			√									
3.4	Clear Water Pump House	√	√		√	√	√	√	√		√	√	√
4.0	ESR	√	√	√				√	√	√			

9.12 CONTROL PHILOSOPHY

The Latur city WSS consist of a network of Raw Water Pumping & transportation, water treatment plants, ESR's, and MBR, new proposed system is also envisaged in this DPR designed to provide good quality & quantity drinking water to Latur city. The raw water is taken from

A) Manjra Dam

And supplied to two numbers existing Water Treatment plant at various locations & one new WTP is also proposed.

Each of this WTP further feed water to several parts of Latur city via several remotely located ESRs. At WTPs, the incoming water from the raw water pumping will transfer to Aeration Fountain. Flow meter will measure the inlet flow of plant, there Alum and Lime dosing is carried out. At this point water quality is also being measured.

9.12.1 Alum & Lime Dosing

Based on the amount of water continuously released and the pH at the outlet of the filter bed section, Dosing of Alum and Lime will be done manually, Flash Mixer running with the agitator motor.

9.12.2 Filter bed Automation

After Dosing the water will pass through the Flocculator and from there on to the Filter Bed for the cleaning it from various impurities. In addition to having a standard time-based Sequence to operate the Filter Bed Sequence of Filtration, Backwash, Blowing, additional parameters like Turbidity Delta (Difference in Raw water Turbidity measured and the downstream of Filter bed) and loss of head/rise of filter bed level will be utilized to decide the time when a filter bed is to be taken for cleaning. This will help to save the electricity and avoid impure water to pass further (Effective Filtration) by the system. Once the cleaning action is decided the complete Filter Bed will be operated automatically as per below sequence.

1. Operation of valves.
2. Sequencing of the backwash valve.
3. The blower valve s operated simultaneously for intermittent period to remove the Filter choking if any. At any given point of time 2 Filter Beds will do the filtration while the rest will be under cleaning to ensure maximum availability of equipment.

At the outlet of the Filter Bed the Water Quality parameter of pH and Turbidity will be monitored.

9.12.3 Clear Water Tank

The treated water is collected in clear water tanks and the chlorine is injected in the water for disinfection purpose. The amount of stored water is monitored with the continuous level measurement and will be used for the mass balance of total treated water. This will form the basis of the calculation of the treated water efficiency along with the other parameters mentioned above.

9.12.4 Clear Water Pump House

The clear water Pump house will deliver the clear water to the respected ESRs & distribution network, the operation of all pumps- motor will be done in three modes.

1. Automatic mode
2. Semi-Automatic mode
3. Manual mode

The Pumps will have following controls & indication from PLC, ON, OFF, TRIP & Local/Remote. And Pressure at individual pumps & Pressure & Flow of common delivery header to be monitored. Each pump will have motorized valves & interlock for start of pumps from clear water sump & stop of pumps will be provided from respected ESR or delivery line.

9.12.5 Central control system and data acquisition-based automation

Data calculated and converted to information at source. There are several parameters which needs to utilize in a cross functional manner. I.e., raw water discharged vs. treated water generated to calculate sending this data as it is to central location and making the calculation at the destination increases the dependency of network.

Complete operation of the water treatment at one central location helps in intelligence aided information for the operator like the time to decide change of Filter Bed & intelligent water supply as per demand.

Creating water balance at source: with capability seamless communication with the upscale and downscale water distribution equipment can help in calculating key benchmarks like Treated water distribution Efficiency, water leakage factor right at the source due to large memory and calculation efficiency.

The central SCADA will be at the WTP. It will communicate with all the remote devices of ESR's, raw water intake, via a communication platform to monitor the amount of water withdrawn, effectively treated, and provided for distribution. A Router (Data Concentrator) and a Firewall manages the Central communication Platform. It will require a static IP and Fast Internet speed. The communication platform will utilize the latest software technologies in bridging multiple devices with a virtual direct connection providing seamless data transfer amongst them at the highest level of security and allow multiple connection drops owing to the nature of the network infrastructure available in a mountain's region.

9.12.6 Central SCADA Software:

The central SCADA will communicate with all water facilities and capable to exchange two-way information from all the remote local SCADA. Its major functionalities are to.

1. Provide an interface for effective operation of the system.

2. Help enable the operator to handle the Alarm Conditions.
3. Capture the data and create a database of all the information stored in a secured database for the further analysis.
4. Provide a tool for the Analysis of the previous records.
5. Provide a tool to interface the database to the other third-party software e.g., Smart City Portal.

In addition to the above components, PC with necessary licenses, UPS, Furniture, Internet connection, large size TV screen (56”) are to be provided to complete the above infrastructure.

9.12.7 Control Scheme at the Elevated Service Reservoirs:

Each ESR will have a small scale RTU/PLC to

1. Monitoring the level, Flow & Pressure at the Reservoir
2. Control the Transfer of the water.

9.13 CONTROL AND MANAGEMENT

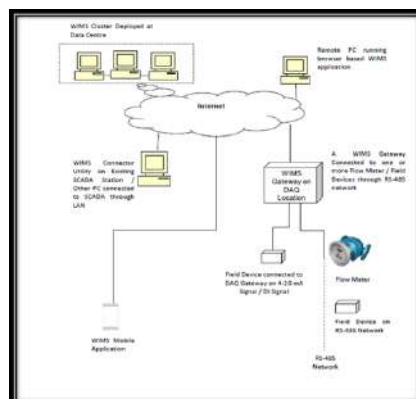
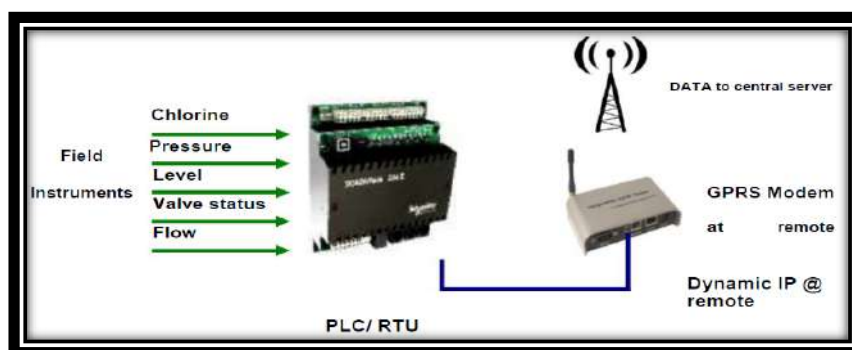
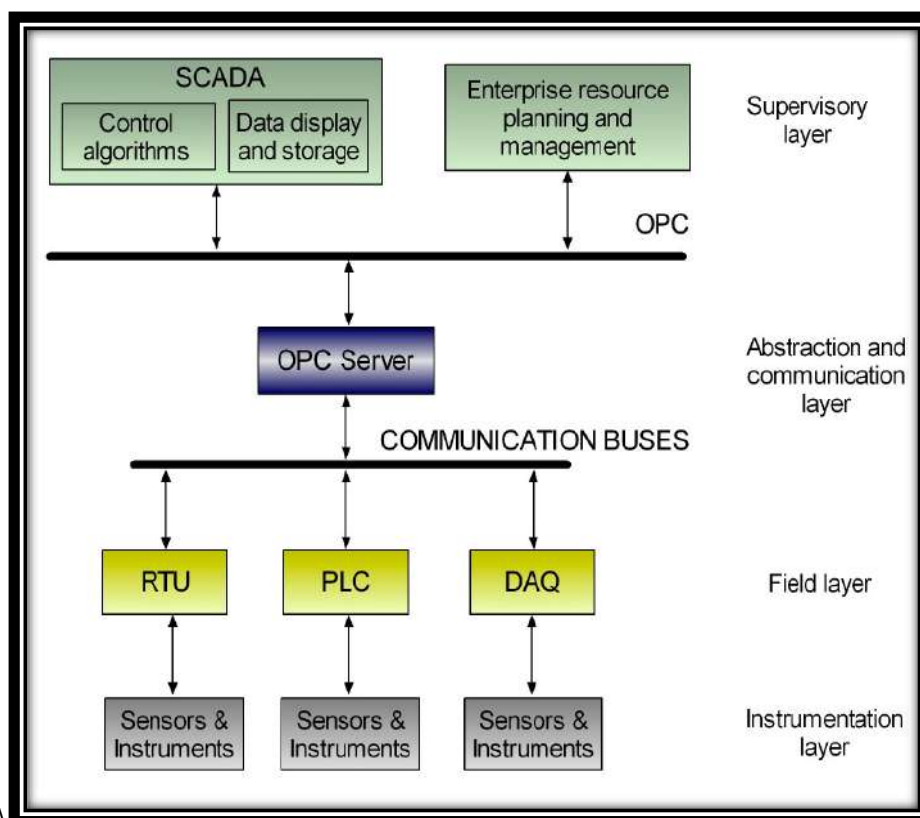
9.13.1 Local Control Room:

The data from the WTP sites across the Area of interest should be collected and stored in the Local Control Room situated at this new WTP location. The stored data at this local Control Room will be monitored & controlled at the central command room (CCR) already established at Water Supply of Latur City . It should act as a hub for the analysis and dissemination of information collected from various SCADA sites.

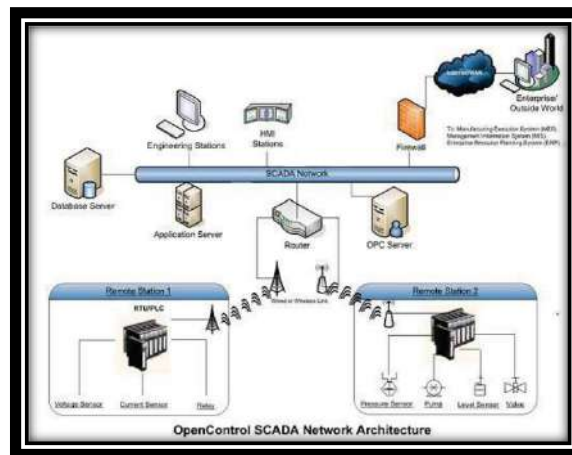
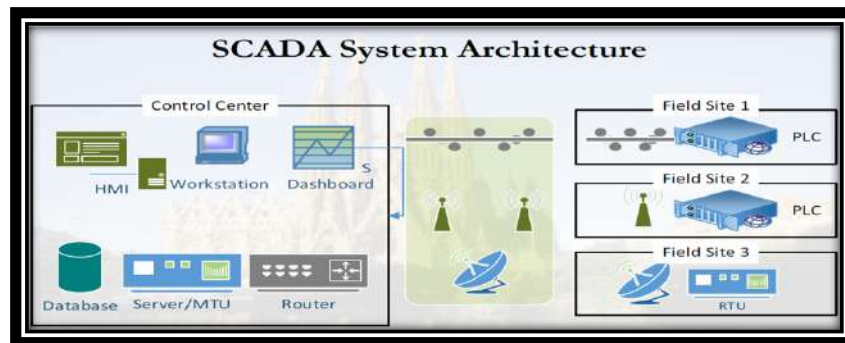
The Local will consists of:

- Video Screen
- Display controller
- Workstations
- Tables and chairs
- UPS
- Access switch and LAN cabling if required
- Printer
- Communication connectivity

9.14 SOLUTION ARCHITECTURE



9.15 NETWORK ARCHITECTURE



COST ESTIMATES

10 COST ESTIMATE

10.1 GENERAL

The detailed cost estimate is prepared for the system components included in DPR. The cost of a project includes cost of construction excluding cost of acquiring land. Materials and labour and machinery cost for construction is considered in the construction cost. The estimation of cost for the project was done using the available schedule of rates for year 2021-22, 2022-23 of MJP/PWD.

Detailed Cost estimates are provided in **Annexure No. 3**.

10.2 RECAPITULATING SHEET

AUGMENTATION OF LATUR WATER SUPPLY SCHEME		
Recapitulation of Cost (135 LPCD)		
[As per MJP CSR 2021 - 22 & Corrigendum 1 to 11]		
Civil And Mechanical Part Wise Cost Abstract		
Sr. No.	Name of Sub-works	Amount
	<u>CIVIL PART</u>	
1	Working Survey	25,00,000
2	Intake Well (6.00 M Dia)	31,98,300
3	Inspection Well (5.00 M Dia)	16,83,800
4	Connecting Main (1400 MM Dia L = 80 M) TWO ROWS	89,66,300
5	Jack well & Pump House (15.00 M Dia)	3,75,48,500
6	Approach Bund (Length 70 m)	27,73,600
7	Meter Room At Head Work	5,69,200
8	Estimate of Raw Water Rising Main (HW To M.S. Shaft) (1000 MM DIA D.I.K- 9 PIPES. L - 3615 M)	12,42,19,300
9	Estimate of M.S. Shaft	42,19,400
10	Estimate of Raw Water Gravity Main (M.S. Shaft to WTP) (1200MM Dia = 26200 M, 1100 MM Dia.=20500 & 700 MM Dia=800M D.I.K-7 PIPES)	1,99,27,25,600
11	Water Treatment plant capacity 91.0 MLD (Conventional type)	21,87,80,300
12	Recirculation Well At WTP	55,79,004

13	Raw Water Rising Main (Recirculation well to Lip of Aeration) (200 mm dia DI K-9.Length = 100 M)	7,33,300
14	Meter Room At Water Treatment Plant	5,71,400
15	Pure water Rising Main (WTP to MBR) (1000 mm dia D.I. K - 9 Length = 1500 M)	5,79,75,800
16	Estimate of R.C.C. MBR. 19.2 Lakhs Ltrs Two Nos.	8,27,62,400
17	Meter Room at MBR	5,71,400
18	Pure water Gravity Main. (MBR to All ESR) (1200 mm dia to 300 mm dia DI K-7 pipes length of 19925 m)	49,78,17,200
19	Estimate of R.C.C. ESRS	21,76,28,500
20	Meter Room at ESR	71,01,600
21	Distribution System. HDPE 6 Kg 315 to 110 mm dia length of 306.085 Km and DI K-7 1200 to 300 mm dia	87,49,50,400
22	Trial Run for Three Months.	3,29,53,900
	<u>MECHANICAL PART</u>	
23	Raw water P/M at Head work to MS Shaft (495 HP(3+2))	6,35,57,380
24	Recycling P/M on recirculation well near WTP (30HP(1+1))	16,77,021
25	Pure water P/M WTP to MBR (495HP(3+2))	5,52,88,988
26	Solar Power Plant at Headworks & WTP	8,61,77,320
27	SCADA	6,53,51,654
28	Smart Metering	5,49,25,684
29	Augmentation of existing Pumping Machinery	5,69,59,320
30	MSEDCEL Provision at Head Work & WTP	1,35,00,000
	Total Cost	4,57,32,66,571
	GST 18%	82,31,87,982
	Technical Sanction Charges 1%	4,57,32,665
	Labour Insurance 1% (Only on PWD Rates)	14,87,286
	Total Rs:	5,44,36,74,504

11 ANNEXURES

- **ANNEXURE NO.1:** Flow Diagram
- **ANNEXURE NO.2:** Schematic Map – Year 2057
- **ANNEXURE NO.3:** Detailed Cost Estimates
- **ANNEXURE NO.4:** Raw Water Transmission System - Network Maps
- **ANNEXURE NO.5:** Pure Water Transmission System - Network Maps
- **ANNEXURE NO.6:** Distribution - Network Maps
- **ANNEXURE NO.7:** Distribution System - Hydraulic Modelling Outputs

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION TO LATUR WATER SUPPLY SCHEME

General Report
MAIN FEATURES OF THE SCHEME

1) Name of the Town.	Latur City	
2) Taluka	Latur	
3) District	Latur	
4) Source of Supply	Manjara Medium Project Bhandarwadi	
5) Population in persons as per 2011 census.	382940	Soul
6) Population in designed stage (person) 2057	790459	Souls
7) Rate of Water supply.	135.00	LPCD
8) Daily water supply in designed stage including Institutional demand (2057)	147.720	ML
9) Daily Gross demand with 15 % losses@ Head works in Raw Water R.Main,W.T.P., and Distribution System.	172.26	ML
10) Rate of pumping (litres per hour)	3202220	Lit.
11) Daily pumping	: 20.00	Hours
12) Cost of the scheme	Rs.	5443674504
13) Per capital cost of the scheme (Ultimate stage)	Rs.	3783
14) Cost of water per 1000 ltrs.	Rs.	11.0
15) General water tax Per Connection per house per year.	Rs.	1900.00
16) Recuring charges per year per head	Rs.	560.00

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION TO LATUR WATER SUPPLY SCHEME

GENERAL REPORT

1) GENERAL

Latur city is a district head quarter located in the Marathwada region covering an area of @ 32.00 Sq. kms and present population of 3.82 lakhs (2011 census) The city is anticipated to witness a significant decadal growth in population of about 52%. The Latur City Municipal Corporation (LCMC) is responsible for water supply to Latur City. Being the district headquarters, the city is an important administrative centre that houses many regional offices of the Govt. A majority of the working population in Latur is employed in the tertiary sector. In addition, Latur City Municipal Corporation (LCMC) estimates that Latur has a floating population of about 15,000 that visit the city for various trade and commerce related activities. Latur acts as an important centre of trade, commerce and services for the surrounding villages of not only the Latur district, but also those of the neighboring district of Osmanabad in Maharashtra and Bidar district of the Karnataka state. In comparison with cities in Marathwada and comparable cities in Maharashtra Latur appears to be on high growth trajectory as it has been consistently attracting investments as well as immigration of people. In the last decade Latur's economy was primarily driven by investments in infrastructure, employment in GOvt. sector, trade and commerce and construction activities. The presence of educational institutes of repute, coupled with quality health care facilities and infrastructure services makes the city an attractive destination.

Topography : Latur town is situated on a plateau with a ridgeline running west east trough the center of the town. The town is sloping towards south. The range of ground levels is from R.L. 610 RL 637 with an

2. CONFIGURATION

i	Latitude	N	18 ⁰ 24'24"48"
ii	Longitude	E	76 ⁰ 14'39"84"

General slope is from East to West in gaathan area.

East to west

Difference between highest and lowest level is about

a)	Highest level	: R.L.	640.00
b)	Lowest level	: R.L.	623.00

3) RAINFALL

Nearest rain gauge station is at taluka place @ Latur

Maximum, Minimum and average rainfall figures are as follows.

a)	Maximum in year 1998-99	1200 mm
b)	Minimum in year 1991-92	212 mm
c)	Average rainfall	: 700 mm

4) POPULATION FORECAST

The population

i)	Population in year 2011	:	382940 Souls
ii)	Population in year 2027	:	526166 Souls
	Population in year 2042		659006 Souls
ii)	Population in year 2057	:	790459 Souls
	Ultimate stage		

5) Rate of Water Supply and Daily Demand

It is proposed to supply water at the rate of 135 liters per head per day. Accordingly daily demand figures would be as follows Daily Demand (As per statement)

a)	Design stage population in the year (2057)	790459 Souls
b)	Rate of water supply	135 LPCD
	Domastic Demand.	106.712 MLD
c)	Institutional Demand Net (As per statement)	31.860 MLD

LATUR CITY MUNICIPAL CORPORATION

And Floating	MLD
d) Daily Demand (As per statement)	147.420 MLD
e) Gross Daily Demand including losses	172.260 MLD
6) <u>Hours of pumping</u>	
Present stage (2027)	16 Hours
Ultimate stage (2057)	20 Hours

7) **Existing Water Supply Arrangement**

Description of the Existing Water Supply system details given in separate general report.

8) **Proposed Water Supply Scheme With Cost of Sub-Works**

Sr.No.	Name of Sub-works	Amount
CIVIL PART		
1	Working Survey	Rs. 2500000
2	Intake Well .(6.00 M Dia)	Rs. 3198300
3	Inspection Well (5.00 M Dia)	Rs. 1683800
4	Connecting Main (1400 MM Dia L = 80 M)	Rs. 8966300
5	Jack well & Pump House.(15.00 M Dia)	Rs. 37548500
6	Approach Bund (Length 70 m)	Rs. 2773600
7	Meter Room At Head Work	Rs. 569200
8	Estimate of Raw Water Rising Main (HW To M.S.Shaft) (1000 MM DIA D.I.K- 9 PIPES. L - 3615 M)	Rs. 124219300
9	Estimate of M.S.Shaft	Rs. 4219400
10	Estimate of Raw Water Gravity Main (M.S.Shaft to WTP) (1200MM Dia = 26200 M, 1100 MM Dia=20500 & 700 MM Dia=800M D.I.K-7	Rs. 1992725600
11	Water Treatment plant capacity 91.0 MLD (Conventional type)	Rs. 218780300
12	Recirculation Well At WTP	Rs. 5579004
13	Raw Water Rising Main (Recirculation well to Lip of Ariation) (200 mm dia DI K-9.Length = 100 M)	Rs. 733300
14	Meter Room At Water Treatment Plant	Rs. 571400
15	Pure water Rising Main (WTP to MBR)	Rs. 57975800
16	Estimate of R.C.C. MBR. 19.2 Lakhs.ltrs Two Nos.	Rs. 82762400
17	Meter Room At MBR	Rs. 571400
18	Pure water Gravity Main. (MBR to All ESR) (1200 mm dia to 300 mm dia DI K-7 pipes length of 19925 m)	Rs. 497817200
19	Estimate of R.C.C. ESRS.	217628500
20	Meter Room At ESR	Rs. 7101600
21	Distribution System. HDPE 6 Kg 315 to 110 mm dia length of 306.085 Km and DI K-7 1200 to 300 mm dia	Rs. 874950400
22	Trial Run for Three Months.	Rs. 32953900
MECHANICAL PART		

LATUR CITY MUNICIPAL CORPORATION

23	Raw water P/M at Head work to MS Shaft (495 HP(3+2))	Rs.	63557380	
24	Recycling P/M on recirculation well near WTP (30HP(1+1))	Rs.	1677021	
25	Pure water P/M WTP to MBR (495HP(3+2))	Rs.	55288988	
27	SCADA	Rs.	65351654	
28	Smart Metering	Rs.	54925684	
29	Augmentation of existing Pumping Machinery	Rs.	56959320	
30	MSEDCEL Provision at Head Work & WTP	Rs.	13500000	
	Total Cost	Rs.	4573266571	
	GST 18%	Rs.	823187982	
	Technical Sanction Charges 1%	Rs.	45732666	
	Labour Insurance 1% (Only on PWD Rates)	Rs.	1487286	
	Total Rs:	Rs.	5443674504	
9)	B) Financial Pattern			
1	Net cost of the scheme	Rs.	5443674504	
2	Gross cost of the scheme	Rs.	5443674504	
3	G.O.M. & G.O.I. share	Rs.	5443674504	
4	Popular contribution	Rs.	0	
10)	<u>Per Capita Cost</u>			
1)	Cost of Scheme	Rs. :	5443674504	
2)	Cost of Scheme including relaxation	Rs. :	2990374342	
	Cost of Scheme Excluding relaxation	Rs. :	5443674504	
3)	Design Population - Year 2054		790459	Souls
4)	Per Capita Cost including relaxation	Rs. :	3783	
	Per Capita Cost Excluding relaxation	Rs. :	6887	
11)	<u>Annual Burden</u>			
a)	Average per year for establish ment electrical energy charges and sundries (as per statement year-2024)	Rs. :	140040639	
b)	M & R to Works (as per statement)(Year-2024)	Rs. :	74111150	
			214151789	
c)	Recurring Charges per Capita per year.			
	<u>Annual burden</u>	<u>214151789</u>	Rs. :	559
	<u>Population (Year-2024)</u>	382940	say Rs.	560
12)	<u>Taxation Proposal (Year-2024)</u>			
a)	Total No. of houses		124858	
b)	Taxable houses leaving 10% for poor section.		124858	
c)	General water tax per house per year	Rs.	360	
d)	Total General Water Tax	Rs.	0	
e)	No.of house connections(90%)		124858	Nos
f)	Rate of house Connection for 12mm dia	Rs.	1900	/No.
g)	Revenue from house Connection.	Rs.	237230200	
h)	Commercial connection's		200.00	

LATUR CITY MUNICIPAL CORPORATION

i)	Rate of Commercial Connection/Year	Rs.	4000.00
		Rs.	800000
j)	Total Revenue	Rs.	226128690

Thus the scheme is self supporting

13) Cost of Water per 1000 Liters

a)	Annual requirement of Water Intermidite Stage)	19601	ML
b)	Quantity actually used 80% of above	19601	ML
c)	Cost of Water/v 1000 Liters Annual Burden Actual quantity used i.e. 90% $\times$ 10		

$\frac{214151789}{19600.50}$

$\frac{x10^3}{x 10^6}$

Rs. 10.93 /1000 Litres
Say Rs. 11.00 /1000 Litres

PRINCIPAL FEATURES

1) Source Of the Scheme

			Dhanegaon (Manjara)
a.	Location	:	Medium Project
i	Latitude	:	76 ⁰ 49'.15"N
ii	Dep.	:	18 ⁰ 22'30"E
b.	Taluka	:	Kaij
c.	District	:	Beed
d.	Catchment Area	:	243.46 sq km.
e.	River bed level	:	628.00 M
f.	Sill Level	:	632.80 M
g.	MDDL	:	635.72 M
h.	FRL	:	641.87 M
j.	TBL	:	598.05 M
k.	Gross Capacity@ FRL	:	250.70 MM ³
l.	Capacity Below Sill Level	:	77.320 MM ³
m.	Net Capacity @FRL	:	173.32 MM ³

3) Intake Well

			Dhanegaon (Manjara)
a.	Location	:	Medium Project
b.	Diameter	:	6.00 M
c.	Total Depth	:	9.00
d.	A.V.GL	:	633.50
e.	Bed RL	:	624.50
f.	Top RL	:	637.50
g.	Construction	:	RCC M-300

4) Connecting Pipe

			Dhanegaon (Manjara)
a	Location	:	Medium Project
			1400 mm(2
b	Diameter	:	ROWS) RCC NP-II
c	Tota lLength	:	80.00

LATUR CITY MUNICIPAL CORPORATION

5) Inspection Chamber

		At 40.00m C/C
a.	Location	: total 1 No
b.	Diameter	: 5.00 M
c.	Total Depth	: 10.50 M depth
d.	A.V.GL	: 634.50 M
e.	Bed RL	: 624.50 M
f.	Top RL	: 637.50 M
g.	Construction	: RCC M-300

6) Jack Well With Over Head Pump House

		Dhanegaon (Manjara)
a.	Location	: Medium Project
b.	Construction	: RCC M-300
c.	Diameter	: 15.00
d.	A.V.GL	: 640.00
e.	Bottom RL	: 618.75
f.	Floor Level	: 644.50
g.	Top RL	: 655.50
h.	Lowest Suction Level	: 621.20

7) Raw Water Pumping Machinery @ Head Works

a.	Hours of Pumping	: 20 Hrs
b.	Rate of Pumping	: 3202220 Lph
c.	Total Head	: 92 M
d.	BHP	: 538 BHP
	Type	: V.T. 3+ 2 = 5

Two units are provided with 50% standby

8) Earthen Bund

a.	Length of Approach Bund.	70 M
c.	Top RL	644.50 m

9) Raw Water Rising Main

a.	Design Discharge	: 0.00 Mld
b.	Dia meter type & class of pipe	: 1000 mm DI-K 9
c.	Length of Rising Main	: 4450 Rmt.

10) Raw Water M.S.Shaft @ Ch 8670

a.	DIA OF SHAFT	: 1500.00 M
a.	G.L OF SHAFT	: 674.25 M
b.	FSL OF SHAFT	: 694 M

11) Raw Water Gravity Main

a.	Design Discharge	: 0.00 Mld
b.	Dia meter type & class of pipe	: 0 TO 1100 MM mm DI-K 7
c.	Length of Rising Main	: 4450 Rmt.

LATUR CITY MUNICIPAL CORPORATION

12) Water Treatment Plant

a.	Type	:	Conventional
b.	Capacity	:	91.00 Mld
c.	Ground Level	:	627.00 M
d.	ILip Of A/F	:	632.00 M
e	Location	:	At Harangul (Bk.) Near Existing WTP

13) P/W R/M From WTP to MBR

a.	Design Dicharge	:	102.960 Mld
b.	Dia meter type & class of pipe	:	1000 mm DI-K 9
c.	Length of Rising Main	:	1500 Rmt.

14) P/W,P/M From WTP to MBR Cum ESR

a.	Hours of Pumping	:	20 Hrs
b.	Rate of Pumping	:	4200652 Lph
c.	Total Head	:	65 M
d.	BHP	:	539 BHP
	Type	:	V.T.Pump 3 + 2 = 5

Two units are provided with 50% standby

15) Pure Water Gravity Main

a.	Design Dicharge	:	166.29 Mld
b.	Dia meter type & class of pipe	:	00 TO 300 MM mm DI-K 7
c.	Length of Rising Main	:	20336 Rmt.

15) Eleveted Service Reservoirs

Sr. No	Capacity in ML		G.L	LSL	FSL
Nanded Naka New	0.70		633.05	649.05	654.05
M.J.P. New	1.00		625.00	649.00	654.00
Govt. Qtr.	1.20		634.52	649.52	654.52
Arvi	0.40		621.00	643.00	648.00
Gandhi Chouk	1.20		632.40	650.40	656.40
Kripa Sadan	1.85		630.00	646.00	652.00
	1.85		630.00	646.00	652.00
Labour Colony	1.70		624.00	642.00	648.00
	1.70		624.00	642.00	648.00
S.S.C. Board	2.70		620.00	642.00	648.00
APMC Market	2.20		616.00	632.00	638.00
Basav Colony	2.40		629.50	645.50	651.50

16) Distribution system

LATUR CITY MUNICIPAL CORPORATION

Necessary Distribution lines Proposed of 700 to 350 mm Dia D.I.K -7 Pipe L = 18.23 Km & 315 to 110 mm Dia H.D.P.E.Pipe L = 306.085 Km.

17) **Miscellaneous Works**

Lead Charges : Rate Analysis is made for lead Charges for Sand for H/W site as sand is brought from

- A) Gangakhed which is at 85 Km away. And for WTP site as sand is brought from Gangakhed which is at 105 Km away. Necessary provision is made for ESR & WTP Site

B) **Land Acquisition:**

All required land for all unit's proposed in this scheme are available towards Latur Municipal Corporation in case if not then Latur Municipal Corporation will make availability of that required land.

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Statamnet of Sustainability and Cash flow

Sr. No.	Year	Projected Population	No.of Houses	No.of connections	Rate of domestic water tax per year	Rate of General water tax per year	Assesment				Proposed recovery (95%)	Yearly Cost of Running the Scheme
							Domestic	General	Inst./comm.	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13
2	2024	499431	124858	124858	1900	360	237230200	0	4000000	241230200	229168690	202661750
3	2025	508349	127088	127088	1900	360	241467200	0	4100000	245567200	233288840	210905229
4	2026	517261	129316	129316	1900	360	245700400	0	4202500	249902900	237407755	219356732
5	2027	526166	131542	131542	1900	9	249929800	0	4307563	254237362.5	241525494	228026662
6	2028	535065	133767	133767	1900	360	254157300	0	4415252	258572551.6	245643924	234697177
7	2029	543958	135990	135990	1900	360	258381000	0	4525633	262906632.9	249761301	241608507
8	2030	552845	138212	138212	1900	360	262602800	0	4638774	267241573.7	253879495	248772693
9	2031	561726	140432	140432	2000	360	280864000	0	4754743	285618743	271337806	256202376
10	2032	570600	142650	142650	2000	360	285300000	0	4873612	290173611.6	275664931	263910833
11	2033	579469	144868	144868	2000	360	289736000	0	4995452	294731451.9	279994879	271912002
12	2034	588331	147083	147083	2100	360	308874300	0	5120338	313994638.2	298294906	280220518
13	2035	597187	149297	149297	2100	360	313523700	0	5248347	318772046.6	302833444	288851749
14	2036	606037	151510	151510	2100	360	318171000	0	5379555	323550555.3	307373028	297821830
15	2037	614880	153720	153720	2200	360	338184000	0	5514044	343698044.2	326513142	307147705
16	2038	623718	155930	155930	2200	360	343046000	0	5651895	348697895.3	331263001	316786180
17	2039	623718	155930	155930	2300	360	358639000	0	6238635	364877634.9	346633753	324723936

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Statement showing Expenditure on Estabilishment, Energy and Chemical Charges (Yearwise)

Sr. No.	Description / Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
	Population	499431	508349	517261	526166	535065	543958	552845	561726	570600	579469	588331	597187	606037	614880	623718	623718
	Daily Demand (MLD)	103.87	107.4210	110.9714	114.5218	116.1342	117.7466	119.3589	120.9713	122.5836	124.1960	125.8083	127.4207	129.0331	130.6454	132.2578	141.9319
	Hour's of Pumping (190857 LPH)	14.47	14.97	15.46	15.96	16.18	16.41	16.63	16.85	17.08	17.30	17.53	17.75	17.98	18.20	18.43	19.78
A	Establishment	3234000	3395700	3565485	3743759	3930947	4127495	4333869	4550563	4778091	5016995	5267845	5531237	5807799	6098189	6342117	6532380
B	Chemicals																
1	Alum	2297263	2412126	2532732	2659369	2792337	2931954	3078552	3232479	3394103	3563808	3741999	3929099	4125554	4331831	4548423	4684876
2	TCL	3567514	3745889	3933184	4129843	4336335	4553152	4780810	5019850	5270843	5534385	5811104	6101659	6406742	6727079	7063433	7275336
C	Electrical Charges																
1	Head works 550 BHP3.	58518751	60518981	62519210	64519439	65427811	66336183	67244555	68152927	69061299	69969670	70878042	71786414	72694786	73603158	74511530	76746876
2	WTP 500*3 +12=28 BHP	53198865	55017255	56835645	58654035	59479828	60305621	61131413	61957206	62782999	63608791	64434584	65260377	66086169	66911962	67737755	69769887
D	Raw Water Charges	7734208	7998571	8262934	8527297	8647353	8767409	8887465	9007521	9127577	9247634	9367690	9487746	9607802	9727858	9847914	10044873
E	M & R Of Works	74111150	77816708	81707543	85792920	90082566	94586694	99316029	104281830	109495922	114970718	120719254	126755217	133092978	139747626	146735008	149669708
	Total	202661750	210905229	219356732	228026662	234697177	241608507	248772693	256202376	263910833	271912002	280220518	288851749	297821830	307147705	316786180	324723936

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Statement Showing Annual Burden

A) Annual Establishment charges

Sr.No	Designation of Employee	No	Pay Scale	Actual Av,Pay per month	Total amount per year
1	Engineer	0.25	5000-150-8000	22000	66000
2	Filter Attendant	7	3050-75-3950-80-4590	8000	672000
3	Pump Operator	7	3050-75-3950-80-4590	9000	756000
4	Valvemen	15	3050-75-3950-80-4590	7000	1260000
5	Clerk	1.00	3050-75-3950-80-4590	8000	96000
6	Mazdoor	1	2550-55-2660-60-3200	8000	96000
7	Chowkidar	2	2550-55-2660-60-3200	8000	192000
8	Fitter	1	2550-55-2660-60-3200	8000	96000
			Total		3234000

B) Energy charges

a	R/W Pumping station at Jack well (H.T. electrical connection)				
	I) Motor load (Av. Running H.P.)	1650 *1 HP= 1650			
		2 BHP			
	Total	1652 BHP			
	Pumping Hrs.	14.47			
	I.e. 1252 BHP x 0.746 x 15 x 365 x 9.0 =		58580460		
	Add demand charges for above as per H.T. connection.				
	I.e. 1652 BHP x 0.746 x Rs.350 x 12 month =		5176046.4		
	Total for (a)		63756506		
b	Pumping station WTP (HT Connection)				
	I) Motor load (Av. Running H.P.)	1500 *1 HP= 1500HP			
		1500.00 BHP			
	ii) Lighting Load	25 BHP			
	Total	1525 BHP			
	At present stage the pump will be run at 14.47 Hrs. daily.				
	I.e. 1525.00 BHP x 0.746 x 14.87 x 365 x 9 =		55571870.32		600
	Add demand charges for abgove as per H.T. connection.				
	I.e. 1525.00 BHP x 0.746 x Rs.350 x 12 month =		4778130		
	Total for (b)		60350000		
	Total Electricity Charges		124106506		

C Chemical charges

a	TCL Powder				
	I) Daily requirment of water		24.68 ML		
	ii) Yearly requirement of water		9008.873094 ML		
	iii) Dose of TCL (Considering 33 % of Residual Clorine)		18 Kg/ML		
	iv) Yearly requirement of TCL		162.16 MT		
	v) Cost of TCL at 22000 per M.T.	Rs.	3567513.75		
	vi) Alum				
	I) Daily requirment of water		24.68 ML		
	ii) Yearly requirement of water		9008.873094 ML		
	iii) Dose of Alum		30 Kg/ML		
	iv) Yearly requirement of Alum		270.27 MT		
	v) Cost of Alum at 8500 per M.T.	Rs.	2297262.639		
	Total chemical ch. Rs.		5864776.38		

D Miscellaneous charges

I) Water sample analysis	120000
ii) Telephone Bill	600000
iii) Sundry charges such as soap, cotton wasteKerosine, grease etc complete	
Total Rs.	720000

E Raw water charges

I) Daily requirment of water	53.70 ML
ii) Yearly requirement of water	19600.5 ML
iii) Cost of water at Rs. 312/ML	6115356.00
Total	6115356.00

F Annual M&R charges

Total Annual Burden Rs. 214151788.81

$$\text{Cost of water Rs/ 1000 Litrs} = \frac{\text{Annual Burden X } 10^3}{\text{Actual Qty Used X } 10^6} = \frac{214151788.81 \times 10^3}{19600.5 \times 10^6}$$

Cost of water Rs/ 1000 Litrs = Rs 10.93 Per 1000 lit.

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

STATEMENT OF ANNUAL REPAIRS

Sr. No.	Name of Sub-work	Nett Cost	Gross Cost	90% of Gross	Life in Years	Depreciation charges factor	Annual depreciation	% of M&R	Amount of M & R
1	2	3	4	5	6	7	8	9	10
I	Working Survey	2500000.00	2950000	2655000	0				
I	Intake Well .(6.00 M Dia)	3198300	3773994	3396595	10	0.01	33966	0.05%	1698
II	Inspection Well (5.00 M Dia)	1683800	1986884	1788196	50	0.0078	13948	0.05%	894
III	Connecting Main (1400 MM Dia L = 80 M) TWO ROWS	8966300	10580234	9522211	50	0.0078	74273	0.05%	4761
IV	Jack well & Pump House.(15.00 M Dia)	37548500	44307230	39876507	50	0.0078	311037	0.05%	19938
V	Approach Bund (Length 70 m)	2773600	3272848	2945563	50	0.0078	22975	0.05%	1473
VI	Meter Room At Head Work	569200	671656	604490	50	0.0078	4715	0.05%	302
VII	Estimate of Raw Water Rising Main (HW To M.S.Shaft) (1000 MM DIA D.I.K- 9 PIPES. L - 3615 M)	124219300	146578774	131920897	50	0.0078	1028983	0.05%	65960
2	Estimate of M.S.Shaft	4219400	4978892	4481003	50	0.0078	34952	0.5%	22405
3	Estimate of Raw Water Gravity Main (M.S.Shaft to WTP) (1200MM Dia = 26200 M, 1100 MM Dia=20500 & 700 MM Dia=800M D.I.K-7 PIPES)	1992725600	2351416208	2116274587	15	0.0354	74916120	0.50%	10581373
4	Water Treatment plant capacity 91.0 MLD (Conventional type)	218780300	258160754	232344679	30	0.0078	1812288	0.25%	580862
5	Recirculation Well At WTP	5579004	6583225	5924902	30		0	0.25%	14812
6	Raw Water Rising Main (Recirculation well to Lip of Ariation) (200 mm dia DI K-9.Length = 100 M)	733300	865294	778765	50	0.0078	6074	0.25%	1947
7	Meter Room At Water Treatment Plant	571400	674252	606827	30	0.0078	4733	0.25%	1517
8	Pure water Rising Main (WTP to MBR) (1000 mm dia D.I. K - 9 Length = 1500 M)	57975800	68411444	61570300	30	0.0078	480248	0.25%	153926
9	Estimate of R.C.C. MBR. 19.2 Lakhs.ltrs Two Nos.	82762400	97659632	87893669	30	0.0078	685571	0.20%	175787
10	Meter Room At MBR	571400	674252	606827	30	0.0078	4733	0.20%	1214
12	Pure water Gravity Main. (MBR to All ESR) (1200 mm dia to 300 mm dia DI K-7 pipes length of 19925 m)	497817200	587424296	528681866	30	0.0078	4123719	0.10%	528682

LATUR CITY MUNICIPAL CORPORATION

1	2	3	4	5	6	7	8	9	10
13	Estimate of R.C.C. ESRS.	217628500	256801630	231121467	10	0.0078	1802747	0.10%	231121
14	Meter Room At ESR	7101600	8379888	7541899	1	0.0078	58827	0.25%	18855
15	Distribution System. HDPE 6 Kg 315 to 110 mm dia length of 306.085 Km and DI K-7 1200 to 300 mm dia	874950400	1032441472	929197325	30	0.0078	7247739	0.25%	2322993
16	Trial Run for Three Months.	32953900	38885602	34997042	15	0.0078	272977	0.50%	174985
17	MECHANICAL PART		0	0					
18	Raw water P/M at Head work to MS Shaft (495 HP(3+2))	63557380	74997708	67497938	15	0.0078	526484	0.50%	337490
19	Recycling P/M on recirculation well near WTP (30HP(1+1))	1677021	1978885	1780996	30	0.0078	13892	0.25%	4452
20	Pure water P/M WTP to MBR (495HP(3+2))	55288988	65241006	58716905	30	0.0078	457992	100.25%	58863698
	Augumentation of existing Pumping Machinery	56959320	67211998	60490798	30	0.0078	471828	200.25%	121132823
	MSEDCEL Provision at Head Work & WTP	4353311913							
	Total Cost	783596144							
	GST 18%	5136908057							
	MSEDCEL Provision at Head Work & WTP	13500000	13500000.00	13500000					
	Total Cost	5150408057	5150408057						
	Total Rs:	5150408100							
	Say Total Rs:	5150408100		4636717252			93938994	Total	74111146
	0							Say	7,41,11,150

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME		
Recapitulation of Cost (135 LPCD) [AS PER MJP CSR 2021 - 22 & corrigendum 1 to 11]		
Civil And Mechanical Part Wise Cost Abstract		
Sr.No.	Name of Sub-works	Ammount
	<u>CIVIL PART</u>	
1	Working Survey	25,00,000
2	Intake Well .(6.00 M Dia)	31,98,300
3	Inspection Well (5.00 M Dia)	16,83,800
4	Connecting Main (1400 MM Dia L = 80 M) TWO ROWS	89,66,300
5	Jack well & Pump House.(15.00 M Dia)	3,75,48,500
6	Approach Bund (Length 70 m)	27,73,600
7	Meter Room At Head Work	5,69,200
8	Estimate of Raw Water Rising Main (HW To M.S.Shaft) (1000 MM DIA D.I.K- 9 PIPES. L - 3615 M)	12,42,19,300
9	Estimate of M.S.Shaft	42,19,400
10	Estimate of Raw Water Gravity Main (M.S.Shaft to WTP) (1200MM Dia = 26200 M,1100 MM Dia=20500 & 700 MM Dia=800M D.I.K-7 PIPES)	1,99,27,25,600
11	Water Treatment plant capacity 91.0 MLD (Conventional type)	21,87,80,300
12	Recirculation Well At WTP	55,79,004
13	Raw Water Rising Main (Recirculation well to Lip of Ariation) (200 mm dia DI K-9.Length = 100 M)	7,33,300
14	Meter Room At Water Treatment Plant	5,71,400
15	Pure water Rising Main (WTP to MBR) (1000 mm dia D.I. K - 9 Length = 1500 M)	5,79,75,800
16	Estimate of R.C.C. MBR. 19.2 Lakhs.ltrs Two Nos.	8,27,62,400
17	Meter Room At MBR	5,71,400
18	Pure water Gravity Main. (MBR to All ESR) (1200 mm dia to 300 mm dia DI K-7 pipes length of 19925 m)	49,78,17,200
19	Estimate of R.C.C. ESRs.	21,76,28,500
20	Meter Room At ESR	71,01,600
21	Distribution System. HDPE 6 Kg 315 to 110 mm dia length of 306.085 Km and DI K-7 1200 to 300 mm dia	87,49,50,400
22	Trial Run for Three Months.	3,29,53,900
	<u>MECHANICAL PART</u>	
23	Raw water P/M at Head work to MS Shaft (495 HP(3+2))	6,35,57,380
24	Recycling P/M on recirculation well near WTP (30HP(1+1))	16,77,021
25	Pure water P/M WTP to MBR (495HP(3+2))	5,52,88,988
26	Solar Power Plant at Headworks & WTP	8,61,77,320
27	SCADA	6,53,51,654
28	Smart Metering	5,49,25,684
29	Augumentation of existing Pumping Machinery	5,69,59,320
30	MSEDCEL Provision at Head Work & WTP	1,35,00,000
	Total Cost	4,57,32,66,571
	GST 18%	82,31,87,982
	Technical Sanction Charges 1%	4,57,32,666
	Labour Insurance 1% (Only on PWD Rates)	14,87,286
	Total Rs:	5,44,36,74,504

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Survey Work

ABSTRACT

Description of Item / measurements	Qty	Rate	Unit	Amount
1	2	3	4	5
Item No. 1 : Provision for working survey including levelling compassing , taking trial pits , preperation of detail hydraulic designs , typing the designs and estimates and preparing the drawings and preparing 6 nos booklets etc complete.				
	Job	2500000.00	Lump sum	2500000.00
		Total Rs.		25,00,000

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Intake Well (DIA - 6.0 M)

ABSTRACT

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
Item No. 1 :- Excavation in general in soft material comprising of soft soil, soft murum, sand, hard murum with boulders in wet or dry condition for Head Works i.e. Intake Well, Connecting Pipe, Jack Well, Pump House, Supply Well, etc. for lift 0 to 1.5 M and lead of 150 M including baricating, gurading, disposing off surplus excavated stuff within a radius of 0.5 km. as directed by Engineer-in- charge, etc. complete excluding refilling.				
(MJP CSR 21 -22, I.No.10 a.P.No.44)				
Lift 0.0 to 1.5 m	176.81	464.00	Cum	82041.00
Item No. 2 :- Excavation in general in hard material comprising of soft rock ,hard rock,manjara rock etc by blasting / controlled blasting chiselling as required in wet or dry condition for Head Works i.e. Intake well, connecting pipe, Jack well, pump house, supply well, etc for lift 0 to 1.5 m and lead of 150 M including barricading gurading, disposing off surplus excavated stuff within a radius of 0.5 km as directed by Engineer in charge				
(MJP.CSR 21-22 , I.No11 a P.No.44)				
Lift 1.50 to 3.00 m	106.34	1044.00	Cum	111016.00
Lift 3.00 to 4.50 m	92.28	1072.00	Cum	98928.00
Lift 4.50 to 6.00 m	86.13	1100.00	Cum	94747.00
Lift 6.0 to 7.50 m	80.19	1128.00	Cum	90460.00
Lift 7.50 to 9.00 m	74.47	1156.00	Cum	86086.00
Lift 9.0 to 10.50 m	18.87	1184.00	Cum	22345.00
Item No. 3 :- Providing and casting in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc. complete				
(As Per Rate Analysis)				
PCC for levelling course below slab .				
Lift 5.0 to 10.0 M.Below G.L	6.99	7412.09	Cum	51780.00
Item No. 4 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, compaction, finishing and curing, etc.complete (By weigh batching and mix desing 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 Reinforced Cement Concrete.				
(As Per Rate Analysis)				
A) Footings M-300				

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Lift 5.0 to 10.0 (Below G. L.)	10.90	9413.00	Cum	102569.00
Item No. 5 :Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewatering, centring, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface where necessary or roughening if special finish is to be provided and curing, etc.complete (By weight 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				
(As Per Rate Analysis)				
A)Vertical staining wall of well(Grade M - 300)				
a) Lift 0.00 to 5.00 Above Below G. L.	53.45	10572.70	Cum	565063.00
b) Lift 5.00 to 10.00 Above Below G. L.	23.75	11589.90	Cum	275301.00
Item No. 6 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewatering, centring, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface where necessary or roughening if special finish is to be provided and curing, etc.complete (By weight 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				
(As Per Rate Analysis)				
B) Slabs (M-300)				
a) Lift 0.00 to 5.00 Above Below G. L.	10.26	10572.70	Cum	108528.00
Item No. 7 :-Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes, caps, footing, foundation, slabs, beams, columns, canopies staircases. Newels, chajjas, lintels, parades, 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) Tor steel.				
Lift 0.00 to 5.00				
1.00% of Concrete Qty	5.001	97206.00	MT	486153.00
Lift 5.00 to 10.00				
1.00% of Concrete Qty	1.865	102066.30	MT	190319.00
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
Item No. 8 : - Providing and fixing in position steel fibre reinforced concrete (SFRC) frame and covers of approved make including loading,unloading, transportation, all taxes,etc.complete as directed by Engineer-in-Charge.				
Size - 90 x 60 cm.	1.00	3290.00	No	3290.00
(MJP.CSR 21-22 , I.No.17 P.No 226)				

LATUR CITY MUNICIPAL CORPORATION

ITEM No. 9 :- Dewatering the excavated trenches and pools of water in the building trenches/ pipeline trenches, well works by using pumps and other devices including disposing of water of safe distance as directed by Engineer-in-charge (including cost of machinery, labour fuel) etc complete				
Intake well of 6.0 M. dia. (MJP.CSR 21-22, I.No. 16 P.No.231)	1.00	163596.00	No	163596.00
ITEM No.10 :- Providing and fixing in position C.I. Type dapuri steps of 22 mm dia. M.S. bar step with proper anchorage, etc. and providing and applying 3 coats of anti-corrosive paint, etc complete as directed by Engineer-in-charge.				
(MJP.CSR 21-22, I.No. 11 P.No.230)	27.00	387.00	No	10449.00
ITEM No.11 :- Providing and fixing M.S. sluice gates in position as per detailed drawing and specification including cost of all materials, labour, operating pedestal, connecting rod, painting with three coats of anti-corrosive paint, etc. complete as directed by Engineer-in-charge.				
(MJP.CSR 21-22, I.No. 12 P.No.230)	2400.00	119.00	Kg	285600.00
ITEM No.12 :- Providing and fixing in position C.I. /M.S. rose pieces in intake wells including cost of all materials and labour, painting with three coats of anti-corrosive oil paint, etc.complete as directed by Engineer-in-charge.				
(MJP.CSR 21-22, I.No. 13 P.No.230)	3600.0	100.00	Kg	360000.00
ITEM No.13:- Preparing designs of well from structural designer and getting it approved from appropriate authority. The drawing sets to be submitted in seven copies by the agency.				
Job Work	Job		L.S	10000.00
Total of subwork				3198271.00
	Say		Rs.	31,98,300

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Intake Well (DIA - 6.0 M)

M E A S U R M E N T S

Description of Item	Nos	Length	Breadth	Depth	Qty
1	2	3	4	5	6
Item No. 1 :- Excavation in general in soft material comprising of soft soil, soft murum, sand, hard murum with boulders etc. complete excluding refilling.					
For Intake Well	R.L.	633.50	to	632.00	
Lift 0 to 1.50 M.	0.7855	$\frac{(14.50+10.00)^2}{2}$		1.50	176.81
					Cum
Item No. 2 :- Excavation in general in hard material comprising of soft rock ,hard rock,etc complete					
	R.L.	632.00	to	630.50	
Lift 1.50 to 3.00 mtr.	0.7855	$\frac{(10.00+9.00)^2}{2}$		1.50	106.34
					Cum
	R.L.	630.50	to	629.00	
Lift 3.0 to 4.50 mtr.	0.7855	$\frac{(9.00+8.70)^2}{2}$		1.50	92.28
					Cum
	R.L.	629.00	to	627.50	
Lift 4.50 to 6.00 mtr.	0.7855	$\frac{(8.70+8.40)^2}{2}$		1.50	86.13
					Cum
	R.L.	627.50	to	626.00	
Lift 6.0 to 7.50 mtr.	0.7855	$\frac{(8.40+8.10)^2}{2}$		1.50	80.19
					Cum
	R.L.	626.00	to	624.50	
Lift 7.50 to 9.00 mtr.	0.7855	$\frac{(8.10+7.80)^2}{2}$		1.50	74.47
					Cum
	R.L.	624.50	to	624.10	
Lift 9.0 to 10.50 mtr.	0.7855	$\frac{(7.80+7.70)^2}{2}$		0.40	18.87
					Cum
Item No. 3 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite.etc. complete					
Lift 5.0 to 10.0 M.Below G.L					
PCC.M - 150.For Intake Well.	0.7855	7.70	7.70	0.15	6.99
			.		Cum
Item No. 4 :- Providing and laying in situ cement concrete of trap and footing and steel stanchions including etc,complete					
Lift 5.0 to 10.0 (Below G. L.)					
RCC.Raft Footing.M-300.	0.7855	6.80	6.80	0.30	10.90
			.		Cum
Item No. 5 :- Providing and laying in situ cement concrete of trap/granite/ etc, cement is permitted.)					

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RCC.Vertical wall.M - 300.					
Lift 0.0 to 5.0 M.					
Below & Above G. L.	3.142	6.30	0.30	9.00	53.45
Lift 5.0 to 10.0 M.					
Below & Above G. L.	3.142	6.30	0.30	4.00	23.75
					Cum
Item No. 6 :- Providing and laying in situ cement concrete of trap/granite, etc, cement is permitted.)					
Lift 0.00 to 5.00 M.					
RCC.Roof Slabs.M-300. (600.40 - 600.60)	0.7855	6.60	6.60	0.30	10.26
					Cum
Item No. 7 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete					
Lift 0.00 to 5.00					
1.0 % of Concrete Qty	63.71	0.01	7850.00	5001.26	Kg
				5.001	MT
Lift 5.00 to 10.00					
1.0 % of Concrete Qty	23.75	0.01	7850.00	1864.65	Kg
				1.865	MT
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)					
Item No. 8 :- Providing and fixing in position steel fibre reinforced concrete (SFRC) frame and covers o etc. complete					
Size - 90 x 60 cm.	1.00	1.00		1.00	No.
ITEM No. 9 :- Dewatering the excavated trenches and pools of water etc complete					
Intake well of 6.00 M. dia.	1.00	1.00		1.00	No.
ITEM No.10 :- Providing and fixing in position C.I. Dapuri Steps 22mm Dia MS bars etc. complete.					
	1.00	27.00		27.00	Nos.
ITEM No.11 :- Providing and fixing M.S. sluice gates in position as per detailed . complete as directed by Engineer-in-charge.					
M.S.Sluice Gate including M.S.Rod For operatig Gate.	3.00	800.00		2400.00	Kg
ITEM No.12 :- Providing and fixing in position C.I. /M.S. rose pieces in intake directed by Engineer-in-charge.					
	3.00	1200.00		3600.00	Kg
ITEM No.13:- Preparing designs of well from structural designer and getting it approved from appropriate authority. The drawing sets to be submitted in seven copies by the agency.					
Job Work (2% of total cost)				JOB	L.S.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Inspection Well No. -1 (Dia - 2.0 M)

ABSTRACT

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
Item No. 1 :- Excavation in general in soft material comprising of soft soil, soft murum, sand, hard murum with boulders in wet or dry condition for Head Works i.e. Intake Well, Connecting Pipe, Jack Well, Pump House, Supply Well, etc. for lift 0 to 1.5 M and lead of 150 M including baricating, gurading, disposing off surplus excavated stuff within a radius of 0.5 km. as directed by Engineer-in- charge, etc. complete excluding refilling.				
(MJP CSR 21 -22, I.No.10 a P.No.44)				
Lift 0 to 1.5 M.	154.47	464.00	Cum	71675.00
Item No. 2 :- Excavation in general in hard material comprising of soft rock ,hard rock,manjara rock etc by blasting / controlled blasting chiselling as required in wet or dry condition for Head Works i.e. Intake well, connecting pipe, Jack well, pump house, supply well, etc for lift 0 to 1.5 m and lead of 150 M including barricading gurading, disposing off surplus excavated stuff within a radius of 0.5 km as directed by Engineer in charge				
(MJP.CSR 21-22 , I.No11a P.No.44)				
Lift 1.50 to 3.00 M.	89.18	1044.00	Cum	93106.00
Lift 3.00 to 4.50 M	76.35	1072.00	Cum	81852.00
Lift 4.50 to 6.0 M	58.97	1100.00	Cum	64872.00
Lift 6.00 to 7.50 M.	65.40	1128.00	Cum	73767.00
Lift 7.50 to 9.00 M	60.24	1156.00	Cum	69632.00
Lift 9.00 to 10.50 M	46.07	1184.00	Cum	54550.00
Item No. 3 :- Providing and casting in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc. complete				
(As Per Rate Analysis)				
PCC for levelling course below raft slab of Jack well				
(Lift 5.00 to 10.00 Below G. L.)	5.13	7412.09	Cum	38043.00
Item No. 4 : - Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewartering, form work, compaction, finishing and curing, etc.complete (By weigh batching and mix desing 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 Reinforced Cement Concrete.				
(As Per Rate Analysis)				
A) Footings M-300				

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Lift 5.00 to 10.00 M	9.35	9413.00	Cum	88029.00
Item No. 5 :Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necsessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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				
A)Vertical staining wall of well(Grade M-300)				
a) Lift 0.00 to 5.00 Above Below G. L.				
(As Per Rate Analysis)	22.87	10572.70	Cum	241838.00
Lift 5.00 to 10.00 (Below G. L.)	16.34	11589.90	Cum	189361.00
(As Per Rate Analysis)				
Item No. 6 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necsessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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				
(As Per Rate Analysis)				
B) Slabs M-300				
a) Lift 0.00 to 5.00				
Asper Rate Analysis	4.58	10572.70	Cum	48434.00
Item No. 7 :-Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes, caps, footing, foundation, slabs, beams, columns, canopies staircases. Newels, chajjas, lintels, pardies, copings, fins, arches, etc. as per detailed designs, drawings and shedules including cutting , bending ,hooking the bars ,binding with wires or tack welding and supporting as required etc complete (including cost of binding wire) Tor steel.				
Lift 0.00 to 5.00				
1.00% of Concrete Qty	2.155	97206.00	MT	209498.52
b) Lift 5.0 to 10.00				
1.00% of Concrete Qty	2.017	102066.30	MT	205834.80
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
Item No. 8 : - Providing and fixing in position steel fibre reinforced concrete (SFRC) frame and covers of approved make including loading,unloading, transportation, all taxes,etc.complete as directed by Engineer-in-Incharge.				
Size - 90 x 60 cm.	1.00	3290.00	No	3290.00

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(MJP.CSR 21-22, I.No.17 P.No 226)				
ITEM No. 9 :- Dewatering the excavated trenches and pools of water in the building trenches/ pipeline trenches, well works by using pumps and other devices including disposing of water of safe distance as directed by Engineer-in-charge (including cost of machinery, labour fuel) etc complete				
Inspection well of 5.0 M. dia.	1.00	132973.00	No	132973.00
(MJP.CSR 21-22, I.No. 16 P.No.231)				
ITEM No.10 :- Providing and fixing in position C.I. Type dapuri steps of 22 mm dia. M.S. bar step with proper anchorage, etc. and providing and applying 3 coats of ant-corrosive paint, etc complete as directed by Engineer-in-charge.				
(MJP.CSR 21-22, I.No. 11 P.No.230)	32.00	387.00	No	12384.00
ITEM No.11:- Preparing designs of well from structural designer and getting it approved from appropriate authority. The drawing sets to be submitted in seven copies by the agency.				
Job Work (2% of total cost)	Job		L.S	4600.00
Total of subwork			Rs.	1683739.31
	Say		Rs.	16,83,800

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

ESTIMATE OF INSPECTION WELL NO (DIA - 5.0 M)
M E A S U R M E N T S

Description of Item	Nos	Length	Breadh	Depth	Qty
1	2	3	4	5	6
Item No. 1 :- Excavation in general in soft material comprising of soft soil, etc. complete excluding refilling.					
For Inspection Well	R.L.	634.50	to	633.00	
Lift 0 to 1.5 M.	0.7855	$\frac{(13.70+9.20)^2}{2}$		1.50	154.47
(MJP CSR 21 -22, I.No.10 a P.No.44)		2			
Item No. 2 :- Excavation in general in hard material comprising of soft rock ,etc complete					
	R.L.	633.00	to	631.50	
Lift 1.50 to 3.00 M.	0.7855	$\frac{(9.20+8.20)^2}{2}$		1.50	89.18
		2			
	R.L.	631.50	to	630.00	
Lift 3.00 to 4.50 M	0.7855	$\frac{(8.20+7.90)^2}{2}$		1.50	76.35
		2			
	R.L.	630.00	to	628.50	
Lift 4.50 to 6.0 M	0.7855	$\frac{(7.9+7.60)^2}{2}$		1.50	58.97
		2			
	R.L.	628.50	to	627.00	
Lift 6.00 to 7.50 M.	0.7855	$\frac{(7.6+7.3)^2}{2}$		1.50	65.40
		2			
	R.L.	627.00	to	625.50	
Lift 7.50 to 9.00 M	0.7855	$\frac{(7.3+7.0)^2}{2}$		1.50	60.24
		2			
	R.L.	625.50	to	624.25	
Lift 9.00 to 10.50 M	0.7855	$\frac{(7.00+6.70)^2}{2}$		1.25	46.07
		2			
(MJP.CSR 21-22 , I.No11a P.No.44)					
Item No. 3 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite.etc. complete					
Lift 5.0 to 10.0 M.Below G.L.					
PCC.M - 150.For Intake Well.	0.7855	6.60	6.60	0.15	5.13
(As Per Rate Analysis)					Cum
Item No. 4 :- Providing and laying in situ cement concrete of trap and footing of RCC columns etc,complete					
Lift 5.00 to 10.00 (Below G. L.)					
RCC.Raft footing.M-300.	0.7854	6.30	6.30	0.30	9.35
(As Per Rate Analysis)			.		Cum
Item No. 5 :- Providing and laying in situ cement concrete of trap/granite/ etc, cement is permitted.)					
Vertical staining wall of well					
Lift 0.00 to 5.00 (Above /Below G. L.)	3.142	5.20	0.20	7.00	22.87
Lift 5.00 to 10.00 (Below G. L.)	3.142	5.20	0.20	5.00	16.34
(As Per Rate Analysis)					Cum

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Item No. 6 :- Providing and laying in situ cement concrete of trap/granite, etc, cement is permitted.)					
Slabs					
Lift 0.00 to 5.00 Floor slab	0.7855	5.40	5.40	0.20	4.58
(As Per Rate Analysis)					Cum
Item No. 7 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete					
Lift 0.00 to 5.00					
1.0 % of Concrete Qty	27.45	0.01	7850.00	2155.20	Kg
				2.155	MT
Lift 5.00 to 10.00	25.69	0.01	7850.00	2016.68	Kg
				2.017	MT
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)					
Item No. 8 :- Providing and fixing in position steel fibre reinforced (SFRC) frame and covers o etc. complete					
Size - 90 x 60 cm.	1.00	1.00		1.00	No
(MJP.CSR 21-22, I.No.17 P.No 226)					
ITEM No. 9 :- Dewatering the excavated trenches and pools of water etc complete					
Inspection well of 5.00 M. dia.	1.00	1.00		1.00	No
(MJP.CSR 21-22, I.No. 16 P.No.231)					
ITEM No.10 :- Providing and fixing in position Ci Dapuri steps 22mm etc. complete.					
	1.00	32.00		32.00	No
(MJP.CSR 21-22, I.No. 11 P.No.230)					
ITEM No.11:- Preparing structural designs of well and getting approved from appropriate authority					
Job Work				JOB	L.S.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Connecting Main 1400 MM RCC NP-III Pipe L - 80 M

A B S T R A C T

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM NO. 1			
	Excavation in general in soft material comprising of soft soil, soft murum, sand, hard murum with boulders in wet or dry conditions for Head Works, i.e. intake well, Connecting pipe, jack well, Pump House. Supply Well etc. For lift 0 to 1.5 M and lead of 150m including barricating gaurding disposing off surplus excavated stuff within a radius of 0.5 km as directed by engineer incharge etc complete excluding refilling			
	(MJP CSR 2021 -22, I.No.10 P.No.44)			
	a) For head word on river or dam submergence			
994.50	Lift 0.00 to 1.50 m.	464.00	Cum	461448.00
	ITEM No. 2			
	Excavation in general in hard material comprising of soft rock, Manjara rock, etc. by blasting/controlled blasting, chiseling as required in wet or dry conditions for Head Works, i.e. intake well, Connecting pipe, jack well, Pump House. Supply Well etc. For lift 0 to 1.5 and lead of 150m including barricating gaurding disposing off surplus excavated stuff within a radius of 0.5 km as directed by engineer incharge etc complete excluding refilling			
	(MJP.CSR 2021-22 , I.No11 P.No.44)			
	a) For head word on river or dam submergence			
664.50	Lift 1.50 to 3.00 m.	1044.00	Cum	693738.00
586.50	Lift 3.0 to 4.5 m.	1072.00	Cum	628728.00
550.50	Lift 4.5 to 6.0 m.	1100.00	Cum	605550.00
321.38	Lift 6.0 to 7.50 m.	1128.00	Cum	362511.00
159.38	Lift 9.0 to 10.50 m.	1184.00	Cum	188700.00
30.37	Lift 10.50 to 12.00 m.	1212.00	Cum	36814.00
	ITEM NO. 3			

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	Providing and supplying ISI mark D.I. S/S pipes (push on joints pressure pipes) of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (rubber gasket of EPDM quality) including all statutory duties and taxes lavied by GOI and GOM in all respect, education cess, VAT, Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to depatmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS- 1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/ revision with amendments for rubber gasket)			
160.00	1400 mm dia.RCC NP-III Pipe.	11146.00	Rmt	1783360.00
	(As Per Corrigendum No.Lett.No.11/2390.Dt.19.08.22)			
	ITEM NO. 4 :-			
	Lowering laying and jointing with SBR ruber gaskets C.I. 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.			
160.00	1400 mm dia.RCC NP-III pipes (without rubber ring)	788.00	Rmt	126080.00
	(MJP.CSR 2021-22 , P.No. 98 .It.No. 2)			
	ITEM NO. 5 :-			
	Dewatering the excavated trenches and pools of water in the building trenches/ pipeline trenches, well works by using pumps and other devices including disposing of water of safe distance as directed by Engineer-in-charge (including cost of machinery, labour,fuel) etc complete			
80.00	For Connecting Main	5000.00	Rmt	400000.00
	(MJP.CSR 21-22, I.No. 16 P.No.231)			
	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			
3377.63		84.00	Cum	283721.00
	(MJP.CSR 2021-22 , P.No. 45 It.No. 15)			
	ITEM NO. 7 :-			
	Providing,construction coffer dam in river basin/dam storages as per type design including excavation,filling the middle portion with B.c soil [in gunny bags if required] providing impervious /semipervious materials inculuding remming ,copacting to the satisfaction of Engineer in charge,till the completion of work including dismentlling of coffer dam after completion of works and disposing off the material as directed by the engineer in charge.			

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	Note : Pay line maximum - Top width payable shall be 2 mtr.and maximum payable side slopes shall be 1.5 Horizontal to 1 Vertical, if the constructed top width of the side slopes are less, then the measurments at actual are payable. Extra top width or flatt slopes are not payable. contractor is free to use ballies,plastic sheets,piles,pipes,cCGI sheets for supporting hearting material instead of impervious/ semipervious hearting material for whichno extra payments shall be payable 30%payment shall be withheld for dismentelling of coffer dam			
4432.30	(MJP CSR 21-22, I.No.1. P.No.228)	682.00	Cum	3022829.00
Total of subwork			Rs.	8966289.00
		Say	Rs.	89,66,300

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Connecting Main 1400 MM RCC NP-III. Pipe L - 80 M (TWO ROWS)

M E A S U R M E N T S

ITEM NO. 1																		
Excavation in general in soft material											(CH 0 STARTS FROM INTAKE							
<u>Lift 0 to 1.5 M.</u>																		
Ch. 0 to 30 M.																		
				R.L.	633.500	to	632.000											
	30	x	(	10.100	+	5.600	)	x	1.50	=	353.25	Cum.						
				2														
Ch. 30 to 55 M.																		
				R.L.	634.500	to	633.000											
	25	x	(	10.500	+	6.000	)	x	1.50	=	309.38	Cum.						
				2														
Ch. 55 to 80 M																		
				R.L.	638.000	to	636.500											
	25	x	(	11.100	+	6.600	)	x	1.50	=	331.88	Cum.						
				2														
								Total Qty.		=	994.50	Cum.						
ITEM NO. 2																		
Excavation in general in hard material																		
<u>Lift 1.50 to 3.0 M.</u>																		
Ch. 0 to 30 M.																		
				R.L.	632.000	to	630.500											
	30	x	(	5.600	+	4.600	)	x	1.50	=	229.50	Cum.						
				2														
Ch. 30 to 55 M.																		
				R.L.	633.000	to	631.500											
	25	x	(	6.000	+	5.000	)	x	1.50	=	206.25	Cum.						
				2														
Ch. 55 to 80 M																		
				R.L.	636.500	to	635.000											
	25	x	(	6.600	+	5.600	)	x	1.50	=	228.75	Cum.						
				2														
								Total Qty.		=	664.50	Cum.						
<u>Lift 3.0 to 4.50 M.</u>																		
Ch. 0 to 30 M.																		
				R.L.	630.500	to	629.000											
	30	x	(	4.600	+	4.300	)	x	1.50	=	200.25	Cum.						
				2														
Ch. 30 to 55 M.																		
				R.L.	631.500	to	630.000											
	25	x	(	5.000	+	4.700	)	x	1.50	=	181.88	Cum.						
				2														
Ch. 55 to 80 M																		
				R.L.	635.000	to	633.500											
	25	x	(	5.600	+	5.300	)	x	1.50	=	204.38	Cum.						
				2														
								Total Qty.		=	586.50	Cum.						

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<u>Lift 4.50 to 6.0 M.</u>																		
Ch. 0 to 30 M.																		
				R.L.	629.000	to	627.500											
	30	x	(	4.300	+	4.000	)	x	1.50	=	186.75	Cum.						
					2													
Ch. 30 to 55 M.																		
				R.L.	630.000	to	628.500											
	25	x	(	4.700	+	4.400	)	x	1.500	=	170.63	Cum.						
					2													
Ch.55 to 80 M																		
				R.L.	633.500	to	632.000											
	25	x	(	5.300	+	5.000	)	x	1.500	=	193.13	Cum.						
					2													
								Total Qty.		=	550.50	Cum.						
<u>Lift 6.00 to 7.50 M.</u>																		
Ch. 0 to 30 M.																		
				R.L.	627.500	to	627.400											
	30	x	(	4.000	+	4.000	)	x	0.10	=	12.00	Cum.						
					2													
Ch. 30 to 55 M.																		
				R.L.	628.500	to	627.300											
	25	x	(	4.400	+	4.100	)	x	1.200	=	127.50	Cum.						
					2													
Ch. 55 to 80 M																		
				R.L.	632.000	to	630.500											
	25	x	(	5.000	+	4.700	)	x	1.500	=	181.88	Cum.						
					2													
								Total Qty.		=	321.38	Cum.						
<u>Lift 7.50 to 9.00 M.</u>																		
Ch. 30 to 55 M.																		
				R.L.	630.500	to	629.000											
	25	x	(	4.100	+	4.000	)	x	1.500	=	151.88	Cum.						
					2													
Ch. 55 to 80 M																		
				R.L.	630.500	to	629.000											
	25	x	(	4.700	+	4.400	)	x	1.500	=	170.63	Cum.						
					2													
								Total Qty.		=	322.50	Cum.						
<u>Lift 9.0 to 10.50 M.</u>																		
Ch. 55 to 80 M																		
				R.L.	629.000	to	627.500											
	25	x	(	4.400	+	4.100	)	x	1.500	=	159.38	Cum.						
					2													
								Total Qty.		=	159.38	Cum.						
<u>Lift 10.50 to 12.0 M.</u>																		
Ch. 55 to 80 M																		
				R.L.	627.500	to	627.200											
	25	x	(	4.100	+	4.000	)	x	0.300	=	30.37	Cum.						
					2													
								Total Qty.		=	30.37	Cum.						

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ITEM NO. 3																	
Providing DI K-7 grade pipes with internal cement mortar lining etc comp.																	
1)	1400 mm dia.RCC NP-III Class Pipes.					2	x	80	=	160	Rmt						
ITEM NO. 4																	
Lowering laying and jointing with SBR rubber gasket etc comp.																	
1)	1400 mm dia.RCC NP-III Class Pipes.					2	x	80	=	160	Rmt						
ITEM NO. 5																	
Dewatering charges forconnecting main for head works in river basin or dam.																	
						1	x	80	=	80	Rmt						
ITEM NO. 6																	
Refilling the trenches with excavated stuff with etc complete.																	
	Qty to be refilled for excavation.															3629.63	Cum
	Deduct Vol. of pipe.				0.7855	x	1.416	x	1.416	x	160	=	252.00			252.00	Cum
	Net. Qty.										Net Qty	=	3377.63			3377.63	Cum
ITEM NO. 7																	
	:- providing,construction coffer dam in river basin/dam storages asper type desing including																
	Assuming water level - For Connecting Main																
(CH 0 STARTS FROM INTAKE WELL)																	
	From Ch - 0 to 30 M					2.00	30.00	13.10	+	2.00	4.10	1857.30					
								2.00									
	From Ch - 30 to 55 M					2.00	25.00	11.00	+	2.00	3.50	1137.50					
								2.00									
	From Ch - 55 to 80 M					2.00	25.00	9.50	+	2.00	3.00	862.50					
								2.00									
	FOR CROSSING AT CH.120 M																
	From Ch - 0 to 40 M					1.00	40.00	9.50	+	2.00	2.50	575.00					
								2.00									
											Total Qty =		4432.30				

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Jack Well & Pump House 15 M Dia RCC

A B S T R A C T

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM NO. 1			
	Excavation in general in soft material comprising of soft soil, soft murum, sand, hard murum with boulders in wet or dry conditions for Head Works, i.e. intake well, Connecting pipe, jack well, Pump House. Supply Well etc. For lift 0 to 1.5 M and lead of 150m including barricating gaurding disposing off surplus excavated stuff within a radius of 0.5 km as directed by ingineer incharge etc complete excluding refilling			
	(MJP CSR 2021 -22, I.No.10 P.No.44)			
	a) For head word on river or dam submergence			
808.13	Lift 0.00 to 1.50 m.	464.00	Cum	374974.00
	ITEM NO. 2			
	Excavation in general in hard material comprising of soft rock, Manjara rock, etc. by blasting/controlled blasting, chiseling as required in wet or dry conditions for Head Works, i.e. intake well, Connecting pipe, jack well, Pump House. Supply Well etc. For lift 0 to 1.5 and lead of 150m including barricating gaurding disposing off surplus excavated stuff within a radius of 0.5 km as directed by ingineer incharge etc complete excluding refilling			
	(MJP.CSR 2021-22 , I.No11 P.No.44)			
	a) For head word on river or dam submergence			
656.10	Lift 1.50 to 3.00 m.	1044.00	Cum	684971.00
541.77	Lift 3.0 to 4.50 m.	1072.00	Cum	580778.00
526.72	Lift 4.50 to 6.00 m.	1100.00	Cum	579394.00
511.89	Lift 6.0 to 7.50 m.	1128.00	Cum	577407.00
497.26	Lift 7.5 to 9 m.	1156.00	Cum	574834.00
482.85	Lift 9.0 to 10.5 m.	1184.00	Cum	571693.00
468.65	Lift 10.5 to 12 m.	1212.00	Cum	568001.00
454.66	Lift 12 to 13.5 m.	1240.00	Cum	563777.00
440.88	Lift 13.50 to 15.0 m.	1268.00	Cum	559039.00
427.32	Lift 15.0 to 16.50 m.	1296.00	Cum	553804.00
413.96	Lift 16.50 to 18.0 m.	1324.00	Cum	548089.00
400.82	Lift 18.0 to 19.50 m.	1352.00	Cum	541914.00
387.89	Lift 19.50 to 21.0 m.	1380.00	Cum	535295.00
63.59	Lift 21.0 to 22.50 m.	1408.00	Cum	89528.00
	ITEM NO. 3 :-			
	Providing and laying in situ cement concrete M-15 / 1:2:4 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including dewatering, form work, compacting roughening if special finishis to be provided, finishing if required etc. complete.			
	Lift 0.0 to 5.0 M			
	individual footing of pump house			
8.10	1:2:4 (M – 150) grade for Jack well	6791.69	Cum	55013.00
	Lift 20 to 25.0 M			
38.18	1:2:4 (M – 150) grade for Jack well	9273.29	Cum	354011.00
	(As Per Rate Analysis)			
	ITEM NO. 4			
	Providing and laying in situ of C.C. of trap/ granite / quartzite/ gneiss metal for RCC works in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering , centering, form work, compaction, finishing and curing,etc. complete. (By weight batching mix design for M – 250 & M-300 only. Use of L&t , ACC, Ambuja,Birla Gold,Manikgad, Rajashree,etc.cement is permitted. Excluding M.S. or Tor reinforcement.)			
	Lift 0 to 5			
	a) For RCC M – 300 grade			
21.20	Footing for Column of Pump House.	8593.70	Cum	182143.00
	(As Per Rate Analysis)			
	Lift 20 to 15			
	a)For RCC M – 300 grade			
263.01	1) Bottom Slab of Jack well	11870.90	Cum	3122138.00
	(As Per Rate Analysis)			

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	ITEM NO. 5			
	Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction, finishing the formed surface 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, Rajshree etc Cement is permitted. Excluding M.S. or Tor reinforcement.)			
	(As Per Rate Analysis)			
	Lift 0 to 5 M For RCC M – 300			
316.62	Slabs/ Landings/ Vertical walls/ .	10572.70	Cum	3347503.00
	Lift 5 to 10 M For RCC M – 300			
121.75	Slabs/ Landings/ Vertical walls/ Waist slabs	11589.90	Cum	1411099.00
	Lift 5 to 10 M For RCC M – 250			
31.55	Slabs/ Landings/ Vertical walls/ Waist slabs	11301.70	Cum	356563.00
	Lift 10 to 15 M For RCC M – 300			
121.75	Slabs/ Landings/ Vertical walls/ .	12607.10	Cum	1534945.00
	Lift 15 to 20 M For RCC M – 300			
121.75	Slabs/ Landings/ Vertical walls/ Waist slabs	13624.30	Cum	1658792.00
	Lift 15 to 20 M For RCC M – 250			
59.04	Slabs/ Landings/ Vertical walls	13283.70	Cum	784293.00
	Lift 20 to 25 M For RCC M – 300			
1.22	Slabs/ Landings/ Vertical walls/ Waist slabs	14641.50	Cum	17826.00
	ITEM NO. 6			
	Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction, finishing the formed surface 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, Rajshree etc Cement is permitted. Excluding M.S. or Tor reinforcement.)			
	(As Per Rate Analysis)			
	For Beams & Lintels			
	Lift 0 to 5.M For RCC M – 300			
86.04	Floor Beam of Jack well	9886.70	Cum	850699.00
	Lift 5 to 10M For RCC M – 250			
11.12	Lintel Beam for Pump House	10564.70	Cum	117528.00
	Lift 10 to 15 M (Above & Below G.L.) M-250			
17.11	For Beams & Lintels with	11488.70	Cum	196525.00
	Lift 15 to 20 M (Above & Below G.L.) M-250			
11.69	For Beams & Lintels with	12412.70	Cum	145110.00
	ITEM NO.7			
	Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction, finishing the formed surface 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, Rajshree etc Cement is permitted. Excluding M.S. or Tor reinforcement.)			
	(As Per Rate Analysis)			
	All type of columns			
	Lift 0 to 5 M For RCC. M – 300			
9.08	All types of Columns	10051.70	Cum	91219.00
	Lift 5 to 10 M (Above & Below G.L.) M – 300			
3.00	All types of Columns	11016.80	Cum	33050.00
	Lift 10 to 15 M For RCC M – 300			
3.00	All types of Columns	11981.90	Cum	35946.00
	Lift 15 to 20 M (Above & Below G.L.) M – 300			
3.00	All types of Columns	12947.00	Cum	38841.00
	Lift 20 to 25 M (Above & Below G.L.) M – 300			
0.03	All types of Columns	13912.10	Cum	417.00
	All type of columns			

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	Lift 0 to 5 M For RCC M – 250			
1.28	All types of Columns	9804.70	Cum	12501.00
	Lift 5 to 10 M (Above & Below G.L.) M-250			
13.70	All types of Columns	10745.10	Cum	147154.00
	Lift 10 to 15 M For RCC M – 250			
12.75	All types of Columns	11685.50	Cum	148990.00
	Lift 15 to 20 M (Above & Below G.L.) M-250			
1.28	All types of Columns	12625.90	Cum	16098.00
	ITEM No.8 :-			
	Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	Lift 0 to 5 M			
34.09	b) Tor Steel.	97206.00	M.T.	3313295.00
	Lift 5 to 10 M			
14.22	b) Tor Steel.	102066.30	M.T.	1451184.00
	Lift 10 to 15 M			
12.14	b) Tor Steel.	106926.60	M.T.	1297743.00
	Lift 15 to 20 M			
15.45	b) Tor Steel.	111786.90	M.T.	1726620.00
	Lift 20 to 25 M			
20.74	b) Tor Steel.	116647.20	M.T.	2419735.00
	ITEM No.9 :-			
	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			
4577.61	(MJP.CSR 2021-22 , P.No. 45 It.No. 15)	84.00	Cum	384519.00
	ITEM No. 10:-			
	Dewatering the excavated trenches and pools of water in the building trenches/ pipeline trenches, well works by using pumps and other devices including disposing of water of safe distance as directed by Engineer-in-charge (including cost of machinery, labour,fuel) etc complete			
1	Jack well of 15.0 M. dia.	623947.50	No	623948.00
	(MJP.CSR 2021-22 , P.No. 45 It.No. 14)			
	ITEM No. 11 :-			
	Providing IInd class B.B masonry with conventional / Indian standerd type bricks in CM 1:6 in Superstructure including striking joints , raking out joints, watering,and scaffolding etc. complete.			
	(As Per Rate Analysis)			
21.60	lift 0.00 to 3.80.M. Above Floor Slab	8423.53	Cum	181915.00
31.39	lift 3.80 to 7.60.M	8503.47	Cum	266959.00
20.44	Lift 7.60 to 11.40.M	8583.41	Cum	175442.00
	ITEM No. 12 :-			
	Providing and fixing rolling shutter fabricated from steel laths of minimum thickness 0.9 mm with lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle section fitted with sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respectively with hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size & shape with square bar, suspension shaft of minimum 32 mm diameter, hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operation arrangement consisting of worm gear wheels and worms of high grade cast iron or mild steel and one coat of red lead primer etc. complete. (I.S. 6248-1979) (With mechanical gear)			
	(PWD SSR 2021-22 P.No.308 It. No.39.25)			
12.00	1) Rolling steel shutter.	5308.00	sqm.	63696.00
	ITEM No. 13 :-			

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	Providing and fixing steel window of various sizes as per detailed drawing without hot dip zinc coating, without ventilators, including fabricating / glazing with plain / obscured glass panels of approved type and quality, iron oxidised fixtures and fastenings, oil painting two coats complete.			
30.60	a) for Steel windows (PWD SSR 2022-23 P.No.306 It. No.39.19)	4607.00	sqm.	140974.00
	ITEM No. 14:-			
	Providing & fixing steel Ventilator fully glazed partly top hung and partly fixed as per detailed drawing without hot dip zinc coating includign glazing with plain obscured glass panel and of approved type and quality and fixtures and fastening without te			
15.30	1) Steel Ventilators (PWD SSR 2022 -23 P.No.308 It. No.39.29)	3375.00	sqm.	51638.00
	ITEM No. 15 :-			
	Providing and fixing in position M.S. Ladder 0.5 M wide consisting of 75 x 10 mm M.S. flats as stringers and 16 mm dia M.S. bars in double rows as steps paced at 25 cm c/c including cost of material and labour involved welding, anchoring and applying 3 co			
49.50	(MJP.CSR 2021-22 P.No. 217 Item No. 5)	1493.00	Rm.	73904.00
	ITEM No. 16 :-			
	Providing and fixing in position copper lightening conductor including copper rod of 20 mm dia as per upper terminal 1.5 M.long with a knob at end with conical spike at top, Copper tape conductor 20 x 3 mm size, copper earth plate of 3 mm thick and necessary excavation, laying and fixing the conductor, providing and fixing 40 mm G.I. pipe upto 3 M. height from ground and 0.5 M below ground including making all connections, filling the earthing pit with charcoal,salt,etc.and refilling and watering etc.			
	(MJP.CSR 2021-22 P.No. 216 It. No. 1)			
1.00	1) for tape of 10 M length	13543.00	No	13543.00
15.00	Extra rate per meter length above 10 m.	379.00	Mtr.	5685.00
	ITEM No. 17 :-			
	Providing internal cement plaster 20 mm thick in two coats in cement mortar 1:3 without neeru finish to cocrete, brick surfaces in all positions including scaffolding and curing , etc. complete			
1614.00	a) 20 mm thick cement plaster (1:3) (As Per Rate Analysis)	415.56	Sq.M.	670709.00
	ITEM No. 18 :-			
	Providing sand faced plaster externally in cement mortor using kharsalia / kasaba or similar type of sand in all positions including base coat of 15 mm thick in cement mortor 1:4 using waterproofing compound at 1 Kg per cement bag. Curing the same for no			
924.97	(As Per Rate Analysis)	683.30	Sq.M.	632029.00
	ITEM No.19 :-			
	Providing and applying two coats of Exterior acraylic emulsion paint conforming to corresponding I.S.of approved manufacture and of approved colour to the plastered surfaces including cleaning,prepaireing the plaster surface,applying primer coat ,scaffolding if necessecary,and watering the surface for two days etc complete.			
924.97	(PWD SSR 2021-22 P.No.226,It. No. 35.25)	261.00	sqm.	241418.00
	ITEM NO.20			
	Providing & applying washable oil-bound distemper of approved colour and shade to old & new surfaces in two coats including scaffolding, preparing the surfaces. (excluding the primer coat.) etc. complete.			
1614.00	(PWD SSR 2022-23 P.No. 280 It. No. 36.11)	48.00	sqm.	77472.00
	ITEM NO.21			
	Providing and applying white wash in two coat for wall surface to receive oil bound distemper treatment etc. complete.			
2538.97	(PWD SSR 2022-23 P.No. 279 Item No. 36.03)	12.00	sqm.	30468.00
	ITEM NO.22			
	Providing and fixing in position C.I. / M.S. rose piece in intake wells including cost of all materials and labour, painting with three coats of anti corrosive oil paint,etc, complete as directed by Engineer in charge.			
4800.00	(MJP.CSR 2021-22, I.No. 13 P.No.230)	100.00	Kg.	480000.00

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	ITEM NO.23			
	Providing and fixing G.I. Pipe railing having 1.00 M height consisting 50x50x6 mm thick M.S. angle as verticals at 1.5 M c/c and additional posts at every corner with 3 rows of 25 mm dia G.I. pipes of medium class variety as horizontal and paint in 3 coats			
65.00	(MJP.CSR 2021-22 P.No. 58 It. No. 1)	916.00	Rmt.	59540.00
	ITEM NO.24			
	Providing and fixing MS Sluice Gate in position as per detailed drawing and specification including cost of all materials, labour, operating pedestal, connecting rod, painting with three coats of anti-corrosive paint etc. complete as directed by Engineer-i			
3200.00	(MJP.CSR 2021-22, I.No. 12 P.No.230)	119.00	Kg	380800.00
	ITEM NO. 25 :-			
	Providing,construction coffer dam in river basin/dam storages as per type design including excavation,filling the middle portion with B.c soil [in gunny bags if required] providing impervious /semipervious materials including ramming ,compacting to the satisfaction of Engineer in charge,till the completion of work including dismantling of coffer dam after completion of works and disposing off the material as directed by the engineer in charge.			
	Note : Pay line maximum - Top width payable shall be 2 mtr.and maximum payable side slopes shall be 1.5 Horizontal to 1 Vertical, if the constructed top width of the side slopes are less, then the measurements at actual are payable. Extra top width or flat slopes are not payable. contractor is free to use ballies,plastic sheets,piles,pipes,cCGI sheets for supporting heaving material instead of impervious/ semipervious heaving material for which no extra payments shall be payable 30%payment shall be withheld for dismantling of coffer dam			
327.50	(MJP CSR 21-22, I.No.1. P.No.228)	682.00	Cum	223355.00
	Total of subwork		Rs.	37548493.00
	Say Rs			3,75,48,500

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Jack Well & Pump House 15 M Dia RCC

M E A S U R M E N T S

ITEM NO. 1												
Excavation in general in soft material etc complete.												
Lift 0 to 1.50 M.			R.L.	640.00	to	638.50						
	0.785	x	(	27.10	+	22.60	)^2	x	1.50	=	727.13	Cum. 4.50
				2								
Excavation individual footing of pump house												
	6	x		3	x	3	x	1.5	=	81	Cum.	
								Total Qty	=	808.13	Cum.	
ITEM NO. 2												
Excavation in general in hard material etc complete.												
Lift 1.5 to 3.00 M.			R.L.	638.50	to	637.00						
	0.785	x	(	22.60	+	21.60	)^2	x	1.50	=	575.10	Cum. 1
				2								
Excavation individual footing of pump house												
	6	x		3	x	3	x	1.5	=	81	Cum.	
								Total Qty	=	656.10	Cum.	
			R.L.	637.00	to	635.50						
Lift 3.0 to 4.50 M.												
	0.785	x	(	21.60	+	21.30	)^2	x	1.50	=	541.77	Cum. 2
				2								
Lift 4.5 to 6.0 M.			R.L.	635.50	to	634.00						
	0.785	x	(	21.30	+	21.00	)^2	x	1.50	=	526.72	Cum. 2
				2								
Lift 6.0 to 7.50 M.			R.L.	634.00	to	632.50						
	0.785	x	(	21.00	+	20.70	)^2	x	1.50	=	511.89	Cum. 1.5
				2								
Lift 7.5 to 9 M.			R.L.	632.50	to	631.00						
	0.785	x	(	20.70	+	20.40	)^2	x	1.50	=	497.26	Cum.
				2								
Lift 9 to 10.5 M.			R.L.	631.00	to	629.50						
	0.785	x	(	20.40	+	20.10	)^2	x	1.50	=	482.85	Cum.
				2								
Lift 10.5 to 12 M.			R.L.	629.50	to	628.00						
	0.785	x	(	20.10	+	19.80	)^2	x	1.50	=	468.65	Cum.
				2								
Lift 12 to 13.50 M.			R.L.	628.00	to	626.50						
	0.785	x	(	19.80	+	19.50	)^2	x	1.50	=	454.66	Cum.
				2								
Lift 13.50 to 15.00 M.			R.L.	626.50	to	625.00						
	0.785	x	(	19.50	+	19.20	)^2	x	1.50	=	440.88	Cum.
				2								
Lift 15.00 to 16.50 M.			R.L.	625.00	to	623.50						
	0.785	x	(	19.20	+	18.90	)^2	x	1.50	=	427.32	Cum.
				2								
Lift 16.50 to 18.00 M.			R.L.	623.50	to	622.00						
	0.785	x	(	18.90	+	18.60	)^2	x	1.50	=	413.96	Cum.
				2								
Lift 18.00 to 19.50 M.			R.L.	622.00	to	620.50						
	0.785	x	(	18.60	+	18.30	)^2	x	1.50	=	400.82	Cum.
				2								

Lift 19.50 to 21.00 M.		R.L.	620.50	to	619.00										
	0.785	x	(	18.30	+	18.00	)^2	x	1.50	=	387.89	Cum.			
					2										
Lift 21.00 to 22.50 M.		R.L.	619.00	to	618.75										
	0.785	x	(	18.00	+	18.00	)^2	x	0.25	=	63.59	Cum.			
					2										
											9121.84				

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Jack Well & Pump House 15 M Dia RCC

M E A S U R M E N T S

Sr.No	Description of Item.	No.	L	W	D	Qty	Unit
1	2	3	4	5	6	7	8
	ITEM NO. 3 :-						
	Providing and laying in situ of following grades of C.C. etc. complete.						
	1:2:4 (M – 150) grade (with 12 to 20 mm metal)						
	Lift 0.0 to 5.0 M	R.L.	637.15	to	637.00		
	individual footing of pump house	6.0000	3.00	3.00	0.15	8.10	Cum.
	Lift 20.0 to 25.0 M	R.L.	618.75	to	618.95		
	For J/W,	0.7855	18.00	18.00	0.15	38.18	Cum.
	ITEM NO. 4						
	Providing and laying in situ of C.C. ,etc. complete.						
	a) For RCC Footing M –300 grade						
	Lift 0.0 to 5.0 M						
	Footing for Column of Pump House.	6	3.00	3.00	0.20	10.80	Cum.
		6	1.75	1.65	0.60	10.40	Cum.
					Total =	21.20	Cum.
	Lift 20.0 to 25.0 M	R.L.	618.95	to	619.95		
	Bottom slab of Jack well	0.7855	17.80	17.80	1.00	248.88	Cum.
	Footing for Column of Pump House.	4	3.00	3.00	0.20	7.20	Cum.
		4	1.75	1.65	0.60	6.93	Cum.
					Total =	263.01	Cum.
	ITEM NO. 5						
	Providing and laying in situ Cement Concrete etc. complete.						
	Lift 0 to 5 M (Above & Below G.L.)						
	a) For RCC M –300 grade						
	Slabs/ Landings/ Vertical walls/						
	vertical wall below G.L.	R.L.	635.00	to	640.00		
		3.142	15.50	0.50	5.00	121.75	Cum
	vertical wall above G.L.	R.L.	640.00	to	644.50		
		3.142	15.50	0.50	4.50	109.58	Cum
	landing	3.00	1.00	1.00	0.10	0.30	Cum
	C) Slabs/ Landings/ Vertical walls						
	Floor slab.	R.L.	644.30	to	644.50		
		0.7855	16.00	16.00	0.40	80.44	Cum
	Floor gallery.	3.142	16.10	1.20	0.15	4.55	Cum
					Total	316.62	Cum
	Lift 5 to 10 M (Above & Below G.L.)						
	a) For RCC M –300 grade						
	vertical wall Below G.L.	R.L.	630.00	to	635.00		
		3.142	15.50	0.50	5.00	121.75	Cum
	b) For RCC M –250 grade						Cum
	chajja on door.	1.00	3.00	1.20	0.15	0.54	Cum
	chajja on window.	17.00	2.10	0.45	0.12	1.93	Cum
	Middle floor Slab	1.00	7.615	25.46	0.15	29.08	Cum
					Total	31.55	Cum
	Lift 10 to 15 M (Below G.L.)						
	a) For RCC M –300 grade	R.L.	625.00	to	630.00		
	vertical wall below G.L.	3.142	15.50	0.50	5.00	121.75	Cum
	Lift 15 to 20 M (Above & Below G.L.)						
	a) For RCC M –300 grade	R.L.	620.00	to	625.00		
	vertical wall below G.L.	3.142	15.50	0.50	5.00	121.75	Cum
	b) For RCC M –250 grade						
	Roof slab	R.L.	603.05	to	603.20		
	Jack well	1.00	15.46	25.46	0.15	59.04	Cum
					Total	59.04	Cum
	Lift 20 to 25 M (Below G.L.)						
	a) For RCC M –300 grade	R.L.	619.95	to	620.00		
	vertical wall below G.L.	3.142	15.50	0.50	0.05	1.22	Cum
	ITEM NO.6						

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	Providing and laying in situ Cement Concrete etc. complete.						
	a) For RCC M-300 grade						
	For Beams & Lintels						
	Lift 0 to 5.M (Above G.L.)	R.L.	643.30	to	644.50		
	Floor Beam of Jack well	4	16.00	0.40	1.20	30.72	Cum
	Floor Beam for Pump House	3	25.46	0.40	0.90	27.50	Cum
		5	15.46	0.40	0.90	27.83	Cum
					Total	86.04	Cum
	Lift 5 to 10 M (Above G.L.)						
	b) For RCC M-250 grade	R.L.	646.60	to	647.00		
	Lintel Beam for Pump House	2	25.23	0.23	0.40	4.64	Cum
		2	15.23	0.23	0.40	2.80	Cum
	1.st.floor Beam for Pump House	4	7.50	0.23	0.40	2.76	Cum
		2	5.00	0.23	0.40	0.92	Cum
					Total	11.12	Cum
	Lift 10 to 15 M (Above G.L.)						
	a) Beam @ Gantry level.RCC M-250 grade	R.L.	652.50	to	653.00		
	Gantry Beam	2	25.23	0.73	0.30	11.05	Cum
	Corbel Beam	2	25.23	0.30	0.40	6.06	Cum
					Total	17.11	Cum
	Lift 15 to 20 M (Above G.L.)						
	b) Roof level beam.RCC M-250 grade	R.L.	655.10	to	655.50		
	Pump House	2	25.46	0.23	0.40	4.68	Cum
		5	15.23	0.23	0.40	7.01	Cum
					Total	11.69	Cum
	ITEM NO.7						
	Providing and laying in situ Cement Concrete etc. complete.						
	a) Columns (RCC M - 300)						
	Lift 0 to 5.0 M (Below & Above G.L.)	R.L.	635.00	to	640.00		
	A) Column of Pump House	4	0.30	0.50	5.00	3.00	Cum
		6	0.30	0.75	4.50	6.08	Cum
					Total	9.08	Cum
	Lift 5.0 to 10.0 M (Below G.L.)	R.L.	630.00	to	635.00		
	A) Column of Pump House	4	0.30	0.50	5.00	3.00	Cum
	Lift 10.0 to 15.0 M (Below G.L.)	R.L.	625.00	to	630.00		
	A) Column of Pump House	4	0.30	0.50	5.00	3.00	Cum
	Lift 15.0 to 20.0 M (Below G.L.)	R.L.	620.00	to	625.00		
	A) Column of Pump House	4	0.30	0.50	5.00	3.00	Cum
	Lift 20.0 to 25.0 M (Below G.L.)	R.L.	619.95	to	620.00		
	A) Column of Pump House	4	0.30	0.50	0.05	0.03	Cum
	b) Columns (RCC M - 250)						
	Lift 0 to 5.0 M (Above G.L.)	R.L.	644.50	to	645.00		
	A) Column of Pump House	5	0.30	0.50	0.50	0.38	Cum
		8	0.30	0.75	0.50	0.90	Cum
					Total	1.28	Cum
	Lift 5.0 to 10.0 M (Above G.L.)	R.L.	645.00	to	650.00		
	A) Column of Pump House	5	0.30	0.50	5.00	3.75	Cum
		8	0.30	0.75	5.00	9.00	Cum
	B) Column of Pump House of Middle Floor	3	0.30	0.50	2.10	0.95	Cum
					Total	13.70	Cum
	Lift 10.0 to 15.0 M (Above G.L.)	R.L.	650.00	to	655.00		
	A) Column of Pump House	5	0.30	0.50	5.00	3.75	Cum
		8	0.30	0.75	5.00	9.00	Cum
					Total	12.75	Cum
	Lift 15.0 to 20.0 M (Above G.L.)	R.L.	655.00	to	655.50		
	A) Column of Pump House	5	0.30	0.50	0.50	0.38	Cum
		8	0.30	0.75	0.50	0.90	Cum
					Total	1.28	Cum
	ITEM No. 8 :-						
	Providing and fixing in position steel bar reinforcement						
	Lift 0 to 5 M	1	434.21	0.01	7850	34.09	M.T.
	Lift 5 to 10 M	1	181.12	0.01	7850	14.22	M.T.
	Lift 10 to 15 M	1	154.61	0.01	7850	12.14	M.T.
	Lift 15 to 20 M	1	196.76	0.01	7850	15.45	M.T.
	Lift 20 to 25 M	1	264.26	0.01	7850	20.74	M.T.

LATUR CITY MUNICIPAL CORPORATION

ITEM No. 9 :-						
Refilling the trenches with available excavated stuff						
Total Excavation up to GL.					9121.8	
Deduct volume of steining	0.7855	(16.0)^2	21.25	4273.12		
P.C.C.				8.10		Cum.
Beam				263.01		Cum.
			Total.	4544.23		
	9121.84	-	4544.23		4577.61	Cum.
ITEM No.10 :-						
ITEM No. 9 :- Dewatering the excavated trenches and pools of water etc complete						
Inspection well of 15.M. dia.	1.00	1.00	1.00		1.00	No
ITEM No.11 :-						
Providing IInd class B.B masonry						
a) In Cement Mortar (1:6)						
Lift 0.00 to 3.80.M	R.L.	644.50	to	648.30		
For Pump House	2	25.46	0.23	3.80	22.25	Cum.
	2	10.46	0.23	3.80	9.14	Cum.
Deduction.						
Rolling shutter.	1	3.00	4.00	0.23	2.76	Cum.
Windows.	17	1.50	1.20	0.23	7.04	Cum.
				Total =	21.60	Cum.
Lift 3.80 to 7.60.M	R.L.	648.30	to	652.10		
For Pump House	2	25.46	0.23	3.80	22.25	Cum.
	2	10.46	0.23	3.80	9.14	Cum.
				Total =	31.39	Cum.
Lift 7.60 to 11.40.M	R.L.	652.10	to	655.00		
For Pump House	2	25.46	0.23	2.90	16.98	Cum.
	2	10.46	0.23	2.90	6.98	Cum.
				Total =	23.96	Cum.
Deduction.						
Ventilators.	17	1.50	0.60	0.23	3.52	Cum.
				Total.	3.52	Cum.
				Total =	20.44	Cum.
ITEM No. 12:-						
Providing and fixing rolling steel shutter						
1) Rolling steel shutter.	1	3.00	4.00		12.00	sqm.
ITEM No. 13:-						
Providing & fixing steel window						
a) for Steel windows	17	1.50	1.20		30.60	sqm.
ITEM No.14 :-						
Providing & fixing steel Ventilator						
1) Steel Ventilators	17	1.50	0.60		15.30	sqm.
ITEM No. 15:-						
Providing and fixing M.S. Ladder etc complete.						
Inside the steining of well	9	5.50			49.50	Rm.
ITEM No. 16:-						
Providing and fixing in position copper lightening conductor						
1) for tape of 10 M length	1	1.00			1.00	No
Extra rate per meter length for 7.00 M beyond 10 M.	1	15.00			15.00	Rmt
ITEM No. 17:-						
Providing cement plaster Inside						
a) 20 mm thick cement plaster in two coats in cement Mortar (1:3)						
Inside the Pump house.	1	2	25.00	10.80	540.00	Sq.M.
	1	2	15.00	10.80	324.00	Sq.M.
Celing of J/W	1	2	15.00	25.00	750.00	Sq.M.
				Total =	1614.00	Sq.M.
ITEM No. 18:-						
Providing sand faced plaster externally in two coats.						
1) In C.M. 1:4 prop.	1	2	25.46	11.30	575.40	Sq.M.
	1	2	15.46	11.30	349.40	Sq.M.

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	Column offset outside	1	12.00	0.44	11.00	58.08	Sq.M.
					Total =	982.87	Sq.M.
	Deduction.						
	Shutter	1	3.00	4.00		12.00	Sq.M.
	Windows.	17	1.50	1.20		30.60	Sq.M.
	Ventilators.	17	1.50	0.60		15.30	Sq.M.
					Total =	57.90	Sq.M.
					Total =	924.97	Sq.M.
	ITEM No. 19:-						
	Providing and applying two coats of appex A ppex Ace white exterior paint of approved etc complete.						
	1) for two coats.						
	Total quantity of plaster.	1	924.97			924.97	Sq. M.
	ITEM No. 20-						
	Providing and applying oil bound distemper paint external face						
		1	1614.00			1614.00	Sq. M.
	ITEM No.21 :-						
	Providing and applying primer coat for wall surface to receive oil bound distemper treatment etc.complete.						
		1	2538.97			2538.97	Sq. M.
	ITEM No. 22 :-						
	Providing and fixing in position CI / MS Rose piece etc comp.						
		4	1200			4800.00	Kgs.
	ITEM No.23 :-						
	Providing and fixing GI pipe railing having 1.00 M height ... etc comp.						
	Jackwell	2	25			50.00	Rmt.
		1	15			15.00	Rmt.
					Total =	65.00	Rmt.
	ITEM No.24 :-						
	Providing and fixing MS Sluice Gate etc. complete	4	800			3200.00	Kg.
	ITEM NO. 25 :-						
	providing,construction coffer dam in river basin/dam storages asper type desing including						
	Assuming water level - For Jack Well						
	From Ch - 0 to 30 M						
		2.00	50.00	4.55	+	2.00	1.00
				2.00			327.50

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

R.C.C. Approach Bridge & Earthen Approach Bund

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	EARTHEN APPROACH BUND (60 m Length)			
	Item No.01:- Providing earth work in embankment with approved materials obtained from departmental land or other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with Power roller to achieve not less than 97 % of standard proctor density etc.. complete.			
3150.00	(PWD. SSR 2022-23. Page No.28 , I.No.2.28)	757.00	cum	2384550.00
	Item No.02:- Providing dry rubble stone pitching 23 cm (About 9``)thick including packing with quarry spalls and hard murum etc. complete as directed by Engineer -In -Charge			
425.04	(As Per Rate Analysis)	915.27	cum	389025.55
Total of subwork			Rs.	2773576.00
	Say		Rs.	27,73,600

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME						
Approach Bund , Length 60.00 M , 4.0 m wide						
MEASUREMENT						
Description of Item.	No.	L	W	D	Qty	Unit
1	2	3	4	5	6	7
EARTHEN APPROACH BUND						
Item No.01:- Providing and filling murum embankment for approach from GL to approach bridge... etc complete	70	20.00	10.00	(4+2)/2	3150.00	
		2.00				
						Cum
				Say	3150.00	Cum
Item No.02:- Providing dry stone pitching.etc com.	2	70.00	10.12	0.30	425.04	Cum
				Say	425.04	Cum

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at WTP

A B S T R A C T

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
ITEM NO. 1				
Excavation for foundation/pipe trenches in earth, soils of all types of sand gravel & soft murum incl. Removing the excavated material upto a distance of 50 M. & lift as below. stacking and spreading as directed, Normal dewatering, preparing the bed for fo				
Lift 0 to 1.5 M.	14.112	150.00	Cum.	2117.00
MJP CSR 2021 - 22 Page No. 42 I.No.1				
ITEM NO. 2				
Excavation for foundation/ pipe trenches in hard murum & 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 dowering				
Lift 0 to 1.5 M.	12.35	192.00	Cum.	2371.00
MJP CSR 2021 - 22 Page No. 42 I.No.3				
ITEM No.3				
Excavation for foundation/ pipe trenches in soft rock & 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 Engineer-in-charge,				
Lift 0 to 1.5 M.	8.82	572.00	Cum.	5045.00
MJP CSR 2021 - 22 Page No. 42 I.No.5				
ITEM No.4				
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal for foundation and bedding including dewatering, form work, compacting and curing, finishing etc. Complete.(Bd-E- 1/287)				
c) 1:2:4 (M -150) grade (with 12 to 20 mm metal)	2.65	6791.69	Cum	17971.00
(As Per Rate Analysis)				
ITEM No.5				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Column footing	5.78	8327.70	Cum	48101.00
(As Per Rate Analysis)				
ITEM No.6				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				

LATUR CITY MUNICIPAL CORPORATION

Lift 0 to 5 M For RCC M – 250				
RCC Beams/Braces/Lintel	3.31	9640.70	Cum	31930.00
(As Per Rate Analysis)				
ITEM No.7				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M				
RCC ColumnsM-250	3.30	9804.70	Cum	32355.00
(As Per Rate Analysis)				
ITEM No.8				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M M-250				
RCC Slab/Landing/Vertical Wall	3.58	10310.70	Cum	36892.00
(As Per Rate Analysis)				
ITEM NO.9				
Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)				
Lift 0 to 5 M				
Tor Steel.	1.25	97206.00	M.T.	121832.00
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
ITEM NO.10				
Providing IInd class B.B masonry with conventional / Indian stander type bricks in CM 1:6 in plinth & Superstructure including striking joints , raking out joints, watering,and scaffolding etc. complete.				
For superstructure	9.09	8423.53	Cum	76605.00
For Plinth	3.31	8184.53	Cum	27107.00
(As Per Rate Analysis)				
ITEM NO.11				

LATUR CITY MUNICIPAL CORPORATION

Providing and fixing rolling shutter fabricated from steel laths of minimum thickness 0.9 mm with lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle section fitted with sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respectively with hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size & shape with square bar, suspension shaft of minimum 32 mm diameter, hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operation arrangement consisting of worm gear wheels and worms of high grade cast iron or mild steel and one coat of red lead primer etc. complete. (I.S. 6248-1979) (With mechanical gear)				
Rolling steel shutter.				
(PWD SSR 2022-23 P.No.308 It. No.39.25)	5.25	5308.00	Sq.m.	27867.00
ITEM NO.12				
Providing & fixing steel window of various sizes as per detailed drawings fabricated from I.S. standard section without hot dip zinc coating without/ with ventilators including fabrication, glazing with non acetinic / plain / obscured glass panels of approved type and quality all fixtures and fastening without teak wood boxing, and architraves and finishing with one coat of primer complete. with guard bars 12 mm square bar 10 cm. centre to centre.				
for Steel windows	2.40	4607.00	Sq.m.	11057.00
(PWD SSR 2022-23 P.No.306 It. No.39.19)				
ITEM NO. 13				
Providing & fixing steel Ventilator fully glazed partly top hung and partly fixed as per detailed drawing without hot dip zinc coating including glazing with plain obscured glass panel and of approved type and quality and fixtures and fastening without teak wood boxing and architraves and oil painting two coats etc complete.				
Steel Ventilators	0.81	3375.00	Sq.m.	2734.00
(PWD SSR 22-23 P.No.308 It. No.39.29)				
ITEM NO. 14				
Providing internal cement plaster 20 mm thick in two coats in cement mortar 1:3 without neeru finish to concrete, brick surfaces in all positions including scaffolding and curing , etc. complete				
a) 20 mm thick cement plaster (1:4)	64.00	415.56	Cum	26596.00
(As Per Rate Analysis)				
ITEM NO.15				
Providing sand faced plaster externally in cement mortar using kharsalia / kasaba or similar type of sand in all positions including base coat of 20 mm thick in cement mortar 1:4 using waterproofing compound at 1 Kg per cement bag. Curing the same for no				
(As Per Rate Analysis)	71.11	683.30	Sq.m.	48587.00
ITEM NO. 16				

LATUR CITY MUNICIPAL CORPORATION

Providing and applying two coats of Exterior acrylic emulsion paint conforming to corresponding I.S.of approved manufacture and of approved colour to the plastered surfaces including cleaning,prepaireing the plaster surface,applying primer coat ,scaffolding if necessecary,and watering the surface for two days etc complete.				
1) New Surface.	71.11	261.00	Sq.m.	18559.00
(PWD SSR 2022-23 P.No.277 . Item No. 35.25)				
ITEM NO.17				
Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm of 8 to 10 mm thickness and confirming to IS 15622 - 2006 (Group Bla) of approved make shade and pattern for flooring in required position laid on a bed of 1:4 cement mortor including neat cement float , filling joints curing and clearing etc.complete. Note : (Water absorption should not be more than 0.05%) Spec. No.: Bd.M.12 Page No. 385				
(PWD SSR 2022-23 P.No. 267 Item No.33.44)	16.00	1769.00	Sq.m.	28304.00
ITEM NO. 18				
Providing and applying washable oil bound distemper of approved colour and shade to old and new surface in three coats including scaffolding preparing the surfaces (including the primer coat) etc.complete				
(PWD SSR 2022-23 P.No. 280 It. No. 36.11)	64.00	48.00	Sq.m.	3072.00
Total of subwork			Rs.	569102.00
		Say RS		5,69,200

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at WTP

M E A S U R M E N T

Description of Item	Nos	L	B	D	Qty	Unit
1	2	3	4	5	6	7
<u>ITEM NO. 1</u>						
Excavation for foundation/pipe trenches in earth, soils						
Lift 0 to 1.5 M.						
columns	4	2.10	2.10	0.8	14.1	cum
<u>ITEM NO. 2</u>						
Excavation for foundation/ pipe trenches in hard murum & boulders.						
Lift 0 to 1.5 M.	4	2.10	2.10	0.7	12.35	cum
<u>ITEM NO.3</u>						
Excavation for foundation/ pipe trenches in soft rock						
Lift 1.5 to 3 M.	4	2.10	2.10	0.5	8.82	cum
<u>ITEM NO4</u>						
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal						
c) 1:2:4 (M -150) grade column footing	4	2.10	2.10	0.15	2.65	cum
<u>ITEM NO5</u>						
:- Providing and laying in situ cement concrete of trap/granite/ foundation and footing of RCC columns etc.complete						
For RCC M – 250						
Lift 0 to 5 M						
a) column footings	4	1.9	1.90	0.40	5.78	Cum
<u>ITEM NO 6</u>						
:- Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
RCC brace Beam M-250						
Lift 0 to 5 M						
B) For Beams & Lintels						
gl beam & intermediate beam	4	4	0.23	0.45	1.66	Cum
Lintel level beam.	4	4	0.23	0.15	0.55	Cum
Roof beam.	4	4	0.23	0.3	1.10	Cum
				Total	3.31	Cum
<u>ITEM NO7</u>						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
column-M-250						
Lift 0 to 5 M column above & below GL	4	0.3	0.50	5.5	3.30	Cum
Total					3.30	Cum
<u>ITEM NO8</u>						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
slab M-250						
Lift 0 to 5 M						
chajja on door.	1	2.5	0.60	0.15	0.23	Cum

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chajja on window.	2	1.3	0.60	0.15	0.23	Cum
Roof slab	1	4.56	4.56	0.15	3.12	
Total					3.58	Cum
<u>ITEM NO.9</u>						
Providing and fixing in position steel bar reinforcement						
Lift 0 to 5 M	1	16.0	0.01	7850	1.25	M.T.
<u>ITEM NO.10</u>						
Providing IIInd class B.B masonry						
a) In Cement Mortar (1:6)						
Lift 0. to 3.8 m.	4	4	0.23	3.00	11.04	Cum.
Deduction.						
Rolling shutter.	1	2.5	2.10	0.23	1.21	Cum.
Windows.	2	1	1.20	0.23	0.55	Cum.
Ventilators.	2	0.9	0.45	0.23	0.19	Cum.
				Total.	1.95	Cum.
Net Qty.					9.09	Cum.
for plinth	4	4	0.23	0.9	3.31	Cum.
<u>ITEM NO. 11</u>						
Providing and fixing rolling steel shutter						
Rolling steel shutter.	1	2.50	2.10		5.25	Sq.m.
<u>ITEM NO. 12</u>						
Providing & fixing steel window						
for Steel windows	2	1.00	1.20		2.40	Sq.m.
<u>ITEM NO.13</u>						
Providing & fixing steel Ventilator						
Steel Ventilators	2	0.90	0.45		0.81	Sq.m.
<u>ITEM NO.14</u>						
Providing cement plaster Inside						
20 mm thick cement plaster in two coats in cement Mortar (1:3)						
Inside the Pump house.	4.0	4.00	3.00		48	Sq.m.
Celing	1.0	4.0	4.0		16	
					64	Sq.m.
<u>ITEM NO. 15</u>						
Providing sand faced plaster externally in two coats.						
In C.M. 1:4 prop.	4	4.46	4.46		79.57	Sq.m.
Deduction.						
Door	1	2.50	2.10		5.25	
Windows.	2	1.20	1.00		2.4	
Ventilators.	2	0.90	0.45		0.81	
				Total	8.46	Sq.m.
Net Qty.					71.11	Sq.m.
<u>ITEM NO. 16</u>						
two coats of appex Appex Ace white exterior paint						
Total quantity of plaster.	1	71.11			71.11	Sq.m.
<u>ITEM NO. 17</u>						
∴ Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm						
	1	4.00	4.00		16	Sq.m.
<u>ITEM NO. 18</u>						
Providing and applying oil bound distemper						
inside face					64	Sq.m.

LATUR CITY MUNICIPAL CORPORATION									
AUGMENTATION OF LATUR WATER SUPPLY SCHEME									
CALCULATION OF LEAD CHARGES (AS PER M.J.P.2021-22 & PWD SSR 2022-23)									
(FOR Head Work)									
Sr. No.	Material	Quarry	Distance (K.M.)	Rate for Final Lead	Rate for Initial Lead	Net Lead Charges	Pay Load Factor	Rate / Cum	Unit
1	Sand								
	As per MJP CSR	Gangakhed	85.0	6939.17	899.91	6039.26	5.75	1050.31	
	As per PWD CSR	Gangakhed	85.0	7718.09	0.00	7718.09	5.75	1342.28	
2	Sand(BSF)								
3	Metal below (60 & 40 mm)								
	As per MJP CSR	Diksal	15.0	1720.28	899.91	820.37	5.75	142.67	
4	Rubble soling								
	As per PWD CSR	Diksal	15.0	2360.66	0.00	2360.66	4.70	502.27	
5	Murum								
	As per MJP CSR	Gairan	0.0	0.00	0.00	0.00	6.00	0.00	
	As per PWD CSR	Gairan	0.0	0.00	0.00	0.00	6.00	0.00	
6	Bricks								
	As per PWD CSR	Local	0.0	0.00	0.00	0.00	0.00	0.00	

LEAD CALCULATION FOR AUG.TO LATUR W.S.S.

Sr. No.	Item	Sand	Metal	Rubble	Bricks	Murum	Sub Work	Net Lead Charges	Unit
1	P.C.C. 1:2:4	0.44	0.88				HW		
	As per MJP CSR	462.13	125.55					587.69	Cum
2	R.C.C. M-200	0.40	0.80				HW		
	As per MJP CSR	420.12	114.14					534.26	Cum
3	R.C.C. M-250	0.30	0.60				HW		
	As per MJP CSR	315.09	85.60					400.70	Cum
4	R.C.C. M-300	0.30	0.60				HW		
	As per MJP CSR	315.09	85.60					400.70	Cum
5	Rubble soling								
6	As per PWD CSR			1.000			HW		
				502.27				502.27	Cum
7	Murum MJP CSR					1.00	HW		
						0.00		0.00	Cum
8	Murum PWD CSR					1.00	HW		
						0.00		0.00	Cum
9	Brick Masonry in CM 1:6 (PWD)	0.320			475.00		HW		
		429.53			0.00			429.53	Cum
10	External Cement Plaster 1:4 20 mm.	0.033					HW		
		44.30						44.30	Cum
11	Internal Cement Plaster 1:4 15mm.	0.025					HW		
		33.56						33.56	Sqm.
12	B.B.masonry chambers 0.9 x 0.6 m	0.580	0.19						
		609.18	27.11					636.29	Cum
13	B.B.masonry chambers 1.2 x 1.2 m	0.870	0.29						
		913.77	41.38					955.14	Cum

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

For Head Works
RATE ANALYSIS

Sr. No	Description of Item	Basic Rate	Lead Charges	Total Rate
1	2	3	4	5
1	Item No. 1 :- Providing and casting in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing,etc. complete			
	PCC for levelling course below slab .			
	Lift 0.00 to 5.00 M.	6204.00	587.69	6791.69
	Lift 5.00 to 10.00 M.	6824.40	587.69	7412.09
	Lift 10.00 to 15.00 M.	7444.80	587.69	8032.49
	Lift 15.00 to 20.00 M.	8065.20	587.69	8652.89
	Lift 20.00 to 25.00 M.	8685.60	587.69	9273.29
	(MJP CSR 21-22, Corrigendum No.9 Dt.06.05.2022 I.No.1 P.No.49)			
2	Item No. 2 :- Providing and laying in situ of C.C. of trap/ granite / quartzite/ gneiss metal for RCC works in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering , centering, form work, compaction, finishing and curing,etc. complete. (By weight batching mix design for M – 250 & M-300 only. Use of L&t , ACC, Ambuja,Birla Gold,Manikgad, Rajashree,etc.cement is permitted. Excluding M.S. or Tor reinforcement.)			
	RCC Footing.M- 200			
	Lift 0.00 to 5.00 M.	7318.00	534.26	7852.26
	RCC Footing.M- 250			
	Lift 0.00 to 5.00 M.	7927.00	400.70	8327.70
	Lift 5.00 to 10.00 M.	8719.70	400.70	9120.40
	Lift 10.00 to 15.00 M.	9512.40	400.70	9913.10
	RCC Footing.M- 300			
	Lift 0.00 to 5.00 M.	8193.00	400.70	8593.70
	Lift 5.00 to 10.00 M.	9012.30	400.70	9413.00
	Lift 10.00 to 15.00 M.	9831.60	400.70	10232.30
	Lift 15.00 to 20.00 M.	10650.90	400.70	11051.60
	Lift 20.00 to 25.00 M.	11470.20	400.70	11870.90
	(MJP CSR 21-22, Corrigendum No.9 Dt.06.05.2022 I.No.2 P.No.49)			
3	Item No. 3 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work as directed by Engineer-in-charge including normal dewarterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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.			
	RCC Beams/ BRACES/Lintels.M - 200			
	Lift 0.00 to 5.00 M.	8674.00	534.26	9208.26
	RCC Beams.M - 250			
	Lift 0.00 to 5.00 M.	9240.00	400.70	9640.70
	Lift 5.00 to 10.00 M.	10164.00	400.70	10564.70
	Lift 10.00 to 15.00 M.	11088.00	400.70	11488.70
	RCC Beams.M - 300			
	Lift 0.00 to 5.00 M.	9486.00	400.70	9886.70
	Lift 5.00 to 10.00 M.	10434.60	400.70	10835.30
	Lift 10.00 to 15.00 M.	11383.20	400.70	11783.90
	(MJP CSR 21-22, Corrigendum No.9 Dt.06.05.2022 I.No.4 P.No.50)			
4	Item No. 4 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work as per detailed drawings and designs or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction fiinishing 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 desing 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 Reinforced Cement Concrete.			
	For RCC M-300 grade - all types of columns.			
	RCC.Columns.M - 200			
	Lift 0.00 to 5.00 M.	8815.00	534.26	9349.26
	RCC.Columns.M - 250			
	Lift 0.00 to 5.00 M.	9404.00	400.70	9804.70
	Lift 5.00 to 10.00 M.	10344.40	400.70	10745.10
	Lift 10.00 to 15.00 M.	11284.80	400.70	11685.50
	Lift 15.00 to 20.00 M.	12225.20	400.70	12625.90

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	Lift 20.00 to 25.00 M.	12225.20	400.70	12625.90
	RCC.Columns.M - 300			
	Lift 0.00 to 5.00 M.	9651.00	400.70	10051.70
	Lift 5.00 to 10.00 M.	10616.10	400.70	11016.80
	Lift 10.00 to 15.00 M.	11581.20	400.70	11981.90
	Lift 15.00 to 20.00 M.	12546.30	400.70	12947.00
	Lift 20.00 to 25.00 M.	13511.40	400.70	13912.10
	(MJP CSR 21-22, CorrigendumNo.9 Dt.06.05.2022 I.No.3 P.No.49)			
5	Item No. 5 :-Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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 .			
	RCC.Vertical Walls.M - 200			
	Lift 0.00 to 5.00 M.	9313.00	534.26	9847.26
	RCC.Vertical Walls.M - 250			
	Lift 0.00 to 5.00 M.	9910.00	400.70	10310.70
	Lift 5.00 to 10.00 M.	10901.00	400.70	11301.70
	Lift 10.00 to 15.00 M.	11892.00	400.70	12292.70
	Lift 15.00 to 20.00 M.	12883.00	400.70	13283.70
	RCC.Vertical Walls.M - 300			
	Lift 0.00 to 5.00 M.	10172.00	400.70	10572.70
	Lift 5.00 to 10.00 M.	11189.20	400.70	11589.90
	Lift 10.00 to 15.00 M.	12206.40	400.70	12607.10
	Lift 15.00 to 20.00 M.	13223.60	400.70	13624.30
	Lift 20.00 to 25.00 M.	14240.80	400.70	14641.50
	(MJP CSR 21-22, CorrigendumNo.9 Dt.06.05.2022 I.No.5 P.No.50)			
6	Item No. 6 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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 .			
	RCC.Slabs.M - 200			
	Lift 0.00 to 5.00 M.	9313.00	534.26	9847.26
	RCC.Slabs.M - 250			
	Lift 0.00 to 5.00 M.	9910.00	400.70	10310.70
	Lift 5.00 to 10.00 M.	10901.00	400.70	11301.70
	Lift 10.00 to 15.00 M.	11892.00	400.70	12292.70
	Lift 15.00 to 20.00 M.	12883.00	400.70	13283.70
	RCC.Slabs.M - 300			
	Lift 0.00 to 5.00 M.	10172.00	400.70	10572.70
	Lift 5.00 to 10.00 M.	11189.20	400.70	11589.90
	Lift 10.00 to 15.00 M.	12206.40	400.70	12607.10
	(MJP CSR 21-22, CorrigendumNo.9 Dt.06.05.2022 I.No.5 P.No.50)			
7	Item No. 7 :- Providing Second Class burnt Brick masonry with conventional / indian standard type bricks in cement mortar 1:6 in superstructure as bacing in composite masonry including scaffolding, racking cut joints and waterinG complete.			
	Lift 0.00 to 3.80 M.	7994.000	429.53	8423.53
	Lift 3.80 to 7.60 M.	8073.940	429.53	8503.47
	Lift 7.60 to 11.40 M.	8153.880	429.53	8583.41
	Lift 11.40 to 15.20 M.	8233.820	429.53	8663.35
	Lift 15.20 to 19.00 M.	8313.760	429.53	8743.29
	Lift 19.00 to 22.80 M.	8393.700	429.53	8823.23
	(PWD SSR 2022-23, I.No.27.05 P.No 242)			
8	Item No. 8 :- Providing Internal cement plaster 20 mm thick in single coats in cement mortar 1:4 with-out neeru to concrete, brick surface, in all positions including scaffolding and curing complete.-			
	(PWD SSR 2022-23, I.No.32.07 P.No 256)	382.00	33.56	415.56
9	Item No.9 :- Providing sand faced plaster externally in cement mortar using Approved scened sand in all positions including base coat of 15 mm. thick in cement mortar 1:4 using waterproofing compound at 1 Kg. per cement bag, curing the same for not less than 2 days and keeping the surface of the base coat rough to recive the sand faced tretment 10 mm. thick in cement mortar 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete.for compound Wall. BDL-7(Only for Building works not for compound wall) Spec. :Bd.L .7 Page No. 367			
	(PWD CSR 2022-23, I.No.32.11 P.No 257)	639.00	44.30	683.30

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10	ITEM No.10 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	MJP.CSR 21-22 Page No.220. I.No.1c&1f			
	1) As above of 90 x 60 cm internal size and depth upto 1.2 M with precast RCC slab cover	10624.00	636.29	11260.29
	2) As above of 1.20 x 1.20 cm internal size and depth upto 1.2 M with precast RCC slab cover	16283.00	955.14	17238.14
	2) As above of 1.50 x 1.50 cm internal size and depth upto 1.5 M with precast RCC slab cover	24758.00	955.14	25713.14
11	Item No.11 :- Providing dry rubble stone pitching 23 cm (About 9") thick including packing with quarry spalls and hard murum etc. complete as directed by Engineer -In -Charge			
	Dry rubble stone pitching	413.00	502.27	915.27
	(PWD SSR.2022-23 P.No.28.Item No. 2.34)			
12	Item No. 12 :- Providing Second Class burnt Brick masonry with conventional / indian standard type bricks in cement mortar 1:6 in foundation & plinth as bacing in composite masonry including scaffolding, racking cut joints and waterinG complete.			
	Lift 0.00 to 3.80 M.	7755.000	429.53	8184.53
	(PWD SSR 2022-23, I.No.27.01 P.No 242)			

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Raw Water Rising Main. From H/W To BPT @ Dabha pati

(1000 MM DIA D.I.K-9 PIPES)

Classification of Strata as per Trial Pit Results

							2.066
Sr.No	Chainage	Soft Soil	Murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth
1	2	3		4	5	6	7
1	0	0.6	0.3	0.35	0.35	0.5	2.10
2	500	0.5	0.3	0.65	0.35	0.3	2.10
3	1000	0.5	0.35	0.35	0.3	0.6	2.10
4	1500	0.35	0.2	0.5	0.4	0.65	2.10
5	2000	0.4	0.4	0.3	0.45	0.55	2.10
6	2500	0.3	0.5	0.35	0.45	0.5	2.10
7	3000	0.55	0.35	0.35	0.45	0.4	2.10
8	3500	0.45	0.35	0.3	0.35	0.65	2.10
9	4000	0.4	0.35	0.35	0.5	0.5	2.10
10	4500	0.3	0.3	0.3	0.3	0.9	2.10
	Total	4.35	3.40	3.80	3.90	5.55	18.90
	Avg Depth	0.44	0.34	0.38	0.39	0.56	2.10

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

R.W.R.M.From H.W to SHAFT @ Dabha pati (1000 mm.dia.D.I.K-9.Pipe.L-4500.M)

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM No. 1 :- Providing D.I.Pipes (push on joints pressure pipes of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (Rubber gasket of EPDM quality) excluding GST levied by GOI and GOM in all respect,including Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to deptamental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS- 1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/ revision with amendments for rubber gasket)			
3615.00	1000 mm dia.DI.K-9 Pipe. (As Per Corrigendum No7.Lett.No.652.Dt.07.03.22,P.No.1)	27750.00	Rmt	100316250.00
	ITEM No.2 :- Providing & Supplying ISI standard D.I. specials and fittings with sealing rubber gasket of SBR complete with C.I. follower glands and mild steel nut bolts coated or otherwise protected from rusting and suitable for D.I.pipes including cost of labour,material and transportation to stors /site,loading,unloading including all taxes etc complete as per IS-9523.			
17289	350 mm dia & Above,PN-16 (As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,P.No.1)	186.00	Kg.	3215754.00
	ITEM No:3 :-Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984)			
1	1000 mm dia Reflux Valve.P.N.1.6 MJP.SSR .2021 - 22. Page No.132 . I.No.1	755539.00	No.	755539.00
	ITEM No:4 :- Providing double flanged Sluice Valves conforming to IS-14846 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including inspection charges transportation stores,unloading,stacking excluding GST levied by GOI & GOM in all respect etc.complete.			
10	200 mm dia Sluice Valve.P.N.1.6	23231.00	No.	232310.00

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1	1000 mm dia Sluice Valve.P.N.1.6	844584.00	No.	844584.00
	MJP.SSR .2021 - 22. Page No.132 . I.No.2			
	Item No 5 :- 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 conforming to EN 1563/IS 1865.Gr.500/7 or Gr.400/15 floats,float guide,seat ring of stainless steel I.4436/I.4306.seat ring gasket of WRAS approved EPDM rubber (suitable for drinking water) internal fastness of stainless steel A2 Body & Bonnet coated inside & outside with electrostatically applied epoxy poeder 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 transportation charges excluding GST levied by GOI & GOM in all respect etc.complete..			
9	200 mm dia. Tamper Proof Air Valve.PN-1.60	45270.00	No.	407430.00
	MJP.SSR .2021 - 22. Page No.145 . I.No.25			
	ITEM No 6 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.1			
2516.04	Lift 0 to 1.5 M.	150.00	Cum.	377406.00
	Item No.7 :- Excavation for foundation/ pipe trenches in hard murum 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.2			
1966.56	Lift 0 to 1.5 M.	170.00	Cum	334316.00
	Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.3			
2197.92	Lift 0 to 1.5 M.	192.00	Cum	422001.00

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	Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation,asphalt road,soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.5			
1966.56	Lift 0 to 1.5 M.	572.00	Cum	1124873.00
289.20	Lift 1.5 to 3.0 M.	597.00	Cum	172653.00
	Item No 10 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.			
	MJP.SSR .2021 - 22. Page No.43 . I.No.7			
3210.12	Lift 1.5 to 3.0 M.	780.00	Cum	2503894.00
	ITEM No.11 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and			
	MJP.SSR .2021 - 22. Page No.45 . I.No.16			
867.60	A).Murum available from excavated stuff	84.00	Cum	72879.00
	ITEM No. 12 :- Lowering laying and jointing with SBR ruber gaskets C.I. 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.SSR .2021 - 22. Page No. 70 . I.No.2.A			
3615.00	1000 mm dia.DI.K-9 Pipe.	912.00	RM	3296880.00
	ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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.SSR .2021 - 22. Page No. 74 . I.No.12.			
	CI Class 'LA' / Mortar inlined D.I. K-9 / K-7			
3.62	1000 mm dia.DI.K-9 Pipe.	101431.00	Km	366674.00

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	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.SSR .2021 - 22. Page No.135 . I.No.4			
10	200 mm dia Sluice Valve.P.N.1.6	3714.00	No.	37140.00
2	1000 mm dia Reflux Valve.P.N.1.6	17271.00	No.	34542.00
	ITEM No. 15 :- Providing and fixing in position air valve shaft including providing and fixing G.I. Medium class of 6 mm thick M.S. pipe shaft 2.70 m long over branch flange of air valve tee. Providing PCC block of M- 150 concrete 150 mm thick around the air valve tee including encasing of vertical shaft in PCC M-150 as shown in type design together with providing and making flanged joints wherever required cost of air valve over the shaft excluding cost of air valve and branched flanged air valve tee, etc complete as per branched flanged air valve tee, etc complete as per type design and as directed by Engineer-in-charge for following diameters of pipe lines. (Type design attached)			
	MJP.SSR .2021 - 22. Page No.140 . I.No.17			
	A) Foundation on Murum and Hard Strata			
9.00	1000 to 1200 mm Dia pipeline.	16689.00	No.	150201.00
	ITEM No.16 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	As Per Rate Analysis			
2	2) As above of 150 x 150 cm internal size and depth upto 1.5M with precast RCC slab cover	25713.14	No.	51427.00
	ITEM No. 17 :- 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			
8347.62	MJP.SSR .2021 - 22. Page No.45 . I.No.15	84.00	Cum	701201.00
	Item No. 18 :- 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.			
	MJP.SSR .2021 - 22. Page No.72 . I.No.7			
3000.00	MS Specials (All Socketed)	95.00	Kg	285000.00

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	ITEM No. 19 :- Providing and laying in situ cement concrete of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including dewatering, form work, compacting roughening if special finishis to be provided, finishing if required etc. complete.			
68.32	1:2:4 (M – 150) grade	6791.69	Cum	464028.01
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	Item No.20 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering,formwork,compaction,finishing and curing etc.complete			
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	In R.C.C. M-200			
171.52	For Thrust/Anchor block at bends	7852.26	cum	1346801.00
	Item No. 21 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
13.464	Tor Steel.	97206.00	MT	1308794.00
	Item No. 22 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 diamerts of existing pipeline, irrespective of diameter of branch line (the 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 SSR 2021 - 22, Item.No.10.Page.No.60)			
1.00	1000 mm dia	66176.00	No.	66176.00
	Item No. 23 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)			
3000.00	PWD Charges Along the Road	275	Rmt	825000.00
1.00	Road Crossing	5500	Rmt	5500.00
	Item No. 24 :- Provision for charges towards crop compensasion of farmers,etc)			
18000	(As per Rate Analysis)	250.00	Sq.mt.	4500000.00
		Total	Rs.	124219253
		Say Rs	Rs.	12,42,19,300

LATUR CITY MUNICIPAL CORPORATION

1	2	3	4	5	6	7
ITEM No.1 :- Providing D.I. K-9 grade pipes with internal cement mortar lining including taxes, insurance,						
Raw water Rising Main						
1000 mm dia.DI.K-9 Pipe.	1	3615			3615	Rmt
ITEM No.2 :- Providing and supplying DI/MS specials suitable for above pipes,						
Above 350 mm Dia						
1000 x 1000 x 200 Hydrant Tee-weight 444 Kg.Each	10	444			4440	Kg
1000 mm dia Bend						
90 Degree weight 964 Kg.Each	6	964			5784	Kg
45 Degree weight 651 Kg.Each	1	651			651	Kg
22,1/2 Degree weight 454 Kg.Each	2	458			916	Kg
11,1/4 Degree weight 384 Kg.Each	2	384			768	Kg
1000 mm dia MJ Collier Coupling	10	473			4730	Kg
				Total Wt.	17289	Kg
ITEM No:3 :-Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon,loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete.Reflux valves as per I.S.5312 Part I (1984)						
1000 mm dia Reflux Valve.P.N.1.6	1	1			1	Nos.
ITEM No.4 :- Providing and supplying ISI mark C.I. D/F sluice valves						
200 mm dia Sluice Valve.P.N.1.6	1	10			10	Nos.
1000 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
Item No 5 :- Providing , supplying & fixing in positon stainless ball, tamper proof air vents ... etc including all taxes and duties except octroi)						
200 mm dia. Tamper Proof Air Valve.PN-1.60	1	9			9	Nos.
Item No.6 :- Excavation for foundation/ pipe trenches in Soft Soil..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.44	2516.04	Cum
Item No.7 :- Excavation for foundation/ pipe trenches in hard murum excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.34	1966.56	Cum
Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.38	2197.92	Cum

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Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement .. by blasting and hard rock by controlled....., etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.34	1966.56	Cum
Lift 1.5 to 3.0 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.05	289.20	Cum
Item No 10 :- Excavation for foundation / pipe trenches in Hard rock by Cheseling, ... excluding backfilling, etc. complete.						
Lift 1.5 to 3.0 M.						
1000 mm dia.DI.K-9 Pipe.	1	3615	1.60	0.56	3210.12	Cum
				2.10		
ITEM No. 11 :-Filling in plinth and floors murum bedding in trenches						
A) Murum available from excavated stuff	1	3615	1.60	0.15	867.60	Cum
ITEM No. 12 :- Lowering laying and jointing with SBR rubber gasket C.I. / D.I. S/S pipes etc. complete.						
1000 mm dia.DI.K-9 Pipe.	1	3615			3615	Rmt
ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour ..etc.						
CI Class 'LA' / Mortar inlined D.I. K-9 / K-7						
1000 mm dia.DI.K-9 Pipe.	1	3.62			3.62	Km
ITEM No. 14 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
200 mm dia Sluice Valve.P.N.1.6	1	10			10	Nos.
1000 mm dia Reflux Valve.P.N.1.6	1	2			2	Nos.
ITEM No.15 :- Providing and fixing in position air valve shaft						
A) Foundation on Murum and Hard Strata						
1000 to 1200 mm Dia pipeline.	1	9			9	Nos.
ITEM No. 16 :- Providing and constructing B.B. masonry valve chamber						
2) As above of 150 x 150 cm internal size and depth upto 1.5 M with precast RCC slab cover	1	2			2	Nos.

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ITEM No. 17 :- Refilling the trenches with available excavated stuff						
Total excavation					12146.40	Cum
Deduction						
Murum bedding					867.60	
Volume of pipe for 1000 mm dia	0.7855	1.016	1.016	3615	2931.18	
Total deduction					3798.78	
Net qty of refilling				Total =	8347.62	Cum
Item No. 18 :- Providing MS Specials etc charges, transportation to stores / site, and stacking, etc. complete						
MS Specials	1	3000			3000	Kg
ITEM No. 19 :- Providing and laying in situ cement concrete M-10 / 1:3:6 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding etc						
1:2:4 (M-150) grade						
Encasing in Nalla portion	1	22	2	1.6	70.40	
P.W.D.Road crossing's	1	25	2.1	0.3	15.75	
Deduct Pipe Volume =	1.00	22.00	0.785	(0.1000)^2	17.83	Cum
				Total =	68.32	Cum
Item No.20 :- Providing and Casting RCC M-200 ...etc complete.						
For Thrust/Anchor block at bends	11	4.50	2.10	1.65	171.52	Cum
Item No.21 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)						
Tor Steel.	1.00	171.52	0.01	7850	13.464	MT
Item No. 22 :- Making cross connection to existing distribution main of any type including ..etc. complete						
1000 mm dia	1	1			1	No.
Item No. 23 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)						
PWD Charges Along the Road	1	3000			3000	Rmt
Road Crossing	1	1			1	Rmt
Item No. 24 :- Provision for charges towards crop compensasion of farmers,etc)						
	1	4500	4		18000	Sq.mt.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of M.S. SHAFT

A B S T R A C T

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM No. 1 :-			
	Providing & 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 & Local), octroi, inspection charges, transportation to store/site, and stacking etc complete.			
20873.94	MS barrels (pipe pieces) locally manufactured (for small quantities)	92	kg	1920402.17
	(CSR 2021-22 P.No. 72 It. No.7)			
	ITEM No. 2 :-			
	Providing and making flanged joints to flanged C.I./M.S. pipes of all classes/specials etc. including all jointing materials (rubber packing, nut bolts etc) labour hydraulic testing etc			
12	1) 1000 mm dia	7115	joint	85380.00
15	2) 1500 mm dia.	10672.5	joint	160087.50
	(CSR 2021-22 P.No. 73 It. No.8)			
	ITEM No. 3 :-			
	Excavation for foundation/ pipe trenches in hard murum & 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. (Bd-A - 3/259)			
24.50	Lift 0 to 1.5 M.	192	Cum	4704.00
	(CSR 2021-22 P.No.33 It. No. 3)			
	ITEM No.4:-			
	Excavation for foundation/ pipe trenches in soft rock & 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 Engineer-in-charge, normal dewatering, preparing the bed for foundation and excluding backfilling etc complete. (Bd-A-4/259)			
49.00	Lift 0 to 1.5 M.	572	Cum	28028.00
	(CSR 2021-22 P.No.33 It. No. 5)			
	ITEM No.5:-			
	Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal for foundation and bedding including dewatering, form work, compacting and curing, finishing etc. Complete.(Bd-E-1/287)			
5.4	c) 1:2:4 (M -150) grade (with 12 to 20 mm metal)	6791.69	Cum	36676.00
	Rate Analysis			

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	Item No.6 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering,formwork,compaction,finishing and curing etc.complete			
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	In R.C.C. M-200			
37.50	For r block at Shaft	7852.26	Cum	294460.00
	Item No. 7 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
2.94	Tor Steel.	97206.00	MT	286151.00
	ITEM No.8 :-			
	Erecting and hoisting in position and jointing,testing M.S./C.I.D/Fpipes and specials invertical position including cost of all jointing materials (rubber packing,nutbolts,etc.) labour,scaffolding,hydraulic testing etc.			
26	1000 mm DF MS Pipes	7424	Rmt	193024.00
29	1500 mm DF MS Pipes	11136	Rmt	322944.00
	(CSR 2021-22 P.No.73 It. No.9)			
	ITEM No9:-			
	Providing and supplying ISI mark C.I. D/F sluice valves and butterfly valves of following diameter including all taxes (Central and Local). Railway wagon, loading into truck, transport to departmental stores/ site,unloading, stacking etc. Complete.			
1	1) 1000 mm dia (PN 1.6)-for bypass	844584	No.	844584.00
	(CSR 2021-22 P.No.128 It. No. 2)			
	ITEM No10:-			
	Lowering, laying and jointing in position following C.I. D/F Sluice Valve cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing etc. complete (Rate for class of valves)			
1	2) 1000 mm dia CIDF Sluice valve. -bypass	17271	No.	17271.00
	(CSR 2021-22 P.No.130 It. No. 4-a)			
	ITEM No.11:-			
	Providing and constructing B.B. masonry valve chamber with 15 mm cm thick 1:3:6 proportion PCC bedding, excluding excavation, B.B. masonry in C.M. 1:5 cm thick precast RCC frame & cover etc complete as directed by Engineer-in-charge.			
1	1)As above of 1.5 x 1.5cm internal size and depth upto 1.5M with precast RCC slab cover	25713.14	No.	25714.00
	Rate Anlysis			
		Total	Rs.	4219425.67
			Say	42,19,400

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

ESTIMATE OF M.S. SHAFT

MEASUREMENTS

Description of Item.	No.	L	W	D			Qty	Unit
1	2	4	5	6			7	8
ITEM No. 1 :-								
Providing & supplying ISI standard MS Specials of required thickness with 3 coats of approved make epoxy paint etc complete.								
MS barrels (pipe pieces) locally manufactured (for small quantities)								
For 1000 mm dia pipe, 8 mm thick	1	26	3.142	1.016	0.008	7850	5212.34	Kg
For 1000 mm dia bend. 8 mm thick	1	0.8	3.142	1.016	0.008	7850	160.38	Kg
For 1500 mm dia pipe, 8 mm thick	1	29	3.142	1.516	0.008	7850	8674.87	Kg
For 1500 mm dia bend. 8 mm thick	1	0.8	3.142	1.516	0.008	7850	239.307	Kg
For M.S. base plate	1	5	5.000	0.008	7850	7850	1570	Kg
Bolts for fixing base plate.	36	0.785	0.016	0.016	0.30	7850	17.0374	Kg
MS specials for bypass arrangement tee & bends	1					5000	5000	Kg
					Total.		20873.9	Kg
ITEM No. 2								
Providing and making flanged joints to flanged C.I./M.S. pipes of all classes/specials etc. including all jointing materials (rubber packing, nut bolts etc), labour, hydraulic testing etc.								
1) 1000 mm dia	1	12					12	No.
2) 1500 mm dia.	1	15					15	No.
ITEM No. 3								
Excavation for foundation/ pipe trenches in hard murum & boulders.								
Lift 0 to 1.5 M.								
For shaft fixing	1	7	7	0.50			24.50	Cum
ITEM No. 4 :-								
Excavation for foundation/ pipe trenches in soft rock								
Lift 0 to 1.5 M.								
For 250 mm dia	1	7	7	1.00			49.00	Cum
ITEM No. 5 :-								
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal								
c) 1:2:4 (M -150) grade								
For bedding	1	6	6	0.15			5.4	Cum
ITEM No. 6 :-								
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal								
c) 1:2:4 (M -200) grade								
For fixing base plate	1	5	5	1.50			37.50	Cum
Item No.7 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)								
Tor Steel.								
	1	37.50	1%	7850.00			2.94	MT
ITEM No.8 :-								
Hoisting & erecting double flanged MS pipes for MS shaft								

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1000 mm	1	26					26	Rmt
1500 mm	1	29					29	Rmt
ITEM No.9:-								
Providing and supplying ISI mark C.I. D/F sluice valves and butterfly valves								
Sluice Valve PN-1.6								
1) 1000 mm dia CIDF Control valve	1	1					1	No.
ITEM No. 10 :-								
Lowering, laying and jointing in position following C.I. D/F Sluice Valve								
1) 1000 mm dia CIDF Sluice valve.	1	1					1	No.
ITEM No. 11:-								
Providing and constructing B.B. masonry valve chamber								
1) As above of 1.5 x 1.5 cm internal size and depth upto 1.5M with precast RCC slab cover	1	1					1	No.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Raw Water Gravity Main. From MS Shaft to WTP

(1200MM Dia = 26200 M, 1100 MM Dia.=20500 & 700 MM Dia=800M D.I.K-7 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							2.266
Sr.No	Chainage	Soft Soil	Murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth
1	2	3		4	5	6	7
	1200MM Dia = 26183 M,D.I.K-7 PIPES						
1	0	0.6	0.3	0.35	0.35	0.7	2.30
2	500	0.5	0.3	0.65	0.35	0.5	2.30
3	1000	0.5	0.35	0.35	0.3	0.8	2.30
4	1500	0.35	0.2	0.5	0.4	0.85	2.30
5	2000	0.4	0.4	0.3	0.45	0.75	2.30
6	2500	0.3	0.5	0.35	0.45	0.7	2.30
7	3000	0.55	0.35	0.35	0.45	0.6	2.30
8	3500	0.45	0.35	0.3	0.35	0.85	2.30
9	4000	0.4	0.35	0.35	0.5	0.7	2.30
10	4500	0.3	0.3	0.3	0.3	1.1	2.30
11	5000	0.35	0.2	0.5	0.4	0.85	2.30
12	5500	0.4	0.4	0.3	0.45	0.75	2.30
13	6000	0.3	0.5	0.35	0.45	0.7	2.30
14	6500	0.3	0.5	0.35	0.45	0.7	2.30
15	7000	0.35	0.2	0.5	0.4	0.85	2.30
16	7500	0.4	0.4	0.3	0.45	0.75	2.30
17	8000	0.3	0.5	0.35	0.45	0.7	2.30
18	8500	0.55	0.35	0.35	0.45	0.6	2.30
19	9000	0.45	0.35	0.3	0.35	0.85	2.30
20	9500	0.4	0.35	0.35	0.5	0.7	2.30
21	10000	0.3	0.3	0.3	0.3	1.1	2.30
22	10500	0.35	0.2	0.5	0.4	0.85	2.30
23	11000	0.35	0.2	0.5	0.4	0.85	2.30
24	11500	0.4	0.4	0.3	0.45	0.75	2.30
25	12000	0.3	0.5	0.35	0.45	0.7	2.30
26	12500	0.55	0.35	0.35	0.45	0.6	2.30
27	13000	0.45	0.35	0.3	0.35	0.85	2.30
28	13500	0.4	0.35	0.35	0.5	0.7	2.30
29	14000	0.3	0.3	0.3	0.3	1.1	2.30
30	14500	0.35	0.2	0.5	0.4	0.85	2.30
31	15000	0.35	0.2	0.5	0.4	0.85	2.30
32	15500	0.4	0.4	0.3	0.45	0.75	2.30
33	16000	0.3	0.5	0.35	0.3	0.85	2.30
34	16500	0.55	0.35	0.35	0.45	0.6	2.30
35	17000	0.45	0.35	0.3	0.35	0.85	2.30
36	17500	0.4	0.35	0.35	0.5	0.7	2.30
37	18000	0.3	0.3	0.3	0.3	1.1	2.30
38	18500	0.35	0.2	0.5	0.4	0.85	2.30
39	19000	0.35	0.2	0.5	0.4	0.85	2.30
40	19500	0.4	0.4	0.3	0.4	0.8	2.30
41	20000	0.3	0.5	0.35	0.45	0.7	2.30
42	20500	0.55	0.35	0.35	0.45	0.6	2.30

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43	21000	0.45	0.35	0.3	0.35	0.85	2.30
44	21500	0.4	0.35	0.35	0.45	0.75	2.30
45	22000	0.3	0.3	0.3	0.3	1.1	2.30
46	22500	0.35	0.2	0.5	0.3	0.95	2.30
47	23000	0.35	0.2	0.5	0.4	0.85	2.30
48	23500	0.4	0.4	0.3	0.4	0.8	2.30
49	24000	0.3	0.5	0.35	0.45	0.7	2.30
50	24500	0.55	0.35	0.35	0.45	0.6	2.30
51	25000	0.45	0.35	0.3	0.3	0.9	2.30
52	25500	0.4	0.35	0.35	0.5	0.7	2.30
53	26000	0.3	0.3	0.3	0.3	1.1	2.30
		20.85	18.05	19.55	21.3	42.15	121.9
		0.39	0.34	0.37	0.40	0.80	2.30
	1100 MM Dia=17317+3100M=20417m D.I.K-7 PIPES						2.166
1	26500	0.3	0.5	0.55	0.3	0.5	2.15
2	27000	0.15	0.7	0.4	0.2	0.7	2.15
3	27500	0.3	0.5	0.35	0.45	0.55	2.15
4	28000	0.35	0.45	0.25	0.55	0.55	2.15
5	28500	0.3	0.5	0.55	0.3	0.5	2.15
6	29000	0.15	0.7	0.4	0.2	0.7	2.15
7	29500	0.3	0.5	0.35	0.45	0.55	2.15
8	30000	0.3	0.5	0.35	0.45	0.55	2.15
9	30500	0.35	0.45	0.2	0.35	0.8	2.15
10	31000	0.1	0.15	0.55	0.6	0.8	2.20
11	31500	0.3	0.5	0.35	0.45	0.55	2.15
12	32000	0.35	0.45	0.25	0.55	0.55	2.15
13	32500	0.3	0.5	0.35	0.45	0.55	2.15
14	33000	0.35	0.45	0.25	0.55	0.55	2.15
15	33500	0.2	0.5	0.45	0.3	0.7	2.15
16	34000	0.4	0.35	0.25	0.4	0.75	2.15
17	34500	0.35	0.45	0.2	0.35	0.8	2.15
18	35000	0.3	0.5	0.35	0.45	0.55	2.15
19	35500	0.1	0.15	0.55	0.6	0.75	2.15
20	36000	0.3	0.5	0.35	0.45	0.55	2.15
21	36500	0.35	0.45	0.2	0.35	0.8	2.15
22	37000	0.1	0.15	0.55	0.6	0.75	2.15
23	37500	0.3	0.5	0.35	0.45	0.55	2.15
24	38000	0.35	0.45	0.25	0.55	0.55	2.15
25	38500	0.3	0.5	0.35	0.45	0.55	2.15
26	39000	0.2	0.5	0.45	0.3	0.7	2.15
27	39500	0.4	0.35	0.25	0.4	0.75	2.15
28	40000	0.35	0.45	0.2	0.35	0.8	2.15
29	40500	0.3	0.5	0.35	0.45	0.55	2.15
30	41000	0.35	0.45	0.2	0.35	0.8	2.15
31	41500	0.1	0.15	0.55	0.4	0.95	2.15
32	42000	0.3	0.5	0.35	0.45	0.55	2.15
33	42500	0.35	0.45	0.25	0.4	0.7	2.15
34	43000	0.1	0.15	0.55	0.4	0.95	2.15
35	43500	0.3	0.5	0.35	0.45	0.55	2.15
36	44000	0.5	0.35	0.35	0.3	0.65	2.15
37	44500	0.35	0.2	0.5	0.4	0.7	2.15

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38	45000	0.4	0.4	0.3	0.45	0.6	2.15
39	45500	0.3	0.5	0.35	0.3	0.7	2.15
40	46000	0.55	0.35	0.35	0.45	0.45	2.15
41	46500	0.3	0.5	0.35	0.45	0.55	2.15
42	47000	0.3	0.5	0.35	0.5	0.5	2.15
	Total	12.40	18.15	15.05	17.60	27.15	90.35
	Avg Depth	0.30	0.43	0.36	0.42	0.65	2.15
	700 MM Dia=800M D.I.K-7 PIPES						1.866
1	0	0.3	0.45	0.35	0.3	0.5	1.90
2	500	0.15	0.4	0.45	0.2	0.7	1.90
3	800	0.15	0.45	0.4	0.2	0.7	1.90
	Total	0.60	1.30	1.20	0.70	1.90	5.70
	Avg Depth	0.20	0.43	0.40	0.23	0.63	1.90

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RWGM from M.S. Shaft to WTP

(1200MM Dia = 26200 M, 1100 MM Dia.=20500 & 700 MM Dia=800M D.I.K-7 PIPES)

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM No. 1 :- Providing D.I.Pipes (push on joints pressure pipes of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (Rubber gasket of EPDM quality) excluding GST levied by GOI and GOM in all respect,including Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to deparmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS-1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latest edition/ revision with amendments for rubber gasket)			
26200.00	1200 mm dia.DI.K-7 Pipe.	38818.00	Rmt	1017031600.00
20500.00	1100 mm dia.DI.K-7 Pipe.	33427.00	Rmt	685253500.00
800.00	700 mm dia.DI.K-7 Pipe.	13246.00	Rmt	10596800.00
	(As Per Corrigendum No7.Lett.No.652.Dt.07.03.22,P.No.1)			
	ITEM No.2 :- Providing & Supplying ISI standard D.I. specials and fittings with sealing rubber gasket of SBR complete with C.I. follower glands and mild steel nut bolts coated or otherwise protected from rusting and suitable for D.I.pipes including cost of labour,material and transportation to stors /site,loading,unloading including all taxes etc complete as per IS-9523.			
157286	350 mm dia & Above,	186.00	Kg	29255196.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,P.No.1)			
	ITEM No:3 :- Providing double flanged Reflux Valves conforming to IS-5312 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including inspection charges transportation stores,unloading,stacking excluding GST levied by GOI & GOM in all respect etc.complete.			
1	1200 mm dia Sluice Valve.P.N.1.6	1088375.00	Nos.	1088375.00
1	1100 mm dia Sluice Valve.P.N.1.6	914199.00	Nos.	914199.00
1	700 mm dia Sluice Valve.P.N.1.6	370214.00	Nos.	370214.00
	MJP.SSR .2021 - 22. Page No.132 . I.No.1			
	ITEM No:4 :- Providing double flanged Sluice Valves conforming to IS-14846 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including inspection charges transportation stores,unloading,stacking excluding GST levied by GOI & GOM in all respect etc.complete.			
104	200 mm dia Sluice Valve.P.N.1.6 (Isolated & scour)	23231.00	Nos.	2416024.00
1	700 mm dia Sluice Valve.P.N.1.6	306941.00	Nos.	306941.00

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2	1100 mm dia Sluice Valve.P.N.1.6	844584.00	Nos.	1689168.00
2	1200 mm dia Sluice Valve.P.N.1.6	1241198.00	Nos.	2482396.00
	MJP.SSR .2021 - 22. Page No.132 . I.No.2			
	Item No 5 :- 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 conforming to EN 1563/IS 1865.Gr.500/7 or Gr.400/15 floats,float guide,seat ring of stainless steel I.4436/I.4306.seat ring gasket of WRAS approved EPDM rubber (suitable for drinking water) internal fastness of stainless steel A2 Body & Bonnet coated inside & outside with electrostatically applied epoxy poeder 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 transportation charges excluding GST levied by GOI & GOM in all respect etc.complete..			
95	200 mm dia. Tamper Proof Air Valve.PN-1.60	45270.00	Nos.	4300650.00
	MJP.SSR .2021 - 22. Page No.145 . I.No.25			
	ITEM No 6 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.1			
29065.61	Lift 0 to 1.5 M.	150.00	Cum.	4359842.05
	Item No.7 :- Excavation for foundation/ pipe trenches in hard murum 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 dowering, preparing the bed for foundation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.2			
31606.61	Lift 0 to 1.5 M.	170.00	Cum	5373124.00
	Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.3			
30331.73	Lift 0 to 1.5 M.	192.00	Cum	5823692.00

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	Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation, asphalt road, soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.5			
33818.12	Lift 0 to 1.5 M.	572.00	Cum	19343967.00
	Item No 10 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.			
	MJP.SSR .2021 - 22. Page No.43 . I.No.7			
257.60	Lift 0 to 1.5 M.	755.00	Cum	194488.00
60499.98	Lift 1.5 to 3.0 M.	780.00	Cum	47189987.00
	ITEM No.11 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and compaction etc.			
	MJP.SSR .2021 - 22. Page No.45 . I.No.16			
13589.50	A).Murum available from excavated stuff	84.00	Cum	1141518.00
	ITEM No. 12 :- Lowering laying and jointing with SBR ruber gaskets C.I. 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.SSR .2021 - 22. Page No. 70 . I.No.2.A			
26200.00	1200 mm dia.DI.K-9 Pipe.	1094.40	Rmt	28673280.00
20500.00	1000 mm dia.DI.K-9 Pipe.	912.00	Rmt	18696000.00
800.00	700 mm dia.DI.K-9 Pipe.	472.00	Rmt	377600.00
	ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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.SSR .2021 - 22. Page No. 74 . I.No.12.			

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	<u>CI Class 'LA' / Mortar inlined D.I. K-9 / K-7</u>			
26.20	1200 mm dia.DI.K-9 Pipe.	121717.20	Km	3188991.00
20.50	1000 mm dia.DI.K-9 Pipe.	101431.00	Km	2079336.00
0.80	700 mm dia.DI.K-9 Pipe.	52377.00	Km	41902.00
	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.SSR .2021 - 22. Page No.135 . I.No.4			
104	200 mm dia Sluice Valve.P.N.1.6 (Isolated & scour)	3714.00	Nos.	386256.00
3	1200 mm dia Sluice Valve.P.N.1.6	21915.00	Nos.	65745.00
3	1100 mm dia Sluice Valve.P.N.1.6	17271.00	Nos.	51813.00
2	700 mm dia Sluice Valve.P.N.1.6	10522.00	Nos.	21044.00
	ITEM No. 15 :- Providing and fixing in position air valve shaft including providing and fixing G.I. Medium class of 6 mm thick M.S. pipe shaft 2.70 m long over branch flange of air valve tee. Providing PCC block of M- 150 concrete 150 mm thick around the air valve tee including encasing of vertical shaft in PCC M- 150 as shown in type design together with providing and making flanged joints wherever required cost of air valve over the shaft excluding cost of air valve and branched flanged air valve tee, etc complete as per branched flanged air valve tee, etc complete as per type design and as directed by Engineer-in-charge for following diameters of pipe lines. (Type design attached)			
	MJP.SSR .2021 - 22. Page No.140 . I.No.17			
	A) Foundation on Murum and Hard Strata			
93.00	1000 to 1200 mm Dia pipeline.	16689.00	Nos.	1552077.00
	B) Foundation on Murum and Hard Strata			
2.00	450 to 900 mm Dia pipeline.	13290.00	Nos.	26580.00
	ITEM No.16 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	As Per Rate Analysis			
9	As above of 150 x 150 cm internal size and depth upto 1.5M with precast RCC slab cover	25713.14	Nos.	231419.00
	ITEM No. 17 :- 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			
121181.85	MJP.SSR .2021 - 22. Page No.45 . I.No.15	84.00	Cum	10179276.00

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	Item No. 18 :- 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.			
	MJP.SSR .2021 - 22. Page No.72 . I.No.7			
5000.00	MS Specials (All Socketed)	95.00	Kg	475000.00
	ITEM No. 19 :- Providing and laying in situ cement concrete of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including dewatering, form work, compacting roughening if special finishis to be provided, finishing if required etc. complete.			
2016.18	1:2:4 (M – 150) grade	6791.69	Cum	13693290.25
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	Item No.20 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering,formwork,compaction,finishing and curing etc.complete			
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	In R.C.C. M-200			
545.74	For Thrust/Anchor block at bends	7852.26	Cum	4285274.00
	Item No. 21 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
42.840	Tor Steel.	97206.00	MT	4164344.00
	Item No. 22 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 diamerts of existing pipeline, irrespective of diameter of branch line (the 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 SSR 2021 - 22, Item.No.10.Page.No.60)			
2.00	1000 mm dia	66176.00	Nos.	132352.00

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	Item No. 23 :- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material,required welding machinery,tripod, chain pully block,crane , blower ,compressor,loading and unloading of machinery into the trench etc,transporting and dewatering etc.complete as directed by engineer in charge but excluding cost of MS Pipes.			
90.00	b) 500 mm to 1200 mm dia MS pipe	31384.00	Rmt	2824580.00
	MJP SSR 2021-22 I.N.14a P.N.63			
	Item No. 24 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).			
0.00	Dia of Pipe : 1200 mm (I. D.) 9.0mm thk	27615.00	Rmt	0.00
60.00	Dia of Pipe : 1000 mm (I. D.) 9.0mm thk	23048.00	Rmt	1382880.00
30.00	Dia of Pipe : 700 mm (I. D.) 9.0mm thk	16194.00	Rmt	485820.00
	(As Per Corrigendum No.Lett.No.7/652.Dt.07.03.22)			
	Item No. 25 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)			
47500.00	PWD Charges Along the Road	275	Rmt	13062500.00
3.00	Road Crossing	5500	Rmt	16500.00
	Item No. 26 :- Provision for charges towards crop compensasion of farmers,etc)			
190000	(As per Rate Analysis)	250	Sq.mt.	47500000.00
		Total	Rs.	1992725540
		Say Rs	Rs.	1,99,27,25,600

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RWGM from M.S. Shaft to WTP

(1200MM Dia = 26200 M, 1100 MM Dia.=20500 & 700 MM Dia=800M D.I.K-7 PIPES)

M E A S U R M E N T S

Description of Item	No	L	W	D	Qty	Unit
1	2	3	4	5	6	7
ITEM No.1 :- Providing D.I. K-9 grade pipes with internal cement mortar lining including taxes, insurance,						
Raw water Rising Main						
1200 mm dia.D.I.K-7 Pipe.	1	26200			26200	Rmt
1100 mm dia.D.I.K-7 Pipe.	1	20500			20500	Rmt
700 mm dia.D.I.K-7 Pipe.	1	800			800	Rmt
ITEM No.2 :- Providing and supplying DI/MS specials suitable for above pipes,						
Above 350 mm Dia PN-16						
1200 x 1200 x 200 Hydrant Tee-	55	1099	weight/No.		60445	Kg
1100 x 1000 x 200 Hydrant	45	793	weight/No.		35685	Kg
700 x 700 x 200 Hydrant	2	226	weight/No.		452	Kg
1200 mm dia Bend						
90 Degree	8	1692	weight/No.		13536	Kg
45 Degree	2	1173	weight/No.		2346	Kg
22,1/2 Degree	3	846	weight/No.		2538	Kg
11,1/4 Degree	4	723	weight/No.		2892	Kg
1200 mm dia MJ Coller Coupling	15	766	weight/No.		11490	Kg
1200mm diaTail piece	3	523	weight/No.		1569	Kg
1000 mm dia Bend						
90 Degree	6	1365	weight/No.		8190	Kg
45 Degree	1	955	weight/No.		955	Kg
22,1/2 Degree	2	696	weight/No.		1392	Kg
11,1/4 Degree	2	599	weight/No.		1198	Kg
1100 mm dia MJ Coller Coupling	15	666	weight/No.		9990	Kg
1100mm diaTail piece	3	432	weight/No.		1296	Kg
700 mm dia Bend						
90 Degree	2	402	weight/No.		804	Kg
45 Degree	1	280	weight/No.		280	Kg
22,1/2 Degree	2	214	weight/No.		428	Kg
11,1/4 Degree	2	176	weight/No.		352	Kg
700 mm dia MJ Coller Coupling	4	264	weight/No.		1056	Kg
700mm diaTail piece	2	196	weight/No.		392	Kg
				Total Wt.	157286	Kg
ITEM No.3 :- Providing and supplying ISI mark C.I. Reflux valve						
1200 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
1100 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
700 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
ITEM No.4 :- Providing and supplying ISI mark C.I. D/F sluice valves						
200 mm dia Sluice Valve.P.N.1.6 (Isolated & scour)	1	104			104	Nos.
700 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
1100 mm dia Sluice Valve.P.N.1.6	1	2			2	Nos.
1200 mm dia Sluice Valve.P.N.1.6	1	2			2	Nos.

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Item No 5 :- Providing , supplying & fixing in position stainless ball, tamper proof air vents ... etc including all taxes and duties except octroi)						
200 mm dia. Tamper Proof Air Valve.PN-1.60	1	95			95	Nos.
Item No.6 :- Excavation for foundation/ pipe trenches in Soft Soil..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	26200	1.80	0.39	18552.57	Cum
1100 mm dia.DI.K-7 Pipe.	1	20500	1.70	0.30	10289.05	Cum
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.20	224.00	Cum
				Total Qty.	29065.61	Cum
Item No.7 :- Excavation for foundation/ pipe trenches in hard murum excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	26200	1.80	0.34	16061.09	Cum
1100 mm dia.DI.K-7 Pipe.	1	20500	1.70	0.43	15060.18	Cum
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.43	485.33	Cum
				Total Qty.	31606.61	Cum
Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	26200	1.80	0.37	17395.81	Cum
1100 mm dia.DI.K-7 Pipe.	1	20500	1.70	0.36	12487.92	Cum
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.40	448.00	Cum
				Total Qty.	30331.73	Cum
Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement .. by blasting and hard rock by controlled..... etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	26200	1.80	0.40	18952.98	Cum
1100 mm dia.DI.K-7 Pipe.	1	20500	1.70	0.42	14603.81	Cum
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.23	261.33	Cum
				Total Qty.	33818.12	Cum
Item No 10 :- Excavation for foundation / pipe trenches in Hard rock by Cheseling, ... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.23	257.60	Cum
Lift 1.5 to 3.0 M.						
1200 mm dia.DI.K-7 Pipe.	1	26200	1.80	0.80	37505.55	Cum
1000 mm dia.DI.K-7 Pipe.	1	20500	1.70	0.65	22528.04	Cum
700 mm dia.DI.K-7 Pipe.	1	800	1.40	0.42	466.40	Cum
				Total Qty.	60499.98	Cum
ITEM No. 11 :- Filling in plinth and floors murum bedding in trenches						
A) Murum available from excavated stuff						
1200 mm dia.DI.K-9 Pipe.	1	26200	1.80	0.15	7074.00	Cum
1100 mm dia.DI.K-9 Pipe.	1	20500	1.70	0.15	5227.50	Cum
700 mm dia.DI.K-9 Pipe.	1	800	1.40	1.15	1288.00	Cum
				Total Qty.	13589.50	Cum

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ITEM No. 12 :- Lowering laying and jointing with SBR rubber gasket C.I. / D.I. S/S pipes etc. complete.						
1200 mm dia.DI.K-9 Pipe.	1	26200			26200	Rmt.
1000 mm dia.DI.K-9 Pipe.	1	20500			20500	Rmt.
700 mm dia.DI.K-9 Pipe.	1	800			800	Rmt.
ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour ..etc.						
CI Class 'LA' / Mortar inlined D.I. K-9 / K-7						
1200 mm dia.DI.K-9 Pipe.	1	26.20			26.20	Km
1000 mm dia.DI.K-9 Pipe.	1	20.50			20.50	Km
700 mm dia.DI.K-9 Pipe.	1	0.80			0.80	Km
ITEM No. 14 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
200 mm dia Sluice Valve.P.N.1.6 (Isolated & scour)	1	104			104	Nos.
1200 mm dia Sluice Valve.P.N.1.6	1	3			3	Nos.
1100 mm dia Sluice Valve.P.N.1.6	1	3			3	Nos.
700 mm dia Sluice Valve.P.N.1.6	1	2			2	Nos.
ITEM No.15 :- Providing and fixing in position air valve shaft						
A) Foundation on Murum and Hard Strata						
1000 to 1200 mm Dia pipeline.	1	93			93	Nos.
B) Foundation on Murum and Hard Strata						
450 to 900 mm Dia pipeline.	1	2			2	Nos.
ITEM No. 16 :- Providing and constructing B.B. masonry valve chamber						
As above of 150 x 150 cm internal size and depth upto 1.5M with precast RCC slab cover	1	9			9	Nos.
ITEM No. 17 :- Refilling the trenches with available excavated stuff						
Total excavation					185579.65	Cum
Deduction						
Murum bedding					13589.50	
Volume of pipe for 1200 mm dia	0.7855	1.216	1.216	26200	30430.89	
Volume of pipe for 1000 mm dia	0.7855	1.116	1.116	20500	20055.27	
Volume of pipe for 700 mm dia	0.7855	0.716	0.716	800	322.15	
Total deduction					64397.81	
Net qty of refilling				Total =	121181.85	Cum
Item No. 18 :- Providing MS Specials etc charges, transportation to stores / site, and stacking, etc. complete						
MS Specials	1	5000			5000	Kg
ITEM No. 19 :- Providing and laying in situ cement concrete M-10 / 1:3:6 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding etc. complete.						
1:2:4 (M-150) grade						
Encasing in Nalla portion	10	50	2	2	2000.00	
P.W.D.Road crossing's	3	30	2.1	0.3	56.70	
Deduct Pipe Volume =	1.00	50.00	0.785	(0.1000)^2	40.52	Cum
				Total =	2016.18	Cum

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Item No.20 :- Providing and Casting RCC M-200 ...etc complete.						
For Thrust/Anchor block at bends	35	4.50	2.10	1.65	545.74	Cum
Item No.21 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)						
Tor Steel.	1.00	545.74	0.01	7850	42.840	MT
Item No. 22 :- Making cross connection to existing distribution main of any type including ..etc. complete						
1000 mm dia	1	2			2	Nos.
Item No. 23:- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material,required welding machinery,tripod, chain pully block,crane , blower ,compressor,loading and unloading of machinery into the trench etc,transporting and dewatering etc.complete as directed by engineer in charge but excluding cost of MS Pipes.						
b) 500 mm to 1000 mm dia MS pipe	3	30			90	Rmt
Item No. 24 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).						
Dia of Pipe : 1200 mm (I. D.) 8mm thk	0	30			0	Rmt
Dia of Pipe : 1000 mm (I. D.) 8mm thk	1	60			60	Rmt
Dia of Pipe : 700 mm (I. D.) 8mm thk	1	30			30	Rmt
Item No. 25 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)						
PWD Charges Along the Road	1	47500			47500	Rmt
Road Crossing	1	3			3	Rmt
Item No. 26 :- Provision for charges towards crop compensasion of farmers,etc)						
	1	47500	4		190000	Sq.Rmt

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Water Treatment Plant (Cap - 91.0 MLD)

A B S T R A C T

Sr. No.	Description of Item / measurements	Rate	Unit	Amount
	WATER TREATMENT PLANT (W.T.P.)			
	ITEM N0:1:- Designing (aesthetically), providing and constructing and commissioning <u>conventional Water Treatment Plant</u> consisting of Civil,Mechanical & Electrical Works, including cost of providing and applying Epoxy paint to inside surface of water retaining structures in contact with Chlorine and providing anti-termite treatment to entire structure below ground level, Mechanical and Electrical components of various sub-works as given below : including necessary hydraulic testing, structural testing , Equipment testing and trial run for a period of 3 months, etc. complete as directed by Engineer-in-charge. (turn-key job).			
1)	Aeration fountain-plan area not less than 0.625 Square Meter per MLD			
2)	Ventury flume - With necessary devices ,consisting of simple mechanical indicator (pedestal type gauge)			
3)	Flash mixer -Rapid mixing device ,Detention time 60 Sec.to give velocity gradient 300 to 400 Sec - 1,Vane mixer type conforming to IS-7090 of 1985			
4)	Flocculator- Confirming to I.S. 7208-1974 (Type-C) with detention period of 30 minutes.			
5)	Clarifier - Horizontal flow circular tank,tetention period 2 - 5 hours, over flow rate 30 Cum/Sqm./Day (to be specified),weri loading not more than 300 Cum/Mwt./Day with mechanical sludg scraper conforming to IS No 10313-1982.			
6)	Rapid sand filters & Filter House - Filter Designed for filtration rate of 5000 Lit per Sq.Meter per Hour,minimum 2 Beds for plant up to 10 MLD, For larger plant as specified ,filters to be located in filter house with roof slab,pipe gallery & Flatfom minimum 5.5 Met in width .			
a)	Filter sand - Effective size 0.45 to 0.70 mm, uniformity coefficient not more than 1.7,not less than 1.3,depth of water over sand 0.75 Met,free bord 50 Cm.,Gravel 0.45 Met in depth,sand and gravel conforming to IS 8491(i)-77,Back wash by air wash, standerd appurtenances(to be specifide), rate of flow controller,filter gauge,sand expantion gauge,etc.			
b)	Wash water tanks -Capacity to be specified and suitable to supply water to wash 2 filter units at a time where the units are 4 or more.			

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c)	Wash water pumps-Capacity to fill water tank in one hour with 100% standby.			
d)	Air Blowers -Air blowers are not required for wtp having capacity less than & equal to 3.00 M.L.D.for wtp having capacity more than 3.00 M.L.D.air blowers capable of delivering 600 LPM/Sqm of free air of filter area at 0.4 Kg/Cm2 at the under drains (100% standby)			
7)	Chemical house in two Storeys			
a)	Ground floor to accommodate 7 days alum requirement and sundry storage.			
b)	First floor to accommodate alum along lime tanks,etc.			
c)	Solution tank -Minimum 3 tanks (one for preparation second for dising and third as standby) each tank capable of giving 8 hours maximum dose without interruption minimum free board 0.30 M trays for dissolving, level indicator mechanical agitation devices, solution feed and drain lines.solution feed device (constant head device, strength of solution upto 10% only) conforming to I.S. 9222 Part-I 1979.			
8	Pure Water Sump and Sump House.			
a)	Capacity of sump - One hour of designed flow			
b)	Pump House - Pump house of required size over the sump or by the side.			
9)	Store House - Suitable for alum storage of three months requirement in monsoon with 10% extra capacity for other sundry articles.			
10)	Vacuum feed type chlorinators make to be approved by MJP .			
a)	Conforming to I.S.10533-A Part - II 1983.			
b)	Rate for withdrawal.			
	Temperature Kg. of chlorine discharge Degree "C" per day (Cylinders)			
	45 67 Tonnes			
	10 6.35 9.50 110			
	15 10.75 16.10 130			
	20 14.50 21.24 254			
	27 & above 18.70 8.12 315			
c)	Chlorinator equipment and container room to conform to I.S. 10553 Part -I 1983.			
d)	100% standby shall be provided.			
e)	Upto and including 5 MLD capacity WTP 100 Kg chlorine cylinder should be provided and for WTP having capacity more than 5 MLD chlorine tonner should be provided .			
11)	By pass arrangement C.I.or M.S.pipes.			
12)	Drainage arrangements - RCC pipes upto plot boundary.			
13)	Electrical installation- Both internal and external including entire plant area.			

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14)	Laboratory equipment- As per requirement (to be specified during tendering.)			
15)	Sanitary blocks- Carpet area 15 square metre minimum upto 25 MLD and 25 square metre abov 25 Mld.			
16	Administrative block and internal road- to accommodate office room chlorine room laboratory room etc and WBMroad to connect all units from main gate of plot.			
17)	Rates given below are inclusive of uplift pressure if any and dewatering during entire work.			
18)	These rates are applicable for seismic zones 2,3 and 4			
19)	All RCC structures shall be constructed in contact with water shall be in M-300			
20)	All required sluice valves should be of MJP approved glandless valvas,all required railing should be of stainless steel,external paint of all unit of WTP should be of Acrylic emulsion with silicon at additives paint.All flooring should be of ceramic tiles.			
	Note-Condition from Sr.No.1To 20 shall forma part and parcel of the tender and must be incorporated in draft tender papae of convyentional treatment plants(proposed)			
	Conventional Water Treatment Plant			
	91.0 MLD (Seismic Zone iv)			
1	Fixed cost for 50 MLD	132651000.00	MLD	207927000.00
	Add for 41 MLD CAP @ 18.36 Lakhs per MLD	75276000.00	MLD	
	Total cost	207927000.00	MLD	
	(As Per Corrigendum No.Lett.No.8/706.Dt.10.03.22)			
	Item No. 2 :- Add Sump for Chlorine Contact Tank of Half Hour Capacity.			
	Sump of Cap - 1896000 Litrs.			
1	Fixed cost for 15.Lakh.	7821538.00	Lit	7821538.00
1	Add For 396000 .(396000 X 2.95)	1168200.00	Lit	1168200.00
	Total for 1896000.Litrs.			
	MJP.SSR 2021 - 22. .Page No.209.Item.No.7.			
	Item No.3 :- Add Lead Charges For Sand for construction of WTP of cap. 91 MLD.			
4500	For W.T.P.	414.12	Cum	1863528.26
	(Note :- Payment for lead Charges Should be made on the basis of Actual Execuated Quantities & as per proposal of lead charges duely approved by competant authority during execution.)			
	Total			218780266.26
	Say		Rs.	21,87,80,300

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Estimate of Meter Room at WTP

A B S T R A C T

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
ITEM NO. 1				
Excavation for foundation/pipe trenches in earth, soils of all types of sand gravel & soft murum incl. Removing the excavated material upto a distance of 50 M. & lift as below.stacking and spreading as directed, Normal dewatering, preparing the bed for fo				
Lift 0 to 1.5 M.	14.11	150.00	Cum.	2117.00
MJP CSR 2021 - 22 Page No. 42 I.No.1				
ITEM NO. 2				
Excavation for foundation/ pipe trenches in hard murum & 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 dowering				
Lift 0 to 1.5 M.	12.35	192.00	Cum.	2371.00
MJP CSR 2021 - 22 Page No. 42 I.No.3				
ITEM No.3				
Excavation for foundation/ pipe trenches in soft rock & 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 Engineer-in-charge,				
Lift 0 to 1.5 M.	8.82	572.00	Cum.	5045.00
MJP CSR 2021 - 22 Page No. 42 I.No.5				
ITEM No.4				
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal for foundation and bedding including dewatering, form work, compacting and curing, finishing etc. Complete.(Bd-E- 1/287)				
c) 1:2:4 (M -150) grade (with 12 to 20 mm metal)	2.65	6811.37	Cum	18023.00
(As Per Rate Analysis)				
ITEM No.5				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Column footing	5.78	8341.12	Cum	48178.00
(As Per Rate Analysis)				
ITEM No.6				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Beams/Braces/Lintel	3.31	9654.12	Cum	31974.00
(As Per Rate Analysis)				
ITEM No.7				

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Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M				
RCC ColumnsM-250	3.30	9818.12	Cum	32400.00
(As Per Rate Analysis)				
ITEM No.8				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M M-250				
RCC Slab/Landing/Vertical Wall	3.58	10324.12	Cum	36940.00
(As Per Rate Analysis)				
ITEM NO.9				
Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)				
Lift 0 to 5 M				
Tor Steel.	1.25	97206.00	M.T.	121832.00
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
ITEM NO.10				
Providing IInd class B.B masonry with conventional / Indian standerd type bricks in CM 1:6 in plinth & Superstructure including striking joints , raking out joints, watering,and scaffolding etc. complete.				
For superstructure	9.09	8504.99	Cum	77346.00
For Plinth	3.31	8265.99	Cum	27377.00
(As Per Rate Analysis)				
ITEM NO.11				
Providing and fixing rolling shutter fabricated from steel laths of minimum thickness 0.9 mm with lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle section fitted with sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respectively with hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size & shape with square bar, suspension shaft of minimum 32 mm diameter, hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operation arrangement consisting of worm gear wheels and worms of high grade cast iron or mild steel and one coat of red lead primer				
Rolling steel shutter.				
(PWD SSR 2022-23 P.No.308 It. No.39.25)	5.25	5308.00	Sq.m.	27867.00
ITEM NO.12				

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Providing & fixing steel window of various sizes as per detailed drawings fabricated from I.S. standard section without hot dip zinc coating without/with ventilators including fabrication, glazing with non acetinic / plain / obscured glass panels of approved type and quality all fixtures and fastening without teak wood boxing, and architraves and finishing with one coat of primer complete. with guard bars 12 mm square bar 10 cm. centre to				
for Steel windows	2.40	4607.00	Sq.m.	11057.00
(PWD SSR 2022-23 P.No.306 It. No.39.19)				
ITEM NO. 13				
Providing & fixing steel Ventilator fully glazed partly top hung and partly fixed as per detailed drawing without hot dip zinc coating including glazing with plain obscured glass panel and of approved type and quality and fixtures and fastening without teak wood boxing and architraves and oil painting two coats etc complete.				
Steel Ventilators	0.81	3375.00	Sq.m.	2734.00
(PWD SSR 22-23 P.No.308 It. No.39.29)				
ITEM NO. 14				
Providing internal cement plaster 20 mm thick in two coats in cement mortar 1:3 without neeru finish to concrete, brick surfaces in all positions including scaffolding and curing , etc. complete				
a) 20 mm thick cement plaster (1:4)	64.00	421.92	Cum	27003.00
(As Per Rate Analysis)				
ITEM NO. 15				
Providing sand faced plaster externally in cement mortar using kharsalia / kasaba or similar type of sand in all positions including base coat of 20 mm thick in cement mortar 1:4 using waterproofing compound at 1 Kg per cement bag. Curing the same for no				
(As Per Rate Analysis)	71.11	691.70	Sq.m.	49184.00
ITEM NO. 16				
Providing and applying two coats of Exterior acrylic emulsion paint conforming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning, preparing the plaster surface, applying primer coat , scaffolding if necessary, and watering the surface for two days etc complete.				
1) New Surface.	71.11	261.00	Sq.m.	18559.00
(PWD SSR 2022-23 P.No.277 . Item No. 35.25)				
ITEM NO. 17				
Providing and laying vitrified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm of 8 to 10 mm thickness and confirming to IS 15622 - 2006 (Group B) of approved make shade and pattern for flooring in required position laid on a bed of 1:4 cement mortar including neat cement float , filling joints curing and clearing etc. complete. Note : (Water absorption should not be more				
(PWD SSR 2022-23 P.No. 267 Item No.33.44)	16.00	1769.00	Sq.m.	28304.00
ITEM NO. 18				
Providing and applying washable oil bound distemper of approved colour and shade to old and new surface in three coats including scaffolding preparing the surfaces (including the primer coat) etc. complete				
(PWD SSR 2022-23 P.No. 280 It. No. 36.11)	64.00	48.00	Sq.m.	3072.00
Total of subwork			Rs.	571383.00
		Say RS		5,71,400

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at WTP

M E A S U R M E N T

Description of Item	Nos	L	B	D	Qty	Unit
1	2	3	4	5	6	7
ITEM NO. 1						
Excavation for foundation/pipe trenches in earth, soils						
Lift 0 to 1.5 M.						
columns	4	2.10	2.10	0.8	14.1	cum
ITEM NO. 2						
Excavation for foundation/ pipe trenches in hard murum & boulders.						
Lift 0 to 1.5 M.	4	2.10	2.10	0.7	12.35	cum
ITEM NO.3						
Excavation for foundation/ pipe trenches in soft rock						
Lift 1.5 to 3 M.	4	2.10	2.10	0.5	8.82	cum
ITEM NO4						
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal						
c) 1:2:4 (M -150) grade column footing	4	2.10	2.10	0.15	2.65	cum
ITEM NO5						
:- Providing and laying in situ cement concrete of trap/granite/ foundation and footing of RCC columns etc.complete						
For RCC M – 250						
Lift 0 to 5 M						
a) column footings	4	1.9	1.90	0.40	5.78	Cum
ITEM NO 6						
:- Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
RCC brace Beam M-250						
Lift 0 to 5 M						
B) For Beams & Lintels						
gl beam & intermediate beam	4	4	0.23	0.45	1.66	Cum
Lintel level beam.	4	4	0.23	0.15	0.55	Cum
Roof beam.	4	4	0.23	0.3	1.10	Cum
				Total	3.31	Cum
ITEM NO7						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
column-M-250						
Lift 0 to 5 M column above & below GL	4	0.3	0.50	5.5	3.30	Cum
Total					3.30	Cum
ITEM NO8						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
slab M-250						
Lift 0 to 5 M						
chajja on door.	1	2.5	0.60	0.15	0.23	Cum
chajja on window.	2	1.3	0.60	0.15	0.23	Cum
Roof slab	1	4.56	4.56	0.15	3.12	
Total					3.58	Cum

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ITEM NO.9						
Providing and fixing in position steel bar reinforcement						
Lift 0 to 5 M	1	16.0	0.01	7850	1.25	M.T.
ITEM NO.10						
Providing IIInd class B.B masonry						
a) In Cement Mortar (1:6)						
Lift 0. to3.8 m.	4	4	0.23	3.00	11.04	Cum.
Deduction.						
Rolling shutter.	1	2.5	2.10	0.23	1.21	Cum.
Windows.	2	1	1.20	0.23	0.55	Cum.
Ventilators.	2	0.9	0.45	0.23	0.19	Cum.
				Total.	1.95	Cum.
Net Qty.					9.09	Cum.
for plinth	4	4	0.23	0.9	3.31	Cum.
ITEM NO. 11						
Providing and fixing rolling steel shutter						
Rolling steel shutter.	1	2.50	2.10		5.25	Sq.m.
ITEM NO. 12						
Providing & fixing steel window						
for Steel windows	2	1.00	1.20		2.40	Sq.m.
ITEM NO.13						
Providing & fixing steel Ventilator						
Steel Ventilators	2	0.90	0.45		0.81	Sq.m.
ITEM NO.14						
Providing cement plaster Inside						
20 mm thick cement plaster in two coats in cement Mortar (1:3)						
Inside the Pump house.	4.0	4.00	3.00		48	Sq.m.
Celing	1.0	4.0	4.0		16	
					64	Sq.m.
ITEM NO. 15						
Providing sand faced plaster externally in two coats.						
In C.M. 1:4 prop.	4	4.46	4.46		79.57	Sq.m.
Deduction.						
Door	1	2.50	2.10		5.25	
Windows.	2	1.20	1.00		2.4	
Ventilators.	2	0.90	0.45		0.81	
				Total	8.46	Sq.m.
Net Qty.					71.11	Sq.m.
ITEM NO. 16						
two coats of appex Appex Ace white exterior paint						
Total quantity of plaster.	1	71.11			71.11	Sq.m.
ITEM NO. 17						
∴ Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm						
	1	4.00	4.00		16	Sq.m.
ITEM NO. 18						
Providing and applying oil bound distemper						
inside face					64	Sq.m.

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Abstract of Recirculation System at WTP CAP 91.0 MLD

It No	Particulars of Item	Qty	Rate	Unit	Amount
1	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, manual dewatering, preparing the bed for				
	lift 0 to 1.5	1182.77	150.00	Cum	177416
	MJP.SSR .2021 - 22. Page No.42 . I.No.1				
2	Item No.2 :- Excavation for foundation/ pipe trenches in hard murum & 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)				
	Lift 1.50 to 3.0	560.33	206.00	Cum	115427
	MJP.SSR .2021 - 22. Page No.42 . I.No.3				
3	Item No.3 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation,asphalt road,soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling, etc. complete.				
	Lift 3.0 to 4.50	403.00	622.00	Cum	250666
	MJP.SSR .2021 - 22. Page No.42 . I.No.5				
4	Item No 4 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.				
	MJP.SSR .2021 - 22. Page No.43 . I.No.7				
	Lift 4.50 to 6.0	390.04	1092.00	Cum	425918
	Lift6.00 to 7.50	377.28	1117.00	Cum	421425
	Lift 7.50 to 9.0	267.48	1142.00	Cum	305460
5	Item No. 5 :- Providing and casting in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc.				
	As per rate analysis attached.				
	Lift 5 to 10 M				
	PCC at bottom PCC M-150	36.47	7431.77	Cum	271068

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It No	Particulars of Item	Qty	Rate	Unit	Amount
	Lift 0 to 5 M				
	PCC M-150	95.20	6811.37	Cum	648474
6	Item No. 6 :-Providing and laying in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewartering, form work, bally,steel propuos,compaction, finishing and curing, etc.complete (By weigh batching and mix desing 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.				
	As per rate analysis attached.				
	Lift 5 to 10 M				
	a) For RCC footing (M – 300 grade)	14.42	9426.42	Cum	135902
7	Item No. 7 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as per detailed drawings and digns or as directed by Engineer-in-charge inclouding normal dewarterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necesssary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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				
	As per rate analysis attached.				
	Lift 0 to 5 M				
	Vertical wall M-300	89.39	10586.12	Cum	946257
	Lift 5 to 10 M				
	Vertical wall M-300	28.83	11603.32	Cum	334574
8	Item No. 8 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC piles, caps, footing, foundation, slabs, beams, columns, canopies staircases. Newels, chajjas, lintels, pardies, copings, fins, arches, etc. as per detailed designs, drawings and shedules including cutting , bending ,hooking the bars ,binding				
	Lift 0 to 5 M				
	b) Tor Steel	8.15	97206.00	mt	792092
	Lift 5 to10 M				
	b) Tor Steel	2.26	102066.30	mt	231027
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
9	Item No. 9 :- Providing structural steel work in rolled sections like joists, channels, angles, tees etc. as per detailed designs and drawing including fixing in position without connecting plates, braces etc. and one coa of anticorrosive paint & over in two coats of oil painting of approved quality & shade etc complete.				

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It No	Particulars of Item	Qty	Rate	Unit	Amount
	MJP.SSR .2021 - 22. Page No.48 . It.No.5	1.280	74618	MT	95511
10	Item No. 10 :- Providing and fixing G.I. pipe railing having 1.0 M height consisting 50 x 50 x 6 mm thick M. S. angles as verticals at 1.5 M c/c, and additional posts at every corner with 3 rows of 25 mm dia G.I. pipes of medium class variety as horizontal and painting 3 coats of oil paint over 1 coat of anticorrosive paint of approved colour and shade including cost of all labour, transporting bends to curved shape, etc. complete.				
	As Above but with only 2 rows.	32.600	691.00	RMT	22527
	MJP.SSR .2021 - 22. Page No.58 . It.No.1				
11	ITEM No. 11 :- 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.SSR .2021 - 22. Page No.45 . It.No.15				
		2197.43	84.00	Cum	184584
12	Item No. 12 :- Providing and fixing in position C.I. Type dapuri steps of 22 mm dia. M.S. bar step with proper anchorage, etc. and providing and applying 3 coats of ant-corrosive paint, etc complete as directed by Engineer-in-charge.	25.00	387.00	nos	9675
	MJP.SSR .2021 - 22. Page No.230 . It.No.11				
13	Item No. 13 :- Providing ISI standard RCC pipes in standard lengths of following class & diameter suitable for either collar joints or rubber ring joints, excluding GST levied by GOI & GOM in all respect including inspection charges, transport to departmental stores, unloading and stacking etc complete. Note: One collar shall be supplied with each full length plain ended RCC pipe, cost including in rates below. One rubber ring shall be supplied with each full length socketted pipe, cost including in rates below.				
	NP - II Class Pipes (For Road Crossing)				
	600 mm Diameter (With collar joints)	100.00	1666.00	Rmt	166600.0
	(As Per Corrigendum No.Lett.No.11/2390.Dt.19.08.22)				
14	Item No. 14 :- Lowering, laying and jointing in proper grade and alignment RCC pipes with collar joints in CM 1:1 proportion or socketed RCC pipes with rubber joints (excluding cost of rubber ring or RCC collar) including cost of conveyance from stores to site of work, cost of jointing material, labour,etc. complete as directed by Engineer-in-charge (For all class of pipes)				
	MJP.SSR .2021 - 22. Page No.98 . It.No.2				
	NP - II Class Pipes				
	600 mm Diameter	100.00	444.00	Rmt	44400.0
			TOTAL		5579004
			Say	Rs.	55,79,004

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Measurement of Recirculation Well & Drinage Arangement at WTP CAP 91.00 MLD

Sr.No	Particulars of Item	No	Length	Width	Depth	Quantity
1	2	3	4	5	6	7
1	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,					
	Lift 0 to 1.5	0.785	23.50	23.50	1.50	650.27
	For RCC Pipe Line	1	100.00	3.55	1.50	532.50
					Total	1182.77
2	Item No.2 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road including removing the excavated material upto a distance of 50 m beyond the area and lifts as below stacking and					
	Lift 1.50 to 3.0	0.785	19.00	19.00	1.50	425.08
	For RCC Pipe Line	1	100.00	1.35	1.00	135.25
					Total	560.33
3	Item No.3 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation, asphalt road, soft rock by blasting and hard rock by controlled blasting, including trimming					
	Lift 3.0 to 4.50	0.785	18.50	18.50	1.50	403.00
4	Item No 4 :- Excavation for foundation / pipe trenches in hard rock and concrete road by chiselling, wedging, line drilling by mechanical means or by all means					
	Lift 4.50 to 6.0	0.785	18.20	18.20	1.50	390.04
	Lift 6.00 to 7.50	0.785	17.90	17.90	1.50	377.28
	Lift 7.50 to 9.0	0.785	17.60	17.60	1.10	267.48
5	Item No 5 :- Providing and laying in situ, cement concrete M-15/ 1:2:4 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding					
	Lift 5 to 10 M					
	PCC at bottom	0.785	17.6	17.6	0.15	36.47
	Lift 0 to 5 M					
	PCC at Well side round Platform	3.142	15.6	1	0.30	14.70
	Road from W.T.P. to R/C Well	1	100	4	0.20	80.00
						95.20
6	Item No 6 :- Providing and Casting in situ, cement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for reinforced cement concrete beam and lintels etc. complete. (Excluding reinforcement)					
	Lift 5 to 10 M					
	for bottom beam Rcc M30	3.141	15.3	1	0.30	14.42
7	Item No 7 :- Providing and laying in situ - - cement concrete of trap/ granite / quartzite/ gneiss metal in wall staining etc. complete. (excluding reinforcement)					
	Lift 0 to 5 M					
	Vertical wall Rcc M 30	3.141	15.3	0.3	6.2	89.39
	Lift 5 to 10 M					
	Vertical wall Rcc M 30	3.141	15.3	0.3	2.0	28.83
8	Item No 8 :- Providing and fixing in position .tor bar reinforcement					
	Lift 0 to 5 M					
		103.80	1%	7850	MT	8.149
	Lift 5 to 10 M					
		28.83	1%	7850	MT	2.263
9	Item No 9 :- Providing structural steel work in rolled sections like joists, channels, angles, tees etc.					
	ISMB 400	2	10.4	61.6		1281.28
					1.28	MT
10	Item No 10 :- Providing railing of mild angle post 2 metres centre to centre of section 75 mm. X 75 mm. X 10 mm. Or equivalent channel section of height 1.05 m					
		2	15.3		30.60	
		1	2		2.00	
					32.60	RMT

LATUR CITY MUNICIPAL CORPORATION

Sr.No	Particulars of Item	No	Length	Width	Depth	Quantity
1	2	3	4	5	6	7
11	Item No 11 :-Filling in plinth and floors					
	Total qty of excavation	3180.897				
	deduction(0.785x15.6x15.4x5)	955.188				
	For RCC Pipe - 60x.7855x.4x.4	28.278				2197.43
12	Item No 12 :-Providing CI Dapuri steps	25.000				25.00
13	Item No. 13 :- Providing ISI standard RCC pipes in standard lengths ... etc					
	NP - II Class Pipes (For Road Crossing)					
	600 mm Diameter (With ED)	1	100		100.0	RMT
	MJP.DSR 2016-17 Page No.86. I.No.1					
14	Item No. 14 :- Lowering, laying and jointing in proper grade ...etc.					
	MJP.DSR 2016-17 Page No.87 I.No.2.					
	NP - II Class Pipes					
	600 mm Diameter (With ED)	1	100.0		100.0	RMT

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Raw Water Rising Main. From RCW To AF

(200 MM DIA D.I.K-9 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.25	1.45
Sr.No	Chainage	Soft Soil	Murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3		4	5	6	7	8
1	0	0.2	0.3	0.3	0.25	0.2	1.25	
2	100	0.25	0.25	0.3	0.25	0.2	1.25	
	Total	0.45	0.55	0.60	0.50	0.40	2.50	
	Avg Depth	0.23	0.28	0.30	0.25	0.20	1.25	

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Raw Water Rising Main. From RCW To AF

(200 MM DIA D.I.K- 9 PIPES. L - 100 M)

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM No. 1 :- Providing and supplying ISI mark D.I. S/S pipes (push on joints pressure pipes) of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (rubber gasket of EPDM quality) including all statutory duties and taxes lavied by GOI and GOM in all respect, education cess, VAT, Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to depatmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS-1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/ revision with amendments for rubber gasket)	.		
100.00	200 mm dia.DI.K-9 Pipe.	2607.00	Rmt	260700.00
	(As Per Corrigendum			
	ITEM No.2 :- Providing and supplying D.I. fitting with ISI mark socket pushon joints or flanged joints confirming to table 12 to 31 of IS 9523/2000 upto latest amendments including cost of SBR/EDPM tyton rings. Fittings should be with internally ordinary portland cement mortor lined and externally metallic zinc coating/zinc rich paint with finishing layer of black bitumen coating including transportation & all taxes etc. complete.	.		
2	200 x 200 x 80 MM DIA TEE	5561.00	Nos.	11122.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,)			
	ITEM No.3 :- Providing and supplying D.I. fitting with ISI mark socket pushon joints or flanged joints confirming to table 12 to 31 of IS 9523/2000 upto latest amendments including cost of SBR/EDPM tyton rings. Fittings should be with internally ordinary portland cement mortor lined and externally metallic zinc coating/zinc rich paint with finishing layer of black bitumen coating including transportation & all taxes etc. complete.	.		
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,)			
	200 mm Dia			
2	90 Degree Bend	4515.00	Nos.	9030.00
1	45 Degree Bend	4667.00	Nos.	4667.00

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1	22.5 Degree Bend	3939.00	Nos.	3939.00
1	11.25 Degree Bend	3744.00	Nos.	3744.00
	ITEM No.4 :- Providing and supplying D.I. fittings with ISI mark Mechanical joint confirming to tables 12 to table 31 of IS 9523/2000 upto latest amendments including cost of SBR/ EDPM gaskets, Nuts, Bolts, Washers and Ductile iron follower glands. Fittings should be with internally Ordinary portland cement mortar lined and externally metallic zinc coating/zinc rich paint with finishing layer of black bitumen coating including transportation and all taxes etc. complete.			
2	200 mm dia.MJ.Jiffy collar	7267.00	Nos.	14534.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,)			
	ITEM No 5 :- Supply of mechanical Joints DI Flanged Socket Tail Pieces as described in Table -11 of IS - 13382/1992 complete with sealing rubber gasket of S.B.R.(dimensionally described in IS-12820) complete with cast iron follower gland and mild steel nut bolts coated or otherwise protected from rusting and suitable for d. I. pipes.			
1	200 mm dia.Tail Piece	5067.00	Nos.	5067.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,)			
	ITEM No.6 :- Providing & Supplying ISI standard D.I. specials and fittings with sealing rubber gasket of SBR complete with C.I. follower glands and mild steel nut bolts coated or otherwise protected from rusting and suitable for D.I.pipes including cost of labour,material and transportation to stors/site,loading,unloading including all taxes etc complete as per IS-9523.			
500	DI.specials	153	Kg	76500.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,)			
	ITEM No:7 :- Providing double flanged Sluice Valves conforming to IS-2906 / 14846 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including all taxes, transportation, etc. complete.			
2	80 mm dia Sluice valve PN-1.00 (Scour & Isolating)	5132.00	Nos.	10264.00
1	200 mm dia Sluice Valve.P.N.1.00	18581.00	Nos.	18581.00
	MJP.CSR 2021-22 Page No.132. I.No.2.viii			

LATUR CITY MUNICIPAL CORPORATION

	Item No 8 :- 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 transportation charges excluding GST levied by GOI & GOM in all respect etc.complete. (For PN 10 & 16)			
1	50 mm dia. Tamper Proof Air Valve.PN-1 (MJP.CSR 2021-22 Page No.145, I.No.25)	24790.00	Nos.	24790.00
	Item No 9 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.			
	MJP.CSR 2021-22 Page No.42. I.No.1			
18.00	Lift 0 to 1.5 M.	150.00	Cum	2700.00
	Item No.10 :- Excavation for foundation/ pipe trenches in hard murum 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.CSR 2021-22 Page No.42. I.No.2			
22.00	Lift 0 to 1.5 M.	170.00	Cum	3740.00
	Item No.11 :- Excavation for foundation/ pipe trenches in hard murum & 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.CSR 2021-22 Page No.42. I.No.3			
24.00	Lift 0 to 1.5 M.	192.00	Cum	4608.00

LATUR CITY MUNICIPAL CORPORATION

	Item No.12 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation, asphalt road, soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling, etc. complete.			
20.00	Lift 0 to 1.5 M.	572.00	Cum	11440.00
	MJP.CSR 2021-22 Page No.42 I.No.5			
	Item No 13 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.			
16.00	Lift 0 to 1.5 M.	1017.00	Cum	16272.00
	ITEM No.14 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and compaction etc.			
	MJP.CSR 2021-22 Page No.45. I.No.16			
12.00	A).Murum available from excavated stuff	84.00	Cum	1008.00
	ITEM No. 15 :- Lowering laying and jointing with SBR rubber gaskets C.I. 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 2021-22 Page No.70. I.No.2.a			
100.00	200 mm dia.DI.K-9 Pipe.(without rubber ring)	113.00	Rmt	11300.00
	ITEM No. 16 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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.			
	<u>CI Class 'LA' / Mortar inlined D.I. K-9 / K-7</u>			
	MJP.CSR 2021-22 Page No.74. I.No.12			
0.100	200 mm dia.DI.K-9 Pipe.(without rubber ring)	12647.00	Km	1264.70

LATUR CITY MUNICIPAL CORPORATION

	ITEM No. 17 :- 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 2021-22 Page No.135. I.No.4.a			
2	80 mm dia Sluice valve PN-1.00 (Scour & Isolating)	1738.00	Nos.	3476.00
1	200 mm dia Sluice Valve.P.N.1.00	3714.00	Nos.	3714.00
	ITEM No.18 :- Providing and fixing in position air valve shaft including providing and fixing G.I. Medium class of 6 mm thick M.S. pipe shaft 2.70 m long over branch flange of air valve tee. Providing PCC block of M- 150 concrete 150 mm thick around the air valve tee including encasing of vertical shaft in PCC M- 150 as shown in type design together with providing and making flanged joints wherever required cost of air valve over the shaft excluding cost of air valve and branched flanged air valve tee, etc complete as per branched flanged air valve tee, etc complete as per type design and as directed by Engineer-in-charge			
	MJP.CSR 2021-22 Page No.140. I.No.17			
	A) Foundation on Murum and Hard Strata			
1	200 to 400 mm Dia pipeline.	6535.00	Nos.	6535.00
	ITEM No. 19 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	(As Per Rate Analysis)			
1	1) As above of 90 x 60 cm internal size and depth upto 1.2 M with precast RCC slab cover	11346.55	Nos.	11347.00
	ITEM No. 20 :- 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 2021-22 Page No.45. I.No.15			
68.24	Basic Rate	84.00	Cum	5733.00
	Item No. 21 :- Providing and supplying ISI standard MS / CIspecials 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.			
500.00	MS Specials (D/F-Plain Ended)	95.00	Kg	47500.00
	MJP.CSR 2021-22 Page No.72. I.No.7			

LATUR CITY MUNICIPAL CORPORATION

	Item No.22 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering, formwork, compaction, finishing and curing etc.complete			
5.76	In R.C.C. M-200 (1:1.5:3)	7870.16	Cum	45333.00
	(As Per Rate Analysis)			
	Item No. 23 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc. complete.			
	(As Per Rate Analysis)			
10.33	PCC.M-150.1:2:4.	6811.37	Cum	70374.00
	Item No. 24 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
0.45	Tor Steel.	97206.00	MT	43953.00
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
Total of subwork			Rs.	733236
Say			Rs.	7,33,300

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Raw Water Rising Main. From RCW To AF
(200 MM DIA D.I.K- 9 PIPES. L - 100 M)

M E A S U R M E N T S

Description of Item	No	L	W	D	Qty	Unit
1	2	3	4	5	6	7
ITEM No. 1:- Providing and supplying ISI mark D.I. S/S pipes (push on joints pressure pipes) of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (rubber gasket of EPDM quality) including all statutory duties and taxes lavied by GOI and GOM in all respect, education cess, VAT, Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to depatmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS- 1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/ revision with amendments for rubber gasket)						
200 mm dia.DI.K-9 Pipe.	1	100			100	Rmt
ITEM No. 2 :- Supply of CI MJ double Socket with flange Tees complete..						
200 x 200 x 80 MM DIA TEE	1	2			2	No.
ITEM No.3 :- Supply of CI MJ double Socket bend complete..						
200 mm Dia						
90 Degree Bend	1	2			2	Nos.
45 Degree Bend	1	1			1	No.
22.5 Degree Bend	1	1			1	No.
11.25 Degree Bend	1	1			1	No.
ITEM No.4 :- Supply of C.I M.J Giffy collar coupling etc complete..						
200 mm dia.MJ.Jiffy collar	1	2			2	Nos.
ITEM No.5 :- Supply of CI mech.Tail piece etc complete..						
200 mm dia.Tail Piece	1	1			1	No.
ITEM No.6 :- Providing and supplying DI specials suitable for above pipes,						
DI.specials	1	500			500	Kg
ITEM No.7 :- Providing and supplying ISI mark C.I. D/F sluice valves						
80 mm dia Sluice valve PN-1.00 (Scour & Isolating)	1	2			2	Nos.
200 mm dia Sluice Valve.P.N.1.00	1	1			1	No.
Item No 8 :- Providing , supplying & fixing in positon stainless ball, tamper proof air vents ... etc including all taxes and duties except octroi)						
80 mm dia. Tamper Proof Air Valve.PN-1.00	1	1			1	No.
Item No.9 :- Excavation for foundation/ pipe trenches in Soft Soil..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
200 mm dia.DI.K-9 Pipe.	1	100	0.8	0.23	18.00	Cum

LATUR CITY MUNICIPAL CORPORATION

Item No.10 :- Excavation for foundation/ pipe trenches in hard murum excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
200 mm dia.DI.K-9 Pipe.	1	100	0.8	0.28	22.00	Cum
Item No.11 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
200 mm dia.DI.K-9 Pipe.	1	100	0.8	0.30	24.00	Cum
Item No.12 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation,asphalt road,soft rock by blasting and hard rock by controlled...., etc. complete.						
Lift 0 to 1.5 M.						
200 mm dia.DI.K-9 Pipe.	1	100	0.80	0.25	20.00	Cum
Item No 13 :- Excavation for foundation / pipe trenches in Hard rock by Cheseling, ... excluding backfilling, etc. complete						
Lift 0 to 1.5 M.						
200 mm dia.DI.K-9 Pipe.	1	100	0.80	0.20	16.00	Cum
ITEM No. 14 :-Filling in plinth and floors murum bedding in trenches						
A) Murum available from excavated stuff						
200 mm dia.DI.K-9 Pipe.	1	100	0.80	0.15	12.00	Cum
ITEM No. 15 :- Lowering laying and jointing with SBR rubber gasket C.I. / D.I. S/S pipes etc. complete.						
200 mm dia.DI.K-9 Pipe.(without rubber ring)	1	100			100.00	Rmt
ITEM No. 16 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour ..etc.						
CI Class 'LA' / Mortar inlined D.I. K-9 / K-7						
200 mm dia.DI.K-9 Pipe.(without rubber ring)	1	0.100			0.100	Rmt
ITEM No. 17 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
80 mm dia Sluice valve PN-1.00 (Scour & Isolating)	1	2			2	Nos.
200 mm dia Sluice Valve.P.N.1.00	1	1			1	No.
ITEM No.18 :- Providing and fixing in position air valve shaft						
Foundation on Murum and Hard Strata						
200 to 400 mm Dia pipeline.	1	1			1	No.
ITEM No. 19 :- Providing and constructing B.B. masonry valve chamber						
1) As above of 90 x 60 cm internal size and depth upto 1.2 M	1	1			1	No.
ITEM No. 20 :- Refilling the trenches with available excavated stuff						
Total excavation				100.00	Cum	
Deduction						
Murum bedding					12.00	
Volume of pipe for 200 mm dia	0.7855	0.216	0.216	100	3.66	
Qty. of concrete for Thrust Block					5.76	
Qty. of concrete for Encasing					10.33	
Total deduction					31.76	
Net qty of refilling				Total =	68.24	Cum
Item No. 21 :- Providing MS Specials etc charges, transportation to stores / site, and stacking, etc. complete						
MS Specials	1	500			500	Kgs.

LATUR CITY MUNICIPAL CORPORATION

Item No.22 :- Providing and Casting RCC M-200 ...etc complete.						
For Thrust/Anchor block at bends	2	2.00	1.20	1.20	5.76	Cum
Item No. 23 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap /etc. complete						
Encasing in Road Crossing	1.00	5.00	0.75	0.75	2.81	Cum
Encasing in Nalla portion	1.00	10.00	0.90	0.90	8.10	Cum
Deduct Pipe Volume =		15.00	0.7850	$(0.416)^2$	0.58	Cum
				Total =	10.33	Cum
Item No.24 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)						
Tor Steel.	1.00	5.76	0.01	7850	0.45	MT

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Rising Main. From WTP To MBR @ Harangul.
(1000 MM DIA D.I.K - 9 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

						2.066	1.4
Sr.No	Chainage	Soft Soil	Hard murum & Bould.	Soft rock	Hard rock by chiseling	Total depth	Location
1	2	3	4	5	6	7	8
1	0	0.25	0.35	0.55	0.95	2.10	
2	500	0.25	0.41	0.44	1	2.10	
3	1000	0.3	0.3	0.65	0.85	2.10	
4	1500	0.25	0.35	0.55	0.95	2.10	
	Total	1.05	1.41	2.19	3.75		
	Avg Depth	0.26	0.35	0.55	0.94	2.10	

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

P.W.R.M.From WTP to MBR AT HARANGUL (1000 mm.dia.D.I.K-9.Pipe.L-1500.M)

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1	2	3	4	5
	ITEM No. 1 :- Providing D.I.Pipes (push on joints pressure pipes of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (Rubber gasket of EPDM quality) excluding GST levied by GOI and GOM in all respect,including Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to deparmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS- 1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/			
1599.00	1000 mm dia.DI.K-9 Pipe.	27750.00	Rmt	44372250.00
	(As Per Corrigendum No7.Lett.No.652.Dt.07.03.22,P.No.1)			
	ITEM No.2 :- Providing & Supplying ISI standard D.I. specials and fittings with sealing rubber gasket of SBR complete with C.I. follower glands and mild steel nut bolts coated or otherwise protected from rusting and suitable for D.I.pipes including cost of labour,material and transportation to stors /site,loading,unloading including all taxes etc complete as per IS-9523			
8999	350 mm dia & Above,	186.00	Kg.	1673814.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,P.No.1)			
	ITEM No:3 :-Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984)			
1	1000 mm dia Reflux Valve.	755539.00	No.	755539.00
	MJP.SSR .2021 - 22. Page No.132 . I.No.1			
	ITEM No:4 :- Providing double flanged Sluice Valves conforming to IS-14846 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including inspection charges transportation stores,unloading,stacking including GST levied by GOI & GOM in all respect			
5	200 mm dia Sluice Valve.P.N.1.6	23231.00	No.	116155.00
1	1000 mm dia Sluice Valve.P.N.1.6	844584.00	No.	844584.00
	MJP.SSR .2021 - 22. Page No.132 . I.No.2			

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	Item No 5 :- 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 conforming to EN 1563/IS 1865.Gr.500/7 or Gr.400/15 floats,float guide,seat ring of stainless steel I.4436/I.4306.seat ring gasket of WRAS approved EPDM rubber (suitable for drinking water) internal fastness of stainless steel A2 Body & Bonnet coated inside & outside with electrostatically applied epoxy poeder coated blue colour (suitable for drinking water) as per DIN 30677-2 & GSK guidelines with a coating			
3	200 mm dia. Tamper Proof Air Valve.PN-1.60	45270.00	No.	135810.00
	MJP.SSR .2021 - 22. Page No.145 . I.No.25			
	ITEM No 6 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling etc complete			
	MJP.SSR .2021 - 22. Page No.42 . I.No.1			
671.58	Lift 0 to 1.5 M.	150.00	Cum.	100737.00
	Item No.7 :- Excavation for foundation/ pipe trenches in hard murum 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete (Bd A - 3/250)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.2			
901.84	Lift 0 to 1.5 M.	192.00	Cum	173153.00
	Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation,asphalt road,soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling etc			
	MJP.SSR .2021 - 22. Page No.42 . I.No.5			
1400.72	Lift 0 to 1.5 M.	572.00	Cum	801215.00
	Item No 10 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.			
	MJP.SSR .2021 - 22. Page No.43 . I.No.7			
869.86	Lift 0 to 1.5 M.	1017.00	Cum	884644.00
1528.64	Lift 1.5 to 3.0 M.	1042.00	Cum	1592848.00

LATUR CITY MUNICIPAL CORPORATION

	ITEM No.11 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and			
	MJP.SSR .2021 - 22. Page No.45 . I.No.16			
383.76	A).Murum available from excavated stuff	84.00	Cum	32236.00
	ITEM No. 12 :- Lowering laying and jointing with SBR ruber gaskets C.I. 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.SSR .2021 - 22. Page No. 70 . I.No.2.A			
1599.00	1000 mm dia.DI.K-9 Pipe.	912.00	RM	1458288.00
	ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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.SSR .2021 - 22. Page No. 74 . I.No.12.			
	<u>CI Class 'LA' / Mortar inlined D.I. K-9 / K-7</u>			
1.60	1000 mm dia.DI.K-9 Pipe.	101431.00	Km	162189.00
	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.SSR .2021 - 22. Page No.135 . I.No.4			
5	200 mm dia Sluice Valve.P.N.1.6	3714.00	No.	18570.00
2	300 mm dia Sluice Valve P.N.1.60	17271.00	No.	34542.00
	ITEM No. 15 :- Providing and fixing in position air valve shaft including providing and fixing G.I. Medium class of 6 mm thick M.S. pipe shaft 2.70 m long over branch flange of air valve tee. Providing PCC block of M- 150 concrete 150 mm thick around the air valve tee including encasing of vertical shaft in PCC M-150 as shown in type design together with providing and making flanged joints wherever required cost of air valve over the shaft excluding cost of air valve and branched flanged air valve tee, etc complete as per branched flanged air valve tee, etc complete as per type design and as directed by Engineer-in-charge for			
	MJP.SSR .2021 - 22. Page No.140 . I.No.17			
	A) Foundation on Murum and Hard Strata			
3.00	1000 to 1200 mm Dia pipeline.	16689.00	No.	50067.00
	ITEM No.16 :- Providing and cosntructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			

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	As Per Rate Analysis			
2	2) As above of 150 x 150 cm internal size and depth upto 1.5M with precast RCC slab cover	25842.22	No.	51685.00
	ITEM No. 17 :- 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			
3692.35	MJP.SSR .2021 - 22. Page No.45 . I.No.15	84.00	Cum	310158.00
	Item No. 18 :- 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.			
	MJP.SSR .2021 - 22. Page No.72 . I.No.7			
1000.00	MS Specials (All Socketed)	95.00	Kg	95000.00
	ITEM No. 19 :- Providing and laying in situ cement concrete of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including dewatering, form work, compacting roughening if special finishis to be provided, finishing if required etc. complete.			
68.32	1:2:4 (M – 150) grade	6811.37	Cum	465372.96
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	Item No.20 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering,formwork,compaction,finishing and curing etc.complete			
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	In R.C.C. M-200			
93.56	For Thrust/Anchor block at bends	7870.16	cum	736293.00
	Item No. 21 :- Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , caps, footings foundations, slabs, beams, columns, canopies, staircases, newels, chajjas, lintels, pardies, copings fins, arches, etc as per detailed designs, drawings, and schedules, including			
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
7.344	Tor Steel.	97206.00	MT	713888.00
	Item No. 22 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 diamerts of existing pipeline, irrespective of diameter of branch line (the number of			
	(MJP SSR 2021 - 22, Item.No.10.Page.No.60)			
1.00	1000 mm dia	66176.00	No.	66176.00

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	Item No. 23 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)			
3000.00	PWD Charges Along the Road	275	Rmt	825000.00
1.00	Road Crossing	5500	Rmt	5500.00
	Item No. 24 :- Provision for charges towards crop compensasion of farmers,etc)			
6000	(As per Rate Analysis)	250.00	Sq.mt.	1500000.00
		Total	Rs.	57975714
		Say Rs	Rs.	5,79,75,800

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

P.W.R.M.From WTP to MBR AT HARANGUL (1000 mm.dia.D.I.K-9.Pipe.L-1500.M)

M E A S U R M E N T S

Description of Item	No	L	W	D	Qty	Unit
1	2	3	4	5	6	7
ITEM No.1 :- Providing D.I. K-9 grade pipes with internal cement mortar lining including taxes, insurance,						
Raw water Rising Main						
1000 mm dia.DI.K-9 Pipe.	1	1599			1599	Rmt
ITEM No.2 :- Providing and supplying DI/MS specials suitable for above pipes,						
Above 350 mm Dia						
1000 x 1000 x 200 Hydrant Tee-weight 444 Kg.Each	4	444			1776	Kgs.
1000 mm dia Bend						
90 Degree weight 964 Kg.Each	3	964			2892	Kgs.
45 Degree weight 651 Kg.Each	1	651			651	Kgs.
22,1/2 Degree weight 454 Kg.Each	1	458			458	Kgs.
11,1/4 Degree weight 384 Kg.Each	1	384			384	Kgs.
1000 mm dia MJ Coller Coupling	6	473			2838	Kgs.
				Total Wt.	8999	Kgs.
ITEM No:3 :-Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon,loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete.Reflux valves as per I.S.5312 Part I (1984)						
1000 mm dia Reflux Valve.	1	1			1	Nos.
ITEM No.4 :- Providing and supplying ISI mark C.I. D/F sluice valves						
200 mm dia Sluice Valve.P.N.1.6	1	5			5	Nos.
1000 mm dia Sluice Valve.P.N.1.6	1	1			1	Nos.
Item No 5 :- Providing , supplying & fixing in positon stainless ball, tamper proof air vents ... etc including all taxes and duties except octroi)						
200 mm dia. Tamper Proof Air Valve.PN-1.60	1	3			3	Nos.
Item No.6 :- Excavation for foundation/ pipe trenches in Soft Soil..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	1599	1.60	0.26	671.58	Cum
Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	1599	1.60	0.35	901.84	Cum

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Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement .. by blasting and hard rock by controlled....., etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	1599	1.60	0.55	1400.72	Cum
Item No 10 :- Excavation for foundation / pipe trenches in Hard rock by Cheseling, ... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1000 mm dia.DI.K-9 Pipe.	1	1599	1.60	0.34	869.86	Cum
Lift 1.5 to 3.0 M.						
1000 mm dia.DI.K-9 Pipe.	1	1599	1.60	0.60	1528.64	Cum
				2.10		
ITEM No. 11 :- Filling in plinth and floors murum bedding in trenches						
A) Murum available from excavated stuff	1	1599	1.60	0.15	383.76	Cum
ITEM No. 12 :- Lowering laying and jointing with SBR rubber gasket C.I. / D.I. S/S pipes etc. complete.						
1000 mm dia.DI.K-9 Pipe.	1	1599			1599	Rmt.
ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour ..etc.						
CI Class 'LA' / Mortar inlined D.I. K-9 / K-7						
1000 mm dia.DI.K-9 Pipe.	1	1.60			1.60	Km
ITEM No. 14 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
200 mm dia Sluice Valve.P.N.1.6	1	5			5	Nos.
1000 mm dia Reflux Valve.	1	2			2	Nos.
ITEM No.15 :- Providing and fixing in position air valve shaft						
A) Foundation on Murum and Hard Strata						
1000 to 1200 mm Dia pipeline.	1	3			3	Nos.
ITEM No. 16 :- Providing and constructing B.B. masonry valve chamber						
2) As above of 150 x 150 cm internal size and depth upto 1.5 M with precast RCC slab cover	1	2			2	Nos.
ITEM No. 17 :- Refilling the trenches with available excavated stuff						
Total excavation					5372.64	Cum
Deduction						
Murum bedding					383.76	
Volume of pipe for 1000 mm dia	0.7855	1.016	1.016	1599	1296.53	
Total deduction					1680.29	
Net qty of refilling				Total =	3692.35	Cum
Item No. 18 :- Providing MS Specials etc charges, transportation to stores / site, and stacking, etc. complete						
MS Specials	1	1000			1000	Kgs.
ITEM No. 19 :- Providing and laying in situ cement concrete M-10 / 1:3:6 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding etc. complete.						
1:2:4 (M-150) grade						
Encasing in Nalla portion	1	22	2	1.6	70.40	

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P.W.D.Road crossing's	1	25	2.1	0.3	15.75	
Deduct Pipe Volume =	1.00	22.00	0.785	$(0.1000)^2$	17.83	Cum
				Total =	68.32	Cum
Item No.20 :- Providing and Casting RCC M-200 ...etc complete.						
For Thrust/Anchor block at bends	6	4.50	2.10	1.65	93.56	cum
Item No.21 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)						
Tor Steel.	1.00	93.56	0.01	7850	7.344	MT
Item No. 22 :- Making cross connection to existing distribution main of any type including ..etc. complete						
1000 mm dia	1	1			1	No.
Item No. 23 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)						
PWD Charges Along the Road	1	3000			3000	Rmt
Road Crossing	1	1			1	Rmt
Item No. 24 :- Provision for charges towards crop compensasion of farmers,etc)						
	1	1500	4		6000	Sq.mt.

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Master Balancing Reservoir Measurements

A B S T R A C T

Description of Item / Measurements	Qty	Rate	Unit	Amount
Item No.1 :-				
Designing (aesthetically), and constructing RCC elevated service reservoirs of following capacity with RCC staging consisting of columns, internal and external bracings spaced vertically not more than 4.5 meters centre to centre for E.S.R. having capacity 500 m ³ & not more than 6 m c/c for E.S.R.having capacity above 500 m ³ including excavation in all types of strata, foundation concret, cement plaster with water proofing compound to the inside face of the container including refilling disposing of the surplus stuff within a lead of 50 meters, all labour and material charges including lowering, laying, erecting, hoisting and jointing of pipe assembly of inlet, outlet, washout, overflow and bypass arrangements as per departmental design.				
providing and fixing accessories such as stainless steel ladder inside container & M.S.Ladder outside, C. I. manhole frame and covers water level indications, lightening conductor, G. I. pipe railing around walk way and top slab, providing spiral staire case from ground level to roof level, M.S.Grill gate of 2 Mtrs height with locking arrangement of approved design, B.B. masonry chambers for all valves, ventilating shafts, providing and applying three coats of Acrylic emulsion with silicon additives to the structure including roof slab and epoxy painting to internal surface & anti-termite treatment for underground parts of the structures and giving satisfactory water tightness test as per I.S. 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.				
Notes:				
1. The design of the structure be in accordance with relevent (I.S.3370 - 1965 or revised)				
2. The design shall satisfy the stipulation as per IS 1893-1984 and I.S. 13920/1993 for seismic force and I.S.- 11682/1985 for R.C.C. staging of overhead tanks.				
3. For design having more than 6 columns, Providing of internal bracing is obligatory,. External bracking is also obligatory.				
4. Plain round mild steel bars grade - I confirming to I.S,432 Part-I or high yield strengh deformed bars confirming to I.S. 1786 or I.S. 1139 shall be used, grade-II mild steel bars will not be allowed.				
5. Irrespective of the type of foundation proposed in the design, one set of bracing be provided at the gound level.				
6. 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.				

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7. Staggering shall have to be designed with stresses of M-200 for ESR. However all RCC construction should be done in M-250. Structures in contact with water shall be designed & casted in M-300.				
8 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.				
9. 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 is included in the rates mentioned below.				
10.. 75% part rate shall be payable for reinforced concrete 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.				
11. The rates indicated in the table are excluding the cost of pipes, specials and valves required for inlet, outlet washout overflow and by-pass arrangement. The scope of work, however includes cost of erecting, laying and jointing of pipes and valve. including cost of jointing materials upto 5M beyond outer face of outermost column.				
12. 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 treatment from inside and outside.				
13. Below mentioned rates are for foundation, with individuals footing with bearing capacity of 20 tonnes per square metre. For raft foundations, these rates shall be increased by 7.5%, whereas bearing 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 Lumpsum. items of ESR for Extra item due to change from individual foundation to raft, actual increase in concrete and steel quantities be paid as per relevant DSR Item.				
14. The rates shall be increase by 30% for bearing 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 feasible 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.				
15. 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				

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16. 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.)				
Note:- 1) Conditin from Sr.No.1 to 10 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.				
Note:- 2) Condition from Sr.No.11 to 16 are for estimation purpose only and shall not be appear in the tender.				
(As Per Corrigendum No.Lett.No.8/706.Dt.10.03.22)				
PURE WATER M.B.R @ DABHA PATI(Seismic Zone iv).	2.00	21951994	Job	43903987
MBR CAP. 1920000 Lts 27.m Staging(TWO NOS)				
For Cap.of 1500000 Liters.		11807722		
Add for 420000 lit @5.52 per Lit		2318400		
Total		14126122		
Add for Additional Staging Height				
Staging 12 to 16 M = 2 x 4 = 8		1130090		
Staging 16 to 20 M = 3 x 4 = 12		1695135		
Staging 20 to 27 M = 4 x 7 = 28		3955314		
Total		20906660.6		
Add 5% For zone iv		1045333.03		
Total		21951994		
Item No.2- Providing and supplying ISI standard DI double flanged pipesexcluding GST leviedby GOI & GOM in all respect, railway freight, insurance,unloading from railway wagon, loading into truck transport to stores /site, unloading etc.complete as directed by Engneer-in-charge.				
(As Per Corrigendum No.11Lett.No.2390/.Dt.19.08.22)				
INLET				
1000 mm dia - MBR	100.00	56160.00	RMT	5616000
OUTLET				
1200 mm dia - MBR(2.Outlet)	200.00	67392.00	RMT	13478400
Overflow				
1200 mm dia - MBR(2.Outlet)	100.00	67392.00	RMT	6739200
Bypass				
1000 mm dia - MBR	20.00	56160.00	RMT	1123200
Wash out				
500 mm dia - MBR	20.00	17794.00	RMT	355880
Item No.3:- Providing and supplying ISI standard welded DI flanged / S& S specials including all taxes (Central and local), railway freight, insurance, unloading from railway wagon, loading into truck transport to depermental store/ site, unloading stacking etc. complete.				
(As Per Corrigendum No.11Lett.No.2390/.Dt.19.08.22)				
D/F Specials above 350 mm dia	20000	186.00	Kg.	3720000

LATUR CITY MUNICIPAL CORPORATION

ITEM No:2 :- Providing, and supplying double flanged SLUICE VALVE conforming for IS 2906/14846 including own gear arrangements as per test pressures stainless steel spindle ,caps including all taxes transportation etc. complete				
(MJP SSR 2021 - 22, Item.No.2. Page.No.132)				
Sluice Valves- PN-1.00				
1000 mm dia.	2	816847.00	No.	1633694
1200 mm dia.	4	1238134.00	No.	4952536
500 mm dia.	2	109450.00	No.	218900
Item No.5 :- Add Lead Charges For Sand for construction of ESR				
a) For MBR & All E.S.R.s	2464.45	414.12	Cum	1020570
		Total.	Rs.	82762368
			Say	8,27,62,400

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Master Balancing Reservoir Measurements

Description of Item	No	L	B	D
Item No. 1 :- Designing (aesthetically), and constructing RCC elevated service reservoirs as per the directions of Engineer -in -charge.				
RAW WATER RCC MBR CAP - 19,20,000 Liters & Staging 27.00 M.				2 Nos.
Item No.2 :- Item No.2- Providing and supplying ISI standard DI double flanged pipesexcluding GST leviedby GOI & GOM in all respect, railway freight, insurance,unloading from railway wagon-- - etc.				
INLET				
1000 mm dia - MBR	2	50	100	M
OUTLET				
1200 mm dia - MBR(2.Outlet)	4	50	200	M
Overflow				
1200 mm dia - MBR(2.Outlet)	2	50	100	M
Bypass				
1000 mm dia - MBR	2	10	20	M
Wash out				
500 mm dia - MBR	2	10	20	M
Item No.3 :- Providing and supplying ISIstandard CI double flanged /s & S specials including all taxes (Central and local), railway freight , insurance, unloading from railway wagon ,loading into truck transport to stores /site, unloading,stacking etc. complete.				
20000 Kg.	=		20000	Kg
Item No.4 :- Providing erecting, connecting double flanged short body pattern type m1, sluice valves - PN - 1				
Sluice Valves				
1000 mm dia.			2	Nos.
1200 mm dia.			4	Nos.
500 mm dia.			2	Nos.
Item No.5 :- Add Lead Charges For Sand for construction of ESR (As the sand Quarry is @ Gangakhed at Av. Dist. 95 km				
		Concrete	2464.447	Cum

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at MBR

A B S T R A C T

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
ITEM NO. 1				
Excavation for foundation/pipe trenches in earth, soils of all types of sand gravel & soft murum incl. Removing the excavated material upto a distance of 50 M. & lift as below.stacking and spreading as directed, Normal dewatering, preparing the bed for fo				
Lift 0 to 1.5 M.	14.11	150.00	Cum.	2117.00
MJP CSR 2021 - 22 Page No. 42 I.No.1				
ITEM NO. 2				
Excavation for foundation/ pipe trenches in hard murum & 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 dowering				
Lift 0 to 1.5 M.	12.35	192.00	Cum.	2371.00
MJP CSR 2021 - 22 Page No. 42 I.No.3				
ITEM No.3				
Excavation for foundation/ pipe trenches in soft rock & 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 Engineer-in-charge,				
Lift 0 to 1.5 M.	8.82	572.00	Cum.	5045.00
MJP CSR 2021 - 22 Page No. 42 I.No.5				
ITEM No.4				
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal for foundation and bedding including dewatering, form work, compacting and curing, finishing etc. Complete.(Bd-E- 1/287)				
c) 1:2:4 (M -150) grade (with 12 to 20 mm metal)	2.65	6811.37	Cum	18023.00
(As Per Rate Analysis)				
ITEM No.5				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Column footing	5.78	8341.12	Cum	48178.00
(As Per Rate Analysis)				
ITEM No.6				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				

LATUR CITY MUNICIPAL CORPORATION

RCC Beams/Braces/Lintel	3.31	9654.12	Cum	31974.00
(As Per Rate Analysis)				
ITEM No.7				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M				
RCC ColumnsM-250	3.30	9818.12	Cum	32400.00
(As Per Rate Analysis)				
ITEM No.8				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M M-250				
RCC Slab/Landing/Vertical Wall	3.58	10324.12	Cum	36940.00
(As Per Rate Analysis)				
ITEM NO.9				
Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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				
Lift 0 to 5 M				
Tor Steel.	1.25	97206.00	M.T.	121832.00
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
ITEM NO.10				
Providing IInd class B.B masonry with conventional / Indian standerd type bricks in CM 1:6 in plinth & Superstructure including striking joints , raking out joints, watering,and scaffolding etc. complete.				
For superstructure	9.09	8504.99	Cum	77346.00
For Plinth	3.31	8265.99	Cum	27377.00
(As Per Rate Analysis)				
ITEM NO.11				

LATUR CITY MUNICIPAL CORPORATION

Providing and fixing rolling shutter fabricated from steel laths of minimum thickness 0.9 mm with lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle section fitted with sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respectively with hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size & shape with square bar, suspension shaft of minimum 32 mm diameter, hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operation arrangement consisting of worm gear wheels and worms of high grade cast iron or mild steel and one coat of red lead primer				
Rolling steel shutter.				
(PWD SSR 2022-23 P.No.308 It. No.39.25)	5.25	5308.00	Sq.m.	27867.00
<u>ITEM NO.12</u>				
Providing & fixing steel window of various sizes as per detailed drawings fabricated from I.S. standard section without hot dip zinc coating without/ with ventilators including fabrication, glazing with non acetinic / plain / obscured glass panels of approved type and quality all fixtures and fastening without teak wood boxing, and architraves and finishing with one coat of primer complete. with guard bars 12 mm square bar 10 cm. centre to centre.				
for Steel windows	2.40	4607.00	Sq.m.	11057.00
(PWD SSR 2022-23 P.No.306 It. No.39.19)				
<u>ITEM NO. 13</u>				
Providing & fixing steel Ventilator fully glazed partly top hung and partly fixed as per detailed drawing without hot dip zinc coating including glazing with plain obscured glass panel and of approved type and quality and fixtures and fastening without teak wood boxing and architraves and oil painting two coats etc complete.				
Steel Ventilators	0.81	3375.00	Sq.m.	2734.00
(PWD SSR 22-23 P.No.308 It. No.39.29)				
<u>ITEM NO. 14</u>				
Providing internal cement plaster 20 mm thick in two coats in cement mortar 1:3 without neeru finish to concrete, brick surfaces in all positions including scaffolding and curing , etc. complete				
a) 20 mm thick cement plaster (1:4)	64.00	421.92	Cum	27003.00
(As Per Rate Analysis)				
<u>ITEM NO15</u>				
Providing sand faced plaster externally in cement mortar using kharsalia / kasaba or similar type of sand in all positions including base coat of 20 mm thick in cement mortar 1:4 using waterproofing compound at 1 Kg per cement bag. Curing the same for no				
(As Per Rate Analysis)	71.11	691.70	Sq.m.	49184.00
<u>ITEM NO. 16</u>				

LATUR CITY MUNICIPAL CORPORATION

Providing and applying two coats of Exterior acrylic emulsion paint conforming to corresponding I.S.of approved manufacture and of approved colour to the plastered surfaces including cleaning,prepaireing the plaster surface,applying primer coat ,scaffolding if necessecary,and watering the surface for two days etc complete.				
1) New Surface.	71.11	261.00	Sq.m.	18559.00
(PWD SSR 2022-23 P.No.277 . Item No. 35.25)				
<u>ITEM NO.17</u>				
Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm of 8 to 10 mm thickness and confirming to IS 15622 - 2006 (Group Bla) of approved make shade and pattern for flooring in required position laid on a bed of 1:4 cement mortor including neat cement float , filling joints curing and clearing etc.complete. Note : (Water absorption should not be more than 0.05%)				
(PWD SSR 2022-23 P.No. 267 Item No.33.44)	16.00	1769.00	Sq.m.	28304.00
<u>ITEM NO. 18</u>				
Providing and applying washable oil bound distemper of approved colour and shade to old and new surface in three coats including scaffolding preparing the surfaces (including the primer coat) etc.complete				
(PWD SSR 2022-23 P.No. 280 It. No. 36.11)	64.00	48.00	Sq.m.	3072.00
Total of subwork			Rs.	571383.00
		Say RS		5,71,400

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

ESTIMATE OF METER ROOM AT MBR

M E A S U R M E N T

Description of Item	Nos	L	B	D	Qty	Unit
1	2	3	4	5	6	7
ITEM NO. 1						
Excavation for foundation/pipe trenches in earth, soils						
Lift 0 to 1.5 M.						
columns	4	2.10	2.10	0.8	14.1	cum
ITEM NO. 2						
Excavation for foundation/ pipe trenches in hard murum &						
Lift 0 to 1.5 M.	4	2.10	2.10	0.7	12.35	cum
ITEM NO.3						
Excavation for foundation/ pipe trenches in soft rock						
Lift 1.5 to 3 M.	4	2.10	2.10	0.5	8.82	cum
ITEM NO.4						
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite / gneiss metal						
c) 1:2:4 (M -150) grade column footing	4	2.10	2.10	0.15	2.65	cum
ITEM NO.5						
:- Providing and laying in situ cement concrete of trap/granite/ foundation and footing of RCC columns etc.complete						
For RCC M – 250						
Lift 0 to 5 M						
a) column footings	4	1.9	1.90	0.40	5.78	Cum
ITEM NO 6						
:- Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
RCC brace Beam M-250						
Lift 0 to 5 M						
B) For Beams & Lintels						
gl beam & intermediate beam	4	4	0.23	0.45	1.66	Cum
Lintel level beam.	4	4	0.23	0.15	0.55	Cum
Roof beam.	4	4	0.23	0.3	1.10	Cum
				Total	3.31	Cum
ITEM NO.7						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
column-M-250						
Lift 0 to 5 M column above & below GL	4	0.3	0.50	5.5	3.30	Cum
Total					3.30	Cum
ITEM NO.8						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
slab M-250						
Lift 0 to 5 M						
chajja on door.	1	2.5	0.60	0.15	0.23	Cum
chajja on window.	2	1.3	0.60	0.15	0.23	Cum
Roof slab	1	4.56	4.56	0.15	3.12	
Total					3.58	Cum

LATUR CITY MUNICIPAL CORPORATION

ITEM NO.9						
Providing and fixing in position steel bar reinforcement						
Lift 0 to 5 M	1	16.0	0.01	7850	1.25	M.T.
ITEM NO.10						
Providing IInd class B.B masonry						
a) In Cement Mortar (1:6)						
Lift 0. to 3.8 m.	4	4	0.23	3.00	11.04	Cum.
Deduction.						
Rolling shutter.	1	2.5	2.10	0.23	1.21	Cum.
Windows.	2	1	1.20	0.23	0.55	Cum.
Ventilators.	2	0.9	0.45	0.23	0.19	Cum.
				Total.	1.95	Cum.
Net Qty.					9.09	Cum.
for plinth	4	4	0.23	0.9	3.31	Cum.
ITEM NO. 11						
Providing and fixing rolling steel shutter						
Rolling steel shutter.	1	2.50	2.10		5.25	Sq.m.
ITEM NO. 12						
Providing & fixing steel window						
for Steel windows	2	1.00	1.20		2.40	Sq.m.
ITEM NO.13						
Providing & fixing steel Ventilator						
Steel Ventilators	2	0.90	0.45		0.81	Sq.m.
ITEM NO.14						
Providing cement plaster Inside						
20 mm thick cement plaster in two coats in cement Mortar (1:3)						
Inside the Pump house.	4.0	4.00	3.00		48	Sq.m.
Celing	1.0	4.0	4.0		16	
					64	Sq.m.
ITEM NO. 15						
Providing sand faced plaster externally in two coats.						
In C.M. 1:4 prop.	4	4.46	4.46		79.57	Sq.m.
Deduction.						
Door	1	2.50	2.10		5.25	
Windows.	2	1.20	1.00		2.4	
Ventilators.	2	0.90	0.45		0.81	
				Total	8.46	Sq.m.
Net Qty.					71.11	Sq.m.
ITEM NO. 16						
two coats of appex Appex Ace white exterior paint						
Total quantity of plaster.	1	71.11			71.11	Sq.m.
ITEM NO. 17						
∴ Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm						
	1	4.00	4.00		16	Sq.m.
ITEM NO. 18						
Providing and applying oil bound distemper						
inside face					64	Sq.m.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Gravity Main from MBR To All ESR's

(1200MM Dia TO 300MM Dia.D.I.K-7 PIPES L-20336 M)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

Sr.No	Chainage	Soft Soil	Murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth
1	2	3		4	5	6	7
	300 MM Dia = 1491 Mtr,D.I.K-7 PIPES						1.366
1	0	0.1	0.15	0.2	0.35	0.6	1.40
2	500	0.1	0.15	0.3	0.35	0.5	1.40
3	1000	0.15	0.2	0.15	0.2	0.7	1.40
4	1491	0.35	0.2	0.15	0.3	0.4	1.40
		0.7	0.7	0.8	1.2	2.2	5.6
		0.175	0.175	0.2	0.3	0.55	1.40
	350 & 400 MM Dia = 50, 2500 Mtr,D.I.K-7 PIPES						1.47
1	0	0.15	0.25	0.25	0.45	0.4	1.50
2	500	0.1	0.3	0.3	0.25	0.55	1.50
3	1000	0.15	0.3	0.2	0.4	0.45	1.50
4	1500	0.25	0.15	0.2	0.35	0.55	1.50
5	2000	0.15	0.2	0.2	0.25	0.7	1.50
6	2550	0.15	0.2	0.35	0.3	0.5	1.50
		0.95	1.4	1.5	2	3.15	9
		0.16	0.23	0.25	0.33	0.53	1.50
	450 & 500 MM Dia = 3590, 590 Mtr,D.I.K-7 PIPES						1.57
1	0	0.15	0.25	0.25	0.4	0.55	1.60
2	500	0.2	0.15	0.25	0.3	0.7	1.60
3	1000	0.2	0.2	0.15	0.4	0.65	1.60
4	1500	0.15	0.3	0.25	0.35	0.55	1.60
5	2000	0.05	0.2	0.3	0.55	0.5	1.60
6	2500	0.15	0.15	0.45	0.45	0.4	1.60
7	3000	0.15	0.25	0.25	0.4	0.55	1.60
8	3500	0.2	0.15	0.25	0.3	0.7	1.60
9	4180	0.2	0.2	0.15	0.4	0.65	1.60
		1.45	1.85	2.3	3.55	5.25	14.4
		0.16	0.21	0.26	0.39	0.58	1.60
	600 MM Dia = 1925 Mtr,D.I.K-7 PIPES						1.67
1	0	0.1	0.15	0.25	0.5	0.7	1.70
2	500	0.15	0.35	0.15	0.4	0.65	1.70
3	1000	0.35	0.25	0.2	0.4	0.5	1.70
4	1500	0.25	0.15	0.3	0.4	0.6	1.70
5	1925	0.1	0.15	0.25	0.5	0.7	1.70
		0.95	1.05	1.15	2.20	3.15	8.50
		0.19	0.21	0.23	0.44	0.63	1.70

LATUR CITY MUNICIPAL CORPORATION

	800 MM Dia = 951 Mtr,D.I.K-7 PIPES						1.87
1	0	0.3	0.2	0.1	0.4	0.7	1.70
2	500	0.2	0.15	0.2	0.55	0.6	1.70
3	951	0.25	0.2	0.4	0.35	0.5	1.70
		0.75	0.55	0.70	1.30	1.80	5.10
		0.25	0.18	0.23	0.43	0.60	1.70
	900 MM Dia = 1797 Mtr,D.I.K-7 PIPES						1.97
1	0	0.2	0.3	0.35	0.45	0.7	2.00
2	500	0.25	0.25	0.3	0.55	0.65	2.00
3	1000	0.15	0.3	0.45	0.65	0.45	2.00
4	1500	0.2	0.3	0.35	0.45	0.7	2.00
5	1800	0.25	0.25	0.3	0.55	0.65	2.00
		1.05	1.4	1.75	2.65	3.15	10
		0.21	0.28	0.35	0.53	0.63	2.00
	1200 MM Dia = 7460 Mtr,D.I.K-7 PIPES						2.27
1	0	0.35	0.2	0.5	0.4	0.85	2.30
2	500	0.4	0.4	0.3	0.45	0.75	2.30
3	1000	0.3	0.5	0.35	0.45	0.7	2.30
4	1500	0.55	0.35	0.35	0.45	0.6	2.30
5	2000	0.45	0.35	0.3	0.35	0.85	2.30
6	2500	0.4	0.35	0.35	0.5	0.7	2.30
7	3000	0.3	0.3	0.3	0.3	1.1	2.30
8	3500	0.35	0.2	0.5	0.4	0.85	2.30
9	4000	0.4	0.4	0.3	0.45	0.75	2.30
10	4500	0.3	0.5	0.35	0.45	0.7	2.30
11	5000	0.3	0.5	0.35	0.45	0.7	2.30
12	5500	0.35	0.2	0.5	0.4	0.85	2.30
13	6000	0.4	0.4	0.3	0.45	0.75	2.30
14	6500	0.3	0.5	0.35	0.45	0.7	2.30
15	7000	0.55	0.35	0.35	0.45	0.6	2.30
16	7500	0.45	0.35	0.3	0.35	0.85	2.30
		6.15	5.85	5.75	6.75	12.30	36.80
		0.38	0.37	0.36	0.42	0.8	2.30

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Gravity Main from MBR To All ESR's

(1200MM Dia TO 300MM Dia.D.I.K-7 PIPES L-20336 M)

ABSTRACT

Qty	Description of Item	Rate	Unit	Amount
1		3	4	5
	ITEM No. 1 :- Providing D.I.Pipes (push on joints pressure pipes of D I of following class and diameter confirming to the I S specifications inclusive cost of jointing materials (Rubber gasket of EPDM quality) excluding GST levied by GOI and GOM in all respect,including Third party inspection charges of TPI agency approved by MJP including transit, insurance, railway freight, unloading from railway wagon, loading into truck, transportation to depatmental store, site of work, unloading, stacking etc. complete as directed by Engineer in charge (IS- 1536/2001 for pipes and IS 158/1969 and IS 12820/1989 or latested edition/ revision with amendments for rubber gasket)			
7501	1200 mm dia.DI.K-7 Pipe.	38818.00	Rmt	291173818.00
1797	900 mm dia.DI.K-7 Pipe.	21103.00	Rmt	37922091.00
381	800 mm dia.DI.K-7 Pipe.	17405.00	Rmt	6631305.00
607	600 mm dia.DI.K-7 Pipe.	9765.00	Rmt	5927355.00
3744	500 mm dia.DI.K-7 Pipe.	7392.00	Rmt	27675648.00
1171	450 mm dia.DI.K-7 Pipe.	6346.00	Rmt	7431166.00
2492	400 mm dia.DI.K-7 Pipe.	5328.00	Rmt	13277376.00
236	350 mm dia.DI.K-7 Pipe.	4465.00	Rmt	1053740.00
1996	300 mm dia.DI.K-7 Pipe.	3571.00	Rmt	7127716.00
	(As Per Corrigendum No7.Lett.No.652.Dt.07.03.22,P.No.1)			
	ITEM No.2 :- Providing & Supplying ISI standard D.I. specials and fittings with sealing rubber gasket of SBR complete with C.I. follower glands and mild steel nut bolts coated or otherwise protected from rusting and suitable for D.I.pipes including cost of labour,material and transportation to stors /site,loading,unloading including all taxes etc complete as per IS-9523.			
655	80 to 300 mm dia	153.00	Kg.	100215.00
70419	350 mm dia & Above,	186.00	Kg.	13097934.00
	(As Per Corrigendum No11.Lett.No.2390.Dt.19.08.22,P.No.1)			

LATUR CITY MUNICIPAL CORPORATION

	ITEM No:3 :- Providing double flanged Sluice Valves conforming to IS-14846 including worm gear arrangements as per test pressure, stainless steel spindle, caps, including inspection charges transportation stores,unloading,stacking excluding GST levied by GOI & GOM in all respect etc.complete.			
26	200 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	18581.00	Nos.	483106.00
7	150 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	10251.00	Nos.	71757.00
16	100 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	6835.00	Nos.	109360.00
6	80 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	5132.00	Nos.	30792.00
1	300 mm dia Sluice Valve.P.N.1.0	36471.00	Nos.	36471.00
1	350 mm dia Sluice Valve.P.N.1.0	53651.00	Nos.	53651.00
1	400 mm dia Sluice Valve.P.N.1.0	70635.00	Nos.	70635.00
1	450 mm dia Sluice Valve.P.N.1.0	75940.00	Nos.	75940.00
1	600 mm dia Sluice Valve.P.N.1.0	162155.00	Nos.	162155.00
	MJP.SSR .2021 - 22. Page No.133 . I.No.2			
	ITEM No:4 :- Providing double flangedShort Body pattern type manually operated ButterFly Valve having body disc.and end cover in graded cast iron to IS - 210 Gr.Cf 200 generally confirming to IS - 13095 - 1991,Synthetic rubber faced ring secured on disc by retaining ring with stainless steel screw stub shaft of stainiess steel riding in teflon bearing including inspection charges,transportation up to departmental store,unloading,stacking excluding GST levied by GOI & GOM in all respect etc.complete.			
2	1200 mm dia Butterfly Valve.P.N.1.0(With Bypass)	552294.00	Nos.	1104588.00
1	900 mm dia Butterfly Valve.P.N.1.0(With Bypass)	211216.00	Nos.	211216.00
1	800 mm dia Butterfly Valve.P.N.1.0(With Bypass)	164519.00	Nos.	164519.00
	MJP.SSR .2021 - 22. Page No.134 . I.No.3			

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	Item No 5 :- 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 conforming to EN 1563/IS 1865.Gr.500/7 or Gr.400/15 floats,float guide,seat ring of stainless steel I.4436/I.4306.seat ring gasket of WRAS approved EPDM rubber (suitable for drinking water) internal fastness of stainless steel A2 Body & Bonnet coated inside & outside with electrostatically applied epoxy poeder 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 transportation charges excluding GST levied by GOI & GOM in all respect etc.complete..			
20	200 mm dia. Tamper Proof Air Valve.PN-1.60	45270.00	Nos.	905400.00
5	150 mm dia. Tamper Proof Air Valve.PN-1.60	43521.00	Nos.	217605.00
11	100 mm dia. Tamper Proof Air Valve.PN-1.60	31292.00	Nos.	344212.00
2	80 mm dia. Tamper Proof Air Valve.PN-1.60	25438.00	Nos.	50876.00
	MJP.SSR .2021 - 22. Page No.145 . I.No.25			
	ITEM No 6 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.1			
7758.01	Lift 0 to 1.5 M.	150.00	Cum	1280072.28
	Add 10% for Excavation for pipe line in towns.	15.00		
		165.00		
	Item No.7 :- Excavation for foundation/ pipe trenches in hard murum 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.2			
8155.09	Lift 0 to 1.5 M.	170.00	Cum	1525003.00
	Add 10% for Excavation for pipe line in towns.	17.00		
		187.00		

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	Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & 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 dowering, preparing the bed for found-ation and excluding backfilling etc complete. (Bd-A - 3/259)			
	MJP.SSR .2021 - 22. Page No.42 . I.No.3			
8687.54	Lift 0 to 1.5 M.	192.00	Cum	1834809.00
	Add 10% for Excavation for pipe line in towns.	19.20		
		211.20		
	Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement and lime masonry foundation,asphalt road,soft rock by blasting and hard rock by controlled blasting, including trimming and levelling the bed by chiselling where necessary and removing the excavated material and stacking it in measurable heaps within a distance of 50 metres from the area and lifts as below, normal dewatering, excluding backfilling, etc. complete.			
	MJP.SSR .2021 - 22. Page No.42 . I.No.5			
11520.40	Lift 0 to 1.5 M.	572.00	Cum	7248638.00
	Add 10% for Excavation for pipe line in towns.	57.20		
		629.20		
	Item No 10 :- 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 metres beyond the area and lifts as below, ~~stacking as directed by Engineer-in-charge normal dewatering~~			
	MJP.SSR .2021 - 22. Page No.43 . I.No.7			
6257.29	Lift 0 to 1.5 M.	1017.00	Cum	7000035.00
	Add 10% for Excavation for pipe line in towns.	101.70		
		1118.70		
12974.69	Lift 1.5 to 3.0 M.	1042.00	Cum	14871588.00
	Add 10% for Excavation for pipe line in towns.	104.20		
		1146.20		
	ITEM No.11 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and compaction etc.			
	MJP.SSR .2021 - 22. Page No.45 . I.No.16			
4213.61	A).Murum available from excavated stuff	84.00	Cum	371640.00
	Add 5% for Muncipal corporation Area.	4.20		
		88.20		

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	ITEM No. 12 :- Lowering laying and jointing with SBR rubber gaskets C.I. 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.SSR .2021 - 22. Page No. 70 . I.No.2.A			
7501	1200 mm dia.DI.K-7 Pipe.	1094.40	Rmt	8619550.00
	Add 5% for Muncipal corporation Area.	54.72		
		1149.12		
1797	900 mm dia.DI.K-7 Pipe.	772.00	Rmt	1456649.00
	Add 5% for Muncipal corporation Area.	38.60		
		810.60		
381	800 mm dia.DI.K-7 Pipe.	646.00	Rmt	258433.00
	Add 5% for Muncipal corporation Area.	32.30		
		678.30		
607	600 mm dia.DI.K-7 Pipe.	365.00	Rmt	232633.00
	Add 5% for Muncipal corporation Area.	18.25		
		383.25		
3744	500 mm dia.DI.K-7 Pipe.	278.00		1092874.00
	Add 5% for Muncipal corporation Area.	13.90	Rmt	
		291.90		
1171	450 mm dia.DI.K-7 Pipe.	241.00		296322.00
	Add 5% for Muncipal corporation Area.	12.05	Rmt	
		253.05		
2492	400 mm dia.DI.K-7 Pipe.	241.00		630601.00
	Add 5% for Muncipal corporation Area.	12.05	Rmt	
		253.05		
236	350 mm dia.DI.K-7 Pipe.	200.00		49560.00
	Add 5% for Muncipal corporation Area.	10.00	Rmt	
		210.00		
1996	300 mm dia.DI.K-7 Pipe.	161.00		337424.00
	Add 5% for Muncipal corporation Area.	8.05	Rmt	
		169.05		
	ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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.SSR .2021 - 22. Page No. 74 . I.No.12.			
	<u>CI Class 'LA' / Mortar inlined D.I. K-9 / K-7</u>			
7.50	1200 mm dia.DI.K-7 Pipe.	121717.20	Km	958651.00
	Add 5% for Muncipal corporation Area.	6085.86		
		127803.06		

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1.80	900 mm dia.DI.K-7 Pipe.	85718.00	Km	161738.00
	Add 5% for Muncipal corporation Area.	4285.90		
		90003.90		
0.38	800 mm dia.DI.K-7 Pipe.	71793.00	Km	28721.00
	Add 5% for Muncipal corporation Area.	3589.65		
		75382.65		
0.61	600 mm dia.DI.K-7 Pipe.	40623.00	Km	25892.00
	Add 5% for Muncipal corporation Area.	2031.15		
		42654.15		
3.74	500 mm dia.DI.K-7 Pipe.	30914.00	Km	121530.00
	Add 5% for Muncipal corporation Area.	1545.70		
		32459.70		
1.17	450 mm dia.DI.K-7 Pipe.	26699.00	Km	32828.00
	Add 5% for Muncipal corporation Area.	1334.95		
		28033.95		
2.49	400 mm dia.DI.K-7 Pipe.	26699.00	Km	69861.00
	Add 5% for Muncipal corporation Area.	1334.95		
		28033.95		
0.24	350 mm dia.DI.K-7 Pipe.	22228.00	Km	5509.00
	Add 5% for Muncipal corporation Area.	1111.40		
		23339.40		
2.00	300 mm dia.DI.K-7 Pipe.	17885.00	Km	37484.00
	Add 5% for Muncipal corporation Area.	894.25		
		18779.25		
	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.SSR .2021 - 22. Page No.135 . I.No.4			
26	200 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	3714.00	Nos.	101392.20
	Add 5% for Muncipal corporation Area.	185.70		
		3899.70		
7	150 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	3570.00	Nos.	26239.50
	Add 5% for Muncipal corporation Area.	178.50		
		3748.50		
16	100 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	2272.00	Nos.	38169.60
	Add 5% for Muncipal corporation Area.	113.60		
		2385.60		
6	80 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1738.00	Nos.	10949.40
	Add 5% for Muncipal corporation Area.	86.90		
		1824.90		
2	1200 mm dia Butterfly Valve.P.N.1.0	21915.00	Nos.	46021.50
	Add 5% for Muncipal corporation Area.	1095.75		
		23010.75		
1	900 mm dia Butterfly Valve.P.N.1.0	14651.00	Nos.	15383.55

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	Add 5% for Muncipal corporation Area.	732.55		
		15383.55		
1	800 mm dia Butterfly Valve.P.N.1.0	13807.00	Nos.	14497.35
	Add 5% for Muncipal corporation Area.	690.35		
		14497.35		
1	600 mm dia Sluice Valve.P.N.1.0	9759.00	Nos.	10246.95
	Add 5% for Muncipal corporation Area.	487.95		
		10246.95		
1	500 mm dia Sluice Valve.P.N.1.0	9154.00	Nos.	9611.70
	Add 5% for Muncipal corporation Area.	457.70		
		9611.70		
1	450 mm dia Sluice Valve.P.N.1.0	8879.00	Nos.	9322.95
	Add 5% for Muncipal corporation Area.	443.95		
		9322.95		
1	400 mm dia Sluice Valve.P.N.1.0	7462.00	Nos.	7835.10
	Add 5% for Muncipal corporation Area.	373.10		
		7835.10		
1	350 mm dia Sluice Valve.P.N.1.0	6185.00	Nos.	6494.25
	Add 5% for Muncipal corporation Area.	309.25		
		6494.25		
1	300 mm dia Sluice Valve.P.N.1.0	5019.00	Nos.	5269.95
	Add 5% for Muncipal corporation Area.	250.95		
		5269.95		
	ITEM No. 15 :- Providing and fixing in position air valve shaft including providing and fixing G.I. Medium class of 6 mm thick M.S. pipe shaft 2.70 m long over branch flange of air valve tee. Providing PCC block of M- 150 concrete 150 mm thick around the air valve tee including encasing of vertical shaft in PCC M-150 as shown in type design together with providing and making flanged joints wherever required cost of air valve over the shaft excluding cost of air valve and branched flanged air valve tee, etc complete as per branched flanged air valve tee, etc complete as per type design and as directed by Engineer-in-charge for following diameters of pipe lines. (Type design attached)			
	MJP.SSR .2021 - 22. Page No.140 . I.No.17			
	A) Foundation on Murum and Hard Strata			
20	1000 to 1200 mm Dia pipeline.	16689.00	Nos.	350469.00
	Add 5% for Muncipal corporation Area.	834.45		
		17523.45		
	B) Foundation on Murum and Hard Strata			
16	450 to 900 mm Dia pipeline.	13290.00	Nos.	223272.00
	Add 5% for Muncipal corporation Area.	664.50		
		13954.50		
2	c) Foundation on Murum and Hard Strata	6535.00	Nos.	13723.50
	200 to 400 mm Dia pipeline.	326.75		
		6861.75		

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	ITEM No.16 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	As Per Rate Analysis			
8	2) As above of 150 x 150 cm internal size and depth upto 1.5M with precast RCC slab cover	25842.22	Nos.	217074.68
	Add 5% for Municipal corporation Area.	1292.11		
		27134.34		
5	2) As above of 120 x 120 cm internal size and depth upto 1.2 M with precast RCC slab cover	17367.22	Nos.	91177.93
	Add 5% for Municipal corporation Area.	868.36		
		18235.59		
	As Per Rate Analysis			
	ITEM No. 17 :- 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			
38489.04	MJP.SSR .2021 - 22. Page No.45 . I.No.15	84.00	Cum	3394733.00
	Add 5% for Municipal corporation Area.	4.20		
		88.20		
	Item No. 18 :- 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.			
	MJP.SSR .2021 - 22. Page No.72 . I.No.7			
30000.00	MS Specials (All Socketed)	95.00	Kg	2850000.00
	ITEM No. 19 :- Providing and laying in situ cement concrete of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including dewatering, form work, compacting roughening if special finishis to be provided, finishing if required etc. complete.			
870.61	1:2:4 (M – 150) grade	6811.37	Cum	6226542.02
	Add 5% for Municipal corporation Area.	340.57		
		7151.94		
	(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	Item No.20 :- Providing and casting in situ Cement Concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work in foundation like raft,grillage,strip foundation and footing of R.C.C. columns and steel stanchions including normal dewatering,formwork,compaction,finishing and curing etc.complete			

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	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
	In R.C.C. M-200			
530.15	For Thrust/Anchor block at bends	7870.16	Cum	4380941.00
	Add 5% for Muncipal corporation Area.	393.51		
		8263.66		
	Item No.21 :-Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)			
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
41.616	Tor Steel.	97206.00	MT	4045363.00
	Item No. 22 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 diamerts of existing pipeline, irrespective of diameter of branch line (the 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 SSR 2021 - 22, Item.No.10.Page.No.60)			
2	1000 mm dia	66176.00	Nos.	138969.60
	Add 5% for Muncipal corporation Area.	3308.80		
		69484.80		
1	600 mm dia	18068.00	Nos.	18971.40
	Add 5% for Muncipal corporation Area.	903.40		
		18971.40		
1	450 mm dia	8217.00	Nos.	8627.85
	Add 5% for Muncipal corporation Area.	410.85		
		8627.85		
1	400 mm dia	7336.00	Nos.	7702.80
	Add 5% for Muncipal corporation Area.	366.80		
		7702.80		
1	300 mm dia	5164.00	Nos.	5422.20
	Add 5% for Muncipal corporation Area.	258.20		
		5422.20		

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	Item No. 23 :- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material, required welding machinery, tripod, chain pully block, crane, blower, compressor, loading and unloading of machinery into the trench etc, transporting and dewatering etc. complete as directed by engineer in charge but excluding cost of MS Pipes.			
180	b) 500 mm to 1200 mm dia MS pipe	31384.00	Rmt	5649140.00
	MJP SSR 2021-22 I.N.14a P.N.63			
	Item No. 24 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).			
30	Dia of Pipe : 1200 mm (I. D.) 9mm thk	27615.00	Rmt	828450.00
30	Dia of Pipe : 900 mm (I. D.) 9mm thk	20763.00	Rmt	622890.00
30	Dia of Pipe : 800 mm (I. D.) 9mm thk	18479.00	Rmt	554370.00
30	Dia of Pipe : 600 mm (I. D.) 9mm thk	13910.00	Rmt	417300.00
30	Dia of Pipe : 500 mm (I. D.) 9mm thk	11627.00	Rmt	348810.00
30	Dia of Pipe : 500 mm (I. D.) 9mm thk	11627.00	Rmt	348810.00
	(As Per Corrigendum No.Lett.No.7/652.Dt.07.03.22)			
	Item No. 25 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side, etc)			
9750	PWD Charges Along the Road	275	Rmt	2681250.00
6	Road Crossing	5500	Rmt	33000.00
		Total	Rs.	497817136
		Say Rs	Rs.	49,78,17,200

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Pure Water Gravity Main from MBR To All ESR's

(1200MM Dia TO 300MM Dia.D.I.K-7 PIPES L-20336 M)

M E A S U R M E N T S

Description of Item	No	L	W	D	Qty	Unit
1	2	3	4	5	6	7
ITEM No.1 :- Providing D.I. K-9 grade pipes with internal cement mortar lining including taxes, insurance,						
Raw water Rising Main						
1200 mm dia.DI.K-7 Pipe.	1	7501			7501	Rmt
900 mm dia.DI.K-7 Pipe.	1	1797			1797	Rmt
800 mm dia.DI.K-7 Pipe.	1	381			381	Rmt
600 mm dia.DI.K-7 Pipe.	1	607			607	Rmt
500 mm dia.DI.K-7 Pipe.	1	3744			3744	Rmt
450 mm dia.DI.K-7 Pipe.	1	1171			1171	Rmt
400 mm dia.DI.K-7 Pipe.	1	2492			2492	Rmt
350 mm dia.DI.K-7 Pipe.	1	236			236	Rmt
300 mm dia.DI.K-7 Pipe.	1	1996			1996	Rmt
		19925			19925	
ITEM No.2 :- Providing and supplying DI/MS specials suitable for above pipes,						
Above 350 mm Dia PN-16						
1200 x 1200 x 200 Hydrant Tee-	18	1099	weight/No.		19782	Kg
900 x 900 x 200 Hydrant Tee-	5	363	weight/No.		1815	Kg
800 x 800 x 200 Hydrant Tee-	3	290	weight/No.		870	Kg
600 x 600 x 150 Hydrant Tee-	5	171	weight/No.		855	Kg
500 x 500 x 150 Hydrant Tee-	2	126	weight/No.		252	Kg
450x 450 x 100 Hydrant Tee-	9	89	weight/No.		801	Kg
400x 400 x 100 Hydrant Tee-	7	72	weight/No.		504	Kg
Up to 350 mm Dia PN-16						
350x 350 x 80 Hydrant Tee-	1	57	weight/No.		57	Kg
300x 300 x 80 Hydrant Tee-	5	48	weight/No.		240	Kg
1200 mm dia Bend						
90 Degree	4	1692	weight/No.		6768	Kg
45 Degree	2	1173	weight/No.		2346	Kg
22,1/2 Degree	2	846	weight/No.		1692	Kg
11,1/4 Degree	4	723	weight/No.		2892	Kg
1200 mm dia MJ Coller Coupling	5	766	weight/No.		3830	Kg
1200mm diaTail piece	6	523	weight/No.		3138	Kg
900 mm dia Bend						
90 Degree	6	745	weight/No.		4470	Kg
45 Degree	1	507	weight/No.		507	Kg
22,1/2 Degree	2	377	weight/No.		754	Kg
11,1/4 Degree	2	309	weight/No.		618	Kg
900 mm dia MJ Coller Coupling	15	378	weight/No.		5670	Kg
900mm diaTail piece	3	297	weight/No.		891	Kg
800 mm dia Bend						
90 Degree	2	559	weight/No.		1118	Kg
45 Degree	1	384	weight/No.		384	Kg
22,1/2 Degree	2	291	weight/No.		582	Kg
11,1/4 Degree	2	242	weight/No.		484	Kg

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800 mm dia MJ Coller Coupling	4	323	weight/No.		1292	Kg
800mm diaTail piece	2	248	weight/No.		496	Kg
600 mm dia Bend						
90 Degree	2	285	weight/No.		570	Kg
45 Degree	1	204	weight/No.		204	Kg
22,1/2 Degree	2	157	weight/No.		314	Kg
11,1/4 Degree	2	133	weight/No.		266	Kg
600 mm dia MJ Coller Coupling	4	168	weight/No.		672	Kg
600mm diaTail piece	2	159	weight/No.		318	Kg
500 mm dia Bend						
90 Degree	2	187	weight/No.		374	Kg
45 Degree	1	135	weight/No.		135	Kg
22,1/2 Degree	2	107	weight/No.		214	Kg
11,1/4 Degree	2	91	weight/No.		182	Kg
500 mm dia MJ Coller Coupling	4	133	weight/No.		532	Kg
500mm diaTail piece	2	110	weight/No.		220	Kg
450 mm dia Bend						
90 Degree	2	147	weight/No.		294	Kg
45 Degree	1	107	weight/No.		107	Kg
22,1/2 Degree	2	85	weight/No.		170	Kg
11,1/4 Degree	2	78	weight/No.		156	Kg
450 mm dia MJ Coller Coupling	4	113	weight/No.		452	Kg
450mm diaTail piece	2	88	weight/No.		176	Kg
400 mm dia Bend						
90 Degree	2	113	weight/No.		226	Kg
45 Degree	1	82	weight/No.		82	Kg
22,1/2 Degree	2	67	weight/No.		134	Kg
11,1/4 Degree	2	57	weight/No.		114	Kg
400 mm dia MJ Coller Coupling	4	98	weight/No.		392	Kg
400mm diaTail piece	2	70	weight/No.		140	Kg
350 mm dia Bend						
90 Degree	2	87	weight/No.		174	Kg
45 Degree	1	65	weight/No.		65	Kg
22,1/2 Degree	2	52	weight/No.		104	Kg
11,1/4 Degree	2	46	weight/No.		92	Kg
350 mm dia MJ Coller Coupling	4	80	weight/No.		320	Kg
350mm diaTail piece	2	56	weight/No.		112	Kg
				Total Wt.	70419	
300 mm dia Bend						
90 Degree	2	65	weight/No.		130	Kg
45 Degree	1	49	weight/No.		49	Kg
22,1/2 Degree	2	41	weight/No.		82	Kg
11,1/4 Degree	2	37	weight/No.		74	Kg
300 mm dia MJ Coller Coupling	4	59	weight/No.		236	Kg
300mm diaTail piece	2	42	weight/No.		84	Kg
				Total Wt.	655	Kg
ITEM No.3 :- Providing and supplying ISI mark C.I. D/F sluice valves						
200 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	26			26	Nos.
150 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	7			7	Nos.
100 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	16			16	Nos.

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80 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	6			6	Nos.
300 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
350 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
400 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
450 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
600 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
ITEM No.4 :- Providing and supplying ISI mark C.I. Butterfly valve						
1200 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	2			2	Nos.
900 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	1			1	Nos.
800 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	1			1	Nos.
Item No 5 :- Providing , supplying & fixing in position stainless ball, tamper proof air vents ... etc <u>including all taxes and duties except octroi</u>)						
200 mm dia. Tamper Proof Air Valve.PN-1.60	1	20			20	Nos.
150 mm dia. Tamper Proof Air Valve.PN-1.60	1	5			5	Nos.
100 mm dia. Tamper Proof Air Valve.PN-1.60	1	11			11	Nos.
80 mm dia. Tamper Proof Air Valve.PN-1.60	1	2			2	Nos.
Item No.6 :- Excavation for foundation/ pipe trenches in Soft Soil..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.38	5189.75	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.21	566.06	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.25	133.35	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.19	144.16	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.16	723.84	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.16	216.96	Cum
400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.16	434.02	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.16	35.50	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.18	314.37	Cum
		19925		Total Qty.	7758.01	Cum
Item No.7 :- Excavation for foundation/ pipe trenches in hard murum excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.37	4936.60	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.28	754.74	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.18	97.79	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.21	159.34	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.21	923.52	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.21	276.81	Cum
400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.23	639.61	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.23	52.31	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.18	314.37	Cum
				Total Qty.	8155.09	Cum
Item No.8 :- Excavation for foundation/ pipe trenches in hard murum & W.B.M. road..... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.36	4852.21	Cum

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900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.35	943.43	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.23	124.46	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.23	174.51	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.26	1148.16	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.26	344.14	Cum
400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.25	685.30	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.25	56.05	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.20	359.28	Cum
				Total Qty.	8687.54	Cum
Item No.9 :- Excavation for foundation / pipe trenches in soft rock and old cement .. by blasting and hard rock by controlled....., etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.42	5696.07	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.53	1428.62	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.43	231.14	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.44	333.85	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.39	1772.16	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.39	531.18	Cum
400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.33	913.73	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.33	74.73	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.30	538.92	Cum
				Total Qty.	11520.40	Cum
Item No 10 :- Excavation for foundation / pipe trenches in Hard rock by Cheseling, ... excluding backfilling, etc. complete.						
Lift 0 to 1.5 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.00	0.00	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.13	350.42	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.40	213.36	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.43	326.26	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.48	2171.52	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.48	650.88	Cum
400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.53	1439.13	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.53	117.71	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.55	988.02	Cum
				Total Qty.	6257.29	Cum
Lift 1.5 to 3.0 M.						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.80	10784.56	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.50	1347.75	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.20	106.68	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.20	151.75	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.10	449.28	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.10	134.67	Cum
				Total Qty.	12974.69	Cum
ITEM No. 11 :- Filling in plinth and floors murum bedding in trenches						
A) Murum available from excavated stuff						
1200 mm dia.DI.K-7 Pipe.	1	7501	1.80	0.15	2025.27	Cum
900 mm dia.DI.K-7 Pipe.	1	1797	1.50	0.15	404.33	Cum
800 mm dia.DI.K-7 Pipe.	1	381	1.40	0.15	80.01	Cum
600 mm dia.DI.K-7 Pipe.	1	607	1.25	0.15	113.81	Cum
500 mm dia.DI.K-7 Pipe.	1	3744	1.20	0.15	673.92	Cum
450 mm dia.DI.K-7 Pipe.	1	1171	1.15	0.15	202.00	Cum

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400 mm dia.DI.K-7 Pipe.	1	2492	1.10	0.15	411.18	Cum
350 mm dia.DI.K-7 Pipe.	1	236	0.95	0.15	33.63	Cum
300 mm dia.DI.K-7 Pipe.	1	1996	0.90	0.15	269.46	Cum
				Total Qty.	4213.61	Cum
ITEM No. 12 :- Lowering laying and jointing with SBR rubber gasket C.I. / D.I. S/S pipes etc. complete.						
1200 mm dia.DI.K-7 Pipe.	1	7501			7501	Rmt
900 mm dia.DI.K-7 Pipe.	1	1797			1797	Rmt
800 mm dia.DI.K-7 Pipe.	1	381			381	Rmt
600 mm dia.DI.K-7 Pipe.	1	607			607	Rmt
500 mm dia.DI.K-7 Pipe.	1	3744			3744	Rmt
450 mm dia.DI.K-7 Pipe.	1	1171			1171	Rmt
400 mm dia.DI.K-7 Pipe.	1	2492			2492	Rmt
350 mm dia.DI.K-7 Pipe.	1	236			236	Rmt
300 mm dia.DI.K-7 Pipe.	1	1996			1996	Rmt
ITEM No. 13 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour ..etc.						
CI Class 'LA' / Mortar inlined D.I. K-9 / K-7						
1200 mm dia.DI.K-7 Pipe.	1	7.50			7.50	Km
900 mm dia.DI.K-7 Pipe.	1	1.80			1.80	Km
800 mm dia.DI.K-7 Pipe.	1	0.38			0.38	Km
600 mm dia.DI.K-7 Pipe.	1	0.61			0.61	Km
500 mm dia.DI.K-7 Pipe.	1	3.74			3.74	Km
450 mm dia.DI.K-7 Pipe.	1	1.17			1.17	Km
400 mm dia.DI.K-7 Pipe.	1	2.49			2.49	Km
350 mm dia.DI.K-7 Pipe.	1	0.24			0.24	Km
300 mm dia.DI.K-7 Pipe.	1	2.00			2.00	Km
ITEM No. 14 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
200 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	26			26	Nos.
150 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	7			7	Nos.
100 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	16			16	Nos.
80 mm dia Sluice Valve.P.N.1.0 (Isolated & scour)	1	6			6	Nos.
1200 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	2			2	Nos.
900 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	1			1	Nos.
800 mm dia Butterfly Valve.P.N.1.0(With Bypass)	1	1			1	Nos.
600 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
500 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
450 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
400 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
350 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
300 mm dia Sluice Valve.P.N.1.0	1	1			1	Nos.
ITEM No.15 :- Providing and fixing in position air valve shaft						
A) Foundation on Murum and Hard Strata						
1000 to 1200 mm Dia pipeline.	1	20			20	Nos.
B) Foundation on Murum and Hard Strata						
450 to 900 mm Dia pipeline.	1	16			16	Nos.
B) Foundation on Murum and Hard Strata						
200 to 400 mm Dia pipeline.	1	2			2	Nos.

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ITEM No. 16 :- Providing and constructing B.B. masonry valve chamber						
2) As above of 150 x 150 cm internal size and depth upto 1.5 M with precast RCC slab cover	1	8			8	Nos.
2) As above of 120 x 120 cm internal size and depth upto 1.2 M with precast RCC slab cover	1	5			5	Nos.

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ITEM No. 17 :- Refilling the trenches with available excavated stuff						
Total excavation					55353.03	Cum
Deduction						
Murum bedding					4213.61	
Volume of pipe						
1200 mm dia.DI.K-7 Pipe.	0.7855	1.216	1.216	7501	8712.29	
900 mm dia.DI.K-7 Pipe.	0.7855	0.916	0.916	1797	1184.36	
800 mm dia.DI.K-7 Pipe.	0.7855	0.816	0.816	381	199.27	
600 mm dia.DI.K-7 Pipe.	0.7855	0.616	0.616	607	180.92	
500 mm dia.DI.K-7 Pipe.	0.7855	0.516	0.516	3744	783.04	
450 mm dia.DI.K-7 Pipe.	0.7855	0.466	0.466	1171	199.74	
400 mm dia.DI.K-7 Pipe.	0.7855	0.416	0.416	2492	338.75	
350 mm dia.DI.K-7 Pipe.	0.7855	0.366	0.366	236	24.83	
300 mm dia.DI.K-7 Pipe.	0.7855	0.316	0.316	1996	156.56	
P.C.C					870.61	
R,C.C,Thrust Block					530.15	
Total deduction					16863.99	
Net qty of refilling				Total =	38489.04	Cum
Item No. 18 :- Providing MS Specials etc charges, transportation to stores / site, and stacking, etc. complete						
MS Specials	1	30000			30000	Kg
ITEM No. 19 :- Providing and laying in situ cement concrete M-10 / 1:3:6 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding etc. complete.						
1:2:4 (M-150) grade						
Encasing in Nalla portion	5	30	2	2	600.00	Cum
P.W.D.Road crossing's	20	25	2.1	0.3	315.00	Cum
Deduct Pipe Volume =	5.00	30.00	0.785	(0.614)^2	44.39	Cum
				Total =	870.61	Cum
Item No.20 :- Providing and Casting RCC M-200 ...etc complete.						
For Thrust/Anchor block at bends	51	3.00	2.10	1.65	530.15	Cum
Item No.21 :- Providing and fixing in position steel bar reinforcement of various diameters etc complete. (including cost of binding wire.)						
Tor Steel.	1.00	530.15	0.01	7850	41.616	MT
Item No. 22 :- Making cross connection to existing distribution main of any type including ..etc. complete						
1000 mm dia	1	2			2	Nos.
600 mm dia	1	1			1	Nos.
450 mm dia	1	1			1	Nos.
400 mm dia	1	1			1	Nos.
300 mm dia	1	1			1	Nos.

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Item No. 21:- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material,required welding machinery,tripod, chain pully block,crane , blower ,compressor,loading and unloading of machinery into the trench etc,transporting and dewatering etc.complete as directed by engineer in charge but excluding cost of MS Pipes.						
b) 500 mm to 1000 mm dia MS pipe	6	30			180	Rmt
Item No. 22 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).						
Dia of Pipe : 1200 mm (I. D.) 9mm thk	1	30			30	Rmt
Dia of Pipe : 900 mm (I. D.) 9mm thk	1	30			30	Rmt
Dia of Pipe : 800 mm (I. D.) 9mm thk	1	30			30	Rmt
Dia of Pipe : 600 mm (I. D.) 9mm thk	1	30			30	Rmt
Dia of Pipe : 500 mm (I. D.) 9mm thk	1	30			30	Rmt
Dia of Pipe : 500 mm (I. D.) 9mm thk	1	30			30	Rmt
Item No. 23 :- Provision for charges to be deposited to PWD department and Telephone department for various permissions (Including Crossing of National Highway, State Highway, MDR & ODR etc. & charges to be paid against pipe line to be laid along the road side,etc)						
PWD Charges Along the Road	1	9750			9750	Rmt
Road Crossing	1	3			6	Rmt

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Elevated Service Reservoirs

A B S T R A C T

Description of Item / measurements	Qty	Rate	Unit	Amount
Item No.1 :-				
Designing (aesthetically), and constructing RCC elevated service reservoirs of following capacity with RCC staging consisting of columns, internal and external bracings spaced vertically not more than 4.5 meters centre to centre for E.S.R. having capacity 500 m ³ & not more than 6 m c/c for E.S.R.having capacity above 500 m ³ including excavation in all types of strata, foundation concret, cement plaster with water proofing compound to the inside face of the container including refilling disposing of the surplus stuff within a lead of 50 meters, all labour and material charges including lowering, laying, erecting, hoisting and jointing of pipe assembly of inlet, outlet, washout, overflow and bypass arrangements as per departmental design.				
providing and fixing accessories such as stainless steel ladder inside container & M.S.Ladder outside, C. I. manhole frame and covers water level indicators, lightening conductor, G. I. pipe railing around walk way and top slab, providing spiral staire case from ground level to roof level, M.S.Grill gate of 2 Mtrs height with locking arrangement of approved design, B.B. masonry chambers for all valves, ventilating shafts, providing and applying three coats of Acrylic emulsion with silicon additives to the structure including roof slab and epoxy painting to internal surface & anti-termite treatment for underground parts of the structures and giving satisfactory water tightness test as per I.S. 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.				
Notes:				
1. The design of the structure be in accordance with relevent (I.S.3370 - 1965 or revised)				
2. The design shall satisfy the stipulation as per IS 1893-1984 and I.S. 13920/1993 for seismic force and I.S.- 11682/1985 for R.C.C. staging of overhead tanks.				
3. For design having more than 6 columns, Providing of internal bracing is obligatory,. External bracking is also obligatory.				
4. Plain round mild steel bars grade - I confirming to I.S,432 Part-I or high yield strengh deformed bars confirming to I.S. 1786 or I.S. 1139 shall be used, grade-II mild steel bars will not be allowed.				
5. Irrespective of the type of foundation proposed in the design, one set of bracing be provided at the gound level.				
6. 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.				
7. Stagging shall have to be designed with stresses of M-200 for ESR. However all RCC construction should be done in M-250.Structures in contact with water shall be designed & casted in M-300.				
8 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.				
9. 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 is included in the rates mentioned below.				
10.. 75% part rate shall be payable for reinforced cocnrete 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.				
11. The rates indicated in the table are excluding the cost of pipes, specials and valves required for inlet, outlet washout overflow and by-pass arrangement. The scope of work, however includes cost of erecting, laying and jointing of pipes and valve. including cost of jointing materials upto 5M beyond outer face of outermost column.				
12. 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.				

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13. Below mentioned rates are for foundation, with individuals footing with bearing capacity of 20 tonnes per square metre. For raft foundations, these rates shall be increased by 7.5%, whereas bearing 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 Lumpsum. items of ESR for Extra item due to change from individual foundation to raft, <u>actual increase in concrete and steel quantities be paid as per relevent DSR Item.</u>				
14. 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.				
15. 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				
16. 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.)				
Note:- 1) Conditin from Sr.No.1 to 10 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.				
Note:- 2) Condition from Sr.No.11 to 16 are for estimation purpose only and shall not be appear in the tender.				
(As Per Corrigendum No.Lett.No.8/706.Dt.10.03.22)				
(SEISMIC ZONE IV)				
RCC ESR CAP - 700000 Liters & Staging 16.00 M @ Nanded Naka				
For Cap. Of 500000 Liters. Staging Ht.12M		5445500		
Add for 200000 lit @ 6.67 per Lit		1334000		
Total		6779500		
Add 8% For 16 m St Ht				
For 12m to 16 m=4x2=8%		542360		
Total		7321860		
Add 5% For zone iv		366093		
Total	1	7687953		7687953
RCC ESR CAP - 1000000 Liters & Staging 24.00 M @ MJP NEW				
For Cap. Of 1000000 Liters.St.ht 12 M		8800094		
Total		8800094		
Add For additional St Ht				
For 12m to 16 m=4x2=8%		704007.52		
For 16m to 20 m=4x3=12%		1056011.28		
For 20m to 24m=4x4=16%		1408015.04		
Total		11968127.84		
Add 5% For zone iv		598406.392		
Total	1	12566534		12566534
RCC ESR CAP - 1200000 Liters & Staging 15.00 M @ Govt.Quarter				
For Cap. Of 1000000 Liters.St.ht 12 M		8800094		
Add for 200000 lit @ 6.02 per Lit		1204000		
Total		10004094		
Add For additional St Ht				
For 12m to 15 m=3x2=6%		600245.64		
Total		10604339.64		
Add 5% For zone iv		530216.982		
Total	1	11134557		11134557
RCC ESR CAP - 400000 Liters & Staging 22.00 M @ Arvi				
ESR CAP. 400000 Lts 12.m Staging				
For Cap. Of 400000 Liters.		4760006		
Total		4760006		
Add For additional St Ht				
For 12m to 16 m=4x2=8%		380800.48		
For 16m to 20 m=4x3=12%		571200.72		
For 20m to 22m=2x4=8%		380800.48		

LATUR CITY MUNICIPAL CORPORATION

	Total		6092807.68		
Add 5% For zone iv			304640.384		
	Total	1	6397448		6397448
RCC ESR CAP - 1200000 Liters & Staging 18.00 M @ Gandgi Chouk					
ESR CAP.1000000 Lts 12.m Staging					
For Cap. Of 1000000 Liters.St.ht 12 M			8800094		
Add for 200000 lit @ 6.02 per Lit			1204000		
	Total		10004094		
Add for Additional Staging Height					
Staging 12 to 16 M = 2 x 4 = 8			800327.52		
Staging 16 to 18 M = 3 x 2 = 6			600245.64		
	Total		11404667.16		
Add 5% For zone iv			570233.358		
	Total	1	11974901		11974901
RCC ESR CAP - 1850000 Liters & Staging 16.00 M @ Kripa Sadan Garden(2 Nos.)					
For Cap.of 1500000 Liters.st.ht 12 m			11807722		
Add for 350000 lit @ 5.52 per Lit			1932000		
	Total		13739722		
Add for Additional Staging Height					
Staging 12 to 16 M = 2 x 4 = 8			1099177.76		
	Total		14838899.76		
Add 5% For zone iv			741944.988		
	Total	2	15580845		31161689
RCC ESR CAP - 1700000 Liters & Staging 18.00 M @ Labour Coleney (2 Nos)					
For Cap.of 1500000 Liters.st.ht 12 m			11807722		
Add for 200000 lit @ 5.52 per Lit			1104000		
	Total		12911722		
Add for Additional Staging Height					
Staging 12 to 16 M = 2 x 4 = 8			1032937.76		
Staging 16 to 18 M = 3 x 2 = 6			774703.32		
	Total		14719363.08		
Add 5% For zone iv			735968.154		
	Total	2	15455331		30910662
RCC ESR CAP - 2700000 Liters & Staging 22.00 M @ SSC Board					
For Cap.of 2000000 Liters.st.ht 12 m			14568489		
Add for 700000 lit @ 5.52 per Lit			3864000		
	Total		18432489		
Add for Additional Staging Height					
Staging 12 to 16 M = 2 x 4 = 8			1474599.12		
Staging 16 to 20 M = 3 x 4 = 12			2211898.68		
Staging 20 to 22 M = 4 x 2 = 8			1474599.12		
	Total		23593585.92		
Add 5% For zone iv			1179679.296		
	Total	1	24773265		24773265
RCC ESR CAP - 2200000 Liters & Staging 16.00 M @ APMC Market					
For Cap.of 2000000 Liters.st.ht 12 m			14568489		
Add for 200000 lit @ 5.52 per Lit			1104000		
	Total		15672489		
Add for Additional Staging Height					
Staging 12 to 16 M = 2 x 4 = 8			1253799.12		
	Total		16926288.12		
Add 5% For zone iv			846314.406		
	Total	1	17772603		17772603
RCC ESR CAP - 2400000 Liters & Staging 16.00 M @ Basav Coleney					
For Cap.of 2000000 Liters.st.ht 12 m			14568489		
Add for 400000 lit @ 5.52 per Lit			2208000		
	Total		16776489		

LATUR CITY MUNICIPAL CORPORATION

Add for Additional Staging Height				
Staging 12 to 16 M = 2 x 4 = 8		1342119.12		
Total		18118608.12		
Add 5% For zone iv		905930.406		
Total	1	19024539		19024539
Item No.2- Providing and supplying ISI standard DI double flanged pipes including all taxes (Central and local), railway freight, insurance,unloading from railway wagon, loading into truck transport to stores /site, unloading etc.complete as directed by Engneer-in-charge. (As Per Corrigendum No.Lett.No.11/2390.Dt.19.08.22)				
300 mm dia	200.00	8125.00	Rmt	1625000
350 mm dia	50.00	10583.00	Rmt	529150
400 mm dia	150.00	12811.00	Rmt	1921650
450 mm dia	200.00	15308.00	Rmt	3061600
500 mm dia	425.00	17794.00	Rmt	7562450
600 mm dia	630.00	23427.00	Rmt	14759010
200 mm dia	120.00	4757.00	Rmt	570840
Item No.3:- Providing and supplying ISI standard CI flanged / S& S specials including all taxes (Central and local), railway freight, insurance, unloading from railway wagon, loading into truck transport to depermental store/ site, unloading stacking etc. complete. (As Per Corrigendum No.Lett.No.11/2390.Dt.19.08.22)				
D/F Specials 80 to 300 mm dia	12000	153.00	Kg	1836000
D/F Specials 350 mm dia and above	36000	186.00	Kg	6696000
ITEM No:2 :- Providing, and supplying double flanged SLUICE VALVE conforming for IS 2906/14846 including own gear arrangements as per test pressures stainless steel spindle ,caps including all taxes transportation etc. complete (MJP SSR 2021 - 22, Item.No.2. Page.No.132)				
Sluice Valves- PN-1.00				
600 mm dia.	7	162155.00	Nos.	1135085
500 mm dia.	5	109450.00	Nos.	547250
450 mm dia.	4	75940.00	Nos.	303760
400 mm dia.	3	70635.00	Nos.	211905
350 mm dia.	1	53651.00	Nos.	53651
300mm dia	4	36471.00	Nos.	145884
200 mm dia	12	18581.00	Nos.	222972
Item No.5 :- Add Lead Charges For Sand for construction of ESR)				
a) For All E.S.R.s	7346.04	414.12	Cum	3042122
		Total.	Rs.	217628480
			Sav	21,76,28,500

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Elevated Service Reservoirs Measurements				
Description of Item	No	L	B	D
Item No. 1 :- Designing (aesthetically), and constructing RCC elevated service reservoirs as per the directions of Engineer -in -charge.				
RCC ESR CAP - 700000 Liters & Staging 16.00 M @ Nanded Naka				1 No.
RCC ESR CAP - 1000000 Liters & Staging 24.00 M @ MJP NEW				1 No.
RCC ESR CAP - 1200000 Liters & Staging 15.00 M @ Govt.Quarter				1 No.
RCC ESR CAP - 400000 Liters & Staging 22.00 M @ Arvi				1 No.
RCC ESR CAP - 1200000 Liters & Staging 18.00 M @ Gandgi Chouk				1 No.
RCC ESR CAP - 1850000 Liters & Staging 16.00 M @ Kripa Sadan Garden				2 Nos.
RCC ESR CAP - 1700000 Liters & Staging 18.00 M @ Labour Colony				2 Nos.
RCC ESR CAP - 2700000 Liters & Staging 22.00 M @ SSC Board				1No.
RCC ESR CAP - 2200000 Liters & Staging 16.00 M @ APMC Market				1 No.
RCC ESR CAP - 2400000 Liters & Staging 16.00 M @ Basav Colony				1 No.
Item No.2 :- Providing and supplying ISI standard CI double flanged pipes including truck transport to stores /site, unloading etc. complete as directed by engineer-in -charge.				
INLET				
300 mm dia	4	40	160	M
350 mm dia	1	40	40	M
400 mm dia	3	40	120	M
450 mm dia	4	40	160	M
OUTLET				
500 mm dia	5	35	175	M
600 mm dia	7	40	280	M
Overflow				
500 mm dia	5	50	250	M
600 mm dia	7	50	350	M
Bypass				
300 mm dia	4	10	40	M
350 mm dia	1	10	10	M
400 mm dia	3	10	30	M
450 mm dia	4	10	40	M
Wash out				
200 mm dia	12	10	120	M
Item No.3 :- Providing and supplying ISI standard CI double flanged /s & S specials including all taxes (Central and local), railway freight , insurance, unloading from railway wagon ,loading into truck transport to stores /site, unloading,stacking etc. complete.				
80 to 300 mm Dia.				
12 X 1000 Kg.	=		12000	Kg
350 mm Dia. And above				
12 X 3000 Kg.	=		36000	Kg
Item No.4 :- Providing erecting, connecting double flanged short body pattern type m1, sluice valves - PN -1				
Sluice Valves				
600 mm dia.			7	Nos.
500 mm dia.			5	Nos.
450 mm dia.			4	Nos.
400 mm dia.			3	Nos.
350 mm dia.			1	Nos.
300mm dia			4	Nos.
200 mm dia	Wash out		12	Nos.
Item No.5 :- Add Lead Charges For Sand for construction of ESR (As the sand Quarry is @ Gangakhed at Av. Dist. 95 km				
		Concrete	7346.038	Cum

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at ESRS (12 Nos.)

A B S T R A C T

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
ITEM NO. 1				
Excavation for foundation/pipe trenches in earth, soils of all types of sand gravel & soft murum incl. Removing the excavated material upto a distance of 50 M. & lift as below. stacking and spreading as directed, Normal dewatering, preparing the bed for for				
Lift 0 to 1.5 M.				
Basic Rate		150.00	Cum	
Add 5% for Muncipal corporation Area.		7.50		
Total Rate	14.112	157.50	Cum.	2223.00
MJP CSR 2021 - 22 Page No. 42 I.No.1				
ITEM NO. 2				
Excavation for foundation/ pipe trenches in hard murum & 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 dowering				
Lift 0 to 1.5 M.				
Basic Rate		192.00	Cum	
Add 5% for Muncipal corporation Area.		9.60		
Total Rate	12.35	201.60	Cum.	2489.00
MJP CSR 2021 - 22 Page No. 42 I.No.3				
ITEM No.3				
Excavation for foundation/ pipe trenches in soft rock & 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 Engineer-in-charge,				
Lift 0 to 1.5 M.				
Basic Rate		572.00	Cum	
Add 5% for Muncipal corporation Area.		28.60		
Total Rate	8.82	600.60	Cum.	5297.00
MJP CSR 2021 - 22 Page No. 42 I.No.5				
ITEM No.4				
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal for foundation and bedding including dewatering, form work, compacting and curing, finishing etc. Complete.(Bd-E- 1/287)				
c) 1:2:4 (M -150) grade (with 12 to 20 mm metal)				
Basic Rate		6811.37		
Add 5% for Muncipal corporation Area.		340.57		
Total Rate	2.65	7151.94	Cum	18924.00
(As Per Rate Analysis)				
ITEM No.5				

LATUR CITY MUNICIPAL CORPORATION

Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Column footing				
Basic Rate		8341.12		
Add 5% for Muncipal corporation Area.		417.06		
Total Rate	5.78	8758.17	Cum	50587.00
(As Per Rate Analysis)				
ITEM No.6				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M For RCC M – 250				
RCC Beams/Braces/Lintel				
Basic Rate		9654.12		
Add 5% for Muncipal corporation Area.		482.71		
Total Rate	3.31	10136.82	Cum	33573.00
(As Per Rate Analysis)				
ITEM No.7				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M				
RCC ColumnsM-250				
Basic Rate		9818.12		
Add 5% for Muncipal corporation Area.		490.91		
Total Rate	3.30	10309.02	Cum	34020.00
(As Per Rate Analysis)				
ITEM No.8				
Providing and laying in situ Cement Concrete of trap/ granite/ quartzite/ gneiss metal of approved quality for RCC works as per detailed drawing and design or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction,				
Lift 0 to 5 M M-250				
RCC Slab/Landing/Vertical Wall				
Basic Rate		10324.12		
Add 5% for Muncipal corporation Area.		516.21		
Total Rate	3.58	10840.32	Cum	38787.00
(As Per Rate Analysis)				
ITEM NO.9				

LATUR CITY MUNICIPAL CORPORATION

Providing and fixing in position steel bar reinforcement of various diameters for RCC pipes , 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.)				
Lift 0 to 5 M				
Tor Steel	1.25	97206.00	M.T.	121832.00
(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)				
<u>ITEM NO.10</u>				
Providing IInd class B.B masonry with conventional / Indian standerd type bricks in CM 1:6 in plinth & Superstructure including striking joints , raking out joints, watering,and scaffolding etc. complete.				
For superstructure				
Basic Rate		8504.99		
Add 5 % for Muncipal corporation Area.		425.25		
Total Rate	9.09	8930.24	Cum	81213.00
For Plinth				
Basic Rate		8265.99		
Add 5 % for Muncipal corporation Area.		413.30		
Total Rate	3.31	8679.29	Cum	28746.00
(As Per Rate Analysis)				
<u>ITEM NO.11</u>				
Providing and fixing rolling shutter fabricated from steel laths of minimum thickness 0.9 mm with lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle section fitted with sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respectively with hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size & shape with square bar, suspension shaft of minimum 32 mm diameter, hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operation arrangement consisting of worm gear wheels and worms of high grade cast iron or mild steel and one coat of red lead primer etc. complete. (I.S. 6248-1979) (With mechanical gear)				
Rolling steel shutter.				
(PWD SSR 2022-23 P.No.308 It. No.39.25)	5.25	5308.00	Sq.m.	27867.00
<u>ITEM NO.12</u>				

LATUR CITY MUNICIPAL CORPORATION

Providing & fixing steel window of various sizes as per detailed drawings fabricated from I.S. standard section without hot dip zinc coating without/ with ventilators including fabrication, glazing with non acetinic / plain / obscured glass panels of approved type and quality all fixtures and fastening without teak wood boxing, and architraves and finishing with one coat of primer complete. with guard bars 12 mm square bar 10 cm. centre to centre.				
for Steel windows	2.40	4607.00	Sq.m.	11057.00
(PWD SSR 2022-23 P.No.306 It. No.39.19)				
ITEM NO. 13				
Providing & fixing steel Ventilator fully glazed partly top hung and partly fixed as per detailed drawing without hot dip zinc coating including glazing with plain obscured glass panel and of approved type and quality and fixtures and fastening without teak wood boxing and architraves and oil painting two coats etc complete.				
Steel Ventilators	0.81	3375.00	Sq.m.	2734.00
(PWD SSR 22-23 P.No.308 It. No.39.29)				
ITEM NO. 14				
Providing internal cement plaster 20 mm thick in two coats in cement mortar 1:3 without neeru finish to concrete, brick surfaces in all positions including scaffolding and curing , etc. complete				
a) 20 mm thick cement plaster (1:4)				
Basic Rate		421.92		
Add 5 % for Municipal corporation Area.		21.10		
Total Rate	64.00	443.02	Cum	28353.00
(As Per Rate Analysis)				
ITEM NO15				
Providing sand faced plaster externally in cement mortar using kharsalia / kasaba or similar type of sand in all positions including base coat of 20 mm thick in cement mortar 1:4 using waterproofing compound at 1 Kg per cement bag. Curing the same for no				
Sand faced plaster.20.mm.1:4				
Basic Rate		691.70		
Add 5 % for Municipal corporation Area.		34.58		
Total Rate	71.11	726.28	Sq.m.	51643.00
(As Per Rate Analysis)				
ITEM NO. 16				
Providing and applying two coats of Exterior acrylic emulsion paint conforming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning, preparing the plaster surface, applying primer coat , scaffolding if necessary, and watering the surface for two days etc complete.				
1) New Surface.				
Basic Rate		261.00		
Add 5 % for Municipal corporation Area.		13.05		
Total Rate	71.11	274.05	Sq.m.	19487.00

LATUR CITY MUNICIPAL CORPORATION

(PWD SSR 2022-23 P.No.277 . Item No. 35.25)				
ITEM NO.17				
Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm of 8 to 10 mm thickness and confirming to IS 15622 - 2006 (Group Bla) of approved make shade and pattern for flooring in required position laid on a bed of 1:4 cement mortor including neat cement float , filling joints curing and clearing etc.complete. Note : (Water absorption should not be more than 0.05%) Spec. No.: Bd.M.12 Page No. 385				
Basic Rate		1769.00		
Add 5 % for Muncipal corporation Area.		88.45		
Total Rate	16.00	1857.45	Sq.m.	29719.00
(PWD SSR 2022-23 P.No. 267 Item No.33.44)				
ITEM NO. 18				
Providing and applying washable oil bound distemper of approved colour and shade to old and new surface in three coats including scaffolding preparing the surfaces (including the primer coat) etc.complete				
Basic Rate		48.00		
Add 5 % for Muncipal corporation Area.		2.40		
Total Rate	64.00	50.40	Sq.m.	3226.00
(PWD SSR 2022-23 P.No. 280 It. No. 36.11)				
Total of subwork			Rs.	591777.00
		Say RS		591800.00
	12	Nos.		7101600
		Say RS	Rs.	71,01,600

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate of Meter Room at ESRS (12 Nos.)

M E A S U R M E N T

Description of Item	Nos	L	B	D	Qty	Unit
1	2	3	4	5	6	7
<u>ITEM NO. 1</u>						
Excavation for foundation/pipe trenches in earth, soils						
Lift 0 to 1.5 M.						
columns	4	2.10	2.10	0.8	14.1	cum
<u>ITEM NO. 2</u>						
Excavation for foundation/ pipe trenches in hard murum & boulders.						
Lift 0 to 1.5 M.	4	2.10	2.10	0.7	12.35	cum
<u>ITEM NO.3</u>						
Excavation for foundation/ pipe trenches in soft rock						
Lift 1.5 to 3 M.	4	2.10	2.10	0.5	8.82	cum
<u>ITEM NO.4</u>						
Providing & laying in situ following grades of C.C. of trap/ granite / quartzite /gneiss metal						
c) 1:2:4 (M -150) grade column footing	4	2.10	2.10	0.15	2.65	cum
<u>ITEM NO.5</u>						
:- Providing and laying in situ cement concrete of trap/granite/ foundation and footing of RCC columns etc.complete						
For RCC M – 250						
Lift 0 to 5 M						
a) column footings	4	1.9	1.90	0.40	5.78	Cum
<u>ITEM NO 6</u>						
:- Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
RCC brace Beam M-250						
Lift 0 to 5 M						
B) For Beams & Lintels						
gl beam & intermediate beam	4	4	0.23	0.45	1.66	Cum
Lintel level beam.	4	4	0.23	0.15	0.55	Cum
Roof beam.	4	4	0.23	0.3	1.10	Cum
				Total	3.31	Cum
<u>ITEM NO7</u>						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
column-M-250						
Lift 0 to 5 M column above & below GL	4	0.3	0.50	5.5	3.30	Cum
Total					3.30	Cum
<u>ITEM NO8</u>						
Providing and laying in situ cement concrete of trap/granite/quartzite etc.complete						
slab M-250						
Lift 0 to 5 M						
chajja on door.	1	2.5	0.60	0.15	0.23	Cum
chajja on window.	2	1.3	0.60	0.15	0.23	Cum
Roof slab	1	4.56	4.56	0.15	3.12	
Total					3.58	Cum

LATUR CITY MUNICIPAL CORPORATION

<u>ITEM NO.9</u>						
Providing and fixing in position steel bar reinforcement						
Lift 0 to 5 M	1	16.0	0.01	7850	1.25	M.T.
<u>ITEM NO.10</u>						
Providing IInd class B.B masonry						
a) In Cement Mortar (1:6)						
Lift 0. to3.8 m.	4	4	0.23	3.00	11.04	Cum.
Deduction.						
Rolling shutter.	1	2.5	2.10	0.23	1.21	Cum.
Windows.	2	1	1.20	0.23	0.55	Cum.
Ventilators.	2	0.9	0.45	0.23	0.19	Cum.
				Total.	1.95	Cum.
Net Qty.					9.09	Cum.
for plinth	4	4	0.23	0.9	3.31	Cum.
<u>ITEM NO. 11</u>						
Providing and fixing rolling steel shutter						
Rolling steel shutter.	1	2.50	2.10		5.25	Sq.m.
<u>ITEM NO. 12</u>						
Providing & fixing steel window						
for Steel windows	2	1.00	1.20		2.40	Sq.m.
<u>ITEM NO.13</u>						
Providing & fixing steel Ventilator						
Steel Ventilators	2	0.90	0.45		0.81	Sq.m.
<u>ITEM NO.14</u>						
Providing cement plaster Inside						
20 mm thick cement plaster in two coats in cement Mortar (1:3)						
Inside the Pump house.	4.0	4.00	3.00		48	Sq.m.
Celing	1.0	4.0	4.0		16	
					64	Sq.m.
<u>ITEM NO. 15</u>						
Providing sand faced plaster externally in two coats.						
In C.M. 1:4 prop.	4	4.46	4.46		79.57	Sq.m.
Deduction.						
Door	1	2.50	2.10		5.25	
Windows.	2	1.20	1.00		2.4	
Ventilators.	2	0.90	0.45		0.81	
				Total	8.46	Sq.m.
Net Qty.					71.11	Sq.m.
<u>ITEM NO. 16</u>						
two coats of appex Appex Ace white exterior paint						
Total quantity of plaster.	1	71.11			71.11	Sq.m.
<u>ITEM NO. 17</u>						
∴ Providing and laying vitirified rustic matt stone premium quality finish decorative type tiles of size 590 mm to 605mm X 590mm to 605mm						
	1	4.00	4.00		16	Sq.m.
<u>ITEM NO. 18</u>						
Providing and applying oil bound distemper						
inside face					64	Sq.m.

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Distribution System

(600 TO 700 MM DIA DI K-7 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.6	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.19	0.21	0.2	0.45	0.55	1.60	
2	TP-2	0.21	0.21	0.3	0.41	0.47	1.60	
3	TP-3	0.26	0.24	0.28	0.4	0.42	1.60	
4	TP-4	0.27	0.22	0.27	0.43	0.41	1.60	
5	TP-5	0.25	0.23	0.26	0.42	0.44	1.60	
	Total	1.18	1.11	1.31	2.11	2.29	8.00	
	Avg Depth	0.24	0.22	0.26	0.42	0.46	1.60	

(450 AND 500 MM DIA DI K-7 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.4	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.19	0.19	0.2	0.32	0.5	1.40	
2	TP-2	0.2	0.19	0.25	0.29	0.47	1.40	
3	TP-3	0.22	0.21	0.2	0.35	0.42	1.40	
4	TP-4	0.19	0.21	0.23	0.36	0.41	1.40	
5	TP-5	0.22	0.2	0.2	0.34	0.44	1.40	
	Total	1.02	1.00	1.08	1.66	2.24	7.00	
	Avg Depth	0.20	0.20	0.22	0.33	0.45	1.40	

(350 AND 400 MM DIA DI K-7 PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.35	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.19	0.19	0.2	0.27	0.5	1.35	
2	TP-2	0.2	0.19	0.25	0.24	0.47	1.35	
3	TP-3	0.22	0.21	0.2	0.3	0.42	1.35	
4	TP-4	0.19	0.21	0.23	0.31	0.41	1.35	
5	TP-5	0.22	0.2	0.2	0.29	0.44	1.35	
	Total	1.02	1.00	1.08	1.41	2.24	6.75	
	Avg Depth	0.20	0.20	0.22	0.28	0.45	1.35	

LATUR CITY MUNICIPAL CORPORATION

(315 MM DIA HDPE PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.22	1.4
Sr.No	Chainage	Soft Soil	Hard murum.	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.14	0.16	0.15	0.35	0.45	1.25	
2	TP-2	0.16	0.16	0.25	0.31	0.37	1.25	
3	TP-3	0.21	0.19	0.23	0.3	0.32	1.25	
4	TP-4	0.22	0.17	0.22	0.33	0.31	1.25	
5	TP-5	0.2	0.18	0.21	0.32	0.34	1.25	
6	TP-6	0.14	0.16	0.15	0.35	0.45	1.25	
7	TP-7	0.16	0.16	0.25	0.31	0.37	1.25	
	Total	1.23	1.18	1.46	2.27	2.61	8.75	
	Avg Depth	0.18	0.17	0.21	0.32	0.37	1.25	

(225 TO 280 MM DIA HDPE PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.2	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.14	0.16	0.15	0.3	0.45	1.20	
2	TP-2	0.16	0.16	0.25	0.26	0.37	1.20	
3	TP-3	0.21	0.19	0.23	0.25	0.32	1.20	
4	TP-4	0.22	0.17	0.22	0.28	0.31	1.20	
5	TP-5	0.2	0.18	0.21	0.27	0.34	1.20	
6	TP-6	0.14	0.16	0.15	0.3	0.45	1.20	
7	TP-7	0.16	0.16	0.25	0.26	0.37	1.20	
8	TP-8	0.21	0.19	0.23	0.25	0.32	1.20	
9	TP-9	0.22	0.17	0.22	0.28	0.31	1.20	
10	TP-10	0.2	0.18	0.21	0.27	0.34	1.20	
11	TP-11	0.16	0.16	0.25	0.26	0.37	1.20	
12	TP-12	0.21	0.19	0.23	0.25	0.32	1.20	
13	TP-13	0.22	0.17	0.22	0.28	0.31	1.20	
14	TP-14	0.2	0.18	0.21	0.27	0.34	1.20	
15	TP-15	0.14	0.16	0.15	0.3	0.45	1.20	
16	TP-16	0.16	0.16	0.25	0.26	0.37	1.20	
17	TP-17	0.21	0.19	0.23	0.25	0.32	1.20	
18	TP-18	0.22	0.17	0.22	0.28	0.31	1.20	
19	TP-19	0.2	0.18	0.21	0.27	0.34	1.20	
20	TP-20	0.16	0.16	0.25	0.26	0.37	1.20	
21	TP-21	0.21	0.19	0.23	0.25	0.32	1.20	
22	TP-22	0.22	0.17	0.22	0.28	0.31	1.20	
23	TP-23	0.2	0.18	0.21	0.27	0.34	1.20	
24	TP-24	0.21	0.19	0.23	0.25	0.32	1.20	
25	TP-25	0.22	0.17	0.22	0.28	0.31	1.20	
	Total	4.80	4.34	5.45	6.73	8.68	30.00	
	Avg Depth	0.19	0.17	0.22	0.27	0.35	1.20	

LATUR CITY MUNICIPAL CORPORATION

(160 to200 MM DIA HDPE PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.1	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by blasting	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.14	0.16	0.15	0.25	0.4	1.10	
2	TP-2	0.16	0.16	0.2	0.26	0.32	1.10	
3	TP-3	0.21	0.19	0.18	0.25	0.27	1.10	
4	TP-4	0.22	0.17	0.17	0.23	0.31	1.10	
5	TP-5	0.2	0.18	0.16	0.22	0.34	1.10	
6	TP-6	0.14	0.16	0.15	0.25	0.35	1.05	
7	TP-7	0.16	0.16	0.25	0.26	0.27	1.10	
8	TP-8	0.21	0.19	0.23	0.25	0.22	1.10	
9	TP-9	0.22	0.17	0.22	0.23	0.26	1.10	
10	TP-10	0.14	0.16	0.2	0.25	0.35	1.10	
11	TP-11	0.16	0.16	0.25	0.26	0.27	1.10	
12	TP-12	0.21	0.19	0.23	0.25	0.22	1.10	
13	TP-13	0.14	0.16	0.2	0.25	0.35	1.10	
14	TP-14	0.16	0.16	0.25	0.21	0.32	1.10	
15	TP-15	0.14	0.16	0.15	0.25	0.4	1.10	
16	TP-16	0.16	0.16	0.2	0.26	0.32	1.10	
17	TP-17	0.21	0.19	0.18	0.25	0.27	1.10	
18	TP-18	0.22	0.17	0.17	0.23	0.31	1.10	
19	TP-19	0.2	0.18	0.16	0.22	0.34	1.10	
20	TP-20	0.14	0.16	0.15	0.25	0.4	1.10	
21	TP-21	0.16	0.16	0.25	0.26	0.27	1.10	
22	TP-22	0.21	0.19	0.23	0.25	0.22	1.10	
23	TP-23	0.22	0.17	0.22	0.23	0.26	1.10	
24	TP-24	0.14	0.16	0.2	0.25	0.35	1.10	
25	TP-25	0.16	0.16	0.25	0.26	0.27	1.10	
26	TP-26	0.21	0.19	0.23	0.25	0.22	1.10	
27	TP-27	0.14	0.16	0.2	0.25	0.35	1.10	
28	TP-28	0.16	0.16	0.25	0.21	0.32	1.10	
29	TP-29	0.14	0.16	0.15	0.25	0.4	1.10	
30	TP-30	0.16	0.16	0.2	0.26	0.32	1.10	
31	TP-31	0.21	0.19	0.18	0.25	0.27	1.10	
32	TP-32	0.22	0.17	0.17	0.23	0.31	1.10	
33	TP-33	0.2	0.18	0.16	0.22	0.34	1.10	
34	TP-34	0.14	0.16	0.15	0.3	0.35	1.10	
35	TP-35	0.16	0.16	0.25	0.26	0.27	1.10	
36	TP-36	0.21	0.19	0.23	0.25	0.22	1.10	
37	TP-37	0.14	0.16	0.15	0.25	0.4	1.10	
38	TP-38	0.16	0.16	0.2	0.26	0.32	1.10	
39	TP-39	0.21	0.19	0.18	0.25	0.27	1.10	
40	TP-40	0.22	0.17	0.17	0.23	0.31	1.10	

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41	TP-41	0.2	0.18	0.16	0.22	0.34	1.10	
42	TP-42	0.14	0.16	0.15	0.25	0.35	1.05	
43	TP-43	0.16	0.16	0.25	0.26	0.27	1.10	
44	TP-44	0.21	0.19	0.23	0.25	0.22	1.10	
45	TP-45	0.22	0.17	0.22	0.23	0.26	1.10	
46	TP-46	0.14	0.16	0.2	0.25	0.35	1.10	
47	TP-47	0.16	0.16	0.25	0.26	0.27	1.10	
48	TP-48	0.21	0.19	0.23	0.25	0.22	1.10	
49	TP-49	0.14	0.16	0.2	0.25	0.35	1.10	
50	TP-50	0.16	0.16	0.25	0.21	0.32	1.10	
	Total	8.85	8.48	10.01	12.28	15.28	54.90	
	Avg Depth	0.18	0.17	0.20	0.25	0.31	1.10	

(110 to140 MM DIA HDPE PIPES)

CLASSIFICATION OF STRATA AS PER TRIAL PIT RESULTS

							1.05	1.4
Sr.No	Chainage	Soft Soil	Hard murum	Hard murum & Bould.	Soft rock	Hard rock by Chiselling.	Total depth	Location
1	2	3	4	4	5	6	7	8
1	TP-1	0.14	0.16	0.15	0.2	0.4	1.05	
2	TP-2	0.16	0.16	0.2	0.21	0.32	1.05	
3	TP-3	0.21	0.19	0.18	0.2	0.27	1.05	
4	TP-4	0.22	0.17	0.17	0.18	0.31	1.05	
5	TP-5	0.2	0.18	0.16	0.17	0.34	1.05	
6	TP-6	0.14	0.16	0.15	0.25	0.35	1.05	
7	TP-7	0.16	0.16	0.2	0.26	0.27	1.05	
8	TP-8	0.21	0.19	0.18	0.25	0.22	1.05	
9	TP-9	0.22	0.17	0.17	0.23	0.26	1.05	
10	TP-10	0.14	0.16	0.15	0.25	0.35	1.05	
11	TP-11	0.16	0.16	0.2	0.26	0.27	1.05	
12	TP-12	0.21	0.19	0.18	0.25	0.22	1.05	
13	TP-13	0.14	0.16	0.15	0.25	0.35	1.05	
14	TP-14	0.16	0.16	0.2	0.21	0.32	1.05	
15	TP-15	0.21	0.19	0.18	0.25	0.22	1.05	
16	TP-16	0.22	0.17	0.17	0.21	0.28	1.05	
17	TP-17	0.14	0.16	0.15	0.25	0.35	1.05	
18	TP-18	0.16	0.16	0.2	0.26	0.27	1.05	
19	TP-19	0.21	0.19	0.18	0.25	0.22	1.05	
20	TP-20	0.22	0.17	0.17	0.23	0.26	1.05	
21	TP-21	0.14	0.16	0.15	0.25	0.35	1.05	
22	TP-22	0.16	0.16	0.2	0.26	0.27	1.05	
23	TP-23	0.21	0.19	0.18	0.25	0.22	1.05	
24	TP-24	0.22	0.17	0.17	0.2	0.29	1.05	
25	TP-25	0.2	0.18	0.16	0.17	0.34	1.05	
26	TP-26	0.22	0.17	0.17	0.23	0.26	1.05	
27	TP-27	0.14	0.16	0.15	0.25	0.35	1.05	

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28	TP-28	0.14	0.16	0.15	0.2	0.4	1.05	
29	TP-29	0.16	0.16	0.2	0.21	0.32	1.05	
30	TP-30	0.21	0.19	0.18	0.2	0.27	1.05	
31	TP-31	0.22	0.17	0.17	0.18	0.31	1.05	
32	TP-32	0.2	0.18	0.16	0.17	0.34	1.05	
33	TP-33	0.14	0.16	0.15	0.25	0.35	1.05	
34	TP-34	0.16	0.16	0.2	0.26	0.27	1.05	
35	TP-35	0.21	0.19	0.18	0.25	0.22	1.05	
36	TP-36	0.22	0.17	0.17	0.23	0.26	1.05	
37	TP-37	0.14	0.16	0.15	0.25	0.35	1.05	
38	TP-38	0.16	0.16	0.2	0.26	0.27	1.05	
39	TP-39	0.21	0.19	0.18	0.25	0.22	1.05	
40	TP-40	0.14	0.16	0.15	0.25	0.35	1.05	
41	TP-41	0.16	0.16	0.2	0.21	0.32	1.05	
42	TP-42	0.21	0.19	0.18	0.25	0.22	1.05	
43	TP-43	0.22	0.17	0.17	0.21	0.28	1.05	
44	TP-44	0.14	0.16	0.15	0.25	0.35	1.05	
45	TP-45	0.16	0.16	0.2	0.26	0.27	1.05	
46	TP-46	0.21	0.19	0.18	0.25	0.22	1.05	
47	TP-47	0.22	0.17	0.17	0.23	0.26	1.05	
48	TP-48	0.16	0.16	0.2	0.21	0.32	1.05	
49	TP-49	0.21	0.19	0.18	0.25	0.22	1.05	
50	TP-50	0.22	0.17	0.17	0.21	0.28	1.05	
	Total	9.14	8.53	8.71	11.52	14.60	52.50	
	Avg Depth	0.18	0.17	0.17	0.23	0.29	1.05	

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Esitmate of Distribution System

A B S T R A C T

Qty	Description of Item	Rate	Unit	Amount
	ITEM No.1:- Providing and supplying in standard lengths polyethelene pipes conforming to i.S.4984/14151/12786/13488 with necessary jointing material like mechanical connector i.e.thread / insert joint/Quick release coupler joint/compression fitting joint or flanged joint including all taxes(centrel & local)Transportation & Freight charges,inspection charges,Loading/ Unloading charges,conveyance to the departmental store/site And stacking the same in closed Shade duly propecting from sun Ray's & Rain's E.T.C.Complete.			
	(As Per Corrigendum No.Lett.No.7/652.Dt.07.03.22)			
	HDPE.Pipe.6 Kg/Cm2.P.E. 100			
4141	315 mm dia HDPE Pipe 6 Kg/Cm2	2929.00	Rmt	12128989.00
5304	280 mm dia HDPE Pipe 6 Kg/Cm2	2312.00	Rmt	12262848.00
11089	250 mm dia HDPE Pipe 6 Kg/Cm2	1847.00	Rmt	20481383.00
12099	225 mm dia HDPE Pipe 6 Kg/Cm2	1501.00	Rmt	18160599.00
20490	200 mm dia HDPE Pipe 6 Kg/Cm2	1166.00	Rmt	23891340.00
10702	180 mm dia HDPE Pipe 6 Kg/Cm2	994.00	Rmt	10637788.00
13635	160 mm dia HDPE Pipe 6 Kg/Cm2	790.00	Rmt	10771650.00
41049	140 mm dia HDPE Pipe 6 Kg/Cm2	610.00	Rmt	25039890.00
15325	125 mm dia HDPE Pipe 6 Kg/Cm2	485.00	Rmt	7432625.00
172251	110 mm dia HDPE Pipe 6 Kg/Cm2	354.00	Rmt	60976854.00
306085				
	HDPE Specials (10 % Cost of pipes)		L.S	706243.88
	(payment should be made as per actual comnsumption of speacial's & As per price List of Reputed Company)			
	ITEM No.1.a :- Providing & Supply of Electro Fusion Fittings in accordance with BS EN12201: Part-3 suitable for drinking water with in black/ blue colour manufactured from compounded PE80/ PE100 virgin polymer and compatible with PE80/PE100 pipes, in pressure rating SDR11 with min PN12.5 rated for water application and shall be inclusive of all cost such as testing, inspection charges,transportation up to store, transit insurance, loading, unloading, stacking excluding GST levied by GOI & GOM in all respect, etc. complete.			
	Couplers			
1250.00	110	577.00	No.	721250.00
90.00	125	588.00	No.	52920.00
120.00	140	1257.00	No.	150840.00
55.00	160	1366.00	No.	75130.00
45.00	180	1960.00	No.	88200.00
80.00	200	2202.00	No.	176160.00
40.00	225	2775.00	No.	111000.00
35.00	250	4325.00	No.	151375.00
25.00	280	4871.00	No.	121775.00
25.00	315	5321.00	No.	133025.00
	Equal Tee			
1950.00	110	1957.00	No.	3816150.00
80.00	125	2700.00	No.	216000.00
90.00	160	4680.00	No.	421200.00
40.00	180	5878.00	No.	235120.00
50.00	200	9422.00	No.	471100.00
40.00	225	10626.00	No.	425040.00
35.00	250	15567.00	No.	544845.00
25.00	315	16906.00	No.	422650.00
	Reducing Tee			
95.00	125 x 110	2454.00	No.	233130.00
75.00	160 x 110	4362.00	No.	327150.00
60.00	180 x 160	5378.00	No.	322680.00
55.00	200 x 110	8670.00	No.	476850.00
45.00	200 x 160	8717.00	No.	392265.00

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35.00	250 x 110	13317.00	No.	466095.00
25.00	250 x 160	13355.00	No.	333875.00
25.00	250 x 200	13412.00	No.	335300.00
30.00	315 x 200	17647.00	No.	529410.00
25.00	315 x 250	18016.00	No.	450400.00
	Elbow 90 Deg.			
250.00	110	590.00	No.	147500.00
60.00	125	753.00	No.	45180.00
60.00	160	1647.00	No.	98820.00
40.00	180	1909.00	No.	76360.00
60.00	200	2471.00	No.	148260.00
40.00	225	5385.00	No.	215400.00
35.00	250	10090.00	No.	353150.00
35.00	315	10267.00	No.	359345.00
	Elbow 45 Deg.			
140.00	110	590.00	No.	82600.00
35.00	125	753.00	No.	26355.00
35.00	160	1386.00	No.	48510.00
30.00	180	1817.00	No.	54510.00
40.00	200	1909.00	No.	76360.00
25.00	225	2471.00	No.	61775.00
30.00	250	5385.00	No.	161550.00
20.00	315	10237.00	No.	204740.00
	Reducer			
240.00	160 x 110	1262.00	No.	302880.00
60.00	180 x 125	1572.00	No.	94320.00
45.00	200 x 110	2250.00	No.	101250.00
40.00	200 x 160	1863.00	No.	74520.00
30.00	225 x 160	2725.00	No.	81750.00
10.00	250 x 110	3495.00	No.	34950.00
25.00	250 x 160	3764.00	No.	94100.00
20.00	250 x 200	4116.00	No.	82320.00
25.00	315 x 200	7822.00	No.	195550.00
35.00	315 x 250	7930.00	No.	277550.00
	End Cap			
2700.00	110	454.00	No.	1225800.00
40.00	125	576.00	No.	23040.00
30.00	140	941.00	No.	28230.00
20.00	160	1020.00	No.	20400.00
10.00	180	1118.00	No.	11180.00
5.00	200	1895.00	No.	9475.00
5.00	225	3255.00	No.	16275.00
5.00	250	4195.00	No.	20975.00
5.00	315	6941.00	No.	34705.00
	Spigot Long Neck Pipe End (Stub End) for Electro Fusion joint			
525.00	110	807.00	No.	423675.00
60.00	125	1269.00	No.	76140.00
55.00	140	1445.00	No.	79475.00
175.00	160	2068.00	No.	361900.00
40.00	180	2788.00	No.	111520.00
135.00	200	3279.00	No.	442665.00
30.00	225	3933.00	No.	117990.00
80.00	250	4516.00	No.	361280.00
30.00	280	5055.00	No.	151650.00
30.00	315	6571.00	No.	197130.00
	(MJP.SSR 2021 - 22. P.No.120 .It.No.2)			
	ITEM No. 2 :- Providing D.I. K-7 grade pipes with Internal cement mortar lining including taxes, insurance, railway freight, unloading from railway wagon, loading into truck, transport to departmental store/site, unloading, stacking, etc. complete.			
	(As Per Corrigendum No.Lett.No.7/652.Dt.07.03.22)			

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	DI K-7 PIPES			
15	700 mm dia.D.I.K-7.Pipe.	13246.00	Rmt	198690.00
1830	600 mm dia.D.I.K-7.Pipe.	9765.00	Rmt	17869950.00
1367	500 mm dia.D.I.K-7.Pipe.	7392.00	Rmt	10104864.00
2810	450 mm dia.D.I.K-7.Pipe.	6346.00	Rmt	17832260.00
12182	400 mm dia.D.I.K-7.Pipe.	5328.00	Rmt	64905696.00
26	350 mm dia.D.I.K-7.Pipe.	4465.00	Rmt	116090.00
18230				
	ITEM No. 3 :- Providing, and supplying double flanged SLUICE VALVE conforming for IS 2906/14846 including own gear arrangements as per test pressures stainless steel spindle ,caps including all taxes transportation etc. complete			
	(MJP SSR 2021 - 22, Item.No.2. Page.No.132)			
2	500 mm dia.Sluice valve.(PN-1)	109450.00	Nos.	218900.00
4	450 mm dia.Sluice valve.(PN-1)	75940.00	Nos.	303760.00
5	400 mm dia.Sluice valve.(PN-1)	70635.00	Nos.	353175.00
6	350 mm dia.Sluice valve.(PN-1)	53651.00	Nos.	321906.00
10	300 mm dia.Sluice valve.(PN-1)	36471.00	Nos.	364710.00
30	250 mm dia..Sluice valve.(PN-1)	28727.00	Nos.	861810.00
40	200 mm dia.Sluice valve.(PN-1)	18581.00	Nos.	743240.00
60	150 mm dia.Sluice valve.(PN-1)	10251.00	Nos.	615060.00
150	100 mm dia.Sluice valve.(PN-1)	6835.00	Nos.	1025250.00
	ITEM NO. 4 :- Providing and supplying ISI standerd D.I. specials & fittings with sealing rubber gasket of SBR complete with Cast iron follower gland and M.S. nut & bolts coated or otherwise protected from rusting and suitable for D.I. pipes etc comp.			
	(As Per Corrigendum No.Lett.No.11/2390.Dt.19.08.22)			
7000.00	1) 80 to 300 mm dia	153.00	Kg	1071000.00
20000.00	2) 350 mm to 600 mm dia	186.00	Kg	3720000.00
	ITEM NO. 5 :- Providing and supplying ISI standerd M.S specials of required thick ness with three coats of approved make Epoxy Paint (Shalimar,Ciba or Mahindra & Mahindra Make) from inside & outsid including all taxes (Central & Local),Octroi,inspection charges, transportation to store.site and stacking etc.Complete.			
7000.00	M.S speacials of all diameters	95.00	Kg	665000.00
	(MJP SSR 2021 - 22, Item.No.7. Page.No.72)			
	ITEM No. 6 :- 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, manual dewatering, preparing the bed for foundation and excluding backfilling, etc. complete.			
	(MJP SSR 2021 - 22, Item.No.1. Page.No.42)			
	Lift 0 to 1.5 M.			
	Basic Rate	150.00	Cum	
	Add 10% for Excavation for Dist. System pipe line in towns.	15.00		
45629.63	Total.	165.00		7528888.68
	ITEM No 7 :-Excavation for foundation / pipe trenches in hard murum including removing the excavated material upto a distace 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 SSR 2021 - 22, Item.No.2. Page.No.42)			
	Lift 0 to 1.5 M.			
	Basic Rate	170.00	Cum	
	Add 10% for Excavation for Dist. System pipe line in towns.	17.00		
42799.85	Total.	187.00		8003572.21

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	ITEM No. 8 :- 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 SSR 2021 - 22, Item.No.3. Page.No.42)			
	Lift 0 to 1.5 M.			
	Basic Rate	192.00	Cum	
	Add 10% for Excavation for Dist. System pipe line in towns.	19.20		
46083.80	Total.	211.20		9732899.59
	ITEM No. 9 :- 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 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 SSR 2021 - 22, Item.No.5. Page.No.42)			
	Lift 0 to 1.5 M.			
	Basic Rate	572.00	Cum	
	Add 10% for Excavation for Dist. System pipe line in towns.	57.20		
60338.60	Total.	629.20		37965045.83
	ITEM No.10 :- 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 metres beyond the area and lifts as below, stacking as directed by Engineer-in-charge, normal dewatering, excluding backfilling, etc. complete by all means.			
	(MJP SSR 2021 - 22, Item.No.6. Page.No.43)			
	Lift 0 to 1.5 M.			
	Basic Rate	1017.00	Cum	
	Add 10% for Excavation for Dist. System pipe line in towns.	101.70		
77448.78	Total.	1118.70		86641953.24
	ITEM No. 11 :- Filling in plinth and floors murum bedding in trenches with approved murum from excavated materials from foundation 15 cm to 20 cm layers including watering and compaction etc.			
	(MJP SSR 2021 - 22, Item.No.16. Page.No.45)			
	1.Murum available from excavated stuff			
	Basic Rate	84.00		
	Add 5 % for work in Corporation area.	4.20		
37027.52	Total.	88.20	Rmt	3265827.48
	ITEM No. 12 :- Lowering, laying and jointing H.D.P.E./MDPE pipes in proper position including all specials by compression fitting/electrofusion and But fusion jointing procedures including hydraulic testing as per relevent IS code complete with all materials for jointing procedures like electrofusion machine.Electric mirror/ /heater /But fusion welding machine with hydraulic jack, top loading clamp etc. pump and accessories for hydraulic testing and all labours as directe by engineer in-charge as per IS-7634 Part II			
	(MJP SSR 2021 - 22, Item.No.2. Page.No.115)			
	HDPE.Pipe.6 Kg/Cm2.P.E. 100			
	315 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	231.00		
	Add 5% for Muncipal corporation Area.	11.55		
4141.00	Total.	242.55	Rmt	1004399.55
	280 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	210.00		
	Add 5% for Muncipal corporation Area.	10.50		
5304.00	Total.	220.50	Rmt	1169532.00
	250 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	169.00		

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	Add 5% for Muncipal corporation Area.	8.45		
11089.00	Total.	177.45	Rmt	1967743.05
	225 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	165.00		
	Add 5% for Muncipal corporation Area.	8.25		
12099.00	Total.	173.25	Rmt	2096151.75
	200 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	129.00		
	Add 5% for Muncipal corporation Area.	6.45		
20490.00	Total.	135.45	Rmt	2775370.50
	180 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	116.00		
	Add 5% for Muncipal corporation Area.	5.80		
10702.00	Total.	121.80	Rmt	1303503.60
	160 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	116.00		
	Add 5% for Muncipal corporation Area.	5.80		
13635.00	Total.	121.80	Rmt	1660743.00
	140 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	107.00		
	Add 5% for Muncipal corporation Area.	5.35		
41049.00	Total.	112.35	Rmt	4611855.15
	125 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	80.00		
	Add 5% for Muncipal corporation Area.	4.00		
15325.00	Total.	84.00	Rmt	1287300.00
	110 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	70.00		
	Add 5% for Muncipal corporation Area.	3.50		
172251.00	Total.	73.50	Rmt	12660448.50
306085.00				
	ITEM No.13 :- Lowering laying and jointing with SBR rubber gasket C.I. 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 from store to site of work, including cost of jointing materials and rubber rings, giving hydraulic testing etc. complete.			
	(MJP SSR 2021 - 22, Item.No.4. Page.No.135)			
	DI K-7 PIPES			
	700 mm dia.D.I.K-7.Pipe.			
	Basic Rate	472.00		
	Add 5% for Muncipal corporation Area.	23.60		
15.00	Total.	495.60	Rmt	7434.00
	600 mm dia.D.I.K-7.Pipe.			
	Basic Rate	365.00		
	Add 5% for Muncipal corporation Area.	18.25		
1830.00	Total.	383.25	Rmt	701347.50
	500 mm dia.D.I.K-7.Pipe.			
	Basic Rate	278.00		
	Add 5% for Muncipal corporation Area.	13.90		
1367.00	Total.	291.90	Rmt	399027.30
	450 mm dia.D.I.K-7.Pipe.			
	Basic Rate	241.00		
	Add 5% for Muncipal corporation Area.	12.05		
2810.00	Total.	253.05	Rmt	711070.50
	400 mm dia.D.I.K-7.Pipe.			
	Basic Rate	241.00		
	Add 5% for Muncipal corporation Area.	12.05		
12182.00	Total.	253.05	Rmt	3082655.10
	350 mm dia.D.I.K-7.Pipe.			
	Basic Rate	200.00		
	Add 5% for Muncipal corporation Area.	10.00		

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26.00	Total.	210.00	Rmt	5460.00
18230.00				
	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 SSR 2021 - 22, Item.No.4. Page.No.135)			
	500 mm dia.Sluice valve.(PN-1)			
	Basic Rate	9194.00		
	Add 5% for Muncipal corporation Area.	459.70		
2.00	Total.	9653.70	Rmt	19307.40
	450 mm dia.Sluice valve.(PN-1)			
	Basic Rate	8879.00		
	Add 5% for Muncipal corporation Area.	443.95		
4.00	Total.	9322.95	Rmt	37291.80
	400 mm dia.Sluice valve.(PN-1)			
	Basic Rate	7462.00		
	Add 5% for Muncipal corporation Area.	373.10		
5.00	Total.	7835.10	Rmt	39175.50
	350 mm dia.Sluice valve.(PN-1)			
	Basic Rate	6185.00		
	Add 5% for Muncipal corporation Area.	309.25		
6.00	Total.	6494.25	Rmt	38965.50
	300 mm dia.Sluice valve.(PN-1)			
	Basic Rate	5019.00		
	Add 5% for Muncipal corporation Area.	250.95		
10.00	Total.	5269.95	Rmt	52699.50
	250 mm dia..Sluice valve.(PN-1)			
	Basic Rate	4839.00		
	Add 5% for Muncipal corporation Area.	241.95		
30.00	Total.	5080.95	Rmt	152428.50
	200 mm dia.Sluice valve.(PN-1)			
	Basic Rate	3714.00		
	Add 5% for Muncipal corporation Area.	185.70		
40.00	Total.	3899.70	Rmt	155988.00
	150 mm dia.Sluice valve.(PN-1)			
	Basic Rate	3570.00		
	Add 5% for Muncipal corporation Area.	178.50		
60.00	Total.	3748.50	Rmt	224910.00
	100 mm dia.Sluice valve.(PN-1)			
	Basic Rate	2272.00		
	Add 5% for Muncipal corporation Area.	113.60		
150.00	Total.	2385.60	Rmt	357840.00
307.00				
	ITEM No. 15 :- Hydraulic testing of HDPE/MDPE pipeline to specified pressure including cost of all materials and labour and water for testing 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 SSR 2021 - 22, Item.No.3. Page.No.115)			
	Hydraulic testing of HDPE/MDPE pipeline			
	HDPE.Pipe.6 Kg/Cm2.P.E. 100			
	315 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	26046.00		
	Add 5% for Muncipal corporation Area.	1302.30		
4.141	Total.	27348.30	Km	113249.31
	280 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	23565.00		
	Add 5% for Muncipal corporation Area.	1178.25		

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5.304	Total.	24743.25	Km	131238.20
	250 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	18604.00		
	Add 5% for Muncipal corporation Area.	930.20		
11.089	Total.	19534.20	Km	216614.74
	225 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	18604.00		
	Add 5% for Muncipal corporation Area.	930.20		
12.099	Total.	19534.20	Km	236344.29
	200 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	13643.00		
	Add 5% for Muncipal corporation Area.	682.15		
20.490	Total.	14325.15	Km	293522.32
	180 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	12403.00		
	Add 5% for Muncipal corporation Area.	620.15		
10.702	Total.	13023.15	Km	139373.75
	160 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	12403.00		
	Add 5% for Muncipal corporation Area.	620.15		
13.635	Total.	13023.15	Km	177570.65
	140 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	12403.00		
	Add 5% for Muncipal corporation Area.	620.15		
41.049	Total.	13023.15	Km	534587.28
	125 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	8682.00		
	Add 5% for Muncipal corporation Area.	434.10		
15.325	Total.	9116.10	Km	139704.23
	110 mm dia HDPE Pipe 6 Kg/Cm2			
	Basic Rate	7442.00		
	Add 5% for Muncipal corporation Area.	372.10		
172.251	Total.	7814.10	Km	1345986.54
306.085				
	ITEM No. 16 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour and water for testing 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 SSR 2021 - 22, Item.No.12. Page.No.74)			
	Hydraulic testing of HDPE/MDPE pipeline			
	DI K-7 PIPES			
	700 mm dia.D.I.K-7.Pipe.			
	Basic Rate	52377.00		
	Add 5% for Muncipal corporation Area.	2618.85		
0.015	Total.	54995.85	Km	824.94
	600 mm dia.D.I.K-7.Pipe.			
	Basic Rate	40623.00		
	Add 5% for Muncipal corporation Area.	2031.15		
1.830	Total.	42654.15	Km	78057.09
	500 mm dia.D.I.K-7.Pipe.			
	Basic Rate	30914.00		
	Add 5% for Muncipal corporation Area.	1545.70		
1.367	Total.	32459.70	Km	44372.41
	450 mm dia.D.I.K-7.Pipe.			
	Basic Rate	26699.00		
	Add 5% for Muncipal corporation Area.	1334.95		
2.810	Total.	28033.95	Km	78775.40
	400 mm dia.D.I.K-7.Pipe.			
	Basic Rate	26699.00		
	Add 5% for Muncipal corporation Area.	1334.95		

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12.182	Total.	28033.95	Km	341509.58
	350 mm dia.D.I.K-7.Pipe.			
	Basic Rate	22228.00		
	Add 5% for Muncipal corporation Area.	1111.40		
0.026	Total.	23339.40	Km	606.82
18.230				
	ITEM No.17 :- Providing and fixing C.I. road box including loading, unloading and carting to site of work including all necessary excavation in all types of strata and fixing in murum packing, etc. complete.			
	(MJP SSR 2021 - 22,Item.No.5. Page.No.223)			
205	100 mm x 225 mm (20 kg)	1544.00	Nos.	316520.00
40	225 mm x 300 mm (40 kg)	3043.00	Nos.	121720.00
	ITEM No.18 :- 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 RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 1.2 m.)			
	(MJP SSR 2021 - 22,Item.No.1 F.G. Page.No.220)			
	Valve Chamber with Precast RCC Covers			
	As above 1.5x 1.5 cm internal size and depth upto 1.5 M.			
	Basic Rate	25842.22		
	Add 5% for Muncipal corporation Area.	1292.11		
11	Total.	27134.34	Nos.	298478.00
	As above 1.2x 1.2 cm internal size and depth upto 1.2 M.			
	Basic Rate	17367.22		
	Add 5% for Muncipal corporation Area.	868.36		
51	Total.	18235.59	Nos.	930015.00
	ITEM No. 19 :- 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			
	Basic Rate	84.00		
	Add 5% for Muncipal corporation Area.	4.20		
207666.02	Total.	88.20	Cum	18316143.00
	(MJP SSR 2021 - 22, Item.No.16. Page.No.45)			
	Item No. 20 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc. complete.			
	PCC.M-150.1:2:4.			
	Basic Rate	6811.37		
	Add 5% for Muncipal corporation Area.	340.57		
19309.20	Total.	7151.94	Cum	138098255.00
	(As Per Rate Analysis)			
	Item N0. 21 :- Re-instating damaged roads surface during lowering & laying of pipeline of distribution system			
	b) For B.T.Road re-instating			
	Basic Rate	785.00		
	Add 4% for Muncipal corporation Area.	31.40		
131250.00	Total.	816.40	Sqm	107152500.00
	As per rate analysis.			

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	Item No. 22 :- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material, required welding machinery, tripod, chain pully block, crane, blower, compressor, loading and unloading of machinery into the trench etc, transporting and dewatering etc. complete as directed by engineer in charge but excluding cost of MS Pipes.			
150.00	b) 500 mm to 1000 mm dia MS pipe	31384.00	Rmt	4707620.00
	MJP SSR 2021-22 I.N.14a P.N.63			
	Item No. 23 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).			
	Dia of Pipe : 600 mm (I. D.) 8mm thk			
150.00	(As Per Corrigendum No.Lett.No.7/652.Dt.7.03.22)	12344.00	Rmt	1851600.00
	Item No. 24 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 (the 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).			
	1) 100 mm dia			
250	Basic Rate	2839.00	Nos.	745237.50
	Add 5% for Municipal corporation Area.	141.95		
	Total Rate	2980.95		
	2) 150 mm dia			
175	Basic Rate	3485.00	Nos.	640368.75
	Add 5% for Municipal corporation Area.	174.25		
	Total Rate	3659.25		
	3) 200 mm dia			
150	Basic Rate	3648.00	Nos.	574560.00
	Add 5% for Municipal corporation Area.	182.40		
	Total Rate	3830.40		
	4) 250 mm dia			
50	Basic Rate	4333.00	Nos.	227482.50
	Add 5% for Municipal corporation Area.	216.65		
	Total Rate	4549.65		
	5) 300 mm dia			
30	Basic Rate	5164.00	Nos.	162666.00
	Add 5% for Municipal corporation Area.	258.20		
	Total Rate	5422.20		
	6) 350 mm dia			
25	Basic Rate	6085.00	Nos.	159731.25
	Add 5% for Municipal corporation Area.	304.25		
	Total Rate	6389.25		
20	7) 400 mm dia		Nos.	154056.00
	Basic Rate	7336.00		
	Add 5% for Municipal corporation Area.	366.80		
	Total Rate	7702.80		
	8) 450 mm dia			
20	Basic Rate	8217.00	Nos.	172557.00

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	Add 5% for Muncipal corporation Area.	410.85		
	Total Rate	8627.85		
	9) 500 mm dia			
15	Basic Rate	9842.00	Nos.	155011.50
	Add 5% for Muncipal corporation Area.	492.10		
	Total Rate	10334.10		
10	10) 600 mm dia		Nos.	189714.00
	Basic Rate	18068.00		
	Add 5% for Muncipal corporation Area.	903.40		
	Total Rate	18971.40		
	(MJP SSR 2021 - 22, Item.No.10.Page.No.60)			
	Item No 26 :- Providing and making UPVC/MDPE pipe consumer service connection on Distribution main by drilling hole with suitable means , including all labour,UPVC/MDPE Pipe of required length with or without Road crossing as described below, including cost of specials like Saddle/Clamp Saddle of suitable material, and diameter suitable for Distribution main, 15mm /20mm/25mm respective Dia Heavy duty Brass/Polypropylyne(Twin Jacketed)Ferrule , Male and Female thread adapter Elbow, Bends,couplers ,Tees, Clamps of suitable material and sundry materials as per requirment, including providing and fixing medium duty 15.mm brass bib tap,GI casing pipe of suitable diameter of32mm/ 40mm/ 50mm respectively of required length for Road crossing,including requird labour for excavation in all types of strata up to the depth of 0.75m or as per site requirement,all types of plumbing fittings, refilling , Closing the water supply in that area, dewatering,hydraulic testing and restarting the water supply ,transportation of material etc.complete as directed by Engineer - in-charge.			
	A) Household Connection without water meter (Comression Saddle+ISI Mark Ferrul) for HDPE & PVC pipe			
	For MDPE/UPVC Pipe Service Connection on Disribution main			
	For HDPE Pipes with Road Crossing			
8358	15 mm Dia	3115.00	Nos.	26035170.00
	For HDPE Pipes without Road Crossing			
8357	15 mm Dia	2164.00	Nos.	18084548.00
	For HDPE Pipes with Road Crossing			
100	20 mm Dia	3954.00	Nos.	395400.00
	For HDPE Pipes without Road Crossing			
100	20 mm Dia	2829.00	Nos.	282900.00
	(MJP SSR 2021 - 22, Item.No.17b.Page.No.65)			
	Item No. 27 :- Providing ISI standard RCC pipes in standard lengths suitable for either collar joints or rubber ring joints, including all taxes (Central and local), inspection charges, transport to departmental stores/site, unloading and stacking etc. complete. Note: One collar shall be supplied with each full length plain ended RCC pipe, cost including in rates below. One rubber ring shall be supplied with each full length socketted pipe, cost including in rates below.			
	NP-III Class Pipes (For Road Crossing) (2.0 m Length)			
60	300 mm Diameter (With ED)	894.00	Rmt	53660.00
50	400 mm Diameter (With ED)	1770.00	Rmt	88520.00
50	450 mm Diameter (With ED)	2105.00	Rmt	105270.00
50	500 mm Diameter (With ED)	2337.00	Rmt	116870.00
	(As Per Corrigendum No.Lett.No.7/652.Dt.7.03.22)			
	Item No. 28 :- Lowering, laying and jointing in proper grade and alignment RCC pipes with collar joints in CM 1:1 proportion or socketed RCC pipes with rubber joints (excluding cost of rubber ring or RCC collar) including cost of conveyance from stores to site of work, cost of jointing material, labour, giving hydraulic testing etc. complete as directed by Engineer-in-charge (For all class of pipes)			
	(MJP SSR 2021 - 22, Item.No.2.Page.No.98)			
	NP - III Class Pipes			
	300 mm Diameter (With ED)			

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		Basic Rate	204.00		
		Add 5% for Muncipal corporation Area.	10.20		
60		Total Rate	214.20	Rmt	12852.00
	400 mm Diameter (With ED)				
		Basic Rate	265.00		
		Add 5% for Muncipal corporation Area.	13.25		
50		Total Rate	278.25	Rmt	13913.00
	450 mm Diameter (With ED)				
		Basic Rate	323.00		
		Add 5% for Muncipal corporation Area.	16.15		
50		Total Rate	339.15	Rmt	16958.00
	500 mm Diameter (With ED)				
		Basic Rate	351.00		
		Add 5% for Muncipal corporation Area.	17.55		
50		Total Rate	368.55	Rmt	18428.00
	Item No 29 :- Disposing of dismanteling materials of RCC stone/brick masonry/ derbies, excavated material etc from the wotk site beyond the 300 to 500m.				
		Basic Rate	195.00		
		Add 5 % for Muncipal corporation Area.	9.75		
40172.92		Total Rate	204.75	Cum	8225406.28
	(PWD SSR 2022-23,Item.No.2.25.Page.No.27)				
	Item No. 30 :- Providing and Reinsisting damaged House Connection including all required PVC pipe connection and specials etc complete.				
	PVC pipe Connections				
10000	A) 1/2 " Inch Reinsisting House Connection.		412.00	Nos.	4120000.00
25	B) 3/4 " Inch Reinsisting House Connection.		604.00	Nos.	15100.00
	GI Pipe Connections				
4000	1) 1/2 " Inch Connection.		748.00	Nos.	2992000.00
25	2) 3/4 " Inch Connection.		862.00	Nos.	21550.00
	(As per rate analysis)				
	Item No. 31 :- Reinsisting damaged Existing Pipeline during laying Pipeline of distribution system etc complete.				
	AC Pipe Line				
30	1) 100 mm. dia.		1228.38	Nos.	36851.00
20	2) 150 mm. dia.		1813.88	Nos.	36278.00
10	3) 200 mm. dia		2544.38	Nos.	25444.00
10	4) 250 mm. dia.		3555.38	Nos.	35554.00
5	5) 300 mm. dia.		4673.38	Nos.	23367.00
	D.I / C.I. Pipe Line				
100	1) 100 mm. dia.		2157.38	Nos.	215738.00
75	2) 150 mm. dia.		3141.88	Nos.	235641.00
25	3) 200 mm. dia		4328.38	Nos.	108210.00
10	4) 250 mm. dia.		5511.38	Nos.	55114.00
5	5) 300 mm. dia.		7010.38	Nos.	35052.00
	HDPE Pipe Line				
200	1) 110 mm. dia.		1756.38	Nos.	351276.00
125	2) 140 mm. dia.		3416.88	Nos.	427110.00
100	3) 160 mm. dia		3831.38	Nos.	383138.00
50	4) 180 mm. dia.		5223.38	Nos.	261169.00
25	5) 200 mm. dia.		5892.38	Nos.	147310.00
25	6) 250 mm. dia		10859.38	Nos.	271485.00
	(Rates as per RATE ANALYSIS)				
		TOTAL.			874950306
			Say		87,49,50,400

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Distribution System

M E A S U R M E N T S

Description of Item.	No.	L	W	D	Qty	Unit
1	2	3	4	5	6	7
ITEM No.1:- Providing and supplying in standard lengths polyethelene pipes conforming to i.S.4984/14151/12786 /13488 with necessary jointing material like mechanical connector i.e.thread /insert joint/Quick release coupler joint/compression fitting joint or flanged joint including all taxes(centrel & local) Transportation & Freight charges ,inspection charges,Loading/Unloading charges,conveyance to thedepartmental store /site And stacking the same in closed Shade duly propecting from sun Ray's & Rain's E.T.C.Complete.						
HDPE.Pipe.6 Kg/Cm².P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141			4141	Rmt
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304			5304	Rmt
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089			11089	Rmt
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099			12099	Rmt
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490			20490	Rmt
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702			10702	Rmt
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635			13635	Rmt
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049			41049	Rmt
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325			15325	Rmt
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251			172251	Rmt
Total Length		306085			306085	
HDPE Specials (10 % Cost of pipes)		L S			L S	
ITEM No.2 :- Providing and supply of Electro Fusion Fittings in accordance with BS EN- 12201/Part-3 suitable for drinking water within black/						
Couplers						
110	1	1250			1250	No.
125	1	90			90	No.
140	1	120			120	No.
160	1	55			55	No.
180	1	45			45	No.
200	1	80			80	No.
225	1	40			40	No.
250	1	35			35	No.
280	1	25			25	No.
315	1	25			25	No.
Equal Tee						
110	1	1950			1950	No.
125	1	80			80	No.
160	1	90			90	No.
180	1	40			40	No.
200	1	50			50	No.
225	1	40			40	No.
250	1	35			35	No.
315	1	25			25	No.
Reducing Tee						
125 x 110	1	95			95	No.
160 x 110	1	75			75	No.
180 x 160	1	60			60	No.
200 x 110	1	55			55	No.
200 x 160	1	45			45	No.
250 x 110	1	35			35	No.
250 x 160	1	25			25	No.
250 x 200	1	25			25	No.
315 x 200	1	30			30	No.
315 x 250	1	25			25	No.
Elbow 90 Deg.						
110	1	250			250	No.
125	1	60			60	No.
160	1	60			60	No.
180	1	40			40	No.
200	1	60			60	No.
225	1	40			40	No.

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250	1	35			35	No.
315	1	35			35	No.
Elbow 45 Deg.						
110	1	140			140	No.
125	1	35			35	No.
160	1	35			35	No.
180	1	30			30	No.
200	1	40			40	No.
225	1	25			25	No.
250	1	30			30	No.
315	1	20			20	No.
Reducer						
160 x 110	1	240			240	No.
180 x 125	1	60			60	No.
200 x 110	1	45			45	No.
200 x 160	1	40			40	No.
225 x 160	1	30			30	No.
250 x 110	1	10			10	No.
250 x 160	1	25			25	No.
250 x 200	1	20			20	No.
315 x 200	1	25			25	No.
315 x 250	1	35			35	No.
End Cap						
110	1	2700			2700	No.
125	1	40			40	No.
140	1	30			30	No.
160	1	20			20	No.
180	1	10			10	No.
200	1	5			5	No.
225	1	5			5	No.
250	1	5			5	No.
315	1	5			5	No.
Spigot Long Neck Pipe End (Stub End) for Electro Fusion joint						
110	1	525			525	No.
125	1	60			60	No.
140	1	55			55	No.
160	1	175			175	No.
180	1	40			40	No.
200	1	135			135	No.
225	1	30			30	No.
250	1	80			80	No.
280	1	30			30	No.
315	1	30			30	No.
ITEM No. 2 :- Providing D.I. K-7 grade pipes with internal cement mortar lining including taxes, insurance,						
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15			15	Rmt
600 mm dia.D.I.K-7.Pipe.	1	1830			1830	Rmt
500 mm dia.D.I.K-7.Pipe.	1	1367			1367	Rmt
450 mm dia.D.I.K-7.Pipe.	1	2810			2810	Rmt
400 mm dia.D.I.K-7.Pipe.	1	12182			12182	Rmt
350 mm dia.D.I.K-7.Pipe.	1	26			26	Rmt
Total Length		18230			18230	
ITEM No.3 :- Providing and supplying ISI mark C.I. D/F sluice valves						
500 mm dia.Sluice valve.(PN-1)	1	2			2	Nos.
450 mm dia.Sluice valve.(PN-1)	1	4			4	Nos.
400 mm dia.Sluice valve.(PN-1)	1	5			5	Nos.
350 mm dia.Sluice valve.(PN-1)	1	6			6	Nos.
300 mm dia.Sluice valve.(PN-1)	1	10			10	Nos.
250 mm dia..Sluice valve.(PN-1)	1	30			30	Nos.
200 mm dia.Sluice valve.(PN-1)	1	40			40	Nos.
150 mm dia.Sluice valve.(PN-1)	1	60			60	Nos.
100 mm dia.Sluice valve.(PN-1)	1	150			150	Nos.
		307			307	
ITEM No. 4 :- D.I. specials of all types diameters suitable for K-9 grade pipes with inner cement mortar lining.						

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1) 80 to 300 mm dia	1	7000			7000	Kg
2) 350 mm to 600 mm dia	1	20000			20000	Kg
ITEM NO. 5 :-Providing and supplying ISI standar M.S specials	1	7000			7000	Kg
ITEM No.6 :- Excavation for foundation/ pipe trenches in earth, soils						
Lift 0 to 1.5 M.						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141	0.90	0.18	654.87	Cum
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304	0.90	0.19	916.53	Cum
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089	0.85	0.19	1809.72	Cum
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099	0.85	0.19	1974.56	Cum
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490	0.80	0.18	2901.38	Cum
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702	0.80	0.18	1515.40	Cum
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635	0.75	0.18	1810.05	Cum
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049	0.75	0.18	5627.82	Cum
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325	0.75	0.18	2101.06	Cum
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251	0.70	0.18	22041.24	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15	1.30	0.24	4.60	Cum
600 mm dia.D.I.K-7.Pipe.	1	1830	1.25	0.24	539.85	Cum
500 mm dia.D.I.K-7.Pipe.	1	1367	1.20	0.20	334.64	Cum
450 mm dia.D.I.K-7.Pipe.	1	2810	1.15	0.20	659.23	Cum
400 mm dia.D.I.K-7.Pipe.	1	12182	1.10	0.20	2733.64	Cum
350 mm dia.D.I.K-7.Pipe.	1	26	0.95	0.20	5.04	Cum
				Total =	45629.63	Cum
ITEM No.7 : Excavation for foundation/ pipe trenches in hard murum .						
Lift 0 to 1.5 M.						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141	0.90	0.17	628.25	Cum
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304	0.90	0.17	828.70	Cum
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089	0.85	0.17	1636.29	Cum
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099	0.85	0.17	1785.33	Cum
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490	0.80	0.17	2780.08	Cum
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702	0.80	0.17	1452.05	Cum
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635	0.75	0.17	1734.37	Cum
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049	0.75	0.17	5252.22	Cum
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325	0.75	0.17	1960.83	Cum
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251	0.70	0.17	20570.21	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15	1.30	0.22	4.33	Cum
600 mm dia.D.I.K-7.Pipe.	1	1830	1.25	0.22	507.83	Cum
500 mm dia.D.I.K-7.Pipe.	1	1367	1.20	0.20	328.08	Cum
450 mm dia.D.I.K-7.Pipe.	1	2810	1.15	0.20	646.30	Cum
400 mm dia.D.I.K-7.Pipe.	1	12182	1.10	0.20	2680.04	Cum
350 mm dia.D.I.K-7.Pipe.	1	26	0.95	0.20	4.94	Cum
				Total =	42799.85	Cum
ITEM No.8 : Excavation for foundation/ pipe trenches in Hard murum Boulders						
Lift 0 to 1.5 M.						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141	0.90	0.21	777.32	Cum
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304	0.90	0.22	1040.64	Cum
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089	0.85	0.22	2054.79	Cum
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099	0.85	0.22	2241.94	Cum
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490	0.80	0.20	3281.68	Cum
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702	0.80	0.20	1714.03	Cum
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635	0.75	0.20	2047.30	Cum
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049	0.75	0.17	5363.05	Cum
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325	0.75	0.17	2002.21	Cum
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251	0.70	0.17	21004.29	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15	1.30	0.26	5.11	Cum
600 mm dia.D.I.K-7.Pipe.	1	1830	1.25	0.26	599.33	Cum
500 mm dia.D.I.K-7.Pipe.	1	1367	1.20	0.22	354.33	Cum
450 mm dia.D.I.K-7.Pipe.	1	2810	1.15	0.22	698.00	Cum
400 mm dia.D.I.K-7.Pipe.	1	12182	1.10	0.22	2894.44	Cum
350 mm dia.D.I.K-7.Pipe.	1	26	0.95	0.22	5.34	Cum
				Total =	46083.80	Cum
ITEM No.9 : Excavation for foundation/ pipe trenches in soft rock						

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Lift 0 to 1.5 M.						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141	0.90	0.32	1208.58	Cum
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304	0.90	0.27	1285.05	Cum
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089	0.85	0.27	2537.38	Cum
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099	0.85	0.27	2768.49	Cum
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490	0.80	0.25	4025.88	Cum
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702	0.80	0.25	2102.73	Cum
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635	0.75	0.25	2511.57	Cum
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049	0.75	0.23	7093.27	Cum
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325	0.75	0.23	2648.16	Cum
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251	0.70	0.23	27780.64	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15	1.30	0.42	8.23	Cum
600 mm dia.D.I.K-7.Pipe.	1	1830	1.25	0.42	965.33	Cum
500 mm dia.D.I.K-7.Pipe.	1	1367	1.20	0.33	544.61	Cum
450 mm dia.D.I.K-7.Pipe.	1	2810	1.15	0.33	1072.86	Cum
400 mm dia.D.I.K-7.Pipe.	1	12182	1.10	0.28	3778.86	Cum
350 mm dia.D.I.K-7.Pipe.	1	26	0.95	0.28	6.97	Cum
				Total =	60338.60	Cum
ITEM No.10 :- Excavation for foundation / pipe trenches in hard rock and concrete road by chiselling,backfilling, etc. complete by all means.						
Lift 0 to 1.5 M.						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141	0.90	0.37	1389.60	Cum
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304	0.90	0.35	1657.39	Cum
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089	0.85	0.35	3272.59	Cum
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099	0.85	0.35	3570.66	Cum
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490	0.80	0.31	5009.40	Cum
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702	0.80	0.31	2616.42	Cum
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635	0.75	0.31	3125.14	Cum
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049	0.75	0.29	8989.73	Cum
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325	0.75	0.29	3356.18	Cum
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251	0.70	0.29	35208.10	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15	1.30	0.46	8.93	Cum
600 mm dia.D.I.K-7.Pipe.	1	1830	1.25	0.46	1047.68	Cum
500 mm dia.D.I.K-7.Pipe.	1	1367	1.20	0.45	734.90	Cum
450 mm dia.D.I.K-7.Pipe.	1	2810	1.15	0.45	1447.71	Cum
400 mm dia.D.I.K-7.Pipe.	1	12182	1.10	0.45	6003.29	Cum
350 mm dia.D.I.K-7.Pipe.	1	26	0.95	0.45	11.07	Cum
				Total =	77448.78	Cum
ITEM No. 11 :- Filling in plinth and floors murum bedding in trenches						
1.Murum available from excavated stuff						
HDPE.Pipe.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141.00	0.90	0.15	559.04	
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304.00	0.90	0.15	716.04	
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089.00	0.85	0.15	1413.85	
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099.00	0.85	0.15	1542.62	
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490.00	0.80	0.15	2458.80	
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702.00	0.80	0.15	1284.24	
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635.00	0.75	0.15	1533.94	
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049.00	0.75	0.15	4618.01	
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325.00	0.75	0.15	1724.06	
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251.00	0.70	0.15	18086.36	
DI K-7 PIPES		306085				
700 mm dia.D.I.K-7.Pipe.	1	15.00	1.30	0.15	2.93	
600 mm dia.D.I.K-7.Pipe.	1	1830.00	1.25	0.15	343.13	
500 mm dia.D.I.K-7.Pipe.	1	1367.00	1.20	0.15	246.06	
450 mm dia.D.I.K-7.Pipe.	1	2810.00	1.15	0.15	484.73	
400 mm dia.D.I.K-7.Pipe.	1	12182.00	1.10	0.15	2010.03	
350 mm dia.D.I.K-7.Pipe.	1	26.00	0.95	0.15	3.71	
		18230		Total =	37027.52	Cum
ITEM No. 12 :- Lowering, laying and jointing H.D.P.E./MDPE pipes in proper position including all specials complete						
HDPE.Pipe.6 Kg/Cm².P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4141			4141	Rmt

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280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5304			5304	Rmt
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11089			11089	Rmt
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12099			12099	Rmt
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20490			20490	Rmt
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10702			10702	Rmt
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13635			13635	Rmt
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41049			41049	Rmt
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15325			15325	Rmt
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172251			172251	Rmt
Total Length		306085			306085	
ITEM No. 13 :- Lowering laying and jointing in position CI / DI pipes and specials etc complete						
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	15			15	Rmt
600 mm dia.D.I.K-7.Pipe.	1	1830			1830	Rmt
500 mm dia.D.I.K-7.Pipe.	1	1367			1367	Rmt
450 mm dia.D.I.K-7.Pipe.	1	2810			2810	Rmt
400 mm dia.D.I.K-7.Pipe.	1	12182			12182	Rmt
350 mm dia.D.I.K-7.Pipe.	1	26			26	Rmt
Total Length		18230			18230	
ITEM No. 14 :- Lowering, laying and jointing in position following C.I. D/F Sluice Valve						
500 mm dia.Sluice valve.(PN-1)	1	2			2	No.
450 mm dia.Sluice valve.(PN-1)	1	4			4	No.
400 mm dia.Sluice valve.(PN-1)	1	5			5	No.
350 mm dia.Sluice valve.(PN-1)	1	6			6	No.
300 mm dia.Sluice valve.(PN-1)	1	10			10	No.
250 mm dia..Sluice valve.(PN-1)	1	30			30	No.
200 mm dia.Sluice valve.(PN-1)	1	40			40	No.
150 mm dia.Sluice valve.(PN-1)	1	60			60	No.
100 mm dia.Sluice valve.(PN-1)	1	150			150	No.
ITEM No. 15 :- Hydraulic testing of H.D.P.E./MDPE pipeline to specified pressure including cost of all materials and labour ..etc.						
HDPE.Pipe.6 Kg/Cm2.P.E. 100						
315 mm dia HDPE Pipe 6 Kg/Cm ²	1	4.141			4.141	Km
280 mm dia HDPE Pipe 6 Kg/Cm ²	1	5.304			5.304	Km
250 mm dia HDPE Pipe 6 Kg/Cm ²	1	11.089			11.089	Km
225 mm dia HDPE Pipe 6 Kg/Cm ²	1	12.099			12.099	Km
200 mm dia HDPE Pipe 6 Kg/Cm ²	1	20.490			20.490	Km
180 mm dia HDPE Pipe 6 Kg/Cm ²	1	10.702			10.702	Km
160 mm dia HDPE Pipe 6 Kg/Cm ²	1	13.635			13.635	Km
140 mm dia HDPE Pipe 6 Kg/Cm ²	1	41.049			41.049	Km
125 mm dia HDPE Pipe 6 Kg/Cm ²	1	15.325			15.325	Km
110 mm dia HDPE Pipe 6 Kg/Cm ²	1	172.251			172.251	Km
Total Length		306.085			306.085	Km
ITEM No. 16 :- Hydraulic testing of pipeline to specified pressure including cost of all materials and labour.....etc.Complete.						
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	1	0.015			0.015	Km
600 mm dia.D.I.K-7.Pipe.	1	1.830			1.830	Km
500 mm dia.D.I.K-7.Pipe.	1	1.367			1.367	Km
450 mm dia.D.I.K-7.Pipe.	1	2.810			2.810	Km
400 mm dia.D.I.K-7.Pipe.	1	12.182			12.182	Km
350 mm dia.D.I.K-7.Pipe.	1	0.026			0.026	Km
Total Length		18.230			18.230	Km
ITEM No. 17 :- Providing and constructing Road boxes						
1)100 x 225 mm 20 kg	1	205			205	Nos.
2)225 x 300 mm 40 kg	1	40			40	Nos.
ITEM No. 18 :- Providing and constructing B.B. masonry valve chamber						
As above 1.5x 1.5 cm internal size and depth upto 1.5 M.	1	11			11	Nos.
As above 1.2x 1.2 cm internal size and depth upto 1.2 M.	1	51			51	Nos.
ITEM No. 19 :- Refilling the trenches with available excavated stuff						
Total excavation				272300.67	Cum	
Deductions						
Murum bedding					37027.52	
Volume of pipe for 315 mm dia	0.7855	0.315	0.315	4141	322.75	
Volume of pipe for 280 mm dia	0.7855	0.28	0.28	5304	326.64	
Volume of pipe for 250 mm dia	0.7855	0.25	0.25	11089	544.40	

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Volume of pipe for 225 mm dia	0.7855	0.225	0.225	12099	481.13	
Volume of pipe for 200 mm dia	0.7855	0.2	0.2	20490	643.80	
Volume of pipe for 180 mm dia	0.7855	0.18	0.18	10702	272.37	
Volume of pipe for 160 mm dia	0.7855	0.16	0.16	13635	274.18	
Volume of pipe for 140 mm dia	0.7855	0.14	0.14	41049	631.98	
Volume of pipe for 125 mm dia	0.7855	0.125	0.125	15325	188.09	
Volume of pipe for 110 mm dia	0.7855	0.11	0.11	172251	1637.17	
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	0.7855	0.716	0.716	15	6.04	
600 mm dia.D.I.K-7.Pipe.	0.7855	0.616	0.616	1830	545.45	
500 mm dia.D.I.K-7.Pipe.	0.7855	0.516	0.516	1367	285.90	
450 mm dia.D.I.K-7.Pipe.	0.7855	0.466	0.466	2810	479.32	
400 mm dia.D.I.K-7.Pipe.	0.7855	0.416	0.416	12182	1655.97	
350 mm dia.D.I.K-7.Pipe.	0.7855	0.366	0.366	26	2.74	
Volume of P.C.C					19309.20	
Total deduction					64634.65	
Net qty of refilling				Total =	207666.02	Cum
Item No. 20 :- Providing and laying in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap /etc. complete						
Reinstating the Road	1	125000	0.75	0.20	18750.00	Cum
Nalla Crossing	25	6	0.70	1.15	120.75	
Road Crossing	50	12	0.70	1.10	462.00	
		460			19332.75	
Deduction for pipe vol.	750	0.785	0.20	0.20	23.55	
					23.55	
				Net Qty	19309.20	Cum
Item No. 21 :- Re-instating damaged roads surface during lowering & laying of pipeline of distribution system						
b) For B.T.Road re-instating	1	175000	0.75		131250	Sq.M
Item No. 22 :- RATES FOR ROAD AND RAILWAY CROSSING BY PUSH THROUGH METHOD 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 hydraulic jack and drilling machine of required diameter, below MS casing pipe lowering, laying, jointing of material,required welding machinery,tripod, chain pully block,crane , blower ,compressor,loading and unloading of machinery into the trench etc,transporting and dewatering etc.complete as directed by engineer in charge but excluding cost of MS Pipes.						
b) 500 mm to 1000 mm dia MS pipe	5	30			150	Rmt
Item No. 23 :- Manufacturing, providing and supplying spirally welded / ERW/ SAW / fabricated M. S. pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming 'V' edge on both ends of pipes including railway freight, insurance, unloading from railway wagon, loading into truck, transport to stores, unloading, stacking, excluding GST levied by GOI and GOM in all respect etc. complete as per IS - 3589 and IS-5504 as applicable as per specifications (No negative tolerance in thickness is permissible).						
Dia of Pipe : 600 mm (I. D.) 8mm thk	5	30			150	Rmt
Item No. 24 :- Making cross connection to existing distribution main of any type including excavation, breaking and removing exiting 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 diamerts of existing pipeline, irrespective of diameter of branch line (the 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).						
1) 100 mm dia	1	250			250	Nos.
2) 150 mm dia	1	175			175	Nos.
3) 200 mm dia	1	150			150	Nos.
4) 250 mm dia	1	50			50	Nos.
5) 300 mm dia	1	30			30	Nos.
6) 350 mm dia	1	25			25	Nos.
7) 400 mm dia	1	20			20	Nos.
8) 450 mm dia	1	20			20	Nos.
9) 500 mm dia	1	15			15	Nos.
10) 600 mm dia	1	10			10	Nos.

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Item NO. 26 :- Making House Service connection on distribution main in Model Zone of any type including excavation in all type of strata,providing,lowering,laying Etc complete.						
For HDPE Pipes with Road Crossing						
15 mm Dia	1	8358			8358	Nos
For HDPE Pipes without Road Crossing						
15 mm Dia	1	8357			8357	Nos
For HDPE Pipes with Road Crossing						
20 mm Dia	1	100			100	Nos
For HDPE Pipes without Road Crossing						
20 mm Dia	1	100			100	Nos
		16915				
Item No. 27 :- Providing ISI standard RCC pipes..... etc. complete.						
MJP.DSR 2016-17 Page No.85. I.No.1.						
NP - III Class Pipes (For Road Crossing)						
300 mm Diameter (With ED)	1	60			60	Rmt
400 mm Diameter (With ED)	1	50			50	Rmt
450mm Diameter (With ED)	1	50			50	Rmt
500mm Diameter (With ED)	1	50			50	Rmt
MJP.DSR 2016-17 Page No.86. I.No.1						
Item No. 28 :- Lowering, laying and jointing in proper grade and alignment RCC pipes with collar joints... etc. complete .						
MJP.DSR 2016-17 Page No.87 I.No.2.						
NP - III Class Pipes						
300 mm Diameter (With ED)	1	60			60	Rmt
400 mm Diameter (With ED)	1	50			50	Rmt
450 mm Diameter (With ED)	1	50			50	Rmt
500 mm Diameter (With ED)	1	50			50	Rmt
MJP.DSR 2016-17 Page No.87. I.No.2						
ITEM No. 29 :- Disposing off the excavated stuff of all types of strata... etc. as directed by Engineer-in-charge						
a) For concrete road re-instating	1.00	125000	0.75	0.2	18750	Cum
b) For Tar road re-instating	1.00	175000	0.75	0.1	13125	Cum
c) Balance Qty. after refilling						
Volume of pipe						
HDPE Pipes						
Volume of pipe for 315 mm dia	0.7855	0.315	0.315	4141	322.75	Cum
Volume of pipe for 280 mm dia	0.7855	0.28	0.28	5304	326.64	Cum
Volume of pipe for 250 mm dia	0.7855	0.25	0.25	11089	544.40	Cum
Volume of pipe for 225 mm dia	0.7855	0.225	0.225	12099	481.13	Cum
Volume of pipe for 200 mm dia	0.7855	0.2	0.2	20490	643.80	Cum
Volume of pipe for 180 mm dia	0.7855	0.18	0.18	10702	272.37	Cum
Volume of pipe for 160 mm dia	0.7855	0.16	0.16	13635	274.18	Cum
Volume of pipe for 140 mm dia	0.7855	0.14	0.14	41049	631.98	Cum
Volume of pipe for 125 mm dia	0.7855	0.125	0.125	15325	188.09	Cum
Volume of pipe for 110 mm dia	0.7855	0.11	0.11	172251	1637.17	Cum
DI K-7 PIPES						
700 mm dia.D.I.K-7.Pipe.	0.7855	0.716	0.716	15	6.04	Cum
600 mm dia.D.I.K-7.Pipe.	0.7855	0.616	0.616	1830	545.45	Cum
500 mm dia.D.I.K-7.Pipe.	0.7855	0.516	0.516	1367	285.90	Cum
450 mm dia.D.I.K-7.Pipe.	0.7855	0.466	0.466	2810	479.32	Cum
400 mm dia.D.I.K-7.Pipe.	0.7855	0.416	0.416	12182	1655.97	Cum
350 mm dia.D.I.K-7.Pipe.	0.7855	0.366	0.366	26	2.74	Cum
				Total =	40172.92	Cum
Item No. 30 :- Providing and Reinsisting damaged House connection and Specials etc complete.						
HDPE Pipe Connections						
1) 1/2 " Inch Connection.	1	10000			10000	Nos.
2) 3/4 " Inch Connection.	1	25			25	Nos.
GI Pipe Connections						
1) 1/2 " Inch Connection.	1	4000			4000	Nos.
2) 3/4 " Inch Connection.	1	25			25	Nos.

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Item No. 31 :- Reinsisting of damaged Existing Pipeline during laying Pipeline of distribution system etc complete.						
AC.PipeLine.						
1) 100 mm. dia.	1	30			30	Nos.
2) 150 mm. dia.	1	20			20	Nos.
3) 200 mm. dia	1	10			10	Nos.
4) 250 mm. dia.	1	10			10	Nos.
5) 300 mm. dia.	1	5			5	Nos.
DI/CI PipeLine.						
1) 100 mm. dia.	1	100			100	Nos.
2) 150 mm. dia.	1	75			75	Nos.
3) 200 mm. dia	1	25			25	Nos.
4) 250 mm. dia.	1	10			10	Nos.
5) 300 mm. dia.	1	5			5	Nos.
HDPE PipeLine.						
2) 110 mm. dia.	1	200			200	Nos.
3) 140 mm. dia.	1	125			125	Nos.
4) 160 mm. dia	1	100			100	Nos.
5) 180 mm. dia	1	50			50	Nos.
6) 200 mm. dia	1	25			25	Nos.
7) 250 mm. dia	1	25			25	Nos.

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Estimate for Trial and Run for Three Months

ABSTRACT

Description of Item	Qty	Rate	Unit	Amount
1	2	3	4	5
Item No. 1 : Commisioning running and maintaining the scheme to quantites, rated capacity, including manning necessary personnel such as operator, valveman, etc. as per requirements of the scheme and who should also administer chemical dose for a period of 1 month for individual scheme and 3 months for regional scheme, together with training of personnel spared by MJP/ Local Body and handing over the scheme to Local Body after completion of the above period as directed by Engineer-in-charge.				
Pump operater (8 x 90 =720 Nos.)	720.00	611.00	Per No.	439920.00
filter operater (4 x 90 =360 Nos.)	360.00	611.00	Per No.	219960.00
Labour (15 x 90 =1350 Nos.)	1350.00	579.00	Per No.	781650.00
Item No.2				
Providing alum & TCL etc complete				
a) Alum Requirement				
50 Mld x 30 Kg/mld x 90 Days = 135 MT	135	7843	M.T.	1058805.00
a) Bleaching Powder Requirement				
50 Mld x 4 Kg/mld x 90 Days =18 MT	18	22000	M.T.	396000.00
C) Electrical Charges				
a) At Head works-3 Months				
1500 Bhp X 16 Hr X 0.746 X 90 Days	1611360	9.00	Unit	14502240.00
a) At W.T.P.-3 Months				
1500=50 Bhp X 16 Hr X 0.746 X 90 Days	1611360	9.00	Unit	14502240.00
Others as lighting,Lower pump, clarifloculator, Back wash pump,alum & TCL mixer pump	12000	9.00	Unit	108000.00
D)Raw Water Charges Payable to Irrigation dept.				
Yearly Demand:-				
50 x 90 day	4.5	210000	MM ³	945000.00
Total of Sub-Work Rs.				32953815.00
		Say Rs		3,29,53,900

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS
(For WTP & ESR)

Sr. No	Description of Item	Basic Rate	Lead Charges	Total Rate
1	2	3	4	5
1	Item No. 1 :- Providing and casting in situ Cement concrete M-15 /1:2:4 grade of C.C. of trap / granite / quartzite / gneiss metal for foundation and bedding including dewatering , compacting and curing.etc. complete PCC for levelling course below slab .			
	Lift 0.00 to 5.00 M.	6204.00	607.37	6811.37
	Lift 5.00 to 10.00 M.	6824.40	607.37	7431.77
	Lift 10.00 to 15.00 M.	7444.80	607.37	8052.17
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
2	Item No. 2 :- Providing and laying in situ of C.C. of trap/ granite / quartzite/ gneiss metal for RCC works in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering , centering, form work, compaction, finishing and curing,etc. complete. (By weight batching mix design for M – 250 & M-300 only. Use of L&t , ACC, Ambuja,Birla Gold,Manikgad, Rajashree,etc.cement is permitted. Excluding M.S. or Tor reinforcement.)			
	RCC Footing.M- 200			
	Lift 0.00 to 5.00 M.	7318.00	552.16	7870.16
	RCC Footing.M- 250			
	Lift 0.00 to 5.00 M.	7927.00	414.12	8341.12
	Lift 5.00 to 10.00 M.	8719.70	414.12	9133.82
	Lift 10.00 to 15.00 M.	9512.40	414.12	9926.52
	RCC Footing.M- 300			
	Lift 0.00 to 5.00 M.	8193.00	414.12	8607.12
	Lift 5.00 to 10.00 M.	9012.30	414.12	9426.42
	Lift 10.00 to 15.00 M.	9831.60	414.12	10245.72
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
3	Item No. 3 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work as directed by Engineer-in-charge inclouding normal dewarterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necsessary or rougheningif special finish is to be proved and curing, etc.complete (By weigh batching and mix desing 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.			
	RCC Beams/ BRACES/Lintels.M - 200			
	Lift 0.00 to 5.00 M.	8674.00	552.16	9226.16
	RCC Beams.M - 250			
	Lift 0.00 to 5.00 M.	9240.00	414.12	9654.12
	Lift 5.00 to 10.00 M.	10164.00	414.12	10578.12
	Lift 10.00 to 15.00 M.	11088.00	414.12	11502.12
	Lift 15.00 to 20.00 M.	12012.00	414.12	12426.12
	RCC Beams.M - 300			
	Lift 0.00 to 5.00 M.	9486.00	414.12	9900.12
	Lift 5.00 to 10.00 M.	10434.60	414.12	10848.72
	Lift 10.00 to 15.00 M.	11383.20	414.12	11797.32
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
4	Item No. 4 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal fo RCC work as per detailed drawings and designs or as directed by Engineer-in-charge including normal dewatering, centering, form work, compaction fiinishing 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 desing 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 Reinforced Cement Concrete.			
	For RCC M-300 grade - all types of columns.			
	RCC.Columns.M - 200			
	Lift 0.00 to 5.00 M.	8815.00	552.16	9367.16
	RCC.Columns.M - 250			
	Lift 0.00 to 5.00 M.	9404.00	414.12	9818.12
	Lift 5.00 to 10.00 M.	10344.40	414.12	10758.52
	Lift 10.00 to 15.00 M.	11284.80	414.12	11698.92
	Lift 15.00 to 20.00 M.	12225.20	414.12	12639.32

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	RCC.Columns.M - 300			
	Lift 0.00 to 5.00 M.	9651.00	414.12	10065.12
	Lift 5.00 to 10.00 M.	10616.10	414.12	11030.22
	Lift 10.00 to 15.00 M.	11581.20	414.12	11995.32
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
5	Item No. 5 :-Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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 .			
	RCC.Vertical Walls.M - 200			
	Lift 0.00 to 5.00 M.	9313.00	552.16	9865.16
	RCC.Vertical Walls.M - 250			
	Lift 0.00 to 5.00 M.	9910.00	414.12	10324.12
	Lift 5.00 to 10.00 M.	10901.00	414.12	11315.12
	Lift 10.00 to 15.00 M.	11892.00	414.12	12306.12
	RCC.Vertical Walls.M - 300			
	Lift 0.00 to 5.00 M.	10172.00	414.12	10586.12
	Lift 5.00 to 10.00 M.	11189.20	414.12	11603.32
	Lift 10.00 to 15.00 M.	12206.40	414.12	12620.52
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
6	Item No. 6 :- Providing and casting in situ cement concrete of trap/granite/quartzite/ gneiss metal of approved quality for RCC work as directed by Engineer-in-charge including normal dewaterin, centreing, form work, compaction, finishing the formed surfaces with C.M. 1:3 of sufficient minimum thickness to give a smooth and even surface whtere necessary or rougheninig if special fnish is to be proved and curing, etc.complete (By weigh batching and mix desing 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 .			
	RCC.Slabs.M - 200			
	Lift 0.00 to 5.00 M.	9313.00	552.16	9865.16
	RCC.Slabs.M - 250			
	Lift 0.00 to 5.00 M.	9910.00	414.12	10324.12
	Lift 5.00 to 10.00 M.	10901.00	414.12	11315.12
	Lift 10.00 to 15.00 M.	11892.00	414.12	12306.12
	Lift 15.00 to 20.00 M.	12883.00	414.12	13297.12
	RCC.Slabs.M - 300			
	Lift 0.00 to 5.00 M.	10172.00	414.12	10586.12
	Lift 5.00 to 10.00 M.	11189.20	414.12	11603.32
	Lift 10.00 to 15.00 M.	12206.40	414.12	12620.52
	/(As Per Corrigendum No.Lett.No.9/1368.Dt.06.05.22)			
7	Item No. 7 :- Providing Second Class burnt Brick masonry with conventional / indian standard type bricks in cement mortar 1:6 in superstructure as bacing in composite masonry including scaffolding, racking cut joints and waterinG complete.			
	Lift 0.00 to 3.80 M.	7994.000	510.99	8504.99
	Lift 3.80 to 7.60 M.	8073.940	510.99	8584.93
	Lift 7.60 to 11.40 M.	8153.880	510.99	8664.87
	Lift 11.40 to 15.20 M.	8233.820	510.99	8744.81
	Lift 11.40 to 15.20 M.	8313.760	510.99	8824.75
	Lift 15.20 to 19.00 M.	8393.700	510.99	8904.69
	(PWD SSR 2022-23, I.No.27.05 P.No 242)			
8	Item No. 8 :- Providing Internal cement plaster 20 mm thick in single coats in cement mortar 1:4 with-out neeru to concrete, brick surface, in all positions including scaffolding and curing complete.-			
	(PWD SSR 2022-23, I.No.32.07 P.No 256)	382.00	39.92	421.92
9	Item No.9 :- Providing sand faced plaster externally in cement motar using Approved scened sand in all positions including base coat of 15 mm. thick in cement mortar 1:4 using waterproofing compound at 1 Kg. per cement bag, curing the same for not less than 2 days and keeping the surface of the base coat rough to recive the sand faced tretment 10 mm. thick in cement mortar 1:4 finishing the surface by taking out grains and curing for foureen days scaffolding etc. complete.for compound Wall. BDL-7(Only for Building works not for compound wall) Spec. :Bd.L .7 Page No. 367			
	(PWD CSR 2022-23, I.No.32.11 P.No 257)	639.00	52.70	691.70

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10	ITEM No.10 :- Providing and constructing B.B. masonry valve chamber with 15 cm thick 1:2:6 proportion PCC bedding excluding excavation, B.B. masonry in C.M. 1:5 proportion precast RCC frame and cover etc. complete as directed by Engineer in charge (internal size 60 x 45 cm and depth 0.9 m.)			
	MJP.SSR 21-22 Page No.220. I.No.1c&1f			
	1) As above of 60 x 45 cm internal size and depth upto 90 M with precast RCC slab cover	6595.00	442.09	7037.09
	2) As above of 90 x 60 cm internal size and depth upto 1.2 M with precast RCC slab cover	10624.00	722.55	11346.55
	2) As above of 1.2x 1.2cm internal size and depth upto 1.2 M with precast RCC slab cover	16283.00	1084.22	17367.22
	2) As above of 1.5x 1.5cm internal size and depth upto 1.5 M with precast RCC slab cover	24758.00	1084.22	25842.22
11	Item No.11 :- Providing dry rubble stone pitching 23 cm (About 9``)thick including packing with quarry spalls and hard murum etc. complete as directed by Engineer -In -Charge			
	Dry rubble stone pitching	413.00	422.26	835.26
	(PWD SSR.2022-23 P.No.28.Item No. 2.34)			
12	Item No. 12 :- Providing Second Class burnt Brick masonry with conventional / indian standard type bricks in cement mortar 1:6 in foundation & plinth as bacing in composite masonry including scaffolding, racking cut joints and waterinG complete.			
	Lift 0.00 to 3.80 M.	7755.000	510.99	8265.99
	(PWD SSR 2022-23, I.No.27.01 P.No 242)			

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

**Calculation of Lead Charges (AS PER M.J.P.2021-22 & PWD SSR 2022-23)
(FOR WTP & ESRS)**

Sr. No.	Material	Quarry	Distance (K.M.)	Rate for Final Lead	Rate for Initial Lead	Net Lead Charges	Pay Load Factor	Rate / Cum	
1	Sand								
	As per MJP CSR	Gangakhed	105.0	7911.48	899.91	7011.57	5.75	1219.40	
	As per PWD CSR	Gangakhed	105.0	9181.80	0.00	9181.80	5.75	1596.83	
2	Sand(BSF)								
3	Metal below (60 & 40 mm)								
	As per MJP CSR	Chincholirao wadi	10.0	1362.75	899.91	462.84	5.75	80.49	
4	Rubble soling								
	As per PWD CSR	Chincholirao wadi	10.0	1984.62	0	1984.62	4.70	422	
5	Murum								
		Local	5.0	0	0	0.00	6.00	0	
	As per PWD CSR	Local	5.0	1513.34	0	1513.34	6.00	252.22	
6	Bricks								
	As per PWD CSR	Local	0.0	0.00	0	0.00	7.00	0.00	

LEAD CALCULATION FOR AUG.TO LATUR W.S.S.

Sr. No.	Item	Sand	Metal	Rubble	Bricks	Murum	Sub Work	Net Lead Charges	Unit
1	P.C.C. 1:2:4	0.44	0.88				WTP		
	As per MJP CSR	536.54	70.83					607.37	Cum.
2	R.C.C. M-200	0.40	0.80				WTP		
	As per MJP CSR	487.76	64.40					552.16	Cum.
3	R.C.C. M-250	0.30	0.60				WTP		
	As per MJP CSR	365.82	48.30					414.12	Cum.
4	R.C.C. M-300	0.30	0.60				WTP		
	As per MJP CSR	365.82	48.30					414.12	Cum.
5	Rubble soling								
6	As per PWD CSR			1.00			WTP		
				422.26				422.26	Cum.
7	Murum MJP CSR					1.00	WTP		
						0.00		0.00	Cum.
8	Murum PWD CSR					1.00	WTP		
						252.22		252.22	Cum.
9	Brick Masonry in CM 1:6 (PWD)	0.320			460.00		WTP		
		510.99			0.00			510.99	Cum.
10	External Cement Plaster 1:4 20 mm.	0.033					WTP		
		52.70						52.70	Sqm.
11	Internal Cement Plaster 1:4 15mm.	0.025					WTP		
		39.92						39.92	Sqm.
12	B.B.masonry chambers 0.6 x 0.45 m	0.350	0.19						
		426.79	15.29					442.09	Cum.
13	B.B.masonry chambers 0.9 x 0.6 m	0.580	0.19						
		707.25	15.29					722.55	Cum.
14	B.B.masonry chambers 1.2 x 1.2 m	0.870	0.29						
		1060.88	23.34					1084.22	Cum.

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Distribution System

RATE ANALYSIS FOR AC - PIPE LEAKAGES

Dia. of Pipe	Excavation	AC Pipe	Joint	Lowering & Laying	Refilling	Total Rate
80 mm Rs	1.0 x 0.7 x 1.0 = 0.7 Cum @ Rate Rs.150/ Cum 105	1.0 m @ Rate Rs.238/ Rmt 238	2 Nos. @ Rs.279/ No. 558	1.0 m 34 / Rmt 34	0.695 @ Rate Rs.84 / Cum 58.38	993.38
100 mm	1.0 x 0.8 x 1.0 = 0.8 Cum @ Rate Rs.150/ Cum 120	1.0 m 297 / Rmt 297	2 Nos. @ Rs.353 / No. 706	1.0 m @ Rs. 47 / Rmt 47	0.695 @ Rate Rs.84 / Cum 58.38	1228.38
150 mm	1.0 x 0.85 x 1.0 = 0.85 Cum @ Rate Rs.150/ Cum 127.5	1.0 m @ Rate Rs.381/ Rmt 381	2 Nos. @ Rs592 / No. 1184	1.0 m @ Rs. 63 / Rmt 63	0.695 @ Rate Rs.84 / Cum 58.38	1813.88
200 mm	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m 485 / Rmt 485	2 Nos. @ Rs.893 / No. 1786	1.0 m @ Rs.80 / Rmt 80	0.695 @ Rate Rs.84 / Cum 58.38	2544.38
250 mm	1.0 x 1 x 1.0 = 1 Cum @ Rate Rs.150/ Cum 150	1.0 m @ Rate Rs.1008 / Rmt 1008	2 Nos. @ Rs. 1119 / No. 2238	1.0 m @ Rs.101 / Rmt 101	0.695 @ Rate Rs.84 / Cum 58.38	3555.38
300 mm	1.0 x 1 x 1.0 = 1 Cum @ Rate Rs.150/ Cum 150	1.0 m @ Rate Rs. 1271 / Rmt 1271	2 Nos. @ Rs. 1535 / No. 3070	1.0 m @ Rs. 124 / Rmt 124	0.695 @ Rate Rs.84 / Cum 58.38	4673.38

RATE ANALYSIS FOR DI / CI- PIPE LEAKAGES

Dia. of Pipe	Excavation	DI K-7 Pipe	Joint	Lowering & Laying	Refilling	Total Rate
80 mm CI Rs	1.0 x 0.7 x 1.0 = 0.7 Cum @ Rate Rs.150/ Cum 105	1.0 m @ Rate Rs.877/ Rmt 877	2 Nos. @ Rs.279/ No. 558	1.0 m 53 / Rmt 53	0.695 @ Rate Rs.84 / Cum 58.38	1651.38
100 mm	1.0 x 0.8 x 1.0 = 0.8 Cum @ Rate Rs.150/ Cum 120	1.0 m 1209 / Rmt 1209	2 Nos. @ Rs.353 / No. 706	1.0 m @ Rs. 64 / Rmt 64	0.695 @ Rate Rs.84 / Cum 58.38	2157.38
150 mm	1.0 x 0.85 x 1.0 = 0.85 Cum @ Rate Rs.150/ Cum 127.5	1.0 m @ Rate Rs.1686/ Rmt 1686	2 Nos. @ Rs592 / No. 1184	1.0 m @ Rs. 86 / Rmt 86	0.695 @ Rate Rs.84 / Cum 58.38	3141.88
200 mm	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m 2236/ Rmt 2236	2 Nos. @ Rs.893 / No. 1786	1.0 m @ Rs.113 / Rmt 113	0.695 @ Rate Rs.84 / Cum 58.38	4328.38
250 mm	1.0 x 1 x 1.0 = 1 Cum @ Rate Rs.150/ Cum 150	1.0 m @ Rate Rs.2906 / Rmt 2916	2 Nos. @ Rs. 1119 / No. 2238	1.0 m @ Rs.149 / Rmt 149	0.695 @ Rate Rs.84 / Cum 58.38	5511.38
300 mm	1.0 x 1 x 1.0 = 1 Cum @ Rate Rs.150/ Cum 150	1.0 m @ Rate Rs. 3571 / Rmt 3571	2 Nos. @ Rs. 1535 / No. 3070	1.0 m @ Rs. 161 / Rmt 161	0.695 @ Rate Rs.84 / Cum 58.38	7010.38

RATE ANALYSIS FOR HDPE PIPE LEAKAGES

Dia. of Pipe	Excavation	HDPE Pipe	COUPLER	Lowering & Laying	Refilling	Total Rate
110	1.0 x 0.8 x 1.0 = 0.8 Cum @ Rate Rs.150/ Cum 120	1.0 m @ Rate Rs.354 / Rmt 354	2 Nos. @ Rs.577 / No. 1154	1.0 m @ Rs.70 / Rmt 70	0.695 @ Rate Rs.84 / Cum 58.38	1756.38
140	1.0 x 0.85 x 1.0 = 0.85 Cum @ Rate Rs.150/ Cum 127.5	1.0 m @ Rate Rs.610/ Rmt 610	2 Nos. @ Rs.1257 No. 2514	1.0 m @ Rs. 107 / Rmt 107	0.695 @ Rate Rs.84 / Cum 58.38	3416.88
160	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m @ Rate Rs.790/ Rmt 790	2 Nos. @ Rs.1366 / No. 2732	1.0 m @ Rs.116 / Rmt 116	0.695 @ Rate Rs.84 / Cum 58.38	3831.38
180	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m @ Rate Rs.994/ Rmt 994	2 Nos. @ Rs.1960 / No. 3920	1.0 m @ Rs.116 / Rmt 116	0.695 @ Rate Rs.84 / Cum 58.38	5223.38
200	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m @ Rate Rs.1166/ Rmt 1166	2 Nos. @ Rs.2202 / No. 4404	1.0 m @ Rs.129 / Rmt 129	0.695 @ Rate Rs.84 / Cum 58.38	5892.38
250	1.0 x 0.9 x 1.0 = 0.9 Cum @ Rate Rs.150/ Cum 135	1.0 m @ Rate Rs.1847/ Rmt 1847	2 Nos. @ Rs.4325 / No. 8650	1.0 m @ Rs.169 / Rmt 169	0.695 @ Rate Rs.84 / Cum 58.38	10859.38

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Distribution System

RATE ANALYSIS FOR REINSTATING HOUSE CONNECTION

Sr.No	Description	Quantity	Rate	Unit	Amount
1	Item No. 1 :- Providing PVC/HDPE pipe & required specials like Tee,EL-bow,Clips etc for Reinsisting House Connection etc.complete.				
	A) For 15 mm dia.House Connection.				
	As Per Market & CSR Rate				
	I) PVC Pipe (PWD SSR.22-23 P.No.265. It.No.42.21)	4.00	83.00	Rmt	332.00
	II) PVC Specials (Market Rate)	2.00	15.00	No	30.00
	III) Labour Charges	LS			50.00
	Rate As per Latur DPR	Total Amount =			412.00
	B) For 20 mm dia.House Connection.				
	As Per Market & CSR Rate				
	I) PVC Pipe (PWD SSR.22-23 P.No.265. It.No.42.22)	4.00	126.00	Rmt	504.00
	II) PVC Specials (Market Rate)	2.00	20.00	No	40.00
	III) Labour Charges	LS			60.00
	Rate As per Latur DPR	Total Amount =			604.00
2	Item No. 2 :- Providing G.I. pipe & required specials like Tee,EL-bow,Clips etc for Reinsisting House Connection etc.complete.				
	A) For 15 mm dia.House Connection.				
	As Per Market&CSR Rate				
	I) G.I. Pipe PWD SSR 22-23 P.No.404 It.No.3	3.00	175.00	Rmt	525.00
	II) G.I. Coupling pwd 22-23 P.No.404 It.No.	2.00	29.00	No	58.00
	III) G.I. Union PWD CSR22-23 P.No.404 It.No.	1.00	93.00	No	93.00
	iv) Lowering & laying of Gipipes	3.00	24.00		72.00
		Total Amount =			748.00
	B) For 20 mm dia.House Connection.				
	As Per Market&CSR Rate				
	I) G.I. Pipe PWD. SSR 20-21 P.No.404 It.No.5.	3.00	202.00	Rmt	606.00
	II) G.I. Coupling pwd SSR 20-21 P.No.404 It.No.3	2.00	29.00	No	58.00
	III) G.I. Union PWD SSR 20-21 P.No.404 It.No.3	1.00	117.00	No	117.00
	iv) Lowering & laying of Gipipes	3.00	27.00		81.00
		Total Amount =			862.00

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Rate Analysis for B.T. Road Re-instating

Sr.No	Description	Quantity	Rate	Unit	Amount
	Item No.1 :-				
1	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting with Intelligent Compactor with compaction analyzer and V-Sat attachment to the required density. By Mechanical Means -Grading I (Using Screening Type B (11.2 mm) Aggregate)				
	(PWD DSR 2022-23 Item.No.3.19. Page.No.33)				
	1.0 x 1.0 x 0.20 = 0.20 Cum	0.20	2192.00	Cum	438.00
2	Providing and constructing 75 mm. thick Modified Penetration dam (MPM) road surface including all materials preparing the existing road surface, spreading 40 mm. stone metal layers 30% crusher broken metal + 70% Hand broken (by breaking rubble obtained by blasting) heating and spraying the bitumen of VG-30 grade @ 2 Kg/sqm, spreading 12 mm. size chips compacting with three wheel static roller having weight 8 to 10 MT. to achieve the desired degree of compaction as per Technical Specification Clause 506 etc. complete. Including picking of existing WBM surface.				
	(PWD DSR 2022-23 Item.No.3.35 a. Page.No.35)				
	1.0 x 1.0 = 1.0 Sqm	1.000	280.00	Sqm	280.00
3	Providing and laying of Type - B premix seal coat with HMP of appropriate crushed stone chipping 6.70 mm size and penetration bitumen of VG-30 grade @ 0.68 Kg / Sqm. , preparing existing road surface including mixing in suitable Batch Mix plant and rolling by static roller having weight 8 to 10 MT. etc. complete.				
	(PWD DSR 2022-23 Item.No.4.03. Page.No.41)				
	1.0 x 1.0 = 1.00 Sqm	1.00	67.00	Sqm	67.00
			Total Amount =		785.00
					Per Sqm

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

Abstract

Sr. No.	Name Of Work		Amount
1	RAW WATER PUMPING M/C AT DHANEGAON HEAD WORK V.T. PUMPSET - 5 NOS (3 NOS WORKING + 2 NOS STAND BY) HP - 495 HEAD - 85MTRS DISCHARGE - 1067400 LPH	Rs.	63557380.00
2	PURE WATER PUMPING M/C ON SUMPWELL AT HARANGUL WTP PREMISES V.T. PUMPSET - 5 NOS (3 NOS WORKING + 2 NOS STAND BY) HP - 495 HEAD - 65 MTRS DISCHARGE - 1400220 LPH	Rs.	55288988.00
3	RAW Water Pumping Machinery On Re- circulation well 2 Nos (1 No working + 1 No stand by HP-30 Head- 16 Mtr Disch- 148400 LPH	Rs.	1677021.00
4	SOLAR POWER PLANT AT HEAD WOK AND WTP SITE.	Rs.	86177320.00
	TOTAL RS	Rs.	206700709.00
5	M.S.E.D.C.L. Provision	Rs.	13500000.00
	TOTAL RS		220200709.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Designing, providing, erecting, testing and commissioning of Raw water Pumping Machinery with allied Electrical and Mechanical equipments for Headworks at Dhanegaon

ESTIMATE

QTY		DESCRIPTION OF ITEM	Ref of CSR 2022-23	RATE IN RS.	AMOUNT
5	Nos	<u>Item No. :- 1</u> VERTICAL TURBINE PUMPS Providing,erecting commissioning & giving satisfactory test and trial of Water lubricated Vertical Turbine Pumps having Stainless Steel impeller/CF8M, Stainless Steel Shaft, Discharge head & bowl assembly suitable to discharge 296.50 LPS against total head of 81 mtr.from all sources including all allied accesories including third party inspection 21mtr Column assembly (As Per Rater Analysis Atatched herewith)	As Per rate analysis	5465268.00	27326340.00
5	Nos	<u>Item No.:- 2</u> VERTICAL SOLID SHAFT MOTOR Providing erecting Vertical Solid shaft motors TEFC 3300 Volts 3 ph 50 Hz with Hp not less than 330 KW (442HP) With TPI Charges. (As Per Rater Analysis Atatched herewith)	As Per rate analysis	1024177.00	5120885.00
5	Nos	<u>Item No.:-3 (a) Ductile iron / spheroidal graphite (S.G.) Glandless Sluice valve 450mm with actuator</u> Providing and supplying erecting at site of ductile iron / spheroidal graphite (S.G.) iron D/F non-rising spindle resil-ient 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 steel 1.4021/1.4104, 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 transportation charges excluding GST levied by GOI & GOM in all respect etc. complete. (For PN 10 & 16)	AS PER RATE ANALYSIS	472109.00	2360545.00
1	No	<u>Item No.:-3 (b)</u> CAST STEEL BUTTER FLY VALVE 750 MM DIA CLASS-150 With Actuator A) Providing erecting commissioning & giving satisfactory test and trial of cost steel butter fly valve of 750 mm size and Cast Steel 150 rating as per standerd specification with electric valve Actuator. and TPI charges.	AS PER RATE ANALYSIS	375667.00	375667.00

5	Nos	Item No.4(a) :- CI D/F reflux valves PN 1.6 450mm with by pass arrangement A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) with by pass arrangment with TPI charges.	AS PER RATE ANALYSIS	146663.00	733315.00
1	No	Item No.4 (b):- CI D/F reflux valves PN 1.6 750mm with by pass arrangement A) Providing and supplying erecting ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) with by pass arrangment with TPI charges.	AS PER RATE ANALYSIS	472102.60	472103.00
1	No	Item No.:-5 KINETIC AIR VALVE PN 1.6 Providing and supplying erecting Kinetic Double Orifice type Air Valves confirming to IS 14845 as per MJP's standard specifications having small orifice elastic ball resting on a gun metal orifice nipple, large orifice vulcanite ball seating on moulded seat ring, with built-in Kinetic features, isolating sluice valve mounted in horizontal position and operated by wheel gearing, inlet face and drilled, including insurance, third party inspection charges, loading, unloading, transportation upto departmental stores, excluding GST levied by GOI & GOM in all respect etc. complete.	Civil CSR 2022-23 Item No. 9-b-iii	35711.00	35711.00
5	Nos	Item No.:- 6 DISMANTLING JOINT a) Providing erecting, Commissioning & giving satisfactory test and trial of M.S.Dismantling Joint of 450 mm size as per detailed specification.	Mech CSR for 2022-23 It.No. 6-8	44784.00	223920.00
1	No	b) Providing erecting commissioning & giving satisfactory test and trial of M.S.Dimantling Joint of 750 mm size as per detailed specification.	Mech CSR for 2022-23 PW 6-11	101964.00	101964.00
17500	kg	Item No :-7 M.S.PIPES & SPECIALS Providing lowering, laying jointing and testing M.S.Pipes & Specials with flanges as per standard specifications and approved size & layout of pumping machinery	Civil (MJP CSR 2022-23 I.No.7 ©	95.00	1662500.00
25.00	Cum	Item No.8:- Excavation 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. Lift 0 to 1.5 m	Civil CSR 22-23 I.No.PW 10-1	150.00	3750.00
6	Nos	Item No.9 :- PRESSURE GAUGES Providing erecting and testing Glyserine filled pressure gauge Bourdon's type of 150 mm dia as per IS 3624: 1987 with brass cock, syphon tube etc. as per standard. Specification.	Mec CSR for 2022-23 Item No.PW 11-4	2005.00	12030.00

50	cum	Item.No.:-10 CONCRETE FOUNDATION FOR PUMP i) Providing and laying in situ Cement Concrete of trap/ granite / quartzite / gneiss metal for RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, bally, steel propups compaction, finishing 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)	MJP Civil CSR 22-23 Item No.2.b	7318.00	365900.00
5	MT	ii) Providing and fixing in position Tor 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).	MJP Civil CSR 22-23 Item No.8.b	66218.00	331090.00
1	Job	Item No.:- 12 E.O.T. CRANE 10 TON CAP. & 10 MTR SPAN Providing erecting, Commissioning Single Girder Electrcally Operated Rectanguler Travelling Crane with 10 m.lift complete with wire rope hoist class II duty all three motions electrcally Operated by suitable rating motor IP 54 control panel and down pendant control block. 10.0 Tonne Capacity with TPI with DSL System	As Per attached rate analysis-3	1420036.00	1420036.00
60	Mtr	Item No.13 SQUARE BAR/RAIL Providing erecting and fixing square bar of EN 8 as rail for over head crane on provided track girder/contineous corbel beam, including supporting plate and "J"bolts. 50x 50mm (EN 8)	Mech CSR for 2022-23 LF 5- 1	2231.00	133860.00
1	Job	Item No.14 :- HT Sub Station Designing Providing, installing commissioning & testing 33 KV HT Substation with AB Switch DO fuse Pole structure etc.	As Per attached rate analysis-4	2403044.00	2403044.00
1	No	Item No.15 :- 3.3 KV VCB Panel (INDOOR) In Substation. Designing Providing installing commissioning & testing of indoor type 3.3 KV 630 Amp Vacuum Circuit Breaker with CTPT Relays etc with TPI	As Per attached rate analysis-5	1615246.00	1615246.00
1	Job	Item No.16:- RELAY METERING AND SCANNER PANEL FOR SUBSTATION. Designing Providing, installing commissioning & testing of Relay Metering & Scanner Panel for 33 KV System etc with TPI	As Per attached rate analysis-6	361826.00	361826.00
		Item No.:-17 Battary Panel for Switch Yard. Designing Providing, installing commissioning & testing of Battary Panel etc			

		i) Exid 2 V 100 LH VRLA XE 11 - 55 Nos			
1	No	ii) AMAR raja charger 110 v 20/25 AFCBC - 1 No	As Per attached rate analysis	413185.00	413185.00
2	Nos	Item No.18:- Power Transformer of 1600 KVA (outdoor) Designing Providing erecting commissioning testing 33 KV/3.3KV 1600 KVA power transformer (outdoor) with OLTC,RTCC AVR , NGR Relay panel as per detailed specification with TPI	Mech. CSR 22-23 I.No. TR 9-4	2389221.12	4778442.00
2	Nos.	Item No. 19:- Designing, Providing, erecting, commissioning 33 KV/433V ,100 KVA auxiliary Transformer with off load tap changer necessary fittings as Per detailed specification with TPI	Mech CSR for 2022-23 Item No.TR 3-3	446666.00	893332.00
1	Job	Item No.:-20 3.3.KV VCB PANEL FOR PUMP. Designing Providing, installing commissioning & testing of indoor type VCB Panel with 3 Nos. of 3.3.KV 630 Amp Vacuum Circuit Breaker, 6 Nos. of 630 Amp. Vaccum contactor, Capacitor Bank with all switch gear and measuring and protection unit etc complete with TPI	As Per attached rate analysis	4110804.00	4110804.00
1	Job	Item No.21 :- Scanner Panel for Motor. Designing, Providing, Installing Commissioning & Testing of Scanner Panel having 8 windows in Pump House for measuring Oil Temperature winding Temperature of Motors. Rs. 10000 x 6Window = 60000 + 10000 panel box with TPI	Current Market Rate	100000.00	100000.00
1	No.	Item No.22 L.T.Panel Providing erecting, Commissioning & giving satisfactory test and trial of L.T.Panel comprising of specified Breakers, Bus bar,switches, indicating instruments etc as per specification with TPI	As Per attached rate analysis-9	192449.00	192449.00
		Item No.23 :- CABLE Providing,lowering,laying, jointing,Commissioning &Giving test and trial of XLPE insulated, armoured cable,ISI Marked with stranded or solid conductor as per detailed specification.	PWD and Mech CSR 22-23		
200	m	a) 33 KV,3 Core 185 Sqmm.E Grade For MSEB to VCB to Substation	CSR 22-23 7	3115.00	623000.00
150	m	a) 6.6 KV,3 Core 70 Sqmm. For CAPACITOR	CB 10-3	930.00	139500.00
600	m	b) 6.6KV,3 Core 400 Sqmm 1 run Incoming Main from Transformer Switch Yard Breaker to Incomer in PumpHouse .	CB 10-10	2880.00	1728000.00
250	m	c) 6.6 KV.3 Core 95 Sqmm. For MOTOR	CB 10-4	1093.00	273250.00
500	m	d) 11.KV 3.5 Core 185 Sq mm. LT CABLE	PWD CSR 22-23 7-1-22	1093.00	546500.00
400	m	e) 1.1 KV 3.5 Core 25 Sqmm For LIGHTING & CRANE	7-1-15	242.00	96800.00
400	m	f) 1.1KV 3 Core 10 Sq mm For LIGHTING	7-1-10	162.00	64800.00
		g) Supplying and erecting Un-armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. Page no. 70 and 71			
150	mtr	2 core 1.5 sq mm	CB 8-1-1	70.00	10500.00
150	mtr	3 core 1.5 sq mm	CB 8-1-2	89.00	13350.00
150	mtr	4 core 1.5 sq mm	CB 8-1-3	106.00	15900.00
150	mtr	5 core 1.5 sq mm	CB 8-1-4	129.00	19350.00
150	mtr	6 core 1.5 sq mm	CB 8-1-5	153.00	22950.00
150	mtr	7 core 1.5 sq mm	CB 8-1-6	167.00	25050.00
150	mtr	8 core 1.5 sq mm	CB 8-1-7	187.00	28050.00
150	mtr	9 core 1.5 sq mm	CB 8-1-8	210.00	31500.00

150	mtr	10 core 1.5 sq mm	CB 8-1-9	228.00	34200.00
		2.5 sq mm Copper conductor PVC Un-armoured control cable	Mech CSR 22-23		
150	mtr	2 core 2.5 sq mm	CB 8-2-1	94.00	14100.00
150	mtr	3 core 2.5 sq mm	CB 8-2-2	126.00	18900.00
150	mtr	4 core 2.5 sq mm	CB 8-2-3	155.00	23250.00
150	mtr	5 core 2.5 sq mm	CB 8-2-4	184.00	27600.00
150	mtr	6 core 2.5 sq mm	CB 8-2-5	218.00	32700.00
150	mtr	7 core 2.5 sq mm	CB 8-2-6	251.00	37650.00
150	mtr	8 core 2.5 sq mm	CB 8-2-7	277.00	41550.00
150	mtr	9 core 2.5 sq mm	CB 8-2-8	311.00	46650.00
150	mtr	10 core 2.5 sq mm	CB 8-2-9	351.00	52650.00
		h) Providing and fixing G.I. Perforated cable trays of size as below including fixing on provided angles.			
200	mtr	150mm X 100mm	PWD CSR 22-23 7-11-12	767.00	153400.00
300	mtr	200mm X100mm	PWD CSR 22-23 7-11-14	799.00	239700.00
		I) Providing and laying RCC (M-150) cable duct of size given below for laying electric cable including form work for centering M.S. bar reinforcement, necessary excavation bolder filling, PCC (M100), compacting, curing , plastering, including providing and fixing 35 X 35 X 5 mm M.S. angles, RCC pre cast cover of Adequate length with 100 mm over lap on either walls etc complete and providing RCC pre cast covers	Mech. CSR 22-23		
150	mtr	Cable duct 2 tier-750W X 750 D	CB 15-1	1444.00	216600.00
150	mtr	Cable duct 3 tier-750W X 1000 D	CB 15-2	1696.00	254400.00
		<u>Item.No.24:-</u> CABLE TERMINATION KITS Providing fixing cable termination Kits as per detailed specification.	PWD & Mech CSR for 2022-23		
4	Nos	a) 33 KV,3 Core 185 Sqmm (outdoor)	7-5-28	29245.00	116980.00
6	Nos	a) 33KV,3 Core 185 Sqmm (Indoor)	7-5-24	21137.00	126822.00
10	Nos	b) 6.6KV,3 Core 400 Sqmm (Indoor)	CB 11-4	8768.00	87680.00
12	Nos	c) 6.6 KV.3 Core 150 Sqmm (Indoor)	CB 11-3	7553.00	90636.00
20	Nos	d) 6.6 KV.3 Core 70 Sqmm (Indoor)	CB 11-2	7553.00	151060.00
		<u>Item No.25:- EARTHING</u>			
		Providing earthing with Galvanised cast iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification No. EA-EP			
45	Nos	a) In 33 KV Sub-Station in switch yard. b) For Pump House - 30 Nos	PWD (Ele.) CSR 22-23 It.No. 9-1-1	4714.00	212130.00
		<u>Item No.28 :-</u> G.EARTHING STRIPS			

3000	Kg	Supplying and erecting G.I. strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joint required. as per specification No (EA-EP).	As Per PWD Ele.CSR 22-23 I.No.9-2-3	222.00	666000.00
5	MT	Item No.29:- IRON WORK Providing,fabricating iron work of ISMB,ANGLES,M.S.FLATS,CHEQUARED PLATE,for panel stand,square bar for crane, cable tray,supports of ventilation ducting and items related to crane with all other similar work, including cutting,bending, welding and painting as per specification.	MJP Civil CSR 22-23 I. No.4	70017.00	350085.00
1	No	Item No30 - Providing and constructing B.B.Masonry Valve Chamber with15 cm thick 1:2:4 proportion PCC bedding, excluding xcavation B.B.masonry in C.M. 1:5 Proportion precast RCC frame and cover etc.complete as directed by Engineer in harge as per detailed specifications. As above of 1.5.x 1.5M internal size and depth up to 1.5.M	Civil CSR 22-23 I.No.14	24758.00	24758.00
1	No	Item No.31 - Ultrasonic insertionfixed type Flow meter (Single Channel) Providing, installing and giving satisfactory test and trial of Ultrasonic insertion fixed type Flow Meter as per detailed specifications with TPI Charges.	MJP CSR 22-23 P.No. 39 I.No. WM 2 C (3)	275895.00	275895.00
1	Job	Item No.32 :- TOOLS & FIRS FIGHTING EQUIPMENTS Providing Tools,furniture & Fireflghting equipments as per specification	As per attached rate analysis -11	377671.00	377671.00
1	Job	Item No.33:- ELECTRIFICATION OF PUMPHOUSE Providing Electrification internal & external electrification as per detailed specification.	As Per attached rate analysis-12	483669.00	483669.00
3	months	Item No.:-34 TEST AND TRIAL Giving satisfactory test and trial of all installed and provided equipments to full load situation, after completing the commissioning test as per specification.	As Per attached rate analysis	71400.00	214200.00
			Total	Rs.	63557380.00

LATUR CITY MUNICIPAL CORPORATION AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR VERTICAL TURBINE PUMP AT HEAD WORK

i) Capacity of pump = 442 HP

iii) Head of pump = 81 Mtr.

ii) Discharge of each pump = 1067400 LPH

iv) Total suspension length = 21 Mtr.

Analysis for Item No. 1 :

Sr. No.	Details of pump	Flowmore Limited
1	Basic supply rate	5725000.00
2	Add 5 % for packing, forwarding, transit insurance, loading, unloading, Transfortation, insurance upto completion of work etc. on basic rate	286250.00
3	Total Rs.	6011250.00
4	Add for TPI	18320.00
5	Total Rs.	6029570.00
6	Add for errection (As per MJP Mech.CSR 2022-23 I.No.PM 8-5 Page No. 4)	33660.00
7	Add for column length more than 6 m - Rs. 929 x 11 Joint (As per MJP Mech.CSR 2022-23 Note 10 Page No. 7)	9290.00
8	Total Rs.	6072520.00

For Single offer

5465268

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR HT MOTORS

Sr.No.	Itme	C.S.R.Ref	Qty	Rate
1)	Item No.1:- Supply rate of 3300 V 442 HP Vertical flanged mounted motor TEFC- 1500 RPM	CSR 2022-23 MO 8-5	1	1000675.00
i)	Add for TPI			6000.00
ii)	Add for erection charges.			17502.00
		Total Rs.		1024177.00

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

3a. RATE ANALYSIS FOR Sluice VALVE 450mm

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (a) Ductile iron / spheroidal graphite (S.G.) Glandless Sluice valve 450mm	Civil CSR 22-23 I.No. 24	1	342354.00	342354.00
	Erection rates of valves	I.No.4,VII	1	8879.00	8879.00
2	Providing valve Actuator for 450 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-11	1	114876.00	114876.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	472109.00
				Say Rs.	472109.00

3 b. RATE ANALYSIS FOR Butterfly valve 750mm

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (b) CAST STEEL D.F. BUTTERFLY VALVE WITH ACTUATOR 750 MM DIA CLASS-150 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Butterfly valve (Glandless) of 750 mm size and Cast Steel 150 rating as per standerd specification with at actuator.	MJP Civil CSRIt 11 b + 10% extra	1	199497.10	199497.10
2	Erection of above valve	civil csr 22-23 I.No. XV	1	11587.00	11587.00
3	Providing valve Actuator for 750 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-15	1	148608.00	148608.00
4	Add. Transportation, Packing, Forwarding @5%				9974.86
5	Add for TPI	-	-		3000.00
	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	375666.96
				Say Rs.	375667.00

4 a. RATE ANALYSIS FOR Reflux VALVE 450mm					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4(a) CI D/F reflux valves PN 1.6 450mm A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) bypass arrangement	MJP Civil CSR it 1 d	1	131784.00	131784.00
2	Add. Transportation, Packing, Forwarding @5%				
3	Erection of above valve	civil csr 22-23 I.No. Xiii	1	8879.00	8879.00
4	Add for TPI	-	-		3000.00
5	Add for Manufacturesrs Inspecting Agencies charges.	-	-		3000.00
				Total Rs.	146663.00

4b. RATE ANALYSIS FOR REFLUX VALVE 750mm					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4 (b) CI D/F reflux valves PN 1.6 750mm A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) bypass arrangement	MJP Civil CSR it 1 d	1	432872.00	432872.00
2	Add. Transportation, Packing, Forwarding @5%				21643.60
3	Erection of above valve	civil csr 22-23 it. 4 xi pg. 123	1	11587.00	11587.00
4	Add for TPI	-	-		3000.00
5	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	472102.60

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Rate Analysis for 33 kv Substation

Quantity	Particular	Rate	Unit	Amount
	Item No. 1			
88	Supplying and erecting rolled steel joist (girder) pole 200 x 100 mm. (25.9 kg/m) with provided base plate in provided foundation as per specification no. OH-PL/RSJ	1935	m	170280.00
	PWD Elect. CSR 22-23, Item No. 8-1-14, Page No. 147			
	Item No. 2			
8	Making cement concrete foundation including excavation (60 x 60) cm x deep 1/6 of pole length in 1:3:6 cement concrete 20 x 25 mm stone metal, 45 cm x 45 cm x 45 cm /45 cm dia. x 45 cm. height plinth duly plastered, with necessary curing and finishing complete	2286	Each	18288.00
	PWD Elect. CSR 22-23 Item No. 16-3-4, Page No. 239			
	Item No. 3			
18	Supplying & erecting 100 x 50x6 mm with 4.7 mm thick web and 7.5 mm thick flange channel iron cross arm of suitable length for 2.4m wide DP structure and erecting on DP with 50x6 mm clamp as per approved method of construction and complete as per specification no. OH-PL/BKT	2006	Each	36108.00
	PWD Elect. CSR 22-23 Item No. 8-3-11, Page No. 152			
	Item No. 4			
3	Providing and erecting Vacuum Circuit Breaker out door type excluding cost of CT, PT and control relay panel.	235871	Each	707613.00
	33 kV system 630 Amp 25 kA			
	MJP Mech CSR 22-23, Item No. HG 1-3, Page No.20			
	Item No. 5			
	Supplying, erecting approved make thyrite type Lightning Arrestor suitable for H.T. supply with necessary ancillary material complete on provided cross arm and connected to overhead line.			
9	Suitable for 33 kV Supply, Station class	1455	Set	13095.00
	PWD CSR 22-23, Item No. SS 8-5-16, Page No. 157			
	Item No. 6			
9	Supplying and erecting porcelain disc type insulator with necessary hardware suitable for 33 kV line complete as per specification no. OH-INS/DI	2003	Nos	18027.00
	PWD Elect. CSR 22-23 Item No. 8-5-8, Page No. 157			

	Item No. 7			
18	Supplying and erecting porcelain pin type insulator with G.I. pin suitable for 33kV line, complete as per specification no. OHINS/ PN	868	Nos	15624.00
	PWD Elect. CSR 22-23 Item No. 8-5-11, Page No. 157			
	Item No. 8			
3	Supplying, erecting approved make H.T. out door type gang operated air break, triple pole switch with earth switch of required capacity with 3 post / pin type insulator per phase, mounted in horizontal or vertical position on provided cross arm with adequate length of G.I. pipe for operating handle erected on extended square shaft. The operating handle provided with lock and key at suitable height from ground with necessary clamps.	41074	Set	123222.00
	Suitable for 33 kV line			
	Rotating Type			
	PWD CSR 22-23, Item No. SS 10-6-4, Page No. 180			
	Item No. 9			
3	Supplying and erecting approved make, 33 kV outdoor type drop out fuse with insulator complete with fuse holders, fuse barrel with metal fitting, fuse element mounted on M.S. channel with working current of 15A capacity complete erected on provided cross arm	18906	Set	56718.00
	PWD Elect. CSR 22-23 Item No. 10-6-7, Page No. 181			
	Item No. 10			
16	Supplying and erecting hard drawn copper solid wire no. 0 to 6 SWG complete erected for connections on H.T. sides.	1150	kg	18400.00
	PWD Elect. CSR 22-23 Item No. 10-6-10 Page No. 181			
	Item No. 11			
40	Supplying and erecting extra thick alkathene pipe 10 mm dia. erected to enclose bare conductor wires complete..	63	m	2520.00
	PWD Elect. CSR 22-23 Item No. 10-6-11 Page No. 181			
	Item No. 12			
8	Supplying and erecting ant climbing devices, fabricated from pole clamps of MS flat 40x5 mm, with drooping spikes 15 cm. in length, welded to it and erected on pole complete.	212	Nos	1696.00
	PWD Elect. CSR 22-23 Item No. 10-6-17 Page No. 181			
	Item No. 13			
9	Providing, erecting and commissioning out door type single phase oil filled current transformer for metering and protection purpose of suitable C.T. ratio and V.A. burden duly erected on provided cross channel.	18118	Nos	163062.00
	Double Core, Suitable for 33 KV			
	MJP Mech CSR 22-23 Item No. HG 4-2, Page No. 20.			

	Item No. 14			
3	Providing, erecting and commissioning out door type single phase oil filled Potential transformer for metering purpose of suitable V.A. burden duly erected on provided cross channel.	17876	Nos	53628.00
	Single Core, Suitable for 33 KV			
	MJP Mech CSR 22-23 Item No. HG 5-3, Page No. 20			
	Item No. 15			
450	Supplying and spreading stone metal 25 mm size for 100 mm depth above the ground level complete.	107	Sq. m.	48150.00
	PWD Elect. CSR 22-23 Item No. 16-2-3, Page No. 238			
	Item No. 16			
0.12	Supplying and erecting ACSR conductor of size - 6/1-4.72 mm (Dog) complete. (394 kg/km) as per specification no. OHCON/ACSR	99505	Km	11941.00
	PWD Elect. CSR 22-23 Item No. 8-4-11, Page No. 155			
	Item No. 17			
10	Providing and laying in situ cement concrete of trap / granite / quartzite/ gneiss metal for RCC work in foundation	7318	cum	73180.00
	i) In RCC M-200			
	Civil csr 22-23 P.No. 49 I.No. 2 (b)			
	Item No. 18			
3	Providing and erecting insulator outdoor type suitable for 33 kv supply etc	41074	set	123222.00
	PWD Elect. CSR 22-23 Item No. 10-6-4, Page No. 180			
	Item No. 19			
2	Providing erecting structural steel work i.e. RSJ, chaneels, angles, brackets plates, anchor bolt etc	70017	M.T.	140034.00
	Civil CSR 22-23 Item No. 4, Page No. 47			
	Item No. 20			
70	supplying and erecting fencing of section having size 2450 mm in height from gravel level and 1200 mm width with angle iron frame etc (30 m x 15 mtr)	7200	Nos	504000.00
	PWD CSR 22-23 Item No. 10-6-18, Page No. 181			
	Item No. 21			
2	supplying and erecting double leaf hinged door each 1500 mm in width x 1850 mm in height using B class G.I. pipe with angle iron support etc.	20614	Nos	41228.00
	PWD CSR 22-23 Item No. 10-6-20, Page No. 181			
	Item No. 22			
8	Supplying and erecting 50 x 50 x 6 mm angle iron as corner support etc.	1426	Nos	11408.00
	PWD CSR 22-23 Item No. 10-6-19, Page No. 181			

	Item No. 23			
150	Making trench in hard murum / tar road having 0.9 mtr depth and minimum 0.3 mtr width for laying provided cable etc.	288	mtr	43200.00
	PWD CSR 22-23 Item No. 16-1-4, Page No. 238			
	Item No. 24			
2	Sand bucket with Stand	1500	Nos	3000.00
	Market rate			
1	DO operating rod	5400	Nos	5400.00
	Supplying heavy duty operating rod, outer dia 25 mm & inner dia 20 mm suitable for 22/33 kV with brass couplings etc. for removing drop out fuses at 6 m length, 4 pieces each with rain shade with hand grip including earthling chain 1.5m complete.			
		Total Rs.		2403044.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

5. RATE ANALYSIS FOR 3.3 KV BRAKER PANEL IN SWITCH YARD FOR 1600 kVA TRANSFORMER

Sr,No.	Item	C.S.R. Ref 2022-23	Qty	UNIT	Rate	Amount
1	Supply Rate of 3.3 KV,630 Amp.25 KA, VCB Panel (Indoor Type) including CT's of required ratio for metering and protection including 3 O/C and E/F relay and high speed trip relay.	Mech. CSR 22-23 I.No. HG 3-1	3	Nos	416976.00	1250928.00
2	M.S. Sheet work for 3.3 KV VCB Panel (3 X 2X 1.8 M)	PWD CSR 22-23 I.No. 6-1-6	20	sqmtr	2688.00	53760.00
3	Iron works for support	PWD CSR 22-23 I.No. 6-1-19	100	KG	195.00	19500.00
4	Digital type Voltmeter	PWD CSR 22-23 I.No. 6-3-8	2	Nos	1756.00	3512.00
5	Digital type Ammeter with CTS	PWD CSR 22-23 I.No. 6-3-7	2	Nos	5370.00	10740.00
6	Selecter switch for volt meter & ammeter	PWD CSR 22-23 I.No. 6-5-1	4	Nos	351.00	1404.00
7	Pilot Lamp LED Type	PWD CSR 22-23 I.No. 6-5-6	9	Nos	372.00	3348.00
8	Aluminium bus bar for interconnection of VCB (100 X 10 mm)	PWD CSR 22-23 I.No. 6-2-11	50	KG	726.00	36300.00
9	Caution board	PWD CSR 22-23 I.No. 6-1-15	2	Nos	142.00	284.00
10	Cascal lock	Market Rate	6	Nos	3500.00	21000.00
11	Illuminitated window lamp indicator for breaker on / off	Market Rate	3	Set	3000.00	9000.00
12	Load break switch 3.3 KV for capacitor	PWD CSR 22-23 I.No. 10-2-1	2	Nos.	10335.00	20670.00
13	3.3 KV HRC Fuses 250 Amp	Market Rate	12	Nos	6800.00	81600.00
14	3.3 KVAR Capacitor	PWD CSR 22-23 I.No. CP3 P.No. 58	150	KVAR	648.00	97200.00
	Add for TPI					3000.00
	Add for Manufacturers Inspecting Agencies charges					3000.00
					Total Rs.	1615246.00
					Say Rs.	1615246.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

6. RATE ANALYSIS FOR RELAY METERING & SCANNER PANEL IN SWITCH YARD

Sr.No.	Item	C.S.R. Ref For 2022-23	Qty	Rate	Amount
1)	M.S.sheet 16 SWG (Panel size 1.8 x 0.5x2.5)	PWD 6-1-1	25.00	2688.00	67200.00
2)	Iron Work for panel board	PWD 6-1-19	100. kg	195.00	19500.00
3)	Voltmeter 96 x 96 mm	PWD 6-3-6	3 Nos.	1756.00	5268.00
4)	Selector Switch	PWD 6-5-1	3 Nos.	351.00	1053.00
5)	Volage operated Auxilliary Relay MVAA 31	HG 6-5-2/66	12 Nos.	5711.00	68532.00
6)	CDG 11 Relay	HG 6-3-4	4 Nos.	27129	108516.00
7)	High Speed Tripping Relay	HG 6-3-4	4 Nos.	4064.00	16256.00
8)	Automatic Semaphore Indicator	HG 6-8/68	1 No.	3572.00	3572.00
9)	Scanner	Market rate	1Nos	12000.00	12000.00
10)	Panel Hooter	13/09/08	1 No.	629.00	629.00
11)	Push Button for fault accept, fault reset trip circuit healthy,(alarm & trip)	Market rate	16 Nos	300.00	4800.00
12)	IIluminated window lamp indicator for breaker on, breaker off, springe charge, relay energised relay deenergised trip circuit healthy, trip circuit faulty -10 widow	Market rate	4 Set	2000.00	8000.00
13)	Trip Neutral Closed Switch	Market rate	4 Nos	3000.00	12000.00
14)	Cascal Lock	Market rate	6 Set	3500.00	21000.00
15)	Panel Wiring	LS	1 Job	7500.00	7500.00
				Total Rs.	355826.00
	Add for TPI				3000.00
	Add for Manufacturers Inspecting Agencies charges				3000.00
				Total Rs.	361826.00
				Say Rs.	361826.00

LATUR CITY MUNICIPAL CORPORATION**AUGMANTATION OF LATUR WATER SUPPLY SCHEME**

Rate Analysis of Battery Panel					
Sr.No.	Item	Qty	Unit	Rate	Amount
1	Exide 2 V 100 LH				
	VRLA CE 11	55.00	Nos	3675.00	202125.00
	Model - UPST 100				
2	Amar Raja Charger				
	110 V 20 / 25 Amp FCBC	1.00	No	223400.00	201060.00
3	Installation Charges	1.00	Job	10000.00	10000.00
				Total	413185.00

LATUR CITY MUNICIPAL CORPORATION					
AUGMENTATION OF LATUR WATER SUPPLY SCHEME					
RATE ANALYSIS FOR 3.3 KV VCB PANEL (INDOOR)					
Sr.No.	Item	C.S.R. Ref	Qty	Rate	Amount
1(A)	3.3KV Incomer VCB Panel. Supplying and erecting & testing of 3.3 KV, 630 Amp.25KA VCB Panel with CT/PT/Earth fault/Over Current high Speed tripping relay (Indoor Type) (2 incomer + 1 bus coupler)	Mech. CSR 22-23 I.No. HG 2-1 P.No. 20	3.00	416976.00	1250928.00
2	i) 3.3 KV Vaccum Contactor panel 630 Amp Supplying and erecting and testing of 3.3 KV Vaccum contactor panel draw out type indoor with CT'S and PT'S and Moter protection relay with high speed trip relay. (5 pump 1 capacitor)	Mech. CSR 22-23 I.No. HG 3-1 P.No. 20	6.00	345779.00	2074674.00
	ii) Capacitor HT Bank 280 kvar x 5Bank	As per Mech CSR 22-23 I.No.CP3 P.No.17	650	648.00	421200.00
	iii) Load break switch 3.3 KV for capacitor bank.	PWD CSR I.No.10/2/1 P.No.187 for 202-23	5.00	10335.00	51675.00
	iv) HRC Fuses 100 Amp for capacitor bank	PWD CSR I.No.5/1/18 P.No.26 for 2022-23	15.00	4867.00	73005.00
	v) Digital volt Meter	PWD CSR I.No.6/3/8P.No.110 for 2022-23	2.00	1756.00	3512.00
	vi) Digital Amp Meter	PWD CSR I.No.6/3/7 P.No.110 for 2022-23	7.00	2136.00	14952.00
	vii) Selector Switch	PWD CSR I.No.6/5/1 P.No.114 for 2022-23	9.00	351.00	3159.00
	viii) LED Indicating Lamp Set	PWD CSR I.No.6/5/6 P.No.120 for 2019-20	50.00	372.00	18600.00
	ix) Hour Meter	Current Market Rate	5.00	2500.00	12500.00
	x) Multifunction Meter	PWD CSR I.No.6/3/10 P.No.111 for 2022-23	5.00	5584.00	27920.00
	xi) Caution board Size 200x150mm	PWD CSR I.No. 6/ 1/ 15 P. No.107 for 2022-23	2.00	142.00	284.00
	xii) Name board Size 200x150mm	PWD CSR I.No.6/1/17 P.No.107 for 2022-23	1.00	125.00	125.00
	xiii) MS Sheet Work for panel fabrication. 16 SWG Size-	PWD CSR I.No.6/1/6 P.No.106 for 2022-23	25.00	2688.00	67200.00
	xiv) Iron Work for Panel	PWD CSR I.No.6/1/19 P.No.107 for 2022-23	150.00	195.00	29250.00
	xv) Alluminium Bus Bar	PWD CSR I.No.6/2/11 P.No.109 for 2022-23	70.00	726.00	50820.00
	xvi) Sundry Material - Panel Lock, Ferrul, Taging, Control Wiring, resin cast insulator, rubber beding patti, varming prufing etc.	Current Market Rate	Job	5000.00	5000.00
	Add for TPI				6000.00
				Total Rs.	4110804.00
				Say Rs.	4110804.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS OF PANEL BOARD FOR RECIRCULATION WELL SUMP

PWD CSR 2022-23					
Sr. No.	Item	C.S.R. Ref. 2022-23	Qty	Rate	Amount
1	MCCB 200 Amp 4 pole	5-5-2	1 Nos	13255.00	13255.00
2	MCB 200 Amp 3 pole	5-5-2	2 Nos	11134.00	22268.00
3	C.O.S. 200 Amp	5-1-6	1 No	11075.00	11075.00
4	63 Amp. MCB for Capacitor	5-3-11	1 No	1042.00	1042.00
5	32 Amp. MCB for Actuator	5-3-10	2 No.	789.00	1578.00
6	0 to 500 Volt, Voltmeter	6-3-8	1 No	1756.00	1756.00
7	0 to 100 Amp. Ammeter	6-3-7	3 Nos	2136.00	6408.00
8	150 /5 Amp, CTS	6- 5 -2	9 nos	1078.00	9702.00
9	Selector Switch	6-5-1	4 Nos	351.00	1404.00
10	Capacitors	CP 1	12 KVAR	372.00	4464.00
11	Phase indicating Lamp	6-5-6	9 nos	372.00	3348.00
12	Danger Board	6-1-15	1 No.	142.00	142.00
13	CRCA Sheet	6-1-1	100 KG	261.00	26100.00
14	Iron work	6-1-19	60 kg	195.00	11700.00
15	200 Amp, Bus bar	6 - 2 - 2	1.5 Mtr	642.00	9630.00
16	FASD Starter	LG 4-3	2 nos	21194.00	42388.00
17	DOL Stater	LG 2-1	2 Nos	2290.00	4580.00
18	Panel bourd wiring	Note-1	1 Job	3135.00	3135.00
				Total Rs.	173975.00
	Add for TPI				3000.00
				Rs.	176975.00
				Say Rs.	176975.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

3. RATE ANALYSIS FOR EOT CRANE OF RAW WATER

Sr.No.	Item	C.S.R. Ref	Qty	Rate	Amount
1	Supply Rate of 10.0Tonn capacity E.O.T.Crane 8 to 10 mtr span	Mech. CSR.22-23 I.No. LF 4-3-3	1	1362969.00	1362969.00
2	Erection rate of E.O.T.Crane	Mech. CSR.22-23 I.No. LF 4-3-3	1	33553.00	33553.00
3	Supply rate of DSL system of EOT Crane	Mech. CSR.22-23 I.No.Note 5	7	2502.00	17514.00
	Add for TPI	-	-	-	3000.00
	Add for Manufacturers Inspecting Agencies Charges		-	-	3000.00
				Total Rs.	1420036.00

11. RATE ANALYSIS FOR TOOLS

Sr.No.	Description of Items	Mech.CSR 2022-23	Qty	Rate	Amount
1	D.E.Fix spanner set 12 piece 6-32mm	TL 1/p.No.29	2 Set	816.00	1632.00
2	Ring spanner set 12 piece 6-32mm	TL2/p.No.29	2Set	1420.00	2840.00
3	Ball pein hammer	TL 3./P.No.29	1 No	367.00	367.00
4	Combination Plier 200mm	TL 4/P.No.29	1 No	269.00	269.00
5	Half round file of 300 mm size	TL 23/P.No.3b	1No	410.00	410.00
6	Bearing puller three legs -8"	TL 24/P.No.30	1 No	434.00	434.00
7	Adjustable wrench 250-30 mm	TL 5/P.No.29	1 No	350.00	350.00
8	Tester	TL 12/P.No.29	1 No	74.00	74.00
9	Pipe wrench 450 mm-60mm	TL 6/P.No.29	1 No	688.00	688.00
10	Pipe wrench 600 mm-76mm	TL 7/P.No.29	1 No	1232.00	1232.00
11	12 mm size 2 MT capacity wire rope 3 mtr long with dog bolt 2nos.	TL 19/P.No,29	2 No	328.00	656.00
12	Spirit level 300 japan make	Market Rate	1 No	580.00	580.00
13	Steel rule 500 mm	TL 33/P.No.30	1 No	328.00	328.00
14	Allen key 6 to 10mm	TL 34/P.No.30	1 No	398.00	398.00
15	Long nose plier 200mm	TL37/P.No.30	1 No	227.00	227.00
16	Tubuler box spanner set 8 pieces 7-22mm	TL35/P.No.30	1 No	984.00	984.00
18	Bearing puller three legs -10"	TL 25/P.No.30	1 No	567.00	567.00
19	Bearing puller three legs -12"	TL 26/P.No.30	1 No	688.00	688.00
20	Central punch chrome Vanadium	TL 21/P.No.29	1 No	76.00	76.00
21	Screw driver 6x300 mm	TL 8/P.No. 29	1 No	118.00	118.00
22	Screw driver 8 x 200 mm	TL 9/P.No.29	1 No	102.00	102.00
23	Screw driver 5-200 mm	TL 10/P.No.29	1 No	74.00	74.00
24	Screw driver 5 x300mm	TL 11/P.No.29	1 No	76.00	76.00
25	Screw driver with tester 3.6 x60	TL 12/P.No.29	1 No	74.00	74.00
26	Hack saw frame 300 mm size with	TL 13/P.No.29	1 No	83.00	83.00
27	M.S.Tool box	TL 14/P.No.29	1 No	1310.00	1310.00
28	Hydraulic flip flop crimping tool ranging from 6 to 500 Sq.mm cable lug	TL 27/P.No.30	1 No	40582.00	40582.00
29	Hand operated crimping tool with set of dies ranging from 6 to 185 Sq.mm cable lug.In pairs of hand ratches	TL28/P.No.30	1 No	11458.00	11458.00
30	Insulation tester (Megger) cranking type having metal body of range 1000Volts 1000 Mohms	TL 29/P.No.30	1 No	5270.00	5270.00
32	Tong Tester (Clip on meter) of range 0-10-30-100-1000 Amps and 0-300-600 Volts	TL 31/P.No.30	1 No	3977.00	3977.00
33	Earth tester	TL 30/P.No 30	1 No	8105.00	8105.00
34	Steel Almirah 150x 90 x45cm	Market Rate	1 No	15000.00	15000.00
35	Eight locker Cupboard	Market Rate	1 No	7500.00	7500.00
36	Steel Table wooden top 120 x75 cm	Market Rate	1 No	7500.00	7500.00
37	PVC moulded Fibre Chairs	Market Rate	5 Nos	1100.00	5500.00
38	PVC moulded Fibre Chairs with cushion	Market Rate	1Nos	2000.00	2000.00
40	Instruction Chart	10-6-22	2 Nos	159.00	318.00
41	Hand Gloves	10-6-23	4 Nos	715.00	2860.00
42	First Aid Box	10-6-24	4 Nos	932.00	3728.00
43	Electrically insulating mat suitable for 33 kv	10-6-27	20 sqmm	8303.00	166060.00
45	Fire Extinguisher 5 kg	13-15-1	8 Nos	10397.00	83176.00
				Total Rs.	377671.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME						
RATE ANALYSIS FOR ELECTRIFICATION (INTERNAL & EXTERNAL)						
SR.NO	DESCRIPTION	DSR REF	QTY	RATE	PER	AMOUNT
1	Indoor type LED light 25 WATT	PWD DSR 2022-23 I. No. 2-1-7 P.No.29	30	2650.2	NO	79506
2	Point wiring	PWD DSR 2022-23 I. No. 1-7-3 P.No.17	50	518.7	NO	25935
3	63 Amp D.P.	PWD DSR 2022-23 I. No. 5-3-8 P.No.89	6	748.65	NO	4491.9
4	LED type flood light100 Watt	PWD DSR 2022-23 I. No. 2-4-15 P.No.35	8	8658.3	NO	69266.4
5	Bracket for above lamp	PWD 2-7-2 P. No. 38	28	772.8	NO	21638.4
6	Pipe Poles	PWD DSR 2022-23 I. No. 8-1-1 P.No.145	10	9626.4	No	96264
7	Water tight Terminal Box	PWD DSR 2022-23 I. No. 7-8-5 P.No.140	10	631.054	No.	6310.54
8	Pipe Poles C.C.foundation	PWD DSR 2022-23 I. No. 16-3-3 P.No.35	10	2134.65	No.	21346.5
9	Allum. Cable 2 core 4 sq.mm	PWD DSR 7-1-4 P. No. 124	200	118.65	Mtr.	23730
10	Allum. Cable 3 core 2.5 sq.mm	PWD DSR 7-1-7 P. No. 124	400	121.8	Mtr.	48720
11	Led street light 50 watt	PWD DSR 2-4-4 P. No. 28	20	4323	Nos	86460
				TOTAL Rs		483668.74
					Say	483669.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

9. RATE ANALYSIS FOR RAW WATER LT PANEL BOARD AT HEADWORKS SITE

Sr. No.	Item	C.S.R. Ref 2022-23	Qty	Rate	Amount
1	MCCB 400 Amp 4 pole (35KA)	5-5-2	3Nos	22275.60	66826.80
2	MCCB 200 Amp 3 pole	5-5-2	2 Nos	11134.00	22268.00
3	Aluminium Bus Bar 200 Amp.	6-2-2	2 m	6421.00	12842.00
4	CRCA Sheet 16 SWG	6-1-1	10 m2	2688.00	26880.00
5	Iron work for panel board	6-1-19	50 kg	195.00	9750.00
6	LT Current Transformer	6-5-2	3 Nos.	1078.00	3234.00
7	Capacitors	CP 1	30KVAR	372.00	11160.00
8	63 Amp. TPMCB for EOT Crane	5-3-1	4 Nos	1042.00	4168.00
9	32 Amp. TPMCB for Actuator/Exhaus Fan	5-3-10	8 No.	789.00	6312.00
10	DOL Stater for actuators	LG 2-1	6 Nos	2290.00	13740.00
11	Voltmeter	6-3-6	1 No	1756.00	1756.00
12	Ammeter	6-3-8	1 No	2136.00	2136.00
13	Selector Seitch	6-5-1	2 No	351.00	702.00
14	Pilot lamp LED type	6-5-7	6 Nos	372.00	2232.00
15	Caution Board	6-1-16	1 No.	142.00	142.00
16	Earthing Terminals	Market rate	2 No.	150.00	300.00
17	Panel wiring	LS	1 Job	5000.00	5000.00
				Total Rs.	189448.80
	Add for TPI				3000.00
				Rs.	192448.80
				Say Rs.	192449.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

**Designing, providing, erecting, testing and commissioning of Pure water Pumping Machinery
Electrical and Mechanical equipments for at Pure Water Sumpwell**

ESTIMATE

QTY		DESCRIPTION OF ITEM	Ref of CSR 2022-23	RATE IN RS.
5	Nos	<u>Item No. :- 1</u> VERTICAL TURBINE PUMPS Providing,erecting commissioning & giving satisfactory test and trial of Water lubricated Vertical Turbine Pumps having Stainless Steel /CF8M impeller, Stainless Steel Shaft, Discharge head & bowl assembly suitable to discharge 388.95 LPS against total head of 65 mtr.from all sources including all allied accesories including third party inspection.6mtr column assembly (As Per Rater Analysis Atatched herewith)	As Per rate analysis	3495322.00
5	Nos	<u>Item No.:- 2</u> VERTICAL SOLID SHAFT MOTOR Providing erecting Vertical Solid shaft motors TEFC 3300 Volts 3 ph 50 Hz with Hp not less than 330 KW (442HP) With TPI Charges (As Per Rater Analysis Atatched herewith)	As Per attached rate analysis	1024177.00
5	Nos	<u>Item No.:-3 (a) Ductile iron / spheroidal graphite (S.G.) Glandless Sluice valve 500mm with actuator</u> Providing and supplying erecting at site of ductile iron / spheroidal graphite (S.G.) iron D/F non-rising spindle resil-ient 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 steel 1.4021/1.4104, 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 transportation charges excluding GST levied by GOI & GOM in all respect etc. complete. (For PN 10 & 16) with actuater and mounting arrangement. With TPI Charges.	AS PER RATE ANALYSIS	572214.00
1	No	<u>Item No.:-3 (b)</u> CAST STEEL BUTTER FLY VALVE 800 MM DIA CLASS-150 With Actuator A) Providing erecting commissioning & giving satisfactory test and trial of cost steel butter fly valve of 750 mm size and Cast Steel 150 rating as per standerd specification with electric valve Actuator. and TPI charges.	AS PER RATE ANALYSIS	388954.00

5	Nos	<u>Item No.4(a) :-</u> CI D/F reflux valves PN 1.6 500mm with by pass arrangement A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) with by pass arrangment with TPI charges.	AS PER RATE ANALYSIS	229105.00
1	No	<u>Item No.4 (b):-</u> CI D/F reflux valves PN 1.6 800 mm with by pass arrangement A) Providing and supplying erecting ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) with by pass arrangment with TPI charges.	AS PER RATE ANALYSIS	536944.60
1	No	<u>Item No.:-5 KINETIC AIR VALVE IRON STEEL</u> Providing erecting, Commissioning & giving satisfactory test and trial of Kinetic Air valve of 200 mm size and Cast iron PN 1.6 rating as per standard specification.	Civil CSR 2022-23 Item No. 9 biii & 10 (viii)	36569.00
5	Nos	<u>Item No.:- 6 DISMANTLING JOINT</u> a) Providing erecting,Commissioning & giving satisfactory test and trial of M.S.Dismantling Joint of 500 mm size as per detailed specification.	Civil CSR 22- 23 I.No. PM 6- 8	54026.00
1	No	b) Providing erecting commissioning & giving satisfactory test and trial of M.S.Dimantling Joint of 800 mm size as per detailed specification.	Mech CSR for 22-23 I.No. 6-12	101964.00
17500	kg	<u>Item No :-7 M.S.PIPES & SPECIALS</u> Providing lowering,laying jointing and testing M.S.Pipes & Specials as per standard specifications and approved size & layout of pumping machinery	Civil (MJP CSR 22-23 I.No. 7 (C)	95.00
25.00	Cum	<u>Item No.8:- Excavation</u> 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. Lift 0 to 1.5 m	(As Per Civil CSR22-23 It.No.1	150.00
6	Nos	<u>Item No.10 :- PRESSURE GAUGES</u> Providing erecting and testing Glyserine filled pressure gauge Bourdon's type of 150 mm dia as per IS 3624: 1987 with brass cock,syphon tube etc.as per standerd. Specification.	Mech CSR for 22-23 Item No.PM 11-4	2005.00

50	cum	Item.No.:-11 CONCRETE FOUNDATION FOR PUMP AND SURGE AIR VESSEL i) Providing and laying in situ Cement Concrete of trap/ granite / quartzite / gneiss metal for RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, bally, steel propups compaction, finishing 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) L.No. BCCM-200	MJP Civil CSR 22-23 Item No.2 (G)	7318.00
5	MT	ii) Providing and fixing in position Tor 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).	Civil CSR 2022-23 I.No. 8 (G)	62218.00
1	Job	Item No.:- 12 E.O.T. CRANE 7.5 TON CAP. & 10 MTR SPAN Providing erecting, Commissioning Single Girder Electrcally Operated Rectanguler Travelling Crane with 10 m.lift complete with wire rope hoist class II duty all three motions electrcally Operated by suitable rating motor IP 54 control panel and down pendant control block. 10.0 Tonne Capacity with TPI with DSL System	As Per attached rate analysis	1293209.00
60	Mtr	Item No.13 SQUARE BAR/RAIL Providing erecting and fixing square bar of EN 8 as rail for over head crane on provided track girder/contineous corbel beam, including supporting plate and "J"bolts. 50x 50mm (EN 8)	Mech CSR for 22-23 LF 5-1	2231.00
1	Job	Item No.14 :- HT Sub Station Designing Providing, installing commissioning & testing 33 KV HT Substation with AB Switch DO fuse Pole structure etc.	As Per attached rate analysis-	2403044.00
1	No	Item No.15 :- 3.3 KV VCB Panel (INDOOR) In Substation. Designing Providing installing commissioning & testing of indoor type 3.3 KV 630 Amp Vacuum Circuit Breaker with CTPT Relays etc with Tpi	As Per attached rate analysis-	1615246.00
1	Job	Item No.16:- RELAY METERING AND SCANNER PANEL FOR SUBSTATION. Designing Providing, installing commissioning & testing of Relay Metering & Scanner Panel for 33 KV System with TPI	As Per attached rate analysis	361826.00
		Item No.:-17 Battery Panel for Switch Yard. Designing Providing, installing commissioning & testing of Battery Panel etc		
		i) Exide 2 V 100 LH VRLA CE 11 - 55 Nos		

1	No	ii) Installation charges	As Per attached rate analysis	413185.00
2	Nos	Item No.18:- Power Transformer of 1600 KVA (outdoor) Designing Providing erecting commissioning testing 33 KV/3.3KV 1600 KVA power transformer (outdoor) with OLTC,RTCC AVR , ~~NGP Relay panel as per detailed specification with TPI~~	Mech. CSR 22-23 I.No. TR 9-4	2389221.12
2	Nos.	Item No. 19:- Designing, Providing, erecting, commissioning 33 KV/433V ,500 KVA auxiliary Transformer with off load tap changer necessary fittings as Per detailed specification with TPI	Mech CSR for 22-22 Item No.TR 3-6	1267293.00
1	Job	Item No.:-20 3.3.KV VCB PANEL FOR PUMP. Designing Providing, installing commissioning & testing of indoor type VCB Panel with 3 Nos. of 3.3.KV 630 Amp Vacuum Circuit Breaker, 6 Nos. of 400 Amp. Vaccum contactor, Capacitor Bank with all switch gear and measuring and protection unit etc complete with TPI	As Per attached rate analysis-8	4456583.00
1	Job	Item No.21 :- Scanner Panel for Motor. Designing, Providing, Installing Commissiong & Testing of Scanner Panel having 8 windows in Pump House for measuring Oil Tempracture winding Tempracture of Motors.	Current Market Rate	100000.00
1	No.	Item No.22 L.T.Panel Providing erecting, Commissioning & giving satisfactory test and trial of L.T.Panel comprising of specified Breakers, Bus bar,switches, indicating instruments etc as per specification with Tpi	As Per attached rate analysis	534971.00
		Item No.23 :- CABLE Providing,lowering,laying, jointing,Commissioning &Giving test and trial of XLPE insulated, armoured cable,ISI Marked with stranded or solid conductor as per detailed specification.	PWD & Mech. CSR 2022-23	
200	m	a) 33 KV,3 Core 185 Sqmm.E Grade For MSEB to VCB to Substation	7-3-15	3115.00
150	m	a) 6.6 KV,3 Core 70 Sqmm. For CAPACITOR	CB 10-3	930.00
600	m	b) 6.6KV,3 Core 400 Sqmm 1 run Incoming Main from Transformer Switch Yard Breaker to Incomer in PumpHouse .	CB 10-10	2880.00
250	m	c) 6.6 KV.3 Core 95 Sqmm. For MOTOR	CB 10-4	1093.00
400	m	d) 1.1.KV 3.5 Core 185 Sq mm. LT CABLE	7-1-22	1093.00
200	m	e) 1.1 KV 3.5 Core 25 Sqmm For LIGHTING & CRANE	7-1-15	242.00
200	m	f) 1.1KV 3 Core 10 Sq mm For LIGHTING	7-1-10	162.00
		g) Supplying and erecting Un-armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. Page no. 70 and 71		
100	mtr	2 core 1.5 sq mm	CB 8-1-1	70.00
100	mtr	3 core 1.5 sq mm	CB 8-1-2	89.00
100	mtr	4 core 1.5 sq mm	CB 8-1-3	106.00
100	mtr	5 core 1.5 sq mm	CB 8-1-4	129.00
100	mtr	6 core 1.5 sq mm	CB 8-1-5	153.00
100	mtr	7 core 1.5 sq mm	CB 8-1-6	167.00
100	mtr	8 core 1.5 sq mm	CB 8-1-7	187.00
100	mtr	9 core 1.5 sq mm	CB 8-1-8	210.00
100	mtr	10 core 1.5 sq mm	CB 8-1-9	228.00
		2.5 sq mm Copper conductor PVC Un-armoured control cable		
100	mtr	2 core 2.5 sq mm	CB 8-2-1	94.00
100	mtr	3 core 2.5 sq mm	CB 8-2-2	126.00

100	mtr	4 core 2.5 sq mm	CB 8-2-3	155.00
100	mtr	5 core 2.5 sq mm	CB 8-2-4	184.00
100	mtr	6 core 2.5 sq mm	CB 8-2-5	218.00
100	mtr	7 core 2.5 sq mm	CB 8-2-6	251.00
100	mtr	8 core 2.5 sq mm	CB 8-2-7	277.00
100	mtr	9 core 2.5 sq mm	CB 8-2-8	311.00
100	mtr	10 core 2.5 sq mm	CB 8-2-9	351.00
		h) Providing and fixing G.I. Perforated cable trays of size as below including fixing on provided angles.		
200	mtr	150mm X 100mm	PWD CSR 22-23 7-11-12	767.00
200	mtr	200mm X100mm	PWD CSR 22-23 7-11-14	799.00
		I) Providing and laying RCC (M-150) cable duct of size given below for laying electric cable including form work for centering M.S. bar reinforcement, necessary excavation bolder filling, PCC (M100), compacting, curing , plastering, including providing and fixing 35 X 35 X 5 mm M.S. angles, RCC pre cast cover of Adequate length with 100 mm over lap on either walls etc complete and providing RCC pre cast covers		
100	mtr	Cable duct 2 tier-750W X 750 D	CSR 22-23 C	1444.00
100	mtr	Cable duct 3 tier-750W X 1000 D	CB 15-2	1696.00
		Item.No.24:- CABLE TERMINATION KITS Providing fixing cable termination Kits as per detailed specification.	PWD & Mech CSR for 2022-23	
4	Nos	a) 33 KV,3 Core 185 Sqmm (outdoor)	7-5-28	29245.00
6	Nos	a) 33KV,3 Core 185 Sqmm (Indoor)	7-5-24	21337.00
10	Nos	b) 6.6KV,3 Core 400 Sqmm (Indoor)	CB 11-4	8768.00
12	Nos	c) 6.6 KV.3 Core 95 Sqmm (Indoor)	CB 11-3	7553.00
20	Nos	d) 6.6 KV.3 Core 70 Sqmm (Indoor)	CB 11-2	7553.00
		Item No.25:- EARTHING		
		Providing earthing with Galvanised cast iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification No. EA-EP		
45	Nos	a) In 33 KV Sub-Station in switch yard. b) For Pump House - 30 Nos	PWD (Ele.) CSR 22-23 It.No. 9-1-1	4714.00
		Item No.28 :- G.I.EARTHING STRIPS		
2000	Kg	Supplying and erecting G.I. strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joint required. as per specification No (EA-EP).	As Per PWD Ele.CSR 22-23 I.No.9-2-3	222.00
5	MT	Item No.29:- IRON WORK Providing,fabricating iron work of ISMB,ANGLES,M.S.FLATS,CHEQUARED PLATE,for panel stand,square bar for crane, cable tray,supports of ventilation ducting and items related to crane with all other similar work, including cutting,bending, welding and painting as per specification.	MJP Civil CSR I. No.4 for 2022-23	70017.00

1	No	Item No. 30 - Providing and constructing B.B.Masonry Valve Chamber with 15 cm thick 1:2:4 proportion PCC bedding, excluding excavation B.B.masonry in C.M. 1:5 Proportion precast RCC frame and cover etc. complete as directed by Engineer in charge as per detailed specifications. As above of 1.5x 1.5M internal size and depth up to 1.5.M	Civil CSR 2022-23 I.No.1.4	24758.00
1	No	Item No.31 - Ultrasonic insertion fixed type Flow meter (Single Channel) Providing, installing and giving satisfactory test and trial of Ultrasonic insertion fixed type Flow Meter as per detailed specifications with TPI Charges.	MJP CSR 22-23 P.No. 39 I.No. WM 2 C (3)	275895.00
1	Job	Item No.32 :- TOOLS Providing Tools as per specification	As per attached rate analysis	35118.00
3	months	Item No. :-33 TEST AND TRIAL Giving satisfactory test and trial of all installed and provided equipments to full load situation, after completing the commissioning test as per specification.	As Per attached rate analysis	71400.00
			Total	Rs.

LATOK CITY MUNICIPAL CORPORATION

with allied
AMOUNT
17476610.00
5120885.00
2861070.00
388954.00

1145525.00**536945.00****36569.00****270130.00****101964.00****1662500.00****3750.00****12030.00**

365900.00
311090.00
1293209.00
133860.00
2403044.00
1615246.00
361826.00

LATOK CITY MUNICIPAL CORPORATION

413185.00
4778442.00
2534586.00
4456583.00
100000.00
534971.00
623000.00
139500.00
1728000.00
273250.00
437200.00
48400.00
32400.00
7000.00
8900.00
10600.00
12900.00
15300.00
16700.00
18700.00
21000.00
22800.00
9400.00
12600.00

LATOK CITY MUNICIPAL CORPORATION

15500.00
18400.00
21800.00
25100.00
27700.00
31100.00
35100.00
153400.00
159800.00
144400.00
169600.00
116980.00
128022.00
87680.00
90636.00
151060.00
212130.00
444000.00
350085.00

LATOK CITY MUNICIPAL CORPORATION

24758.00
275895.00
35118.00
214200.00
55288988.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME**RATE ANALYSIS FOR VERTICAL TURBINE PUMP AT SUMP WELL**

i) Capacity of pump = 442 HP

iii) Head of pump = 65 Mtr.

ii) Discharge of each pump = 1400220 LPH

iv) Total suspension length = 6 Mtr.

Analysis for Item No. 1 :

Sr. No.	Details of pump	Flowmore Limited
1	Basic supply rate	3655000.00
2	Add 5 % for packing, forwarding, transit insurance, loading, unloading, Transfortation, insurance upto completion of work etc. on basic rate	182750.00
3	Total Rs.	3837750.00
4	Add for TPI	12280.80
5	Total Rs.	3850030.80
6	Add for erection (As per MJP Mech.CSR 2022-23 I.No.PM 8-5 Page No. 4)	33660.00
7	Add for column length more than 6 m -	0.00
8	Total Rs.	3883691.00

For single offer

3495322

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

3a. RATE ANALYSIS FOR Sluice VALVE 500mm

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (a) Ductile iron / spheroidal graphite (S.G.) Glandless Sluice valve 500mm	Civil CSR 22-23 I.No. 24	1	432348.00	432348.00
	Erection rates of valves	I.No.4,VII	1	8879.00	8879.00
2	Providing valve Actuator for 500 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-11	1	124987.00	124987.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	572214.00
				Say Rs.	572214.00

3 b. RATE ANALYSIS FOR Butterfly valve 800mm

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (b) CAST STEEL D.F. BUTTERFLY VALVE WITH ACTUATOR 800 MM DIA CLASS-150 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Butterfly valve (Glandless) of 750 mm size and Cast Steel 150 rating as per standerd specification with at actuator.	MJP Civil CSRIt 11 b + 10% extra	1	208565.15	208565.15
2	Erection of above valve	civil csr 22-23 I.No. XV	1	11587.00	11587.00
3	Providing valve Actuator for 800 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-15	1	152374.00	152374.00
4	Add. Transportation, Packing, Forwarding @5%				10428.26
5	Add for TPI	-	-		3000.00
	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	388954.41
				Say Rs.	388954.00

4 a. RATE ANALYSIS FOR Reflux VALVE 500mm					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4(a) CI D/F reflux valves PN 1.6 500mm A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) bypass arrangement	MJP Civil CSR it 1 d	1	213911.00	213911.00
2	Add. Transportation, Packing, Forwarding @5%				
3	Erection of above valve	civil csr 22-23 I.No. Xiii	1	9194.00	9194.00
4	Add for TPI	-	-		3000.00
5	Add for Manufacturesrs Inspecting Agencies charges.	-	-		3000.00
				Total Rs.	229105.00

4b. RATE ANALYSIS FOR REFLUX VALVE 800mm					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4 (b) CI D/F reflux valves PN 1.6 800mm A) Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete. Reflux valves as per I.S.5312 Part I (1984) bypass arrangement	MJP Civil CSR it 1 d	1	492512.00	492512.00
2	Add. Transportation, Packing, Forwarding @5%				24625.60
3	Erection of above valve	civil csr 22-23 it. 4 xi pg. 123	1	13807.00	13807.00
4	Add for TPI	-	-		3000.00
5	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	536944.60

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

9. RATE ANALYSIS FOR RAW WATER LT PANEL BOARD AT WTP Site

Sr.No.	Item	C.S.R. Ref 2022-23	Qty		Rate	Amount
1	ACB 800 Amp 4 pole (35KA)(2 incommer 1	5-8-5	3	Nos	113985.00	341955.00
	MCCB 630 Amp 3 pole (WTP and Capaicotr)		2	Nos	25327.00	50654.00
2	MCCB 200 Amp 3 pole	5-5-2	3	Nos	11134.00	22268.00
3	Aluminium Bus Bar 200 Amp.	6-2-2	2	m	6421.00	12842.00
4	CRCA Sheet 16 SWG	6-1-1	10	m2	2688.00	26880.00
5	Iron work for panel board	6-1-19	50	kg	195.00	9750.00
6	LT Current Transformer	6-5-2	3	Nos.	1078.00	3234.00
7	Capacitors	CP 1	75	KVAR	372.00	27900.00
8	63 Amp. TPMCB for EOT Crane	5-3-1	4	Nos	1042.00	4168.00
9	32 Amp. TPMCB for Actuator/Exhaus Fan	5-3-10	8	No.	789.00	6312.00
10	DOL Stater for actuators	LG 2-1	6	Nos	2290.00	13740.00
11	Voltmeter	6-3-6	1	No	1756.00	1756.00
12	Ammeter	6-3-8	1	No	2136.00	2136.00
13	Selector Seitch	6-5-1	2	No	351.00	702.00
14	Pilot lamp LED type	6-5-7	6	Nos	372.00	2232.00
15	Caution Board	6-1-16	1	No.	142.00	142.00
16	Earthing Terminals	Market rate	2	No.	150.00	300.00
17	Panel wiring	LS	1	Job	5000.00	5000.00
					Total Rs.	531971.00
	Add for TPI					3000.00
					Rs.	534971.00
					Say Rs.	534971.00

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

3. RATE ANALYSIS FOR EOT CRANE OF Pure WATER

Sr.No.	Item	C.S.R. Ref	Qty	Rate	Amount
1	Supply Rate of 7.5 Tonn capacity E.O.T.Crane 8 to 10 mtr span	Mech. CSR.22-23 I.No. LF 4-3-3	1	1239061.00	1239061.00
2	Erection rate of E.O.T.Crane	Mech. CSR.22-23 I.No. LF 4-3-3	1	30634.00	30634.00
3	Supply rate of DSL system of EOT Crane	Mech. CSR.22-23 I.No.Note 5	7	2502.00	17514.00
	Add for TPI	-	-	-	3000.00
	Add for Manufacturers Inspecting Agencies Charges		-	-	3000.00
				Total Rs.	1293209.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR HT MOTORS AT SUMPWELL

Sr.No.	Itme	C.S.R.Ref	Qty	Rate
1)	Item No.1:- Supply rate of 3300 V 442 HP Vertical flanged mounted motor TEFC- 1500 RPM	CSR 2022-23 MO 8-5	1	1000675.00
i)	Add for TPI			6000.00
ii)	Add for erection charges.			17502.00
		Total Rs.		1024177.00

RATE ANALYSIS FOR 3.3 KV VCB PANEL (INDOOR)					
Sr.No.	Item	C.S.R. Ref	Qty	Rate	Amount
1(A)	3.3KV Incomer VCB Panel. Supplying and erecting & testing of 3.3 KV, 630 Amp.25KA VCB Panel with CT/PT/Earth fault/Over Current high Speed tripping relay (Indoor Type) (2 incommer + 1 bus coupler)	Mech. CSR 22-23 I.No. HG 2-1 P.No. 20	3.00	416976.00	1250928.00
2	3.3 KV Vacuum Contactor panel 630 Amp Supplying and erecting and testing of 3.3 KV Vacuum contactor panel draw out type indoor with CT'S and PT'S and Moter protection relay with high speed trip relay. (5pump 1 capcitor 1 WTP)	Mech. CSR 22-23 I.No. HG 3-1 P.No. 20	7.00	345779.00	2420453.00
	ii) Capacitor HT Bank 280 kvar x 5Bank	As per Mech CSR 22-23 I.No.CP3 P.No.17	650	648.00	421200.00
	iii) Load break switch 3.3 KV for capacitor bank.	PWD CSR I.No.10/2/1 P.No.187 for 202-23	5.00	10335.00	51675.00
	iv) HRC Fuses 100 Amp for capacitor bank	PWD CSR I.No.5/1/18 P.No.26 for 2022-23	15.00	4867.00	73005.00
	v) Digital volt Meter	PWD CSR I.No.6/3/8 P.No.110 for 2022-23	2.00	1756.00	3512.00
	vi) Digital Amp Meter	PWD CSR I.No.6/3/7 P.No.110 for 2022-23	7.00	2136.00	14952.00
	vii) Selector Switch	PWD CSR I.No.6/5/1 P.No.114 for 2022-23	9.00	351.00	3159.00
	viii) LED Indicating Lamp Set	PWD CSR I.No.6/5/6 P.No.120 for 2019-20	50.00	372.00	18600.00
	ix) Hour Meter	Current Market Rate	5.00	2500.00	12500.00
	x) Multifunction Meter	PWD CSR I.No.6/3/10 P.No.111 for 2022-23	5.00	5584.00	27920.00
	xi) Caution board Size 200x150mm	PWD CSR I.No.6/1/15 P.No.107 for 2022-23	2.00	142.00	284.00
	xii) Name board Size 200x150mm	PWD CSR I.No.6/1/17 P.No.107 for 2022-23	1.00	125.00	125.00
	xiii) MS Sheet Work for panel fabrication. 16 SWG Size-	PWD CSR I.No.6/1/6 P.No.106 for 2022-23	25.00	2688.00	67200.00
	xiv) Iron Work for Panel	PWD CSR I.No.6/1/19 P.No.107 for 2022-23	150.00	195.00	29250.00
	xv) Alluminium Bus Bar	PWD CSR I.No.6/2/11 P.No.109 for 2022-23	70.00	726.00	50820.00
	xvi) Sundry Material - Panel Lock, Ferrul, Taging, Control Wiring, resin cast insulator, rubber beding patti, varming prufing etc.	Current Market Rate	Job	5000.00	5000.00
	Add for TPI				6000.00
				Total Rs.	4456583.00
				Say Rs.	4456583.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR TOOLS

Sr. No.	Description of items	Ref.of CSR 2022-23 SECTION TL	Qty		Rate	Amount
1	D.E. Fix spanner set 12 piece 6-32mm	TL 1/ P. No. 44	2	set	816.00	1632.00
2	Ring spanner set 12 piece 6-32mm	TL 2/ P. No. 44	2	set	1420.00	2840.00
3	Ball pen Hammer 800 gm	TL 3/ P. No. 44	1	no	367.00	367.00
4	200mm cutting plier	TL 4/ P. No. 44	1	nos	269.00	269.00
5	Adjustable wrench 250-30 mm	TL 5/ P. No. 44	1	nos	350.00	350.00
6	Pipe wrench 450-60 mm	TL 6/ P. No. 44	2	nos	688.00	1376.00
7	Pipe wrench 600 - 60 mm	TL 7/ P. No. 44	2	nos	1232.00	2464.00
8	Screw driver 6x300 mm	TL 8/ P. No.44	1	nos	118.00	118.00
9	Screw driver 8 x 200 mm	TL 9/ P. No. 44	1	nos	102.00	102.00
10	Screw driver 5-200 mm	TL 10/ P. No. 44	1	no	74.00	74.00
11	Screw driver 5 x 300 mm	TL 11/ P. No.44	1	no	76.00	76.00
12	Screw driver with tester 3.6 x 60 mm	TL 12/ P. No.44	1	nos	74.00	74.00
13	Hack saw frame 300 mm size with blade	TL 13/ P. No.44	1	no	83.00	83.00
14	Insulation tester (Megger)	TL 29/ P. No.45	1	no	5270.00	5270.00
15	Tong tester	TL 31/ P. No.45	1	no	3977.00	3977.00
16	Hand operated type crimping tool	TL 28/ P. No.45	1	no	11458.00	11458.00
17	M.S. Tool box	TL 14/ P. No.44	2	nos	1310.00	2620.00
18	Tublar box spanner set 8 piece	TL 35/ P. No.45	2	set	984.00	1968.00
	TOTAL					35118.00

LATUR CITY MUNICIPAL CORPORATION							
AUGMENTATION OF LATUR WATER SUPPLY SCHEME							
ANAYSIS FOR TEST & TRIAL							
SR.NO	DESCRIPTION	DSR REF	QTY.	SHIFT	RATE PER DAY	TOTAL DAYS	AMOUNT
1	Pump Operator	MJP DSR 2022-23 I. No. 25 P.No.14	2	2	611	30	36660
2	Helper	MJP DSR 2022-23 I. No. 12 P.No.14	2	2	579	30	34740
					TOTAL Rs		71400
						Per month	71400.00

LATUR CITY MUNICIPAL CORPORATION

NAME OF WORK: Providing, installing Commissioning and giving satisfactory test & trial of On grid Solar power generation system with net metering installed on Ground/Roof Top at HW & WTP Site.

ESTIMATE

(As per MNRE Benchmark cost)

SR	Description of Item	Qty	Unit	Rate	Amount
	Item No.1- Solar Plant				
1	Supplying, installing, testing and commissioning of 2400 kWp capacity on grid solar power pack with GI mounting structure and inter connecting wires / cables without battery bank SPV modules and solar power conditioning unit of required capacity complete, with 5 years on site performance warrantee. Specification no. ESD-RTONG Note: Rates are as per benchmark cost of Ministry of New and Renewable Energy (MNRE), inclusive of total system cost including PV solar module ,invertor,balance of systems including cables,switches/circuit breakers/connectors /junction boxes,mounting structure,earthing,lightning arrestors,cost of meter(if any other than net meter),local connectivity cost,cost of civil works,foundation etc and it's installation, commissioning, transportation, insurance, capital cost of online monitoring, comprehensive maintenance charges for five years,applicable fees and taxes etc..				
	MNRE Circular Benchmark Cost 27/10/2021				
	At Raw Water & Pure Water Pumping Machinery, WTP	2400	Per 1 kWp	35886.00	86126400.00
	Item No.2				
	Supplying and erecting AC three phase HT CT multifunction net meter DLMS compliance of accuracy class 0.5, 3 x 240V, 50Hz, with backlit LCD display, optical port & RS 232 port (measures import kWh, kVAh, export kWh, kVAh, Net kWh, kVAh, V, I, kW, 6 months history of energy, load survey,TOD, tamper detection & logging, power ON/OFF events, instantaneous parameters of rating 1/5A with display in absence of power) with wiring connections and mounting hardware on provided panels complete with calibration certificate from manufacturer.				
	At Raw Water P/S and WTP	2	No	25460.00	50920.00
	PWD ELE SSR 22-23 I. No. 6-3-15 P.No.111				
				Total Rs	86177320.00

LATUR CITY MUNICIPAL CORPORATION

NAME OF WORK: Providing, installing Commissioning and giving satisfactory test & trial of On grid Solar power generation system with net metering installed on Ground/Roof Top at HW & WTP Site.											
Rate analysis of on grid solar power plant											
Sr.No	Qty	Unit	Description		Ref of CSR Mech/Civil/PWD Elect.	Solar Rate	Basic Price	Erection	Final Rate	Add 5 % on PWD items	CSR
FOR PURE WATER											
1	2700	kWP	On Grid Solar plant @ WTP area and Raw Waer P/S		MNRE Circular Benchmark Cost 27/10/2021	35886.00	35886.00		35886.00		MNRE
						Near about 15 sq.m. land required for 1 KWP plant.					
			Raw Waer P/S	1500.0	HP						
			Pure Waer P/S	1500.0	HP						
			WTP P/M	200.0	HP						
			Total Load =	3200		36000	Sq.m.				
			Load to be sanctioned=	2387	KW						
			Solar plant proposed=	2400	kWP						
2	2	No	HT CT multifunction net meter		PWD ELE SSR 22-23 I. No. 6-3-15 P.No.111				25460.00	50920.00	PWD ELE

LATUR CITY MUNICIPAL CORPORATION				
AUGMANTATION OF LATUR WATER SUPPLY SCHEME				
oad enhance, for 33KV Express feeder & MSEDCL Connection charges at HW and				
ESTIMATE				
QTY		DESCRIPTION OF ITEM	RATE IN RS.	AMOUNT
		RAW WATER (A)		
1	Job	Item No.1:- FOR HT LOAD ENHANCEMET Provision for 33 KV HT load enhancement MSEDCL charges at head work site.	7500000.00	7500000.00
1	Job	Provision for 33 KV HT load enhancement MSEDCL charges at WTP site.	6000000.00	6000000.00
		TOTAL		13500000.00

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Designing, Providing, installing, Commissioning & Testing of Submersible Non-clog sewage recycling Pumps with allied electro-mechanical equipments @ Recirculation well

ESTIMATE

Sr.No.	Description of Item	Qty	Unit	Rate	Amount
1	Item No. 1.A :- Submersible Non Clog Sewage Pumpset.				
	Providing, installing, commissioning with satisfactory test & trial of Submersible Non Clog sewage pumps having stainless steel/CF 8M Impeller, Shaft, CI casing with three phase squirrel cage motor 730/1000/1460 rpm, suitable for continuous duty with F class Insulation, suitable to operate required duty conditions & specified requirement having minimum efficiency 60% suitable for soft solid of minimum 65 mm to 75 mm as below including cable set (10 mtr.), auto rail coupling, integral bend, duck foot bend, lifting chain, control panel with PMU having all protections, bottom stand, clamps etc. with TPI &				
	Pump duties				
	Head - 16 Mtr				
	Discharge - 148400 LPH	2.00	No	412487.00	824974.00
	CSR 22-23 P.No. 5 I.No. PM 9-2-6				
2	Item No. 2 :-Glandless CIDE Sluice Valve PN-1				
	Providing,erecting,testing and commissioning D.I. Glandless Sluice valves suitable for working pressure of 10 kg/cm2 with standard non rising spindle, handwheel, cap etc and manufactured as per IS 2906/14846. As per detailed specifications.				
	150 mm dia.	2.00	Nos	13821.00	27642.00
	(Mech CSR 22-23 P.No.132 I.No. 2 avi)				
3	Item No. 3 :- Electric Valve Actuators				
	Providing, erecting & testing electric valve actuators suitable for above sluice valve with TPI & MJP inspection.				
	150 mm dia. WithTPI charges	2.00	Nos	91909.00	183818.00
	(Mech CSR 22- 23 P.No.17 I.No. VA- 1-6)				
4	Item No. 4 :- Pressure Gauge				
	Providing & Erecting 150 mm dia Glyserine filled Pressure Gauge Bourdon's type specially designed for swage pumping stations as per IS 3624:1987.	2.00	Nos	2005.00	4010.00
	(Mech CSR 22-23 P.No.5 I.No. PM-11-4)				
5	Item No. 5 :-CI Pipes and Specials				

Sr.No.	Description of Item	Qty	Unit	Rate	Amount
	Providing, installing, & Commissioning with Satisfactory Test & Trial of C.I.pipes and special of appropriate class of suitable size including required concrete supports etc. Double flanged pipes and specials.	1000.00	Kg	73.00	73000.00
	(Civil DSR 22-23 P.No. 72 I.No.6 a)				
6	Item No. 6 :- MS Pipes and Specials				
	Providing, Fabricating M. S. Special, Drain pipes & items related to all other similar work including cutting bending & Painting , as per detailed specification	1000.00	Kg	95.00	95000.00
	(Civil DSR 22-23 P.No.72 I.No.7-c)				
7	Item No. 7 :-Iron Work				
	Providing, Fabricating Iron Work of ISMB, Angles MS Plates, Chequered Plats, square bar for cable Tray supports, ducting, for travel girder of crane & items related to all other similar work including cutting bending & Painting, as per	1000.00	Kg	70.017	70017.00
	(Civil DSR 22-23 P.No. 47 I.No. 4)				
8	Item No. 8 :- Main Control Panel Board				
	Providing, Erecting,Testing & Commissioning Main L. T. Control Panel Board comprises of MCCB for Incoming & outgoing, meters, and other electrical component with TPI & MJP inspection	1.00	No	176975.00	176975.00
	(As per rate analysis)				
9	Item No. 9 :-Cables				
	a) 3.5 Core 50 Sq. MM Aluminium Armoured	100.00	Mtr	381.00	38100.00
	(PWD E CSR 22-23 P.No. 126 I.No.7.1.17)				
	b) Supplying and erecting, Flat flexible submersible cable with, Copper Conductor, PVC insulated, and PVC sheathed of size 3 c x 16 sqmm	100.00	Mtr	623.00	62300.00
	(Mech CSR 22-23 P.No. 22 I.No.CB 1-5)				
	e) 7 core 2.5 sqmm copper conductor control cable for actuator power supply	50.00	Mtr	333.00	16650.00
	[MJP Mech. CSR 22-23 I.No.CB 7-2-6 / P.No 24]				
10	Item No.10:- Earthing :-				
	Providing, earthing with galvanised cast iron earth plate size 60x60x0.60cm burried in specially prepared earth pit 1.5m below ground, recording the result, with brick masonary block & CI cover including providing & filling required black soil in complete pit with charcoal & salt etc complete.	3.00	No	6357.75	19073.25
	(PWD Elect. CSR 22-23 I.No.9-1-3,)				

Sr.No.	Description of Item	Qty	Unit	Rate	Amount
11	Item No.11 :- G.I.Strip for Earthing :-				
	Supplying & erecting G.I. strip of size 32x6mm for providing double earthing to all switch gears, LT Panel, starter & motor etc in pump house & for all equipments in Sub-Station from main earthing pit and for interconnection of all earthing pit with necessary G.I.Clamps fixed on wall / floor etc painted with bituminous paint in an approved manner as directed by Electrical Inspector.	150.00	Kg	233.10	34965.00
	(PWD Elect. CSR 22-23 I.No. 9-2-3,)				
12	Item No.12 :- Travelling Trolley, 3.0 MT Cap.				
	Providing, erecting Travelling Trolley of capacity as below with 6 m lift, tested to 50% over load.	1.00	No	20278.00	20278.00
	(MJP Mech CSR 22-23 P.No.10 I.No.LF-2-3)				
13	Item No.13 :-Chain Pulley Block, 3.0 MT Cap.				
	Providing, erecting triple spur gear type Chain Pulley Block suitable for capacity as below with 6 m lift complete with load chain and hand chain suitable for above lift, tested to 50% over load.	1.00	No	30219.00	30219.00
	(MJP Mech CSR 22-23 P.No. 10 I.No.LF-1-3)				
			Total Rs.		1677021.00

LATUR CITY MUNICIPAL CORPORATION

SUMMARY OF SCADA ESTIMATE		
Sr. No.	Sub-Works	Amount in Rs.
1	SCADA Estimate of Existing Jack Well Pumping Station	20,38,761
2	SCADA Estimate of Proposed Jack Well Pumping Station	16,96,827
3	SCADA Estimate of Existing WTP at Harangul	68,12,989
4	SCADA Estimate of Existing Clear Water Pumping Station at Harangul	21,58,877
5	SCADA Estimate Of Proposed WTP at Harangul	1,89,64,685
6	SCADA Estimate of Proposed Clear Water Pumping Station	19,28,449
7	SCADA Estimate of Existing WTP At Arvi	38,07,501
8	SCADA Estimate of Existing Clear Water Pumping Station At Arvi	16,38,674
9	SCADA Estimate of Existing & Proposed ESR'S	1,41,53,129
	CAPEX Total	5,31,99,892
10	Comprehensive Operation & Maintenance (72 Months)	1,21,51,762
	TOTAL	6,53,51,654

LATUR CITY MUNICIPAL CORPORATION

**AUGMENTATION OF LATUR WATER SUPPLY SCHEME
SCADA ESTIMATE OF EXISTING JACK WELL PUMPING STATION
ESTIMATE**

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
1	1	Ultrasonic level transmitter raddar type level transmeter for raw water pumping station Designing, Supplying, Installing, commissioning & testing of Ultrasonic Raddar type Ultrasonic level transmitter CE marked with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Range- 0 to ...30... Mtrs, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68, Mounting - On PLC panel MJP SOR 2022-23, P- 48, It No 1.1.b, Letter No. 316/2022 dated 8/7/22	Nos.	68908	68908
6	2	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE marked with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	219804
1	3	Ultrasonic Insertion Fixed type Flow Meter (Single Channel) Providing, installing and giving satisfactory test & trial of ultrasonic Insertion Fixed type flow meter working on conditions & specifications, calibration, inspection, testing, training, guarantee and manufacturers test certificate/ declaration copy along with accessories as mentioned in a (1) to (16) below & with inbuilt assembly to fix the insertion type transducer on the pipeline. (MJP CSR (M) 2022-23 It No. 3) P-39	Nos.	278895	278895
1	4	PLC panel for Raw water pump House with Five Pumps Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1000 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at Raw water Pump house PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO. DI -32 num DO - 32 num AI -24 num AO - 8 num. 7 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of pump house.	Nos.	249300	249300
		MCB 10A DP - 1 num MCB 4A DP - 4 num 24 VDC Power Supply 10A - 1 num Push Buttons - 7 num Selector Switch - 2 num Control Contactor - 6 num Annunciator with 6 Windows NO to NC Type Electronic Hooter - 1 num Control Transformer - 1 num Emergency PB - 1 num Panel Cooling Fan - 1 num Panel Light with Door Switch - 1 num Control Indication Lamp - 5 num Wiring + TB etc - 1 lot Hardware - 1 lot including TPI and MJP inspection with actuator control through SCADA MJP E/M CSR 22-23 I No. SA 1.4.1 & 1.4.2 No.49			
		Scada system for Raw water pump House			
1	5	Design, manufacture, supply, installation, testing and commissioning of SCADA System for pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	Job	273000	273000

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		SCADA Software of reputed company with developer & runtime license with minimum 256 number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control pumping processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant.			
		4. Alarm summery & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms.			
		There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
		MJP E/M CSR 22-23 I No. SA 1.4.4 No.50			
5	6	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement.	Nos.	33133	165665
		MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22			
	7	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner.			
		MJP MEC SOR 2022-23, P- 24			
100		3 core 1.5 sq mm	Mtr	130	13000
420		12 core 1.5 sq mm	Mtr	430	180600
1	8	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS	Nos.	49181	49181
		PWD Electrical SOR 2022-23, P- 50, It No 3-7-3			
1	9	Surveillance system :- Designing, supplying, installing, commissioning & testing of CCTV IR water proof camera suitable for upto 100ft. with control key board, DVR, Hard Disk,cables, UPT transreceivers etc. complete with not less than following specifications. 1. Four numbers of IP Camera with night vision functionality with range up to 30 meters. Camera construction shall be suitable for weather proof outdoor installation. 2. Eight Channel DVR with metal body construction, having software features of motion detect recording. 3. 3.5 inch 2 GB HDD 4. 8 port POE Switch 5. 32 inch LED Screen, Keyboard & mouse.	Job	56000	56000
		MJP Electrical SOR 2022-23, Pg 52 It No 1-9-1			
		CAT 6 Cable			
200	10	Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtrs.	66	13200
	11	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. 1.5 sq mm Copper conductor PVC insulated, armoured control cable			
100		2 core 1.5 sq mm	Mtr	110	11000
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			

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200	12	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground.	Mtr	199	39800
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
200	13	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	253	50600
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
200	14	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	372	74400
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
100	15	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground.	Mtr	665	66500
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
200	16	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware.	mtr	767	153400
		PWD Electrical CSR 2022-23, P- 50, It No 7-11-6			
4	17	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete.	Nos.	18877	75508
		(PWD CSR (M) 2022-23 It No. 3-8-4) P-51			
		TOTAL			20,38,761

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AUGMANTATION OF LATUR WATER SUPPLY SCHEME					
SCADA ESTIMATE OF PROPOSED JACK WELL PUMPING STATION					
ESTIMATE					
Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
1	1	Ultrasonic level transmitter raddar type level transmeter for raw water pumping station Designing, Supplying, Installing, commissioning & testing of Ultrasonic Raddar type Ultrasonic level transmitter CE marked with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Range- 0 to ...30... Mtrs, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68, Mounting - On PLC panel MJP SOR 2022-23, P- 48, It No 1.1.b,Letter No. 316/2022 dated 8/7/22	Nos.	68908	68908
5	2	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	183170
1	3	Ultrasonic Insertion Fixed type Flow Meter (Single Channel) Providing, installing and giving satisfactory test & trial of ultrasonic Insertion Fixed type flow meter working on conditions & specifications, calibration, inspection, testing, training, guarantee and manufacturers test certificate/ declaration copy along with accessories as mentioned in a (1) to (16) below & with inbuilt assembly to fix the insertion type transducer on the pipeline. (MJP CSR (M) 2022-23 It No. 3) P-39			
5	4	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement. MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22	Nos.	33133	165665
1		PLC panel for Raw water pump House with Five Pumps Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1000 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at Raw water Pumphouse PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO. DI –32 num DO – 32 num AI –24 num AO – 8 num. 7 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of pump house.	Nos.	278895	278895
		MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 7 num Selector Switch - 2 num Control Contactor – 6 num Annunciator with 6 Windows NO to NC Type Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 5 num Wiring + TB etc – 1 lot Hardware – 1 lot including TPI and MJP inspection with actuator control through SCADA MJP E/M CSR 22-23 I No. SA 1.4.1 & 1.4.2 No.49			
		Item No 4: Scada system for Raw water pump House			
1	5	Design, manufacture, supply, installation, testing and commissioning of SCADA System for pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	Job	273000	273000
		SCADA Software of reputed company with developer & runtime license with minimum 256 number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control pumping processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant.			

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		4. Alarm summary & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms.			
		There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
		MJP E/M CSR 22-23 I No. SA 1.4.4 No.50			
	6	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. MJP MEC SOR 2022-23, P- 24			
100		3 core 1.5 sq mm	Mtr	130	13000
420		12 core 1.5 sq mm	Mtr	430	180600
1	7	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS PWD Electrical SOR 2022-23, P- 50, It No 3-7-3	Nos.	49181	49181
200	8	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width & 100 mm height complete with necessary coupler plates & hardware. PWD SOR Electrical 2022-23, P- 144, It No 7.11.12	mtr	767	153400
		CAT 6 Cable			
200	9	Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtrs.	66	13200
	10	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. 1.5 sq mm Copper conductor PVC insulated, armoured control cable			
100		2 core 1.5 sq mm	Mtr	110	11000
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
200	11	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	199	39800
200	12	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x 1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	253	50600
200	13	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	372	74400
100	14	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	665	66500
4	15	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete. (PWD CSR (M) 2022-23 It No. 3-8-4) P-51	Nos.	18877	75508
		TOTAL			16,96,827

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF EXISTING WTP AT HARANGUL

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
4	1	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	146536
1	2	Raw Water Turbidity Analyzer Design, Supply, Installation, commissioning, testing of Turbidity Anayser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator. with 2 Outputs, 1 to PLC & anather to Local Display with mounting arrangement. Overall Range : 0 - 2000 NTU, Accuracy : +/- 0.02 NTU, Supply Voltage : 230 V ac, Output : 4-20 mA /HART, MJP SOR 2022-23, P- 52 & 53, It No 2.3.1, Letter No. 316/2022 dated 8/7/22	Nos.	254517	254517
2	3	Turbidity meter / analyser Design, Supply, Installation, Commissioning & Testing of Turbidity Analyser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity Analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator with 2 outputs, 1 to PLC & another to local display including Mounting arrangement. Overall Range : 0 - 100 NTU Accuracy : +/- 0.02 NTU Supply Voltage : 230 V ac Output : 4-20 mA MJP SOR 2022-23, P- 57, 5.4, Letter No. 316/2022 dated 8/7/22	Nos.	203744	407488
4	4	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement. MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22	Nos.	33133	132532
1	5	PH Analyzer Design, Supply, Installation, Testing of pH analyser as per IUPAC(International Union for Pure & Applied Chemistry)at A.F. and Interfacing with PLC panel including mounting arrangement. Range : 0 -14 , pH Accuracy : Better than 0.1% of full scale , Supply Voltage : 24V dc, Output : 4-20 mA /HART MJP SOR 2022-23, P- 52, It No 2.2, Letter No. 316/2022 dated 8/7/22	Nos.	104661	104661
2	6	PLC with HMI for sand filter (with 4 Filter beds) Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (sand filter bed wasing & operation). PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO DI –72 num DO – 40 num AI –24 num AO – 16 num 10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of sand filters (sand filter bed wasing & operation) MCB 10A DP – 1 num, MCB 4A DP – 4 num, 24 VDC Power Supply 10A – 1 num Push Buttons – 30 num, Selector Switch -15 num, Control Contactor – 15 num, Annunciator with 12 Windows NO to NC Type Electronic Hooter – 1 num, Control Transformer – 1 num, Emergency PB – 1 num, Panel Cooling Fan – 1 num, Panel Light with Door Switch – 1 num Control, Indication Lamp – 15 num Wiring + TB etc – 1 lot, Hardware – 1 lot, 2 HP VFDs - 3 num including TPI and MJP inspection with actuator controol through SCADA MJP SOR 2022-23, P- 54, It No 2.6.2, Letter No. 316/2022 dated 8/7/22	Nos.	337500	675000

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1	7	PLC with HMI for sand filter (with 2 Filter beds) Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (sand filter bed wasing & operation). PLC shall have Ethernet port & protocol for Modbus TCP communication with following IO DI -40 num DO - 40 num AI -16 num AO - 12 num 10 inch color TFT HMI complete with programming shall be provided to interact with	no	283700	283700
		PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of sand filters (sand filter bed wasing & operation) MCB 10A DP - 1 num, MCB 4A DP - 4 num, 24 VDC Power Supply 10A - 1 num, Push Buttons - 30 num, Selector Switch -15 num, Control Contactor - 15 num, Annunciator with 12 Windows NO to NC Type Electronic Hooter - 1 num, Control Transformer - 1 num, Emergency PB - 1 num, Panel Cooling Fan - 1 num, Panel Light with Door Switch - 1 num Control, Indication Lamp - 15 num Wiring + TB etc - 1 lot, Hardware - 1 lot, 2 HP VFDs - 3 num including TPI and MJP inspection with actuator control through SCADA			
13	8	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68	Nos.	52331	680303
		12 FB + 1 WWT			
		MJP SOR 2022-23, P- 53, It No 2.4			
	9	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner.			
		MJP MEC SOR 2022-23, P- 24			
550		3 core 1.5 sq mm	Mtr	130	71500
130		8 core 1.5 sq mm	Mtr	257	33410
100		10 core 1.5 sq mm	Mtr	325	32500
800		12 core 1.5 sq mm	Mtr	430	344000
350		14 core 1.5 sq mm	Mtr	489	171150
1	10	Supplying, erecting, testing and commissioning of 6kVA capacity online pure Each sine wave with backup time of hrs. PWM & IGBT based UPS with 0.9 to unity output pf, single phase input & 1 phase output complete with all protections as per specification no. AP-UPS	Nos.	117390	117390
		PWD SOR 2022-23 P- 50 Item No. 3-7-4			
1765	11	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware.	mtr	767	1353755
		PWD SOR Electrical 2022-23, P- 144, It No 7.11.12			
2	12	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor. room air conditioning unit 1.7TR to 2.0TR capacity having ISEER minimum 5.0 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Nos.	67302	134604
		PWD SOR Electrical 2022-23, P- 44, It No 3-2-13			

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5	13	Surveillance system :- Designing, supplying, installing, commissioning & testing of CCTV IR water proof camera suitable for upto 100ft. with control key board, DVR, Hard Disk,cables, UPT transreceivers etc. complete with not less than following specifications. 1. Four numbers of IP Camera with night vision functionality with range up to 30 meters. Camera construction shall be suitable for weather proof outdoor installation. 2. Eight Channel DVR with metal body construction, having software features of motion detect recording. 3. 3.5 inch 2 GB HDD 4. 8 port POE Switch 5. 32 inch LED Screen, Keyboard & mouse.	Job	56000	280000
		MJP Electrical SOR 2022-23, Pg 52 It No 1-9-1			
		CAT 6 Cable			
500	14	Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	33000
		Item No. 1 : Open channel type ultrasonic flowmeter with FIT			
1	15	Design, Supply, Installation, Testing & calibration of open chanel type ultrasonic flow Transmitter CE marked with following technical parameters at Raw Water channel and Interfacing with PLC panel including mounting arrangement. Medium- Water Range- 0 - 5 mtrs Output-4-20 mA / HART Power supply - 24V DC ext. Display - 4" LED Accuracy - +/- 0.25% of Full Scale or better Enclosure- IP 68 With TPI & Manufacturers testing charges	No	60664	60664
		(MJP CSR (M) 2022-23 It No SA 2.1/ 52)			
		Priming arrangement			
1	16	Desidning, supplying, installing, commissioning & testing with complete priming arrangements for centrifugal pumps as applicable & as required shall be done with interface with PLC panels & further to SCADA system.	No	97221	97221
		PLC Panel for WTP Automation			
1	17	Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (raw water monitoring, alum dosing control,clariffaculator operation & control, recirculation & mud pump operation). PLC shall have Ethernet port & protocol for Modbus TCP communication with following IO DI –72 num DO – 40 num AI –12 num AO – 4 num Hardware – 1 lot	No	349400	349400

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		10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of WTP plant. MCB 16A DP – 3 num MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 30 num Selector Switch -16 num Control Contactor – 16 num Annunciator with 12 Windows NO to NC Type Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 16 num Wiring + TB etc – 1 lot			
		Item No. 1: SCADA Software			
1	18	Design, manufacture, supply, installation, testing and commissioning of SCADA System for WTP Plant, Sand Filter beds & pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. SCADA Software of reputed company with developer & runtime license with minimum 512 number of Tags with following features & functions. 1. Supervise real-time data in the form of graphical presentation.	No	378000	378000
		2. Control WTP processes locally or through Remote locations. 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant. 4. Alarm summary & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet.			
		SCADA Programming shall be done so as operator can visualize and control complete WTP operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms. There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
		MJP E/M CSR 22-23 I No. SA 6.2 P No.60			
1	19	Secondary work station PC Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	No.	75000	75000
		(MJP CSR (M) 2022-23 It No. 6.3) P-60			
350	20	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground.	Mtr	199	69650

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		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			0
350	21	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	253	88550
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			0
350	22	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	372	130200
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			0
350	23	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground.	Mtr	665	232750
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
4	24	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete.	Nos.	18877	75508
		(PWD CSR (M) 2022-23 It No. 3-8-4) P-51			
		TOTAL			68,12,989

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME					
SCADA ESTIMATE OF EXISTING CLEAR WATER PUMPING STATION AT HARANGUL					
ESTIMATE					
Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
1	1	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 53, It No 2.4	Nos.	52331	52331
6	2	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	219804
1	3	PLC panel for Raw water pump House with Five Pumps Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1000 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at Raw water Pumphouse PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO. DI –32 num DO – 32 num AI –24 num AO – 8 num. 7 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of pump house.	Nos.	249300	249300
		MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 7 num Selector Switch - 2 num Control Contactor – 6 num Annunciator with 6 Windows NO to NC Type Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 5 num Wiring + TB etc – 1 lot Hardware – 1 lot including TPI and MJP inspection with actuator control through SCADA MJP E/M CSR 22-23 I No. SA 1.4.1 & 1.4.2 No.49			
		Item No 4: Scada system for Raw water pump House			
1	4	Design, manufacture, supply, installation, testing and commissioning of SCADA System for pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	Job	273000	273000
		SCADA Software of reputed company with developer & runtime license with minimum 256 number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control pumping processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant.			

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		4. Alarm summary & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms.			
		There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
		MJP E/M CSR 22-23 I No. SA 1.4.4 No.50			
6	5	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement. MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22	Nos.	33133	198798
1	6	Design, Supply, Installation, Testing of Residual chlorine analyser / meter must have automatic sensor cleaning facility at pure water sump and Interfacing with PLC panel. Residual Chlorine meter shall comprises of 3 components i.e. sensors, flow through assembly and transmitter with indicator and gives 2 outputs one to Local display & other to PLC including Mounting arrangement. Overall Range : 0 - 8 mg/l (ppm) Accuracy : 2% of full scale Supply Voltage : 230 V ac Output : 4-20 mA Membrane free sensor of 2 gold plated electrodes for long term stability and reference electrode (ag/Agcl) must be provided to avoid maintenance. IP 65 Nema 4 housing protection class required. MJP SOR 2022-23, P- 57 & 58, It No. 5.5, Letter No. 316/2022 dated 8/7/22	Nos.	273324	273324
	7	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. MJP MEC SOR 2022-23, P- 24			
185		3 core 1.5 sq mm	Mtr	130	24050
200		12 core 1.5 sq mm	Mtr	430	86000
180		14 core 1.5 sq mm	Mtr	489	88020
1	8	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS PWD Electrical SOR 2022-23, P- 50, It No 3-7-3	Nos.	49181	49181
200	9	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width & 100 mm height complete with necessary coupler plates & hardware. PWD SOR Electrical 2022-23, P- 144, It No 7.11.12	mtr	767	153400
200	10	CAT 6 Cable Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	13200
1	11	PH Analyzer Design, Supply, Installation, Testing of pH analyser as per IUPAC(International Union for Pure & Applied Chemistry) at A.F. and Interfacing with PLC panel including mounting arrangement. Range : 0 -14 , pH Accuracy : Better than 0.1% of full scale , Supply Voltage : 24V dc, Output : 4-20 mA /HART As per IEC 61000-6-2 & IEC 61000-6-3 MJP SOR 2022-23, P- 52, It No 2.2, Letter No. 316/2022 dated 8/7/22	Nos.	104661	104661

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1	12	Surveillance system :- Designing, supplying, installing, commissioning & testing of CCTV IR water proof camera suitable for upto 100ft. with control key board, DVR, Hard Disk,cables, UPT transreceivers etc. complete with not less than following specifications. 1. Four numbers of IP Camera with night vision functionality with range up to 30 meters. Camera construction shall be suitable for weather proof outdoor installation. 2. Eight Channel DVR with metal body construction, having software features of motion detect recording. 3. 3.5 inch 2 GB HDD 4. 8 port POE Switch 5. 32 inch LED Screen, Keyboard & mouse. MJP Electrical SOR 2022-23, Pg 52 It No 1-9-1	Nos.	56000	56000
	13	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. 1.5 sq mm Copper conductor PVC insulated, armoured control cable 2 core 1.5 sq mm (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
100			Mtr	110	11000
200	14	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	199	39800
200	15	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	253	50600
200	16	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	372	74400
100	17	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	665	66500
4	18	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete. (PWD CSR (M) 2022-23 It No. 3-8-4) P-51	Nos.	18877	75508
		TOTL			21,58,877

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AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF PROPOSED WTP AT HARANGUL

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
4	1	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68	Nos.	36634	146536
		MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22			
1	2	Raw Water Turbidity Analyzer Design, Supply, Installation, commissioning, testing of Turbidity Anayser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator. with 2 Outputs, 1 to PLC & anather to Local Display with mounting arrangement. Overall Range : 0 - 2000 NTU, Accuracy : +/- 0.02 NTU, Supply Voltage : 230 V ac, Output : 4-20 mA /HART,	Nos.	254517	254517
		MJP SOR 2022-23, P- 52 & 53, It No 2.3.1, Letter No. 316/2022 dated 8/7/22			
2	3	Turbidity meter / analyser Design, Supply, Installation, Commissioning & Testing of Turbidity Analyser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity Analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator with 2 outputs, 1 to PLC & another to local display including Mounting arrangement. Overall Range : 0 - 100 NTU Accuracy : +/- 0.02 NTU Supply Voltage : 230 V ac Output : 4-20 mA	Nos.	203744	407488
		MJP SOR 2022-23, P- 57, 5.4, Letter No. 316/2022 dated 8/7/22			
1	4	Ultrasonic Insertion Fixed type Flow Meter (Single Channel) Providing, installing and giving satisfactory test & trial of ultrasonic Insertion Fixed type flow meter working on conditions & specifications, calibration, inspection, testing, training, guarantee and manufacturers test certificate/ declaration copy along with accessories as mentioned in a (1) to (16) below & with inbuilt assembly to fix the insertion type transducer on the pipeline.	Nos.	272895	272895
		MJP SOR 2022-23, P- 43, It No WM3-16, Letter No. 316/2022 dated 8/7/22			
4	5	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement.	Nos.	33133	132532
		MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22			
1	6	PH Analyzer Design, Supply, Installation, Testing of pH analyser as per IUPAC(International Union for Pure & Applied Chemistry)at A.F. and Interfacing with PLC panel including mounting arrangement. Range : 0 -14 , pH Accuracy : Better than 0.1% of full scale , Supply Voltage : 24V dc, Output : 4-20 mA /HART As per IEC 61000-6-2 & IEC 61000-6-3	Nos.	104661	104661
		MJP SOR 2022-23, P- 52, It No 2.2, Letter No. 316/2022 dated 8/7/22			

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3	7	PLC with HMI for sand filter (with 4 Filter beds) Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (sand filter bed wasing & operation). PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO DI –72 num DO – 40 num AI –24 num AO – 16 num 10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of sand filters (sand filter bed wasing & operation) MCB 10A DP – 1 num, MCB 4A DP – 4 num, 24 VDC Power Supply 10A – 1 num Push Buttons – 30 num, Selector Switch -15 num, Control Contactor – 15 num, Annunciator with 12 Windows NO to NC Type Electronic Hooter – 1 num, Control Transformer – 1 num, Emergency PB – 1 num, Panel Cooling Fan – 1 num, Panel Light with Door Switch – 1 num Control, Indication Lamp – 15 num Wiring + TB etc – 1 lot, Hardware – 1 lot, 2 HP VFDs - 3 num including TPI and MJP inspection with actuator control through SCADA	Nos.	337500	1012500
		MJP SOR 2022-23, P- 54, It No 2.6.2, Letter No. 316/2022 dated 8/7/22			
13	8	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68	Nos.	52331	680303
		12 FB + 1WWT			
		MJP SOR 2022-23, P- 53, It No 2.4			
		Actuator for WTP			
26	9	150 mm -Air Wash rate with TPI (2Nos for blower discharge +24 Nos for filter bed air inlet)	No.	94909	2467634
2	10	300 mm - rate with TPI (1No for filter piping drain valve+1 NO. for flash mixer drain valve)	No.	110745	221490
26	11	400 mm - RC rate with TPI (24 Nos for filter bed outlet valve+ 2 Nos for Wash water pump discharge S.V.	No.	116247	3022422
26	12	450 mm - (WW inlet 24 Nos + 1 NO. CLF drain + 1 NO. WW Isolation) with TPI	No.	120876	3142776
12	13	450 mm - (12 Nos. WW disposal valve filter drain) with TPI	No.	120876	1450512
12	14	500 mm - (3 Nos Fillter Inlet) with TPI	Nos.	130987.00	1571844
		MJP mech CSR VA			
	15	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner.			
		MJP MEC SOR 2022-23, P- 24			
550		3 core 1.5 sq mm	Mtr	130	71500
130		8 core 1.5 sq mm	Mtr	257	33410
100		10 core 1.5 sq mm	Mtr	325	32500
800		12 core 1.5 sq mm	Mtr	430	344000
350		14 core 1.5 sq mm	Mtr	489	171150
1765	16	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware.	mtr	767	1353755
		PWD SOR Electrical 2022-23, P- 144, It No 7.11.12			
2	17	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor. room air conditioning unit 1.7TR to 2.0TR capacity having ISEER minimum 5.0 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC	Nos.	67302	134604

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		PWD SOR Electrical 2022-23, P- 44, It No 3-2-13			
6	18	Surveillance system :- Designing, supplying, installing, commissioning & testing of CCTV IR water proof camera suitable for upto 100ft. with control key board, DVR, Hard Disk,cables, UPT transreceivers etc. complete with not less than following specifications. 1. Four numbers of IP Camera with night vision functionality with range up to 30 meters. Camera construction shall be suitable for weather proof outdoor installation. 2. Eight Channel DVR with metal body construction, having software features of motion detect recording. 3. 3.5 inch 2 GB HDD 4. 8 port POE Switch 5. 32 inch LED Screen, Keyboard & mouse.	Job	56000	336000
		MJP Electrical SOR 2022-23, Pg 52 It No 1-9-1			
		CAT 6 Cable			
500	19	Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	33000
1	20	Design, Supply, Installation, Testing & calibration of open chanel type ultrasonic flow Transmitter CE marked with following technical parameters at Raw Water channel and Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68 (MJP CSR (M) 2022-23 It No. 2.1) P-52			
			Nos.	54664	54664
2	21	Priming arrangement Desidning, supplying, installing, commissioning & testing with complete priming arrangements for centrifugal pumps as applicable & as required shall be done with interface with PLC panels & further to SCADA system. MJP SOR 2022-23, P- 56, It No 3.3, Letter No. 316/2022 dated 8/7/22	Nos.	97221	194442
1		PLC Panel for WTP Automation	Nos.	343400	343400
		Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (raw water monitoring, alum dosing control,clariffaculator operation & control, recirculation & mud pump operation).			
	22	PLC shall have Ethernet port & protocol for Modbus TCP communication with following IO DI -72 num DO - 40 num AI -12 num AO - 4 num 10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of WTP plant. MCB 16A DP - 3 num MCB 10A DP - 1 num MCB 4A DP - 4 num 24 VDC Power Supply 10A - 1 num Push Buttons - 30 num Selector Switch -16 num Control Contactor - 16 num Annunciator with 12 Windows NO to NC Type			
		Electronic Hooter - 1 num Control Transformer - 1 num Emergency PB - 1 num Panel Cooling Fan - 1 num Panel Light with Door Switch - 1 num Control Indication Lamp - 16 num Wiring + TB etc - 1 lot Hardware - 1 lot (MJP CSR (M) 2022-23 It No. 6.1) P-59			
1		SCADA system for WTP	Nos.	378000	378000

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		Design, manufacture, supply, installation, testing and commissioning of SCADA System for WTP Plant, Sand Filter beds & pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. SCADA Software of reputed company with developer & runtime license with minimum 512 number of Tags with following features & functions. 1. Supervise real-time data in the form of graphical presentation.			
	23	2. Control WTP processes locally or through Remote locations. 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant. 4. Alarm summery & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet.			
1		SCADA Programming shall be done so as operator can visualize and control complete WTP operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms. There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided. (MJP CSR (M) 2022-23 It No. 6.2) P-59			
1	24	Secondary work station PC Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. (MJP CSR (M) 2022-23 It No. 6.3) P-60	Nos.	75000	75000
350	25	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	199	69650
350	26	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	253	88550
350	27	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	372	130200
350	28	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cablew on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	665	232750
		TOTAL			1,89,64,685

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF PROPOSED CLEAR WATER PUMPING STATION

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
5	1	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	183170
5	2	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement. MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22	Nos.	33133	165665
1	3	Design, Supply, Installation,Testing of Residual chlorine analyser / meter must have automatic sensor cleaning facility at pure water sump and Interfacing with PLC panel. Residual Chlorine meter shall comprises of 3 components i.e. sensors,flow through assembly and transmitter with indicator and gives 2 outputs one to Local display & other to PLC including Mounting arrangement. Overall Range : 0 - 8 mg/l (ppm) Accuracy : 2% of full scale Supply Voltage : 230 V ac Output : 4-20 mA Membrane free sensor of 2 gold plated electrodes for long term stability and reference electrode (ag/Agcl) must be provided to avoid maintenance. IP 65 Nema 4 housing MJP SOR 2022-23, P- 57 & 58, It No. 5.5, Letter No. 316/2022 dated 8/7/22	Nos.	273324	273324
	4	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. MJP MEC SOR 2022-23, P- 24			
185		3 core 1.5 sq mm	Mtr	130	24050
200		12 core 1.5 sq mm	Mtr	430	86000
180		14 core 1.5 sq mm	Mtr	489	88020
1	5	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS PWD Electrical SOR 2022-23, P- 50, It No 3-7-3	Nos.	49181	49181
200	6	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware. PWD SOR Electrical 2022-23, P- 144, It No 7.11.12	mtr	767	153400
1	7	PLC panel for Raw water pump House with Five Pumps Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1000 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at Raw water Pumphouse PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO. DI -32 num DO - 32 num AI -24 num AO - 8 num. 7 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of pump house.	No	249300	249300

LATUR CITY MUNICIPAL CORPORATION

		MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 7 num Selector Switch - 2 num Control Contactor – 6 num Annunciator with 6 Windows NO to NC Type Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 5 num Wiring + TB etc – 1 lot Hardware – 1 lot including TPI and MJP inspection with actuator control through SCADA			
		MJP E/M CSR 22-23 I No. SA 1.4.1 & 1.4.2 No.49			
		Item No 4: Scada system for Raw water pump House			
1	8	Design, manufacture, supply, installation, testing and commissioning of SCADA System for pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	Job	273000	273000
		SCADA Software of reputed company with developer & runtime license with minimum 256 number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control pumping processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant.			
		4. Alarm summery & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms.			
		There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
200	9	CAT 6 Cable Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	13200
1	10	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 53, It No 2.4	Nos.	52331	52331

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	11	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. 1.5 sq mm Copper conductor PVC insulated, armoured control cable			
100		2 core 1.5 sq mm (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	110	11000
200	12	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	199	39800
200	13	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x 1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	253	50600
200	14	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	372	74400
100	15	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground. (MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24	Mtr	665	66500
4	16	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete. (PWD CSR (M) 2022-23 It No. 3-8-4) P-51	Nos.	18877	75508
		TOTAL			19,28,449

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF EXISTING WTP AT ARVI

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
5	1	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 53, It No 2.4	Nos.	52331	261655
4	2	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68 MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22	Nos.	36634	146536
1	3	Raw Water Turbidity Analyzer Design, Supply, Installation, commissioning, testing of Turbidity Anayser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator. with 2 Outputs, 1 to PLC & anather to Local Display with mounting arrangement. Overall Range : 0 - 2000 NTU, Accuracy : +/- 0.02 NTU, Supply Voltage : 230 V ac, Output : 4-20 mA /HART, MJP SOR 2022-23, P- 52 & 53, It No 2.3.1, Letter No. 316/2022 dated 8/7/22	Nos.	254517	254517
1	4	Turbidity meter / analyser Design, Supply, Installation, Commissioning & Testing of Turbidity Analyser as per ISO 7027 scattering light method at A.F. and Interfacing with PLC panel. Turbidity Analyser shall comprises of 3 components i.e. sensors,signal distributor and transmitter with indicator with 2 outputs, 1 to PLC & another to local display including Mounting arrangement. Overall Range : 0 - 100 NTU Accuracy : +/- 0.02 NTU Supply Voltage : 230 V ac Output : 4-20 mA MJP SOR 2022-23, P- 57, 5.4, Letter No. 316/2022 dated 8/7/22	Nos.	203744	203744
4	5	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement. MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22	Nos.	33133	132532
1	6	PH Analyzer Design, Supply, Installation, Testing of pH analyser as per IUPAC(International Union for Pure & Applied Chemistry)at A.F. and Interfacing with PLC panel including mounting arrangement. Range : 0 -14 , pH Accuracy : Better than 0.1% of full scale , Supply Voltage : 24V dc, Output : 4-20 mA /HART MJP SOR 2022-23, P- 52, It No 2.2, Letter No. 316/2022 dated 8/7/22	Nos.	104661	104661

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1	7	PLC with HMI for sand filter (with 4 Filter beds) Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (sand filter bed wasing & operation). PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO DI –72 num DO – 40 num AI –24 num AO – 16 num 10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of sand filters (sand filter bed wasing & operation) MCB 10A DP – 1 num, MCB 4A DP – 4 num, 24 VDC Power Supply 10A – 1 num Push Buttons – 30 num, Selector Switch -15 num, Control Contactor – 15 num, Annunciator with 12 Windows NO to NC Type Electronic Hooter – 1 num, Control Transformer – 1 num, Emergency PB – 1 num, Panel Cooling Fan – 1 num, Panel Light with Door Switch – 1 num Control, Indication Lamp – 15 num Wiring + TB etc – 1 lot, Hardware – 1 lot, 2 HP VFDs - 3 num including TPI and MJP inspection with actuator control through SCADA	Nos.	337500	337500
		MJP SOR 2022-23, P- 54, It No 2.6.2, Letter No. 316/2022 dated 8/7/22			
	8	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. MJP MEC SOR 2022-23, P- 24			
300		3 core 1.5 sq mm	Mtr	130	39000
150		6 core 1.5 sq mm	Mtr	207	31050
500		12 core 1.5 sq mm	Mtr	430	215000
100		14 core 1.5 sq mm	Mtr	489	48900
1	9	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS PWD Electrical SOR 2022-23, P- 50, It No 3-7-3	Nos.	49181	49181
1177	10	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware. PWD SOR Electrical 2022-23, P- 144, It No 7.11.12	mtr	767	902759
100	11	Providing and Fixing Vertical Blinds of approved Make and shade of 100mm regular fabric with powder coated aluminium channel with telting PVC chain & bottom weight plate with all necessary fixtures and fitting etc. complete. (Sample to be final by Engineer In-charge prior execution of work) PWD SOR 2022-23, P- 453, It No 1857, 51.20	Sqm	0	0
1	12	Supplying, installing, testing & commissioning split type variable speed inverter technology with minimum 3 to 1 convertible mode for compressor. room air conditioning unit 1.7TR to 2.0TR capacity having ISEER minimum 5.0 suitable to operate on 250V, 50 Hz, A.C. supply having 1 no of air handling unit hi-wall/floor mounting type complete with refrigerant R32 having copper condenser, minimum 2.5PM filter, self diagnosis feature, stabilizer free operation & temperature display on indoor unit, noise level maximum 50dBA at position in provided recess with wooden frame complete specification no. AP-AC/WAC PWD SOR Electrical 2022-23, P- 44, It No 3-2-13	Nos.	67302	67302

LATUR CITY MUNICIPAL CORPORATION

1	13	SCADA system for WTP Design, manufacture, supply, installation, testing and commissioning of SCADA System for WTP Plant, Sand Filter beds & pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. SCADA Software of reputed company with developer & runtime license with minimum 512 number of Tags with following features & functions. 1. Supervise real-time data in the form of graphical presentation. 2. Control WTP processes locally or through Remote locations. 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant. 4. Alarm summery & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete WTP operation from operator desk. All important alarms & events shall be logged. All MJP SOR 2022-23, Pg 59 It No 6.2 (New SCADA)	Set	378000	378000
1	14	Secondary work station PC Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. MJP SOR 2022-23, Pg 60 It No 6.3 (New SCADA)	Nos.	75000	75000
200	15	CAT 6 Cable Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	13200
1	16	Design, Supply, Installation, Testing & calibration of open chanel type ultrasonic flow Transmitter CE marked with following technical parameters at Raw Water channel and Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68 (MJP CSR (M) 2022-23 It No. 2.1) P-52	Nos.	54664	54664
1	17	PLC Panel for WTP Automation Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1200 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at WTP Plant (raw water monitoring, alum dosing control,clariffaculator operation & control, recirculation & mud pump operation).	Nos.	343400	343400

LATUR CITY MUNICIPAL CORPORATION

		PLC shall have Ethernet port & protocol for Modbus TCP communication with following IO DI –72 num DO – 40 num AI –12 num AO – 4 num 10 inch color TFT HMI complete with programming shall be provided to interact with PLC The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of WTP plant. MCB 16A DP – 3 num MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 30 num Selector Switch -16 num Control Contactor – 16 num Annunciator with 12 Windows NO to NC Type			
		Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 16 num Wiring + TB etc – 1 lot Hardware – 1 lot			
		(MJP CSR (M) 2022-23 It No. 6.1) P-59			
100	18	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground.	Mtr	199	19900
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
100	19	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	253	25300
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
100	20	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	372	37200
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
100	21	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground.	Mtr	665	66500
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
		TOTAL			38,07,501

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF EXISTING CLEAR WATER PUMPING STATION AT ARVI

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
2	1	Pressure Transmitter for raw & pure water pumping station Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68	Nos.	36634	73268
		MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22			
1	2	Ultrasonic Insertion Fixed type Flow Meter (Single Channel) Providing, installing and giving satisfactory test & trial of ultrasonic Insertion Fixed type flow meter working on conditions & specifications, calibration, inspection, testing, training, guarantee and manufacturers test certificate/ declaration copy along with accessories as mentioned in a (1) to (16) below & with inbuilt assembly to fix the insertion type transducer on the pipeline.	Nos.	275895	275895
		(MJP CSR (M) 2022-23 It No. 3) P-39			
2	3	Power Analyzer Designing, Supplying, Installing, commissioning & testing of Power Analyzer interfacing to PLC Panel with Modbus Communication Port, as per IEC 62053 and in the prescribed format including Mounting arrangement.	Nos.	33133	66266
		MJP SOR 2022-23, P- 58, It No 5.6, Letter No. 316/2022 dated 8/7/22			
	4	Design, Supply, Installation,Testing of Residual chlorine analyser / meter must have automatic sensor cleaning facility at pure water sump and Interfacing with PLC panel. Residual Chlorine meter shall comprises of 3 components i.e. sensors,flow through assembly and transmitter with indicator and gives 2 outputs one to Local display & other to PLC including Mounting arrangement. Overall Range : 0 - 8 mg/l (ppm) Accuracy : 2% of full scale Supply Voltage : 230 V ac Output : 4-20 mA Membrane free sensor of 2 gold plated electrodes for long term stability and reference electrode (ag/Agcl) must be provided to avoid maintenance. IP 65 Nema 4 housing protection class required.	Nos.	273324	273324
1		MJP SOR 2022-23, P- 57 & 58, It No. 5.5, Letter No. 316/2022 dated 8/7/22			
1	5	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68	Nos.	52331	52331
		MJP SOR 2022-23, P- 53, It No 2.4			
	6	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner.			
		MJP MEC SOR 2022-23, P- 24			
185		3 core 1.5 sq mm	Mtr	130	24050
200		12 core 1.5 sq mm	Mtr	430	86000
1	7	Supplying & erecting on line UPS pure sine wave of 3 kVA capacity complete with standard features, along with necessary SMF batteries for 30 mins. battery backup, as per specification no. AP-UPS	Nos.	49181	49181
		PWD Electrical SOR 2022-23, P- 50, It No 3-7-3			
110	8	Providing & erecting hot dipped galvanised ladder type cable tray manufactured from 16 SWG (1.6 mm thick) GI sheet of 150 mm width &100 mm height complete with necessary coupler plates & hardware.	mtr	767	84370
		PWD SOR Electrical 2022-23, P- 144, It No 7.11.12			

LATUR CITY MUNICIPAL CORPORATION

1		Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 1000 mm X 700 mm X 1500mm (LBH), fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at Raw water Pumphouse. PLC shall have Ethernet port & protocol for Modbus TCP communication with minimum following IO. DI –16 num DO – 16 num AI –8 num AO – 4 num. 7 inch color TFT HMI complete with programming shall be provided to interact with PLC.	Nos.	163300	163300
		The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation of pump house. MCB 10A DP – 1 num MCB 4A DP – 4 num 24 VDC Power Supply 10A – 1 num Push Buttons – 7 num Selector Switch - 2 num Control Contactor – 2 num Annunciator with 6 Windows NO to NC Type Electronic Hooter – 1 num Control Transformer – 1 num Emergency PB – 1 num Panel Cooling Fan – 1 num Panel Light with Door Switch – 1 num Control Indication Lamp – 5 num Wiring + TB etc – 1 lot Hardware – 1 lot with actuator control through Scada			
		Item No 4: Scada system for Raw water pump House			
1	9	Design, manufacture, supply, installation, testing and commissioning of SCADA System for pump house. Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license.	Job	273000	273000
		SCADA Software of reputed company with developer & runtime license with minimum 256 number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control pumping processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant.			
		4. Alarm summary & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms.			
		There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security. An Industrial grade Din rail mounting ethernet switch with 5 ports shall be provided. An Industrial grade modem with 4G/5G GSM connectivity shall be provided.			
		(MJP CSR (M) 2022-23 It No. 1.4.1) P-49			
		CAT 6 Cable			

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150	10	Supplying and installing enhanced cat-6 cable with 4-connector channel, performance test report as per ANSI/TIA-568.2-D suitable for networking complete as per specification. (MJP CSR (M) 2022-23 It No CB 7-10-03) P-18	Mtr	66	9900
	11	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner. 1.5 sq mm Copper conductor PVC insulated, armoured control cable			
50		2 core 1.5 sq mm	Mtr	110	5500
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
50	12	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground.	Mtr	199	9950
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
50	13	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 3 Pairs x 1 sq.mm. as per IS 694 copper Shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	253	12650
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
50	14	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 4.5 Pairs x 1.0 sq.mm as per IS 694 copper shielded, twisted, multi stranded armoured cable on wall in GI tray or on ground.	Mtr	372	18600
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
50	15	Signal Cable Designing, Supplying, Installing, commissioning & testing with Terminating & Interfacing of 2 Pair x 1 sq.mm as per IS 694 copper Shielded twisted, multistranded armoured cable on wall in GI tray or on ground.	Mtr	665	33250
		(MJP CSR (M) 2022-23 It No. CB 7-1-1) P-24			
4	16	Supplying and erecting 12V/150Ah tubular battery with battery terminal wire, duly charged with 36 months warranty complete.	Nos.	18877	75508
		(PWD CSR (M) 2022-23 It No. 3-8-4) P-51			
1	17	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68	Nos.	52331	52331
		MJP SOR 2022-23, P- 53, It No 2.4			
		TOTAL			16,38,674

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

SCADA ESTIMATE OF EXISTING & PROPOSED ESR's

ESTIMATE

Qty.	Sr. No.	Description of Item	Unit	Rate	Amount
27	1	Pressure Transmitter Designing, Supplying, Installing, commissioning & testing of pressure transmitter CE markd with following technical parameters at Raw Water Pump House and Interfacing with PLC panel including mounting arrangement. Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.1% of Full Scale or better, Enclosure- IP 68	Nos.	36634	989118
		MJP SOR 2022-23, P- 48, It No 1.2, Letter No. 316/2022 dated 8/7/22			
	2	Pressure Gauges Providing, erecting Pressure gauge of required range complete with syphon tube, isolating cock suitable for 12 mm dia G.I. Pipe. Pressure gauge shall be installed as directed, with tapping on rising main. Glycerine Filled Pressure gauge Bourdon's type as IS 3624:1987 Mounting - direct bottom, stainless steel body, toughened glass window			
27		150 mm dia	Nos.	2005	54135
		MJP SOR 2022-23, P- 5, It No PM 11-4, Letter No. 316/2022 dated 8/7/22			
	3	Full-Bore Electromagnetic Flow Meter: Supply, install and commission Electromagnetic Flow Meter (EMF) As Per ISO 4064, for Raw/Pure water with accuracy +/-0.5% of measured value & protection as per given specifications for size 100 mm-1000mm including sensor, transmitter surge arrestor, cable GI duct if suitable size for 25 mtrs built in GSM (with Simcard and its charges,valid for 36 months) including the pipe cutting, leveling and installation of flow meter in the pipelines with necessary tool tackles, cranes including 36 months guarantee etc complete, as may be required at site & based on technical specifications.			
4		300 mm	Nos.	217710	870840
3		350 mm	Nos.	223710	671130
		MJP SOR 2022-23, P- 43, It No WM3-16, Letter No. 316/2022 dated 8/7/22			
20	4	Ultrasonic Insertion Fixed type Flow Meter (Single Channel) Providing, installing and giving satisfactory test & trial of ultrasonic Insertion Fixed type flow meter working on conditions & specifications, calibration, inspection, testing, training, guarantee and manufacturers test certificate/ declaration copy along with accessories as mentioned in a (1) to (16) below & with inbuilt assembly to fix the insertion type transducer on the pipeline.	Nos.	275895	5517900
		(MJP CSR (M) 2022-23 It No. 3) P-39			
1		SCADA System for MBR/GSR/ESR with PLC based control valves Management system Design, manufacture, supply, installation, testing and commissioning of SCADA System for MBR/GSR/ESR Management system Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. one LTE Cellular Gateway with minimum following specifications shall be provided with Dual Sim Support, Support for all LTE bands used by Indian Cellular Operators, with atleast one, Ethernet, one USB & one serial port for connectivity with host device, ruegged construction for hazardous location.	Nos.	464000	464000

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	5	One remote dice mangement software shall be provided to manage IP addresses of RTUs SCADA Software of reputed compny with developer & runtime license with unlimited number of Tags with following features & functions 1. Supervise real-time data in the form of graphical presentation 2. Control MBR/GSR/ESR processes locally or through Remote locations 3. Dynamic process Graphic, It should resemble the process mimic. SCADA should have good library of symbols so that develop the mimic as per required. When operator sees the screen he should know what's going in plant. 4. Alarm summery & Alarm history, SCADA system must be able to detect, display, and log alarms and events. When there are problems the SCADA system must notify the operators to take corrective action. 5. Acquire real-time data as well as logs data with Real time trend & Historical time trend. 6. Web Connectivity, Real-time displays can be accessed on remotely attached PCs and notebooks using internet. SCADA Programming shall be done so as operator can visualize and control complete pump house operation from operator desk. All important alarms & events shall be logged. All the data from field instruments & equipments shall be logged. There shall be provision to take reports in required formats of real time & historical data, events & alarms. There shall be provision of broadcasting messages, emails of reporting information. There shall be provision of access security.			
		MJP SOR 2022-23, P- 61, It No 7.2.2, Letter No. 316/2022 dated 8/7/22			
27	6	Level transmitter Designing, Supplying, installing, commissioning & testing of Ultrasonic level transmitter CE marked at each filter bed with following technical parameters Interfacing with PLC panel including mounting arrangement. Range- 0 - 5 mtrs, Output-4-20 mA / HART, Power supply - 24V DC ext., Display - 4" LED, Accuracy - +/- 0.25% of Full Scale or better, Enclosure- IP 68	Nos.	52331	1412937
		MJP SOR 2022-23, P- 53, It No 2.4			
27	7	RTU (Remote terminal control & communication unit at each GSE/ESR) Design, manufacture, supply, installation, testing and commissioning of indoor type PLC panel of size approx. 800 mm X 700 mm X 800mm (LBH) , fabricated out of min. 2 mm thick CRCA sheet powder coated to Siemens gray color. The Panel shall be provided with reputed make PLC with following accessories as well as input output configuration. The PLC shall be programmed with IEC 61131 standards for control, monitoring and communication of equipments & instruments at GSR/ESR Tank. PLC shall have Ethernet port & protocol for Modbus TCP communication with following IO DI –16 num, DO – 16 num, AI –2 num, AO – 1 num. The panel shall include all the accessories (not limited to following) to achieve purpose of smooth & trouble free operation at GSR/ESR functionality. Digital Flow Indicator-1 num Digital TDS Indicator – 1 num Led Level, Indicator – 5 levels MCB 4A DP – 4 num, 24 VDC Power Supply 10A – 1 num Push Buttons – 4 num, Selector Switch - 1 num, Control Relay –2 num Electronic Hooter – 1 num Control Transformer – 1 num, Emergency PB – 1 num, Panel Cooling Fan – 1 num, Panel Light with Door Switch – 1 num Wiring +, TB etc – 1 lot Hardware – 1 lot	Nos.	83700	2259900
		MJP SOR 2022-23, P- 61, It No 7.2.1, Letter No. 316/2022 dated 8/7/22			
	8	Supplying and erecting armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner.			
		MJP MEC SOR 2022-23, P- 24			
2700		3 core 1.5 sq mm	Mtr	130	351000
27	9	Solar Panel with Battery Designing, Supplying, installing commissioning & testing of photovoltaic solar panel with its charger, MS Stand for mounting solar panel so as to have maximum exposure of sunlight for desired location and maintenance free battery with 3 days battery backup.	Nos.	20391	550557
		(MJP CSR (M) 2022-23 It No. 7.3) P-62			

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27	10	Valve chamber with cast iron manhole 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 CM 1:5 proportion, 12 mm thick cement plaster in CM 1:4 proportion on both sides with providing and fixing C.I. manhole frame and cover in RCC 1:2:4 coping or RCC 1:2:4 proportion x 15 cm thick slab, etc. complete as directed by Engineer-in-charge.	No.	29656	800712
		As above of 1.5 x 1.5 M internal size and depth upto 1.5 M with 53 cm dia CI manhole frame and cover of 90 kg. fixed in RCC slab.			
300		Sensor/Transmitter cable of following specification: 3 X 0.38 mm ² PVC cable with common, braided copper shield (-7mm dia) and individually shielded cores- with empty pipe detection 9 EPD): 4X0.38 mm ² PVC cable with common, braided copper shield (-7 mm dia) and individually shielded cores- conductor resistance: <=50 Ohm/Km-Capacitance: core/shield: <=420 pF/m.-permanent operating temperature:-20.....+80 Deg C	No.	203	60900
1	11	Provision for TPI of 15% qty of Level transmitter and Pressure Transmitter of Total Scheme	No.	Job	150000
		TOTAL			1,41,53,129

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

Total amount for Calculation of O&M cost without cable, tray chamber etc

Sr. No.	Sub-Works	Amount for O&M
1	SCADA Estimate of Existing Jack Well Pumping Station	1371753
2	SCADA Estimate of Proposed Jack Well Pumping Station	1094327
3	SCADA Estimate of Existing WTP at Harangul	4210016
4	SCADA Estimate of Existing Clear Water Pumping Station at Harangul	1551907
5	SCADA Estimate Of Proposed WTP at Harangul	16404220
6	SCADA Estimate of Proposed Clear Water Pumping Station	1321479
7	SCADA Estimate of Existing WTP At Arvi	2408692
8	SCADA Estimate of Existing Clear Water Pumping Station At Arvi	1354404
9	SCADA Estimate of Existing & Proposed ESR'S	12185825
	CAPEX Total	4,19,02,623

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

ESTIMATE FOR SCADA AND AUTOMATION SYSTEM FOR LATUR WATER SUPPLY SCHEME

Comprehensive Operation and Maitenance

DESCRIPTION	QTY.	RATE	UNIT	AMOUNT
Item No -1 :- Comprehensive Operation and Maitenance -				
Comprehensive Operation and Maitenance charges of the Sub work No.1, 2 & 3.				
scheme on SCADA ... etc. complete as per @ 10% of the CAPEX specification				41902623.00
During first year Free				
During second year 3% of Total cost				1257079.00
During third year 5% of Total cost				2095131.00
During forth year 7% of Total cost				2933184.00
During fifth year 7% of Total cost				2933184.00
During Sixth year 7% of Total cost				2933184.00
			Total Rs.	12151762.00

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Providing, Installation and commissioning of AMR Ultrasonic Consumer Domestic Water Meter

ABSTRACT SHEET

Qty.	Item	Unit	Rate	Amount
	Item No 1 :- Ultrasonic Water Meter : A) AMR Domestic Meters: Providing, installing and giving satisfactory field testing of domestic battery operated AMR water meters with no measurement of air along with manufacturing test certificate and guarantee certificate with battery life of minimum 10 years with GSM / RF technology for communication to server with PC software including 36 months guarantee, etc. complete. MJP ELEC/MECH CSR 2022-23, Section 18 - WM 2 Item No.			
	General Specifications 1. Meter should be battery operated with no moving parts, low pressure loss, dry type as per ISO 4064/OIML R49 and certification as per FCRI / MID. 2. Display : 9 digits LCD 3. Enclosure : Protection class IP 68 4. Temperature : Ambient 50 deck 5. Pressure : PN-16 6. Power Supply : 3.6 lithium battery with minimum life of 10 years 7. Memory built-in and should have storage for at least 12 months with daily / monthly accumulated totalised data with time and date should be available. It should be able to access memory of the meter through serial communication			
2448	15 mm Diameter	No.	10915.00	26719920.00
950	20 mm Diameter	No.	11906.00	11310700.00
400	25 mm Diameter	No.	13883.00	5553200.00
570	TPI charges as per CSR for 15% qty as per CSR		6000.00	3418200.00
	Item No 2 :- Providing ISI mark G.I. pipe of following class and dia. excluding GST levied by GOI & GOM in all respect, inspection charges, transportation to stores, etc. complete as per IS 1239/2004. (Consider only for Road crossing connection & 3 Mtr. G.I. pipe will be use for road & nail casing) MJP Civil CSR 2021-22, SECTION - (III) G.I. Pipes, P no 82 Sr. No.1 Corrigendum B) Medium			
2448	15 mm (1.46 kg./m)	Rmt.	105.00	257040.00
950	20 mm (1.91 kg./m)	Rmt.	135.00	128250.00
400	25 mm (2.99 kg./m)	Rmt.	206.00	82400.00
	Item No 3 :- G.I. Coupling /Nipple "B" Class Supplying and erecting "B" class G.I. Coupling / Nipple in position with necessary material. MJP ELEC/MECH CSR 2022-2023, Section 4 - PW, Item No. PW3 Page No. 8,			
2448	15 mm Diameter	No.	31.00	75888.00
950	20 mm Diameter	No.	31.00	29450.00
400	25 mm Diameter	No.	53.00	21200.00

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Qty.	Item	Unit	Rate	Amount
	Item No. 4 :- G.I. Elbow (Heavy Duty) Supplying and erecting Heavy Duty G.I. Elbow in position with necessary material. MJP ELEC/MECH CSR 2022-2023, Section 4 - PW, Item No. PW5 Page No. 8,			
7344	15 mm Diameter	No.	34.00	249696.00
2850	20 mm Diameter	No.	34.00	96900.00
1200	25 mm Diameter	No.	80.00	96000.00
	Item No. 5 :- Brass Ball Valve - ISI Standard (As per Market rate)			
	Providing & installation of ball valve			
2448	15 mm Diameter	No.	365.00	893520.00
950	20 mm Diameter	No.	460.00	437000.00
400	25 mm Diameter	No.	605.00	242000.00
	Item No. 6 :- Protection Box for Water Meter (As per Market rate)			
3798	Providing & installation of Protection box for meter with locking arrangement of heavy duty GI Sheet	No.	500.00	1899000.00
	Item No. 5 :- Providing and installing AMI/MDM/Data Analytics Software along with 5 years of licensing charges with necessary required Gateways with following specifications :- The Ultrasonic AMR Water meter should be converted to Advanced Metering Infrastructure (AMI) by using Fixed Network Gateway. These items including Gateway, Antenna with cable and connector, UPS with minimum 3 hours battery backup, Mobile Sim Cards for 60 months etc. complete. The frequency is suitable from transfer the consumer end data to Server. The distance to LoRA/RF Radio gateways can be more than 1 km Loss (Line of sight). The Gateway can receive meter data of meter Endpoints in periodical interval or communicate on demand and transfer the data on the long range via GPRS (Ethernet) communication. The Municipal council will arrange the electrical supply to install the gateway at location which will be require uninterrupted power supply (As per Market Rate -	Per Month Per Metering Point		
3798	Number of connections	Year	840.00	3190320.00
3	Item No. 6 :- Windows based PC with latest configuration & OS complete with necessary office & antivirus software's. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SSD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch colour TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Security software for 3 years license. MJP ELEC/MECH CSR 2021-2022, Section 6 - SCADA & Automation, Item No. SA 6.3 Page 60	No.	75000.00	225000.00
	Total Amount Rs.			54925684.00

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Providing, Installation and commissioning of AMR Ultrasonic Consumer Domestic Water Meter

MEASUREMENT SHEET

Item	No.	Length	Breadth	Depth	Qty.
Item No 1 :- Ultrasonic Water Meter : A) AMR Domestic Meters: Providing, installing and giving satisfactory field testing of domestic battery operated AMR water meters with no measurement of air along with manufacturing test certificate and guarantee certificate with battery life of minimum 10 years with GSM / RF technology for communication to server with PC software including 36 months guarantee, etc. complete. MJP ELEC/MECH CSR 2021-22, Section 18 - WM 2 Item No. A)					
General Specifications 1. Meter should be battery operated with no moving parts, low pressure loss, dry type as per ISO 4064/OIML R49 and certification as per FCRI / MID. 2. Display : 9 digits LCD 3. Enclosure : Protection class IP 68 4. Temperature : Ambient 50 deg.C 5. Pressure : PN-16 6. Power Supply : 3.6 lithium battery with minimum life of 10 years 7. Memory built-in and should have storage for atleast 12 months with daily / monthly accumulated totalised data with time and date should be available. It should be able to access memory of the meter through serial communication 8. End connections : Screwed upto 40 mm					
15 mm Diameter	2448				2448
20 mm Diameter	950				950
25 mm Diameter	400				400
Item No 2 :- Providing ISI mark G.I. pipe of following class and dia. excluding GST levied by GOI & GOM in all respect, inspection charges, transportation to stores, etc. complete as per IS 1239/2004. (Consider only for Road crossing connection & 3 Mtr. G.I. pipe will be use for road & nali casing) MJP Civil CSR 2021-22, SECTION - (III) G.I. Pipes, P no 82 Sr. No.1 (b)					
C) Medium					
15 mm (1.46 kg./m)	2448				2448
20 mm (1.46 kg./m)	950				950
25 mm (1.46 kg./m)	400				400
Item No 3 :- G.I. Coupling /Nipple "B" Class Supplying and erecting "B" class G.I. Coupling / Nipple in position with necessary material. (Consider 6 nos. for each connection), MJP ELEC/MECH CSR 2021-2022, Section 4 - PW, Item No. PW3 Page No. 11					
15 mm Diameter (900 x 3)	2448				2448

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Item	No.	Length	Breadth	Depth	Qty.
20 mm Diameter (900 x 3)	950				950
25 mm Diameter (900 x 3)	400				400
Item No. 4 :- G.I. Elbow (Heavy Duty) Supplying and erecting Heavy Duty G.I. Elbow in position with necessary material. (Consider 6 nos. for each connection), MJP ELEC/MECH CSR 2021-2022, Section 4 - PW, Item No. PW5 Page No. 12					
15 mm Diameter (2448 x 3)	7344				7344
20 mm Diameter (950 x 3)	2850				2850
25 mm Diameter (400 x 3)	1200				1200
Item No. 5 :- Brass Ball Valve - ISI Standard (As per Market rate)					
Providing & installation of ball valve					
15 mm Diameter	2448				2448
20 mm Diameter	950				950
25 mm Diameter	400				400
Item No. 6 :- Protection Box for Meter					
Providing & installation of Protection box for meter with locking arrangement of heavy duty GI Sheet	3798				3798
Item No. 5 :- Providing and installaing AMI/MDM/Data Analytics Software along with 5 years of licensing charges with necessary required Gateways with followng specifications :- The Ultrasonic AMR Water meter should be converted to Advanced Metering Infrastructure (AMI) by using Fixed Network Gateway. These items including Gateway, Antenna with cable and connector, UPS with minimum 3 hours battery backup, Mobile Sim Cards for 60 months etc. complete. The frequency is suitable from transfer the consumer end data to Server. The distance to LoRA/RF Radio gateways can be more than 1 km LoS (Line of sight). The Gateway can receivemeter data of meter Endpoints in periodical interval or communicate on demand and transfer the data on the long range via GPRS (Ethernet) communication. The Municipal council will arrange the electrical supply to install the gateway at location which will be require uninterrupted power supply. (As per Market Rate - 70/- per Connection per month)					
Number of connections	3798				3798
ItemNo. 6 :- Windows based PC with latest configuration & OS complete with necessary office & antivirus softwares. PC configuration shall not be less than Intel i5 10th Gen CPU, 16 GB Ram, 128 GB SDD, 500 GB HDD, DVD RW, Rs232 & Rs485 port, 2 RJ45 ports, Keyboard, Optical Mouse, 32 inch color TFT Monitor, Latest Windows Pro OS, Microsoft Office & Antivirus & Internet Seurity software for 3 years license. MJP ELEC/MECH CSR 2021-2022, Section 6 - SCADA& Automation, Item No. SA 6.3 Page 60	3				3

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

**Replacement of Existing Pumping Machinery with Providing, erecting with
Satisfactory test & trial of New Pumping Machinery
(Raw & Pure Water)**

Abstract

Sr. No.	Name of Work		Amount
1	Raw Water Pumping M/C AT Dhanegaon Head Work V.T. Pumpset - 1 No. HP - 885 HEAD - 77.45 MTRS DISCHARGE - 480.56 LPS	Rs.	20424065.00
2	Pure Water Pumping M/C on Sump Well at Harangul WTP Premises V.T. Pumpset - 3 NOS HP - 442 HEAD - 66 MTRS DISCHARGE - 314 LPS	Rs.	33486822.00
3	Air blowers, Washwater Pumps, with allied Electrical and Mechanical equipments at existing Head work (Harangul WTP)	Rs.	3048433.00
	TOTAL RS	Rs.	5,69,59,320.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

Designing, providing, erecting, testing and commissioning of Raw water Pumping Machinery with allied Electrical and Mechanical equipments at existing Head work (Dhanegaon Dam)

ESTIMATE

QTY		DESCRIPTION OF ITEM	Ref of CSR 2022-23	RATE IN RS.	AMOUNT
1	No	<u>Item No. :- 1</u> VERTICAL TURBINE PUMPS Providing,erecting commissioning & giving satisfactory test and trial of Water lubricated Vertical Turbine Pumps having Stainless Steel impeller, Stainless Steel Shaft, Discharge head & bowl assembly suitable to discharge 480.56 LPS against total head of 77.45 mtr.from all sources including all allied accesories including third party inspection	As Per rate analysis	6284088.00	6284088.00
		(As Per Rater Analysis Atatched herewith)			
1	No	<u>Item No.:- 2</u> VERTICAL SOLID SHAFT MOTOR Providing erecting Vertical Solid shaft motors TEFC 3300 Volts 3 ph 50 Hz and Hp not less than 660 KW (885 HP) With TPI Charges.	As Per rate analysis	1566038.00	1566038.00
		(As Per Rater Analysis Atatched herewith)			
1	No	<u>Item No.:-3 (a)</u> CAST IRON D.F. SLUICE VALVE WITH ACTUATOR 500 MM DIA PN-1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Sluice valve (Glandless) of 500 mm size and Cast iron PN 1.6 rating as per standerd specification with electric valve actuator & TPI Charges.	AS PER RATE ANALYSIS	276606.00	276606.00
1	No	<u>Item No.:-3 (b)</u> CAST IRON BUTTER FLY VALVE 1000 MM DIA PN-1.6 With Actuator A) Providing erecting commissioning & giving satisfactory test and trial of cast iron butter fly valve of 1000 mm size and Cast iron PN 1.6 rating as per standerd specification with electric valve Actuator. and TPI charges.	AS PER RATE ANALYSIS	538299.00	538299.00
1	No	<u>Item No.4(a) :-</u> CAST IRON D.F. REFLUX VALVE 500 mm dia PN 1.6 rating a) Providing erecting cast iron / spheroidal Graphite (S.G.) Iron D/F Reflux valve single door with jointing to pipe work (including all hardware and packing) water works quality with jointing to pipe with bypass arrangement with gun metal seats excluding C.C. foundation/ structural steel support for pumps etc with TPI charges.	AS PER RATE ANALYSIS	228790.00	228790.00

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1	No	<u>Item No.4 (b):-</u> CAST IRON D.F. REFLUX VALVE 1000 mm dia PN 1.6 a) Providing erecting cast iron / spheroidal Graphite (S.G.) Iron D/F Reflux valve single door with jointing to pipe work (including all hardware and packing) water works quality with jointing to pipe with bypass arrangement with gun metal seats excluding C.C. foundation/ structural steel support etc with TPI .	AS PER OFFER & RATE ANALYSIS	792819.00	792819.00
1	No	<u>Item No.:-5 KINETIC AIR VALVE CAST IRON PN 1.6</u> Providing erecting, Commissioning & giving satisfactory test and trial of Kinetic Air valve of 200 mm size and Cast iron PN 1.6 rating as per standard specification.	Civil CSR 2022-23 Item No. 9 biii & 10 (viii)	36569.00	36569.00
1	Nos	<u>Item No.:- 6 DISMANTLING JOINT</u> a) Providing erecting, Commissioning & giving satisfactory test and trial of M.S.Dismantling Joint of 500 mm size as per detailed specification.	Mech CSR for 2022-23 It.No. 6-9	54026.00	54026.00
1	No	b) Providing erecting commissioning & giving satisfactory test and trial of M.S.Dimantling Joint of 1000 mm size as per detailed specification.	Mech CSR for 2022-23 PW 6-9	101964.00	101964.00
3500	kg	<u>Item No :-7 M.S.PIPES & SPECIALS</u> Providing lowering, laying jointing and testing M.S.Pipes & Specials as per standard specifications and approved size & layout of pumping machinery	Civil (MJP CSR 2022-23 I.No.7 ©	95.00	332500.00
5.00	Cum	<u>Item No.8:- Excavation</u> 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. Lift 0 to 1.5 m	Civil CSR 22-23 I.No.PW 10-1	150.00	750.00
0	kg	<u>Item No.:-9 M.S.FLANGES</u> Providing favricating erecting M.S.flanges sleep on type of required size and thickness with both side machined as per detailed specification and approved layout of pumping machinery & size mentioned by the department.	Mec CSR for 2022-23 Item No.PW 10-2	160.00	0.00
1	No	<u>Item No.10 :- PRESSURE GAUGES</u> Providing erecting and testing Glyserine filled pressure gauge Bourdon's type of 150 mm dia as per IS 3624: 1987 with brass cock, syphon tube etc. as per standerd. Specification.	Mec CSR for 2022-23 Item No.PW 11-4	2005.00	2005.00

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10	cum	<u>Item.No.:-11</u> CONCRETE FOUNDATION FOR PUMP i) Providing and laying in situ Cement Concrete of trap/ granite / quartzite / gneiss metal for RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, bally, steel propups compaction, finishing 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) In RCC M-200	MJP Civil CSR 22-23 Item No.2.b	7318.00	73180.00
1	MT	ii) Providing and fixing in position Tor 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).	MJP Civil CSR 22-23 Item No.8.b	66218.00	66218.00
1	Job	<u>Item No.:- 12 E.O.T. CRANE 10 TON CAP. & 10 MTR SPAN</u> Providing erecting, Commissioning Single Girder Electrcally Operated Rectangular Travelling Crane with 10 m.lift complete with wire rope hoist class II duty all three motions electrcally Operated by suitable rating motor IP 54 control panel and down pendant control block. 10.0 Tonne Capacity with TPI with DSL System.	As Per attached rate analysis-3	1420036.00	1420036.00
60	Mtr	<u>Item No.13 SQUARE BAR/RAIL</u> Providing erecting and fixing square bar of EN 8 as rail for over head crane on provided track girder/contineous corbel beam, including supporting plate and "J"bolts. 50x 50mm (EN 8)	Mech CSR for 2022-23 LF 5-1	2231.00	133860.00
1	No	<u>Item No.14 :-</u> Power Transformer of 2000 KVA (outdoor) Designing Providing erecting commissioning testing 33 KV/3.3KV 2000 KVA power transformer (outdoor) with OLTC NGR Relay panel as per detailed specification with TPI	Mech. CSR 22- 23 I.No. TR 9- 4	2867425.00	2867425.00
1	No	Item No. 15:- Designing, Providing, erecting, commissioning 33 KV/433V ,160 KVA auxiliary Transformer with off load tap changer necessary fittings as Per detailed specification with TPI	Mech CSR for 2022-23 Item No.TR 3-3	570609.00	570609.00
		<u>Item No.16 :- CABLE</u> Providing,lowering,laying, jointing,Commissioning &Giving test and trial of XLPE insulated, armoured cable,ISI Marked with stranded or solid conductor as per detailed specification.	PWD and Mech CSR 22- 23		
100	m	a) 33 KV,3 Core 185 Sqmm.E Grade For MSEB to VCB to Substation	PWD CSR 22- 23 7-3-25	3115.00	311500.00

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30	m	a) 6.6 KV,3 Core 70 Sqmm. For CAPACITOR	CB 10-3	930.00	27900.00
500	m	b) 6.6KV,3 Core 400 Sqmm 2 run Incoming Main from Transformer Switch Yard Breaker to Incomer in PumpHouse .	CB 10-10	2880.00	1440000.00
50	m	c) 6.6 KV.3 Core 150 Sqmm. For MOTOR	CB 10-6	1426.00	71300.00
500	m	d) 11.KV 3.5 Core 185 Sq mm. LT CABLE	PWD CSR 22-23 7-1-22	1093.00	546500.00
400	m	e) 1.1 KV 3.5 Core 25 Sqmm For LIGHTING & CRANE	7-1-15	242.00	96800.00
400	m	f) 1.1KV 3 Core 10 Sq mm For LIGHTING	7-1-10	162.00	64800.00
		g) Supplying and erecting Un-armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner Page no 70 and 71			
30	mtr	2 core 1.5 sq mm	CB 8-1-1	70.00	2100.00
30	mtr	3 core 1.5 sq mm	CB 8-1-2	89.00	2670.00
30	mtr	4 core 1.5 sq mm	CB 8-1-3	106.00	3180.00
30	mtr	5 core 1.5 sq mm	CB 8-1-4	129.00	3870.00
30	mtr	6 core 1.5 sq mm	CB 8-1-5	153.00	4590.00
30	mtr	7 core 1.5 sq mm	CB 8-1-6	167.00	5010.00
30	mtr	8 core 1.5 sq mm	CB 8-1-7	187.00	5610.00
30	mtr	9 core 1.5 sq mm	CB 8-1-8	210.00	6300.00
30	mtr	10 core 1.5 sq mm	CB 8-1-9	228.00	6840.00
		2.5 sq mm Copper conductor PVC Un-armoured control cable	Mech CSR 22-23		
30	mtr	2 core 2.5 sq mm	CB 8-2-1	94.00	2820.00
30	mtr	3 core 2.5 sq mm	CB 8-2-2	126.00	3780.00
30	mtr	4 core 2.5 sq mm	CB 8-2-3	155.00	4650.00
30	mtr	5 core 2.5 sq mm	CB 8-2-4	184.00	5520.00
30	mtr	6 core 2.5 sq mm	CB 8-2-5	218.00	6540.00
30	mtr	7 core 2.5 sq mm	CB 8-2-6	251.00	7530.00
30	mtr	8 core 2.5 sq mm	CB 8-2-7	277.00	8310.00
30	mtr	9 core 2.5 sq mm	CB 8-2-8	311.00	9330.00
30	mtr	10 core 2.5 sq mm	CB 8-2-9	351.00	10530.00
		h) Providing and fixing G.I. Perforated cable trays of size as below including fixing on provided angles.			
50	mtr	200mm X 20mm	PWD CSR 22-23 7-11-12	455.00	22750.00
75	mtr	400mm X 20mm	PWD CSR 22-23 7-11-14	797.00	59775.00
		I) Providing and laying RCC (M-150) cable duct of size given below for laying electric cable including form work for centering M.S. bar reinforcement, necessary excavation bolder filling, PCC (M100), compacting, curing , plastering, including providing and fixing 35 X 35 X 5 mm M.S. angles, RCC pre cast cover of Adequate length with 100 mm over lap on either walls etc complete and providing RCC pre cast covers.	Mech. CSR 22-23		
50	mtr	Cable duct 2 tier-750W X 750 D	CB 15-1	1444.00	72200.00
50	mtr	Cable duct 3 tier-750W X 1000 D	CB 15-2	1696.00	84800.00

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		<u>Item.No.17:-</u> CABLE TERMINATION KITS Providing fixing cable termination Kits as per detailed specification.	PWD & Mech CSR for 2022-23		
4	Nos	a) 33 KV,3 Core 185 Sqmm (outdoor)	7-5-28	29245.00	116980.00
4	Nos	a) 33KV,3 Core 185 Sqmm (Indoor)	7-5-24	21137.00	84548.00
8	Nos	b) 6.6KV,3 Core 400 Sqmm (Indoor)	CB 11-4	8768.00	70144.00
4	Nos	c) 6.6 KV.3 Core 150 Sqmm (Indoor)	CB 11-3	8169.00	32676.00
4	Nos	d) 6.6 KV.3 Core 70 Sqmm (Indoor)	CB 11-2	7553.00	30212.00
0	Job	Cable lugs,glands,MS trays, etc.	Lumpsum	25000.00	0.00
		<u>Item No.18:- EARTHING</u>			
		Providing earthing with Galvanised cast iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification No. EA-EP			
15	Nos	a) In 33 KV Sub-Station in switch yard. b) For Pump House - 15 Nos	PWD (Ele.) CSR 22-23 It.No. 9-1-1	4714.00	70710.00
		<u>Item No.19:-</u> CI Pipe 150 mm dia LA Class for Earthing.			
0	Mtr	a) Sub-Station in switch yard - 1.5m x 10 Nos =15.00 M b) In Pump House - 1.5m x 5 Nos = 7.50 M Total - 22.50 Mtr	MJP (Civil) CSR 22-23 I.No. 1 aiii & 2aiii	1845.00	0.00
		<u>Item No.20:-</u> GI Pipe for Earthing 60 mm.			
90	Mtr	a) Sub-Station in switch yard - 6.00m x 10 Nos = 60M b) In Pump House - 6.00m x 5 Nos = 30M Total - 90.00 Mtr	MJP (Civil) CSR 22-23 I.No. 1 bvii & 2bvii	485.00	43650.00
		<u>Item No.21 :-</u> G.I.EARTHING STRIPS			
400	Kg	Supplying and erecting G.I. strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joint required. as per specification No (EA-EP).	As Per PWD Ele.CSR 22-23 I.No.9-2-3	222.00	88800.00
1	MT	<u>Item No.22:- IRON WORK</u> Providing,fabricating iron work of ISMB,ANGLES,M.S.FLATS,CHEQUARED PLATE,for panel stand,square bar for crane, cable tray,supports of ventilation ducting and items related to crane with all other similar work, including cutting,bending, welding and painting as per specification.	MJP Civil CSR 22-23 I. No.4	70017.00	70017.00
1	No	Item No.23 - Ultrasonic insertionfixed type Flow meter (Single Channel) Providing, installing and giving satisfactory test and trial of Ultrasonic insertion fixed type Flow Meter as per detailed specifications with TPI Charges.	MJP CSR 22-23 P.No. 39 I.No. WM 2 C (3)	275895.00	275895.00

LATUR CITY MUNICIPAL CORPORATION

1	Job	Item No.24 - Dismantling of Existing elect & Mechanical Equipments. Dismantling of existing V.T. Pump, Motor, Transformer all valves, crane with transportation charges from Hw to MC Store at Latur.	As per Rate Analysis	221607.00	221607.00
1	Job	Item No.25 :- TOOLS & FIRE FIGHTING EQUIPMENTS Providing Tools, furniture & Firefighting equipments as per specification	As per attached rate analysis - 11	377671.00	377671.00
1	Job	Item No.26:- ELECTRIFICATION OF PUMPHOUSE Providing Electrification internal & external electrification as per detailed specification.	As Per attached rate analysis-12	483668.00	483668.00
3	months	Item No.:- 27 TEST AND TRIAL Giving satisfactory test and trial of all installed and provided equipments to full load situation, after completing the commissioning test as per specification.	As Per attached rate analysis	71400.00	214200.00
			Total	Rs.	20424065.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

Designing, providing, erecting, testing and commissioning of Pure water Pumping Machinery with allied Electrical and Mechanical equipments for at Pure Water Sumpwell

ESTIMATE

QTY		DESCRIPTION OF ITEM	Ref of CSR 2022-23	RATE IN RS.	AMOUNT
3	Nos	<u>Item No. :- 1</u> VERTICAL TURBINE PUMPS Providing,erecting commissioning & giving satisfactory test and trial of Water lubricated Vertical Turbine Pumps having Stainless Steel impeller, Stainless Steel Shaft, Discharge head & bowl assembly suitable to discharge 314 LPS against total head of 66 mtr.from all sources including all allied accesories including third party inspection	As Per rate analysis	3784556.00	11353668.00
		(As Per Rater Analysis Atatched herewith)			
3	Nos	<u>Item No.:- 2</u> VERTICAL SOLID SHAFT MOTOR Providing erecting Vertical Solid shaft motors TEFC 3300 Volts 3 ph 50 Hz with Hp not less than 330 KW (442 HP) With TPI	As Per rate analysis	1024177.00	3072531.00
		(As Per Rater Analysis Atatched herewith)			
3	Nos	<u>Item No.:-3 (a)</u> CAST IRON D.F. SLUICE VALVE WITH ACTUATOR 400 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Sluice valve (Glandless) of 400 mm size and Cast iron PN 1.6 rating as per standerd specification with at actuator. with TPI	AS PER OF RATE ANALYSIS	211880.00	635640.00
1	No	<u>Item No.:-3 (b)</u> CAST IRON BUTTER FLY VALVE 700 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of cost iron butter fly valve of 700 mm size and Cast iron PN 1.6 rating as per standerd specification for electric valve actuator and TPI	AS PER RATE ANALYSIS	325421.00	325421.00
3	Nos	<u>Item No.4(a) :-</u> CAST IRON D.F. REFLUX VALVE 400 mm dia PN 1.6 a) Providing erecting cast steel / spheroidal Graphite (S.G.) Iron D/F Reflux valve single door with jointing to pipe work (including all hardware and packing) water works quality with jointing to pipe with bypass arrangement with gun metal seats excluding C.C. foundation/ structural steel support for pumps etc with TPI	AS PER RATE ANALYSIS	123866.00	371598.00
1	No	<u>Item No.4 (b):-</u> CAST IRON D.F. REFLUX VALVE 700 mm dia PN 1.6 a) Providing erecting cast iron / spheroidal Graphite (S.G.) Iron D/F Reflux valve single door with jointing to pipe work (including all hardware and packing) water works quality with jointing to pipe with bypass arrangement with gun metal seats excluding C.C. foundation/ structural steel support etc with TPI	AS PER OFFER & RATE ANALYSIS	393601.00	393601.00

LATUR CITY MUNICIPAL CORPORATION

1	No	Item No.:-5 KINETIC AIR VALVE CAST IRON Providing erecting, Commissioning & giving satisfactory test and trial of Kinetic Air valve of 200 mm size and Cast iron PN 1.6 rating as per standard specification.	Civil CSR 2022-23 9biii & 10 (viii)	36569.00	36569.00
3	Nos	Item No.:- 6 DISMANTLING JOINT a) Providing erecting, Commissioning & giving satisfactory test and trial of M.S.Dismantling Joint of 400 mm size as per detailed specification.	Civil CSR 22-23 I.No. PM 6-7	36921.00	110763.00
1	No	b) Providing erecting commissioning & giving satisfactory test and trial of M.S.Dimantling Joint of 700 mm size as per detailed specification.	Mech CSR for 22-23 I.No. 6-11	86427.00	86427.00
10200	kg	Item No :-7 M.S.PIPES & SPECIALS Providing lowering, laying jointing and testing M.S.Pipes & Specials as per standard specifications and approved size & layout of pumping machinery	Civil (MJP CSR 22-23 I.No. 7 (C)	95.00	969000.00
5.00	Cum	Item No.8:- Excavation 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. Lift 0 to 1.5 m	(As Per Civil CSR22-23 It.No.1	150.00	750.00
1200	kg	Item No.:-9 M.S.FLANGES Providing favricating erecting M.S.flanges sleep on type of required size and thickness with both side machined as per detailed specification and approved layout of pumping machinery & size mentioned by the department.	Mec CSR for 22-23 Item No.PW 10-2	160.00	192000.00
3	Nos	Item No.10 :- PRESSURE GAUGES Providing erecting and testing Glyserine filled pressure gauge Bourdon's type of 150 mm dia as per IS 3624: 1987 with brass cock, syphon tube etc. as per standard. Specification.	Mech CSR for 22-23 Item No.PM 11-4	2005.00	6015.00
20	cum	Item.No.:-11 CONCRETE FOUNDATION FOR PUMP AND SURGE AIR VESSEL i) Providing and laying in situ Cement Concrete of trap/ granite / quartzite / gneiss metal for RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, bally, steel propups compaction, finishing 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)	MJP Civil CSR 22-23 Item No.2 (G)	7318.00	146360.00

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3	MT	ii) Providing and fixing in position Tor 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)	Civil CSR 2022-23 I.No. 8 (G)	62218.00	186654.00
1	Job	Item No.:- 12 E.O.T. CRANE 10 TON CAP. & 10 MTR SPAN Providing erecting, Commissioning Single Girder Electrcally Operated Rectanguler Travelling Crane with 10 m.lift complete with wire rope hoist class II duty all three motions electrcally Operated by suitable rating motor IP 54 control panel and down pendant control block. 10.0 Tonne Capacity with TPI with DSL system	As Per attached rate analysis	1420036.00	1420036.00
60	Mtr	Item No.13 SQUARE BAR/RAIL Providing erecting and fixing square bar of EN 8 as rail for over head crane on provided track girder/contineous corbel beam, including supporting plate and "J"bolts. 50x 50mm (EN 8)	Mech CSR for 22-23 LF 5-1	2231.00	133860.00
0	Job	Item No.14:- RELAY METERING AND SCANNER PANEL FOR SUBSTATION. Designing Providing, installating commissioning & testing of Relay Metering & Scanner Panel for 33 KV System with TPI	As Per attached rate analysis	361826.00	0.00
		Item No.:-15 Battery Panel for Switch Yard. Designing Providing, installating commissioning & testing of Battery Panel etc			
		i) Exide 2 V 100 LH VRLA CE 11 - 55 Nos			
1	No	ii) Installation charges	As Per attached rate analysis	450525.00	450525.00
1	Nos	Item No.16:- Power Transformer of 1600 KVA (outdoor) Designing Providing erecting commissioning testing 33 KV/3.3KV 1600 KVA power transformer (outdoor) with OLTC NGR Relay panel as per detailed specification with TPI	Mech.CSR 22-23 I.No. TR 9-3	2387600.00	2387600.00
1	Nos.	Item No. 17:- Designing, Providing, erecting, commissioning 33 KV/433V ,315 KVA auxiliary Transformer with off load tap changer necessary fittings as Per detailed specification	Mech CSR for 22-22 Item No.TR 3-6	1115035.00	1115035.00
1	Job	Item No.:-18- 3.3.KV VCB PANEL FOR PUMP. Designing Providing, installating commissioning & testing of indoor type VCB Panel with 3 Nos. of 3.3.KV 1250 Amp Vacuum Circuit Breaker, 6 Nos. of 400 Amp. Vaccum contactor, Capacitor Bank with all switch gear and measuring and protection unit etc complete with TPI	As Per attached rate analysis-8	5067935.00	5067935.00

LATUR CITY MUNICIPAL CORPORATION

1	Job	Item No..19 :- Scanner Panel for Motor. Designing, Providing, Installing Commissioning & Testing of Scanner Panel having 8 windows in Pump House for measuring Oil Temperature winding Temperature of Motors.	Current Market Rate	75000.00	75000.00
1	No.	Item No.20 L.T.Panel Providing erecting, Commissioning & giving satisfactory test and trial of L.T.Panel comprising of specified Breakers, Bus bar, switches, indicating instruments etc as per specification with Tpi	As Per attached rate analysis	241271.00	241271.00
		Item No.21 :- CABLE Providing, lowering, laying, jointing, Commissioning & Giving test and trial of XLPE insulated, armoured cable, ISI Marked with stranded or solid conductor as per detailed specification.	PWD & Mech. CSR 2022-23		
100	m	a) 33 KV, 3 Core 185 Sqmm. E Grade For MSEB to VCB to Substation	7-3-15	3115.00	311500.00
150	m	a) 6.6 KV, 3 Core 70 Sqmm. For CAPACITOR	CB 10-3	930.00	139500.00
500	m	b) 6.6KV, 3 Core 400 Sqmm 2 run Incoming Main from Transformer Switch Yard Breaker to Incomer in PumpHouse	CB 10-10	2880.00	1440000.00
150	m	c) 6.6 KV. 3 Core 95 Sqmm. For MOTOR	CB 10-4	1093.00	163950.00
400	m	d) 1.1.KV 3.5 Core 185 Sq mm. LT CABLE	7-1-22	1093.00	437200.00
100	m	e) 1.1 KV 3.5 Core 25 Sqmm For LIGHTING & CRANE	7-1-15	242.00	24200.00
100	m	f) 1.1KV 3 Core 10 Sq mm For LIGHTING	7-1-10	162.00	16200.00
		g) Supplying and erecting Un-armoured control cable with ISI mark stranded / solid copper conductor 1.1 kV grade complete erected on wall / panel or in provided trench in an approved manner Page no 70 and 71			
50	mtr	2 core 1.5 sq mm	CB 8-1-1	70.00	3500.00
50	mtr	3 core 1.5 sq mm	CB 8-1-2	89.00	4450.00
50	mtr	4 core 1.5 sq mm	CB 8-1-3	106.00	5300.00
50	mtr	5 core 1.5 sq mm	CB 8-1-4	129.00	6450.00
50	mtr	6 core 1.5 sq mm	CB 8-1-5	153.00	7650.00
50	mtr	7 core 1.5 sq mm	CB 8-1-6	167.00	8350.00
50	mtr	8 core 1.5 sq mm	CB 8-1-7	187.00	9350.00
50	mtr	9 core 1.5 sq mm	CB 8-1-8	210.00	10500.00
50	mtr	10 core 1.5 sq mm	CB 8-1-9	228.00	11400.00
		2.5 sq mm Copper conductor PVC Un-armoured control cable			
0	mtr	2 core 2.5 sq mm	CB 8-2-1	94.00	0.00
0	mtr	3 core 2.5 sq mm	CB 8-2-2	126.00	0.00
0	mtr	4 core 2.5 sq mm	CB 8-2-3	155.00	0.00
0	mtr	5 core 2.5 sq mm	CB 8-2-4	184.00	0.00
50	mtr	6 core 2.5 sq mm	CB 8-2-5	218.00	10900.00
50	mtr	7 core 2.5 sq mm	CB 8-2-6	251.00	12550.00
50	mtr	8 core 2.5 sq mm	CB 8-2-7	277.00	13850.00
50	mtr	9 core 2.5 sq mm	CB 8-2-8	311.00	15550.00
50	mtr	10 core 2.5 sq mm	CB 8-2-9	351.00	17550.00
		h) Providing and fixing G.I. Perforated cable trays of size as below including fixing on provided angles.			

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100	mtr	200mm X 20mm	PWD CSR 22-23 7-11-12	455.00	45500.00
100	mtr	400mm X 20mm	7-11-14	797.00	79700.00
		I) Providing and laying RCC (M-150) cable duct of size given below for laying electric cable including form work for centering M.S. bar reinforcement, necessary excavation bolder filling, PCC (M100), compacting, curing , plastering, including providing and fixing 35 X 35 X 5 mm M.S. angles, RCC pre cast cover of Adequate length with 100 mm over lap on either walls etc complete and providing RCC pre cast covers.			
50	mtr	Cable duct 2 tier-750W X 750 D	CSR 22-23 CB	1444.00	72200.00
50	mtr	Cable duct 3 tier-750W X 1000 D	CB 15-2	1696.00	84800.00
		<u>Item.No.22:-</u> CABLE TERMINATION KITS Providing fixing cable termination Kits as per detailed specification.	PWD & Mech CSR for 2022-23		
4	Nos	a) 33 KV,3 Core 185 Sqmm (outdoor)	7-5-28	29245.00	116980.00
4	Nos	a) 33KV,3 Core 185 Sqmm (Indoor)	7-5-24	21137.00	84548.00
8	Nos	b) 6.6KV,3 Core 400 Sqmm (Indoor)	CB 11-4	8768.00	70144.00
10	Nos	c) 6.6 KV.3 Core 95 Sqmm (Indoor)	CB 11-3	7553.00	75530.00
8	Nos	d) 6.6 KV.3 Core 70 Sqmm (Indoor)	CB 11-2	7553.00	60424.00
0	Job	Cable lugs,glands,MS trays, etc.	Lumpsum	25000.00	0.00
		<u>Item No.23:- EARTHING</u>			
		Providing earthing with Galvanised cast iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification No. EA-EP			
15	Nos	a) In 33 KV Sub-Station in switch yard. b) For Pump House - 15 Nos	PWD (Ele.) CSR 22-23 It.No. 9-1-1	4714.00	70710.00
		<u>Item No.24:-</u> CI Pipe 150 mm dia LA Class for Earthing.			
0	Mtr	a) Sub-Station in switch yard - 1.5m x 15 Nos = 22.5M b) In Pump House - 1.5m x 20 Nos = 30.00M Total - 52.50 Mtr	MJP (Civil) CSR 22-23 1aii & 2 iii	1845.00	0.00
		<u>Item No.25:-</u> GI Pipe for Earthing 65 mm.			
210	Mtr	a) Sub-Station in switch yard - 6.00m x 15 Nos = 90M b) In Pump House - 6.00m x 20 Nos = 120M Total - 210.00 Mtr	MJP (Civil) CSR 22-23 1b vi & 2 vi	485.00	101850.00
		<u>Item No.26:-</u> G.I.EARTHING STRIPS			
1500	Kg	Supplying and erecting G.I. strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joint required. as per specification No (EA-EP).	As Per PWD Ele.CSR 22-23 I.No.9-2-3	222.00	333000.00

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2	MT	Item No.27:- IRON WORK Providing,fabricating iron work of ISMB,ANGLES,M.S.FLATS,CHEQUARED PLATE,for panel stand,square bar for crane, cable tray,supports of ventilation ducting and items related to crane with all other similar work, including cutting,bending, welding and painting as per specification.	MJP Civil CSR I. No.4 for 2022-23	70017.00	140034.00
1	No	Item No.28 - Ultrasonic insertionfixed type Flow meter (Single Channel) Providing, installing and giving satisfactory test and trial of Ultrasonic insertion fixed type Flow Meter as per detailed specifications with TPI Charges.	MJP CSR 22-23 P.No. 39 I.No. WM 2 C (3)	275895.00	275895.00
1	Job	Item No.29 - Dismantling of Existing elect & Mechanical Equipments. Dismantling of existing V.T. Pump, Motor, Transformer all valves, crane with transportation charges from Hw to MC Store at Latur.	As per Rate Analysis	178030.00	178030.00
1	Job	Item No.30 :- TOOLS Providing Tools as per specification	As per attached rate analysis	35118.00	35118.00
3	months	Item No. :-31 TEST AND TRIAL Giving satisfactory test and trial of all installed and provided equipments to full load situation, after completing the commissioning test as per specification.	As Per attached rate analysis	71400.00	214200.00
			Total	Rs.	33486822.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR VERTICAL TURBINE PUMP AT HEAD WORK (EXISTING)

	i) Capacity of pump = 885 HP	iii) Head of pump = 77.45 Mtr.
	ii) Discharge of each pump = 1730 m ³ /hr	iv) Total suspension length = 21 Mtr.
	Analysis for Item No. 1 :	
Sr. No.	Details of pump	Flowmore Limited
1	Basic supply rate	6575000.00
2	Add 5 % for packing, forwarding, transit insurance, loading, unloading, Transfortation, insurance upto completion of work etc. on basic rate	328750.00
3	Total Rs.	6903750.00
4	Add for TPI	6000.00
5	Total Rs.	6909750.00
6	Add for errection (As per MJP Mech.CSR 2022-23 I.No.PM 8-5 Page No. 4)	60180.00
7	Add for column length more than 6 m - Rs. 1239 x 10 Joint (As per MJP Mech.CSR 22-23 Note 10 Page No. 4)	12390.00
8	Total Rs.	6982320.00

LATUR CITY MUNICIPAL CORPORATION

AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR HT MOTORS AT HW (EXISTING)

Sr.No.	Itme	C.S.R.Ref	Qty	Rate
1)	Item No.1:- Supply rate of 3300 V 885 HP Vertical flanged mounted motor TEFC- 1500 RPM	CSR 2022-23 MO 8-8	1	1536696.00
i)	Add for TPI			6000.00
ii)	Add for erection charges.			23342.00
		Total Rs.		1566038.00

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR VERTICAL TURBINE PUMP AT SUMP WELL (EXISTING)

i) Capacity of pump = 442 HP

iii) Head of pump = 66 Mtr.

ii) Discharge of each pump = 1130.400 m³/hr

iv) Total suspension length = 6 Mtr.

Analysis for Item No. 1 :

Sr. No.	Details of pump	Flowmore Limited
1	Basic supply rate	3570000.00
2	Add 5 % for packing, forwarding, transit insurance, loading, unloading, Transfortation, insurance upto completion of work etc. on basic rate	178500.00
3	Total Rs.	3748500.00
4	Add for TPI	6000.00
5	Total Rs.	3754500.00
6	Add for errection (As per MJP Mech.CSR 2022-23 I.No.PM 8-5 Page No. 4)	30056.00
7	Add for column length more than 6 m -	0.00
8	Total Rs.	3784556.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR HT MOTORS AT SUMPWELL (EXISTING)

Sr.No.	Itme	C.S.R.Ref	Qty	Rate
1)	Item No.1:- Supply rate of 3300 V 442 HP Vertical flanged mounted motor TEFC- 1500 RPM	CSR 2022-23 MO 8-4	1	1000675.00
i)	Add for TPI			6000.00
ii)	Add for erection charges.			17502.00
		Total Rs.		1024177.00

LATUR CITY MUNICIPAL CORPORATION

AUGMENTATION OF LATUR WATER SUPPLY SCHEME

3a. RATE ANALYSIS FOR VALVE CAST IRON PN 1.6

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (a) CAST IRON D.F. SLUICE VALVE WITH ACTUATOR 500 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Sluice valve (Glandless) of 500 mm size and Cast iron PN 1.6 rating as per standerd specification with at actuator.	Civil CSR 22-23 I.No. X 11	1	145619.00	145619.00
2	Providing valve Actuator for 500 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-13	1	124987.00	124987.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	276606.00
				Say Rs.	276606.00

3 b. RATE ANALYSIS FOR BUTTERFLY VALVE CAST IRON PN 1.6

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (b) CAST IRON D.F. BUTTERFLY VALVE WITH ACTUATOR 1000 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Butterfly valve (Glandless) of 1000 mm size and Cast iron PN 1.6 rating as per standerd specification with at actuator.	AS PER OFFER	1	340369.00	340369.00
2	Erection of above valve	civil csr 22-23 I.No. XIX	1	17271.00	17271.00
3	Providing valve Actuator for 1000 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-19	1	174659.00	174659.00
4	Add. Transportation, Packing, Forwarding @5%				0.00
5	Add for TPI	-	-		3000.00
	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	538299.00
				Say Rs.	538299

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4 a. RATE ANALYSIS FOR REFLUX VALVE CAST IRON PN 1.6					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4(a) CAST IRON D.F. REFLUX VALVE 500 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Reflux valve of 500 mm size and Cast iron PN 1.6 rating as per standard specification.	AS PER OFFER	1	213911.00	213911.00
2	Erection of above valve	civil csr 22-23 I.No. Xiii	1	8879.00	8879.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges.	-	-		3000.00
				Total Rs.	228790.00

4b. RATE ANALYSIS FOR REFLUX VALVE CAST IRON PN 1.6					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4 (b) CAST IRON D.F. REFLUX VALVE 1000 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Reflux valve of 1000 mm size and Cast iron 1.6 rating as per standard specification.	AS PER OFFER	1	769548.00	769548.00
2	Erection of above valve	civil csr 22-23 it. 4 xi pg. 123	1	17271.00	17271.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	792819.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

3. RATE ANALYSIS FOR EOT CRANE OF RAW WATER AND PURE WATER

Sr,No.	Item	C.S.R. Ref	Qty	Rate	Amount
1	Supply Rate of 10.0Tonn capacity E.O.T.Crane 8 to 10 mtr span	Mech. CSR.22-23 I.No. LF 4-3-3	1	1362969.00	1362969.00
2	Erection rate of E.O.T.Crane	Mech. CSR.22-23 I.No. LF 4-3-3	1	33553.00	33553.00
3	Supply rate of DSL system of EOT Crane	Mech. CSR.22-23 I.No.Note 5	7	2502.00	17514.00
	Add for TPI	-	-	-	3000.00
	Add for Manufacturers Inspecting Agencies Charges		-	-	3000.00
				Total Rs.	1420036.00

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AUGMANTATION OF LATUR WATER SUPPLY SCHEME

3a. RATE ANALYSIS FOR 400 MM SLUICE VALVE CAST IRON PN 1.6

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (a) CAST IRON D.F. SLUICE VALVE WITH ACTUATOR 400 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Sluice valve (Glandless) of 400 mm size and Cast iron 1.6 rating as per standerd specification with at actuator.	Civil CSR 22-23 I.No.2 bc xi	1	95633.00	95633.00
2	Providing valve Actuator for 400 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-11	1	110247.00	110247.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	211880.00
				Say Rs.	211880.00

3b. RATE ANALYSIS FOR 700 MM DIA BUTTERFLY VALVE CAST IRON PN 1.6

Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-3 (b) CAST IRON D.F. BUTTERFLY VALVE WITH ACTUATOR 700 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Butterfly valve (Glandless) of 700 mm size and Cast iron PN 1.6 rating as per standerd specification with at actuator.	Civil csr 22-23	1	163042.00	163042.00
2	Erection of above valve	civil csr 22-23 I.No. 4X V	1	10522.00	10522.00
3	Providing valve Actuator for 700 mm dia valve as per detailed specification	mech csr 22-23 I.No. VA 1-15	1	145857.00	145857.00
4	Add for TPI	-	-		3000.00
	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	325421.00
				Say Rs.	325421.00

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4 a. RATE ANALYSIS FOR 400 MM DIA REFLUX VALVE CAST IRON PN 1.6					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4(a) CAST IRON D.F. REFLUX VALVE 400 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Reflux valve of 400 mm size and iron PN 1.6 rating as per standard specification.	civil csr 22-23	1	110404.00	110404.00
2	Erection of above valve	civil csr 22-23 I.No. 4 xi	1	7462.00	7462.00
3	Add for TPI	-	-		3000.00
4	Add for Manufacturesrs Inspecting Agencies charges.	-	-		3000.00
				Total Rs.	123866.00

4b. RATE ANALYSIS FOR REFLUX VALVE CAST IRON PN 1.6					
Sr.No	Item	C.S.R.Ref	Qty	Rate	Amount
1	Item No.:-4 (b) CAST IRON D.F. REFLUX VALVE 700 MM DIA PN 1.6 A) Providing erecting commissioning & giving satisfactory test and trial of D.F.Reflux valve of 700 mm size and Cast iron PN 1.6 rating as per standard specification.	civil csr 22-23	1	377079.00	377079.00
3	Erection of above valve	civil csr 22-23 it. 4 xv	1	10521.00	10521.00
4	Add for TPI	-	-		3000.00
5	Add for Manufacturesrs Inspecting Agencies charges	-	-		3000.00
				Total Rs.	393600.00

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AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR 3.3 KV VCB PANEL (INDOOR)

Sr.No.	Item	C.S.R. Ref	Qty	Rate	Amount
1(A)	3.3KV Incomer VCB Panel. Supplying and erecting & testing of 3.3 KV, 630 Amp.25KA VCB Panel with CT/PT/Earth fault/Over Current high Speed tripping relay (Indoor Type)	Mech. CSR 22-23 I.No. HG 2-1 P.No. 20	3.00	416976.00	1250928.00
1(B)	3.3 KV Bus Coupler as per above without CDG 61 Relay, High speed trip Relay & Aux. Relay MVAA11...etc complete as per detailed specification	Mech. CSR 22-23 I.No. HG 3-1 P.No. 20	0.00	345779.00	0.00
2	3.3 KV Vacuum Contactor panel Supplying and erecting and testing of 3.3 KV Vacuum contactor panel draw out type indoor with CT'S and PT'S and Moter protection relay with high speed trip relay.	Mech. CSR 22-23 I.No. HG 3-1 P.No. 20	3.00	404197.00	1212591.00
	ii) Capacitor HT Bank 130 kvar x 5Bank	As per Mech CSR 22-23 I.No.CP3 P.No.17	650	648.00	421200.00
	iii) Load break switch 3.3 KV for capacitor bank.	PWD CSR I.No.10/2/1 P.No.187 for 202-23	5.00	10335.00	51675.00
	iv) HRC Fuses 100 Amp for capacitor bank	PWD CSR I.No.5/1/18 P.No.26 for 2022-23	15.00	4867.00	73005.00
	v) Digital volt Meter	PWD CSR I.No.6/3/8P.No.110 for 2022-23	2.00	1756.00	3512.00
	vi) Digital Amp Meter	PWD CSR I.No.6/3/7 P.No.110 for 2022-23	7.00	2136.00	14952.00
	vii) Selector Switch	PWD CSR I.No.6/5/1 P.No.114 for 2022-23	9.00	351.00	3159.00
	viii) LED Indicating Lamp Set	PWD CSR I.No.6/5/6 P.No.120 for 2019-20	50.00	372.00	18600.00
	ix) Hour Meter	Current Market Rate	5.00	2500.00	12500.00
	x) Multifunction Meter	PWD CSR I.No.6/3/10 P.No.111 for 2022-23	0.00	5584.00	0.00
	xi) Caution board Size 200x150mm	PWD CSR I.No.6/1/15P.No.107 for 2022-23	2.00	142.00	284.00
	xii) Name board Size 200x150mm	PWD CSR I.No.6/1/17 P.No.107 for 2022-23	0.00	125.00	0.00
	xiii) MS Sheet Work for panel fabrication. 16 SWG Size-	PWD CSR I.No.6/1/6 P.No.106 for 2022-23	25.00	2688.00	67200.00
	xiv) Iron Work for Panel	PWD CSR I.No.6/1/19 P.No.107 for 2022-23	150.00	195.00	29250.00
	xv) Alluminium Bus Bar	PWD CSR I.No.6/2/11 P.No.109 for 2022-23	70.00	726.00	50820.00

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	xvi) Sundry Material - Panel Lock, Ferrul, Taging, Control Wiring, resin cast insulator, rubber beding patti, varming prufing etc.	Current Market Rate	Job	10000.00	10000.00
	Add for TPI				6000.00
				Total Rs.	3225676.00
				Say Rs.	3225676.00

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AUGMANTATION OF LATUR WATER SUPPLY SCHEME

6. RATE ANALYSIS FOR RELAY METERING & SCANNER PANEL IN SWITCH YARD.

Sr,No.	Item	C.S.R. Ref For 2022-23	Qty	Rate	Amount
1)	M.S.sheet 16 SWG (Panel size 1.8 x 0.5x2.5)	PWD 6-1-1	25.00	2688.00	67200.00
2)	Iron Work for panel board	PWD 6-1-19	100. kg	195.00	19500.00
3)	Voltmeter 96 x 96 mm	PWD 6-3-6	3 Nos.	1756.00	5268.00
4)	Selector Switch	PWD 6-5-1	3 Nos.	351.00	1053.00
5)	Volage operated Auxilliary Relay MVAA 31	HG 6-5-2/66	12 Nos.	5711.00	68532.00
6)	CDG 11 Relay	HG 6-3-4	4 Nos.	27129	108516.00
7)	High Speed Tripping Relay	HG 6-3-4	4 Nos.	4064.00	16256.00
8)	Automatic Semaphore Indicator	HG 6-8/68	1 No.	3572.00	3572.00
9)	Scanner	Market rate	1 Nos	12000.00	12000.00
10)	Panel Hooter	PWD 13-9-8	1 No.	629.00	629.00
11)	Push Button for fault accept, fault reset trip circuit healthy,(alarm & trip)	Market rate	16 Nos	300.00	4800.00
12)	IIIuminated window lamp indicator for breaker on, breaker off, springe charge, relay energised relay deenergised trip circuit healthy, trip circuit faulty -10 widow	Market rate	4 Set	2000.00	8000.00
13)	Trip Neutral Closed Switch	Market rate	4 Nos	3000.00	12000.00
14)	Cascal Lock	Market rate	6 Set	3500.00	21000.00
15)	Panel Wiring	LS	1 Job	7500.00	7500.00
				Total Rs.	355826.00
	Add for TPI				3000.00
	Add for Manufacturers Inspecting Agencies charges				3000.00
				Total Rs.	361826.00
				Say Rs.	361826.00

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Rate Analysis of Battery Panel

Sr.No.	Item	Qty	Unit	Rate	Amount
1	Exide 2 V 100 LH				
	VRLA CE 11	55.00	Nos	3675.00	202125.00
	Model - UPST 100				
2	Amar Raja Charger				
	110 V 20 / 25 Amp FCBC	1.00	No	223400.00	223400.00
3	Installation Charges	1.00	Job	25000.00	25000.00
				Total	450525.00

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AUGMANTATION OF LATUR WATER SUPPLY SCHEME

9. RATE ANALYSIS FOR RAW WATER LT PANEL BOARD AT SUMPSWELL SITE

Sr.No.	Item	C.S.R. Ref 2022-23	Qty	PWD CSR 2022-23	
				Rate	Amount
1	MCCB 200 Amp 4 pole (35KA)	5-5-2	1 Nos	13255.00	13255.00
2	MCCB 200 Amp 3 pole	5-5-2	2 Nos	11134.00	22268.00
3	Aluminium Bus Bar 200 Amp.	6-2-2	2 m	6421.00	12842.00
4	CRCA Sheet 16 SWG	6-1-1	10 m2	2688.00	26880.00
5	Iron work for panel board	6-1-19	50 kg	195.00	9750.00
6	LT Current Transformer	6-5-2	3 Nos.	1078.00	3234.00
7	Capacitors	CP 1	20 KVAR	372.00	7440.00
8	63 Amp. TPMCB for EOT Crane	5-3-1	4 Nos	1042.00	4168.00
9	32 Amp. TPMCB for Actuator/Exhaus Fan	5-3-10	8 No.	789.00	6312.00
10	DOL Stater for actuators	LG 2-1	6 Nos	2290.00	13740.00
11	Voltmeter	6-3-6	1 No	1756.00	1756.00
12	Ammeter	6-3-8	1 No	2136.00	2136.00
13	Selector Seitch	6-5-1	2 No	351.00	702.00
14	Pilot lamp LED type	6-5-7	6 Nos	372.00	2232.00
15	Caution Board	6-1-16	1 No.	142.00	142.00
16	Earthing Terminals	Market rate	2 No.	150.00	300.00
17	Panel wiring	LS	1 Job	5000.00	5000.00
				Total Rs.	132157.00
	Add for TPI				3000.00
				Rs.	135157.00
				Say Rs.	135157.00

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11. RATE ANALYSIS FOR TOOLS

Sr.No.	Description of Items	Mech.CSR 2022-23	Qty	Rate	Amount
1	D.E.Fix spanner set 12 piece 6-32mm	TL 1/p.No.29	2 Set	816.00	1632.00
2	Ring spanner set 12 piece 6-32mm	TL2/p.No.29	2Set	1420.00	2840.00
3	Ball pein hammer	TL 3./P.No.29	1 No	367.00	367.00
4	Combination Plier 200mm	TL 4/P.No.29	1 No	269.00	269.00
5	Half round file of 300 mm size	TL 23/P.No.3b	1No	410.00	410.00
6	Bearing puller three legs -8"	TL 24/P.No.30	1 No	434.00	434.00
7	Adjustable wrench 250-30 mm	TL 5/P.No.29	1 No	350.00	350.00
8	Tester	TL 12/P.No.29	1 No	74.00	74.00
9	Pipe wrench 450 mm-60mm	TL 6/P.No.29	1 No	688.00	688.00
10	Pipe wrench 600 mm-76mm	TL 7/P.No.29	1 No	1232.00	1232.00
11	12 mm size 2 MT capacity wire rope 3 mtr long with dog bolt 2nos.	TL 19/P.No.29	2 No	328.00	656.00
12	Spirit level 300 japan make	Market Rate	1 No	580.00	580.00
13	Steel rule 500 mm	TL 33/P.No.30	1 No	328.00	328.00
14	Allen key 6 to 10mm	TL 34/P.No.30	1 No	398.00	398.00
15	Long nose plier 200mm	TL37/P.No.30	1 No	227.00	227.00
16	Tubuler box spanner set 8 pieces 7-22mm	TL35/P.No.30	1 No	984.00	984.00
18	Bearing puller three legs -10"	TL 25/P.No.30	1 No	567.00	567.00
19	Bearing puller three legs -12"	TL 26/P.No.30	1 No	688.00	688.00
20	Central punch chrome Vanadium	TL 21/P.No.29	1 No	76.00	76.00
21	Screw driver 6x300 mm	TL 8/P.No. 29	1 No	118.00	118.00
22	Screw driver8 x 200 mm	TL 9/P.No.29	1 No	102.00	102.00
23	Screw driver 5-200 mm	TL 10/P.No.29	1 No	74.00	74.00
24	Screw driver 5 x300mm	TL 11/P.No.29	1 No	76.00	76.00
25	Screw driver with tester 3.6 x60	TL 12/P.No.29	1 No	74.00	74.00
26	Hack saw frame 300 mm size with	TL 13/P.No.29	1 No	83.00	83.00
27	M.S.Tool box	TL 14/P.No.29	1 No	1310.00	1310.00
28	Hydraulic flip flop crimping tool ranging from 6 to 500 Sq.mm cable lug	TL 27/P.No.30	1 No	40582.00	40582.00
29	Hand operated crimping tool with set of dies ranging from 6 to 185 Sq.mm cable lug.In pairs of hand ratches	TL28/P.No.30	1 No	11458.00	11458.00
30	Insulation tester (Megger) cranking type having metal body of range 1000Volts 1000 Mohms	TL 29/P.No.30	1 No	5270.00	5270.00
32	Tong Tester (Clip on meter) of range 0-10-30-100-1000 Amps and 0-300-600 Volts	TL 31/P.No.30	1 No	3977.00	3977.00
33	Earth tester	TL 30/P.No 30	1 No	8105.00	8105.00
34	Steel Almirah 150x 90 x45cm	Market Rate	1 No	15000.00	15000.00
35	Eight locker Cupboard	Market Rate	1 No	7500.00	7500.00
36	Steel Table wooden top 120 x75 cm	Market Rate	1 No	7500.00	7500.00
37	PVC moulded Fibre Chairs	Market Rate	5 Nos	1100.00	5500.00
38	PVC moulded Fibre Chairs with cushion	Market Rate	1Nos	2000.00	2000.00
40	Instruction Chart	10-6-22	2 Nos	159.00	318.00
41	Hand Gloves	10-6-23	4 Nos	715.00	2860.00
42	First Aid Box	10-6-24	4 Nos	932.00	3728.00
43	Electrically insulating mat suitable for 33 kv	10-6-27	20 sqmm	8303.00	166060.00
45	Fire Extinguisher 5 kg	13-15-1	8 Nos	10397.00	83176.00
				Total Rs.	377671.00

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**RATE ANALYSIS OF EXISTING ELECTRICAL AND MECHANICAL
EQUIPMENTS AT HW SITE**

SR.NO	DESCRIPTION	QTY	RATE	PER	AMOUNT
1	V.T. Pump, 750 HP (70%)	3	35700	Nos.	107100
2	2500 KVA transformer (80%)	1	17506	Nos.	17506
3	160 KVA Transformer (70%)	1	9194	Nos.	9194
4	750 HP VSS Motor (20%)	3	4084	Nos.	12252
5	500 mm dia sluice valve and reflux valve (40%)	6	3678	Nos.	22068
6	10 MT Cap. EOT crane (70%)	1	23487	Job	23487
7	Transportation charges.	1	30000	Job	30000
	Mech. CSR 22-23 P.No. 66)				
				TOTAL Rs	221607.00
				Say	221607.00

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**RATE ANALYSIS OF EXISTING ELECTRICAL AND MECHANICAL EQUIPMENTS AT PURE
WATER SUMPWELL**

SR.NO	DESCRIPTION	QTY	RATE	PER	AMOUNT
1	V.T. Pump, 442 HP (70%)	3	21040	Nos.	63120
2	1600 KVA transformer (80%)	1	17506	Nos.	17506
3	315 KVA Transformer (80%)	1	10507	Nos.	10507
4	442 HP VSS Motor (20%)	3	3500	Nos.	10500
5	400 mm dia sluice valve and reflux valve (40%)	6	2985	Nos.	17910
6	10 MT Cap. EOT crane (70%)	1	23487	Job	23487
7	Existing Panel board (20%)	1	15000	Job	15000
8	Transportation charges.	1	20000	Job	20000
	Mech. CSR 22-23 P.No. 66)				
			TOTAL Rs		178030.00
			Say		178030.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANAYISIS FOR ELECTRIFICATION (INTERNAL & EXTERNAL)

SR.NO	DESCRIPTION	DSR REF	QTY	RATE	PER	AMOUNT
1	Indoor type LED light 25 WATT	PWD DSR 2022-23 I. No. 2-1-7 P.No.29	30	2650.2	Nos.	79506
2	Point wiring	PWD DSR 2022-23 I. No. 1-7-3 P.No.17	50	518.7	Nos.	25935
3	63 Amp D.P.	PWD DSR 2022-23 I. No. 5-3-8 P.No.89	6	748.65	Nos.	4491.9
4	LED type flood light100 Watt	PWD DSR 2022-23 I. No. 2-4-15 P.No.35	8	8658.3	Nos.	69266.4
5	Bracket for above lamp	PWD 2-7-2 P. No. 38	28	772.8	Nos.	21638.4
6	Pipe Poles	PWD DSR 2022-23 I. No. 8-1-1 P.No.145	10	9626.4	Nos.	96264
7	Water tight Terminal Box	PWD DSR 2022-23 I. No. 7-8-5 P.No.140	10	631.054	Nos.	6310.54
8	Pipe Poles C.C.foundation	PWD DSR 2022-23 I. No. 16-3-3 P.No.35	10	2134.65	Nos.	21346.5
9	Allum. Cable 2 core 4 sq.mm	PWD DSR 7-1-4 P. No. 124	200	118.65	Mtr.	23730
10	Allum. Cable 3 core 2.5 sq.mm	PWD DSR 7-1-7 P. No. 124	400	121.8	Mtr.	48720
11	Led street light 50 watt	PWD DSR 2-4-4 P. No. 28	20	4323	Nos	86460
				TOTAL Rs		483668.74
				Say		483669.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

RATE ANALYSIS FOR TOOLS

Sr. No.	Description of items	Ref.of CSR 2022-23 SECTION TL	Qty		Rate	Amount
1	D.E. Fix spanner set 12 piece 6-32mm	TL 1/ P. No. 44	2	Set	816.00	1632.00
2	Ring spanner set 12 piece 6-32mm	TL 2/ P. No. 44	2	Set	1420.00	2840.00
3	Ball pen Hammer 800 gm	TL 3/ P. No. 44	1	Nos.	367.00	367.00
4	200mm cutting plier	TL 4/ P. No. 44	1	Nos.	269.00	269.00
5	Adjustable wrench 250-30 mm	TL 5/ P. No. 44	1	Nos.	350.00	350.00
6	Pipe wrench 450-60 mm	TL 6/ P. No. 44	2	Nos.	688.00	1376.00
7	Pipe wrench 600 - 60 mm	TL 7/ P. No. 44	2	Nos.	1232.00	2464.00
8	Screw driver 6x300 mm	TL 8/ P. No.44	1	Nos.	118.00	118.00
9	Screw driver 8 x 200 mm	TL 9/ P. No. 44	1	Nos.	102.00	102.00
10	Screw driver 5-200 mm	TL 10/ P. No. 44	1	Nos.	74.00	74.00
11	Screw driver 5 x 300 mm	TL 11/ P. No.44	1	Nos.	76.00	76.00
12	Screw driver with tester 3.6 x 60 mm	TL 12/ P. No.44	1	Nos.	74.00	74.00
13	Hack saw frame 300 mm size with blade	TL 13/ P. No.44	1	Nos.	83.00	83.00
14	Insulation tester (Megger)	TL 29/ P. No.45	1	Nos.	5270.00	5270.00
15	Tong tester	TL 31/ P. No.45	1	Nos.	3977.00	3977.00
16	Hand operated type crimping tool	TL 28/ P. No.45	1	Nos.	11458.00	11458.00
17	M.S. Tool box	TL 14/ P. No.44	2	Nos.	1310.00	2620.00
18	Tublar box spanner set 8 pieces	TL 35/ P. No.45	2	Set	984.00	1968.00
	TOTAL					35118.00

LATUR CITY MUNICIPAL CORPORATION
AUGMANTATION OF LATUR WATER SUPPLY SCHEME

ANAYSIS FOR TEST & TRIAL

SR.NO	DESCRIPTION	DSR REF	QTY.	SHIFT	RATE PER DAY	TOTAL DAYS	AMOUNT
1	Pump Operator	MJP DSR 2022-23 I. No. 25 P.No.14	2	2	611	60	36660
2	Helper	MJP DSR 2022-23 I. No. 12 P.No.14	2	2	579	60	34740
					TOTAL Rs		71400
						Per month	71400.00

LATUR CITY MUNICIPAL CORPORATION
AUGMENTATION OF LATUR WATER SUPPLY SCHEME

Designing, providing, erecting, testing and commissioning of Air blowers, Washwater Pumps, with allied Electrical and Mechanical equipments at existing Head work (Harangul WTP)

ESTIMATE

QTY		DESCRIPTION OF ITEM	Ref of CSR 2022-23	RATE IN RS.	AMOUNT
2	No	<u>Item No. :- 1</u> AIRBLOWERS with Motors Providing,erecting commissioning & giving satisfactory test and trial of Air blowers suitable to capacity 2025 M3/Hr at pressure of 0.35Kg/Cm2 at speed 1087 RPM including all allied accesories including & third party inspection including delivery of motor, pipes, sluce valves and reflex valves	As Per attached WTP breakup	510300.00	1020600.00
2	No	<u>Item No.:- 2</u> WASH WATER CENTRIFUGAL COUPLED PUMPS with Motor Providing,erecting commissioning & giving satisfactory test and trial of WASH WATER CENTRIFUGAL COUPLED PUMPS Stainless Steel Shaft, Discharge suitable to discharge 500 M3/ HR against total head of 16 mtr including all allied accesories including third party inspection including delivery of motor, pipes, sluce valves and reflex valves	As Per attached WTP breakup	774390.38	1548781.00
2000	kg	<u>Item No :-3</u> M.S.PIPES & SPECIALS Providing lowering,laying jointing and testing M.S.Pipes & Specials as per standard specifications and approved size & layout of pumping machinery	Civil (MJP CSR 2022-23 I.No.7 ©	95.00	190000.00
0	kg	<u>Item No.:-4</u> M.S.FLANGES Providing favricating erecting M.S.flanges sleep on type of required size and thickness with both side machined as per detailed specification and approved layout of pumping machinery & size mentioned by the department.	Mec CSR for 2022-23 Item No.PW 10-2	160.00	0.00
4	Nos.	<u>Item No.5 :-</u> PRESSURE GAUGES Providing erecting and testing Glyserine filled pressure gauge Bourdon's type of 150 mm dia as per IS 3624: 1987 with brass cock,syphon tube etc.as per standerd.	Mec CSR for 2022-23 Item No.PW 11-4	2005.00	8020.00
3	cum	<u>Item.No.:-6</u> CONCRETE FOUNDATION FOR PUMP i) Providing and laying in situ Cement Concrete of trap/ granite / quartzite / gneiss metal for RCC work in foundation like raft, grillage, strip foundation and footing of RCC columns and steel stanchions including normal dewatering, form work, bally, steel propups compaction, finishing 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) In RCC M-200	MJP Civil CSR 22-23 Item No.2.b	7318.00	21954.00

LATUR CITY MUNICIPAL CORPORATION

1	MT	ii) Providing and fixing in position Tor 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).	MJP Civil CSR 22-23 Item No.8.b	66218.00	66218.00
		<u>Item No.7:- EARTHING</u> Providing earthing with Galvanised cast iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification No. EA-EP			
15	Nos	a) In 33 KV Sub-Station in switch yard. b) For Pump House - 15 Nos	PWD (Ele.) CSR 22-23 It.No. 9-1-1	4714.00	70710.00
		<u>Item No.8:-</u> CI Pipe 150 mm dia LA Class for Earthing.			
0	Mtr	A) WTP - 1.5m x 5 Nos = 7.50 M Total - 7.5 Mtr	MJP (Civil) CSR 22-23 I.No. 1 aiii & 2aiii	1845.00	0.00
		<u>Item No.9:-</u> GI Pipe for Earthing 60 mm.			
30	Mtr	A) In WTP - 6.00m x 5 Nos = 30M Total - 30.00 Mtr	MJP (Civil) CSR 22-23 I.No. 1 bvii	485.00	14550.00
		<u>Item No.10 :-</u> G.I.EARTHING STRIPS			
100	Kg	Supplying and erecting G.I. strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint in an approved manner with joint required. as per specification No (EA-EP).	As Per PWD Ele.CSR 22-23 I.No.9-2-3	222.00	22200.00
200	KG	<u>Item No.11:- IRON WORK</u> Providing,fabricating iron work of ISMB,ANGLES,M.S.FLATS,CHEQUARED PLATE,for panel stand,square bar for crane, cable tray,supports of ventilation ducting and items related to crane with all other similar work, including cutting,bending, welding and painting as per specification.	MJP Civil CSR 22-23 I. No.4	70.00	14000.00
0	Job	<u>Item No.12:-</u> ELECTRIFICATION OF WTP Premises. Providing Electrification internal & external electrification as per detailed specification.	As Per attached WTP breakup	3285292.50	0.00
1	months	<u>Item No.:- 13</u> TEST AND TRIAL Giving satisfactory test and trial of all installed and provided equipments to full load situation, after completing the commissioning test as per specification.	As Per attached rate analysis	71400.00	71400.00
		Total	Rs.	3048433.00	

LATUR CITY MUNICIPAL CORPORATION				
AUGMENTATION OF LATUR WATER SUPPLY SCHEME				
CONVENTIONAL WTP CIVIL AND MECHANICAL RATE ANYLIS				
APPENDIX - II	80 MLD Total Cost Rs.	50 MLD+ 30MLD		CIVIL 75%
	187731000	132651000	55080000	140798250
			Rs.	
Sr.No	Description of Item	Civil cost (75%)	Mechanical cost (25%)	Civil cost Rs
1	Hydraulic and process design approval	1%	1%	1407983
2	Structural design approval	3%	--	4223948
3	Inlet works consisting of inlet chamber, venturi flume flow meter flash mixer with agitator.	4%	8%	5631930
4	Clariflocculators	22%	24%	30975615
5	Rapid sand filter and filter house	22%	19%	30975615
6	Chemical house, administrative block, chemical tank, chlorine room, chlorinator, lab equipment, sanitary block and air blowers.	14%	18%	19711755
7	Wash water tank, wash water pumps, pipe assembly valves etc.	6%	11%	8447895
8	Bypass arrangement	2%	4%	2815965
9	Pure water sump and pump house & CCT	2%	--	2815965
10	Drainage arrangement	13%	6%	18303773
11	Electrification	2%	7%	2815965
12	Hydraulic testing	7%	--	9855878
13	Trial run and site cleaning	2%	2%	2815965
	Total	100%	100%	140798250
3a)	Inlet works – Civil			
	Inlet chamber, venturi flume, flash mixer			
	With agitation			
i)	Excavation	:	4%	225277
ii)	PCC and foundation	:	4%	225277
iii)	Superstructure consisting columns, base slab,	:	82%	4618183
iv)	Misc. items as per A/T such as plastering, railing, painting, glazed tiles, etc.	:	10%	563193
	Total	:	100%	5631930
3b)	Inlet works – Mechanical			
i)	On supply of equipment as per A/T such as agitator for flash mixer, motor, switch gear, panel, 'V' notch, flow meter and pipe assembly for inlet chamber.	:	80%	
ii)	On erection and testing of the above equipment on complete erection, testing and commissioning including three months trial run)	:	20%	
	Total	:	100%	
a)	Clariflocculators – Civil			
i)	Excavation	:	10%	3097562
ii)	PCC	:	12%	3717074
iii)	Bottom slab	:	28%	8673172
iv)	Vertical wall of clarifier	:	28%	8673172
v)	Launder wall, slab and flocculator wall	:	16%	4956098
vi)	Misc. works as per A/T such as plaster, tailing, ainting, precast steps on walk way, etc.	:	6%	1858537
	Total	:	100%	30975615
4b)	Clariflocculators – Mechanical			
i)	On supply of equipment as per A/T such as clarifier, bridge rails, gear boxes, motor, switch gear, panel, inlet pipe and sludge pipe with valves and constant bleeding equipment.	:	80%	
ii)	On erection and testing of the above equipment	:	20%	
	Total	:	100%	
5a)	Rapid sand filters and filter house – Civil			
i)	Excavation	:	7%	2168293
ii)	PCC	:	7%	2168293
iii)	Base slab	:	16%	4956098

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iv)	Filter house upto roof slab	:	30%	9292685
v)	Filter box upto and including walk way	:	20%	6195123
vi)	B.B. masonry walling, doors and windows	:	10%	3097562
vii)	Plastering and flooring	:	5%	1548781
viii)	Misc. works as per A/T such as railing, painting, cover on rate control chamber, M.H. frame cove on pure water channel.	:	5%	1548781
	Total	:	100%	30975615
5b)	Rapid sand filter beds and filter house – Mechanical			
i)	On supply of pipes, valves and gates as per A/T	:	40%	
ii)	On supply of under drain pipe and tees as per A/T	:	10%	
iii)	On supply of filter media as per A/T	:	20%	
iv)	On supply of gauges and loss of head and rate of flow meter as per A/T.	:	10%	
v)	On erection and testing of the above equipment	:	20%	
	Total	:	100%	
6a)	Chemical house, chemical tank, administrative block, chlorine room, chlorinator and sanitary block etc. – civil			
i)	Excavation	:	5%	985588
ii)	PCC footing and column up to GL	:	12%	2365411
iii)	Columns, beam up to and including roof slab of ground floor.	:	20%	3942351
iv)	Columns, beam up to and including roof slab of first floor.	:	20%	3942351
v)	Chemical tanks	:	5%	985588
vi)	B.B. masonry, doors and windows	:	20%	3942351
vii)	Plastering and flooring	:	10%	1971176
viii)	Stair case	:	2%	394235
ix)	Poarch	:	1%	197118
x)	Misc. works as per A/T such a painting.	:	5%	985588
	Total	:	100%	19711755
6b)	Chemical house – Mechanical			
i)	On supply equipment for chemical tank with pipes and valves as per A/T.	:	10%	
ii)	On supply of chlorinator with pipes and valves as per A/T	:	20%	
iii)	On supply of air blower, motor, switch gear, panel pipes and valves, etc.	:	40%	
iv)	On supply of sanitary and WS equipment as per A/T	:	5%	
v)	On supply of lab equipment and furniture	:	5%	
vi)	On erection and testing of above equipment	:	20%	
	Total	:	100%	
7a)	Wash water tank – Civil			
i)	Container excluding roof slab	:	60%	5068737
ii)	Roof slab, internal column and beams	:	25%	2111974
iii)	Plastering, ladder, lighting conductor, water level indicator, railing.	:	10%	844790
iv)	Misc. works as per A/T such as painting, etc.	:	5%	140798
	Total	:	100%	8166299
7b)	Wash water tank – Mechanical			
i)	On supply of vertical pipe assembly with inlet, outlet, overflow valves and specials as per A/T	:	40%	
ii)	On supply of wash water pumps, motors, switch gear and panel boards as per A/T	:	40%	
iii)	On erection and testing of the above equipment	:	20%	
	Total	:	100%	
8a)	Bypass arrangements – Civil			
i)	Bypass channel and bypass piping	:	75%	2111974
ii)	Bypass chamber	:	15%	422395
iii)	Other misc. works as per A/T	:	10%	281597
	Total	:	100%	2815965
8b)	Bypass arrangement – Mechanical			
i)	On supply of gates as per A/T	:	80%	
ii)	On erection and testing of gates	:	20%	
	Total	:	100%	

LATUR CITY MUNICIPAL CORPORATION

9)	Pure water sump and pump house & CCT			
i)	Excavation	:	10%	281597
ii)	PCC and foundation slab	:	15%	422395
iii)	Vertical Wall	:	15%	422395
iv)	Column, beam and roof slab of sump house	:	10%	281597
v)	Column beam and roof slab of pump house	:	20%	563193
vi)	B.B. Masonry, doors and windows	:	10%	281597
vii)	Plastering and flooring	:	15%	422395
viii)	Other misc, works as per A/T such as painting, M.S. ladder, M.H. frame and cover etc.	:	5%	140798
	Total	:	100%	2815965
10a)	Drainage arrangement – Civil			
i)	Excavation of drainage pipeline and construction of chambers as per A/T	:	100%	18303773
10b)	Drainage arrangement – Mechanical			
i)	On supply of drainage pipes	:	80%	
ii)	On lowering, laying, jointing of pipes	:	20%	
	Total	:	100%	
11)	Electrification – Mechanical			
i)	Internal and external electrification to entire plant as per A/T including main panel board switch gear as per A/T	:	100%	
12)	Hydraulic testing – Civil			
	i)	Inlet Work	:	6%
	ii)	Clariflocculators	:	22%
	iii)	Filter Beds	:	30%
	iv)	Wash Tanker Tank	:	12%
	v)	Bypass channel	:	5%
	vi)	Sump & Chlorine contact Tank.	:	20%
	vii)	Drainage arrangement	:	5%
	Total	:	100%	
13)	Trial run and site cleaning		:	100%

NOTE

As separate provision is made for hydraulic testing and testing of mechanical equipment in the break up schedule no further d Bills on account of hydraulic testing is necessary.

Daily record of raw water pumped, pure water pumped from WTP, water pumped to ESR, Alum doses, Alum consumed, turt dose, residual chlorine at consumer end etc. shall be maintained.

Calibration chart for turbidity and chlorine dose shall be prepared.

Daily record of filters washed

LATUR CITY MUNICIPAL CORPORATION

[illegible]

LATUR CITY MUNICIPAL CORPORATION

3379158
844790
1689579
844790
1689579
8447895
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422395
422395
1689579
8447895
2065041
2065041
1032520.5
5162603
1501848
375462
1877310

LATUR CITY MUNICIPAL CORPORATION

[illegible]

duction through R.A.

moisture, pH, chloride

महाराष्ट्र जीवन प्राधिकरण नागपूर

अधीक्षक अभियंता (यां.),

प्रशासकीय इमारत अ, २ रा मजला,
सी.पी.क्लबच्या बाजूला, तेलंगखेडी,
नागपूर-४४०००१



दुरध्वनी क्र.: ०७१२-२५५६६७१

फॅक्स:- ०७१२-२५५६६७१

ई-मेल:- semmjpwmngp@gmail.com



जा.क्र.मजीप्रा/अअ(यां.)/तांशा(यां.)/१३०/२०२३

दिनांक: २३/०३/२०२३

प्रति,

मा. मुख्य अभियंता,

महाराष्ट्र जीवन प्राधिकरण प्रादेशिक विभाग,

औरंगाबाद

विषय- अमृत २.० वाढीव लातूर शहर पाणी पुरवठा योजना ता.व जि. लातूर-वर्षीय योजिमटीच्या अंदाजपत्रास मंजूरी मिळणेबाबत.

संदर्भ:- कार्यकारी अभियंता(यां) ,म.जी.प्रा.मंडळ,लातूर यांचे पत्र क्र. मजीप्रामला/तांशा(यां)/३४८/२०२३

दि.१७.०३.२०२३ (प्राप्त दि.२१.०३.२०२३)

वरील विषयी अमृत २.० वाढीव लातूर शहर पाणी पुरवठा योजनेच्या यांत्रिकी व विद्युत कामाचे संकल्पन व अंदाजपत्र तपासणी व मंजूरीकरीता प्राप्त झाले आहे. सदर संकल्पनाची व अंदाजपत्रकाची तपासणी करण्यात आली असून आवश्यक तांत्रिक सुधारणा करण्यात आल्या आहेत. त्यानुसार यांत्रिकी कामाची सुधारित किंमत खालील प्रमाणे येत आहे.

Sr. No.	Name Of Work		Submitted Amount	Corrected Amount
1	RAW WATER PUMPING M/C AT DHANEGAON HEAD WORK V.T. PUMPSET - 5 NOS (3 NOS WORKING + 2 NOS STAND BY) HP - 442 HEAD - 81MTRS DISCHARGE - 1067400 LPH	Rs.	70809643.0	63557388.0
2	PURE WATER PUMPING M/C ON SUMPWELL AT HARANGUL WTP PREMISES V.T. PUMPSET - 5 NOS (3 NOS WORKING + 2 NOS STAND BY) HP - 442 HEAD - 65 MTRS DISCHARGE - 1400220 LPH	Rs.	57915488.0	55288988.0
3	Pumping Machinery On Re-circulation well	Rs.	1657226.0	1677021.0

Sr. No.	Name Of Work		Submitted Amount	Corrected Amount
4	SOLAR POWER PLANT AT HEAD WOK AND WTP SITE.Total 2400kWP	Rs.	86177320.0	86177320.0
5	SCADA of Prop and Existing Scheme	Rs.	93692678.0	65351654.0
6	Smart Metering of Particular zone	Rs.	51433662.0	54925684.0
7	Augmentation of existing Pumping machinery	Rs.	66172639.0	56959320.0
8	M.S.E.D.C.L. Provision for Load Enhancement.	Rs.	13500000.0	13500000.0
	Elctromechnical Total	Rs.	441358656.0	397437367.0
	Add GST 18%	Rs.	79444558.0	71538726.0
	Total	Rs.	520803214.0	468976093.0

योजनेच्या यांत्रिकी व स्थापत्य कामाच्या एकत्रीत अंदाजपत्रकास आपणाकडून तांत्रिक मंजूरी घेण्याकरीता शिफारस करण्यात येत आहे.

अटी व शर्ती:-

- प्रस्तावीत अशुद्ध पाण्याच्या पंपिंग मशिनरीकरीता पाण्याची डिमांड ही स्थापत्य शाखेकडून तपासणी केल्याचे गृहीत धरून संकल्पन व अंदाजपत्रकाची तपासणी करण्यात आली आहे.प्रस्तावीत जलशुद्धीकरण केंद्र हे 91 द.ल.ली आहे परंतु प्रस्तावीत अशुद्ध पाण्याचे पंपिंग मशिनरी ही 57.18 द.ल.ली घेऊन संकल्पन करण्यात आले आहे.उर्वरीत डिमांड ही अस्तित्वातील जॅकवेलवरून घेण्यात आल्याचे दर्शविण्यात आले आहे.तरी सदर बाबतीत स्थापत्य शाखेकडून खात्री होणे आवश्यक आहे.
- कार्यव्ययी अंदाजपत्रक तयार करतांना प्रत्यक्ष कार्यक्षेत्रावरील तलांकानुसार संकल्पन करून या तलांकाची खातरजमा करणे व बदल होत असल्यास तशी दुरुस्ती करणे आवश्यक राहील.
- तांत्रिक व प्रशासकिय मंजूरी झाल्यानंतर कार्यव्ययी अंदाजपत्रकास प्रत्यक्ष कार्यक्षेत्रावरील आवश्यकतेनुसार परिमाण घेऊन मंजूरी घेणे आवश्यक राहील.
- विद्युत पुरवठ्याच्या वाढीव भारा करीता ढोबळ तरतुद ठेवण्यात आलेली आहे.प्रत्यक्ष कार्यव्ययी अंदाजपत्रक तयार करतांना महावितरण कंपनीकडून अंदाजपत्रक प्राप्त करून पुढील कार्यवाही करणे आवश्यक राहील.
- सौर ऊर्जा प्रकल्पाकरीता सावली विरहित जागा उपलब्ध असल्याची खात्री करणे आवश्यक आहे.

- 6) प्रस्तावातील पंपाचे Head व discharge चे संकल्पन करतांना स्थापत्य शाखेकडून प्राप्त झाली द्यायच्या मध्ये नमुद तलांक गृहीत धरून पंपाचे संकल्पन अंतिम करण्यात आले आहे, सदर तलांक व पाण्याची डिमांड योग्य असल्याची खात्री स्थापत्य शाखेकडून पुनश्च करणे आवश्यक राहिल.
- 7) ऑटोमेशनच्या Operation & Maintenance for 6 year मध्ये फ्रक्त ऑटोमेशन संबंधीत बाटल्याची किंमत धरून दर अंतिम करण्यात आले आहे, त्यात केबल, MS Specials, cable way, earthing, चेंबरचे Operation & Maintenance अंतर्भूत नाही.
- 8) अस्तित्वातील जॅकवेलमध्ये नविन 885 अ.श. चा पंप व अनुवर्गिक साहित्य लागणार असल्याने Dynamic load च्या अनुवर्गाने स्थापत्य शाखेकडून पुनश्च खात्री करण्यात यावी.
- 9) संकल्पनानुसार पंपाचे हेड हे 81 मीटर येत असून त्यानुसार मोटरची क्षमता ही 442 अ.श. येत आहे. पंपाची एकच ऑफर जोडण्यात आली असून काही प्रमाणात दर कमी करण्यात आले आहे.
- 10) प्रस्तावीत शुद्ध पाण्याच्या संपवर 10 Tonne ऐवजी 7.5 Tonne क्षमतेची EOT तंत्रिक दृष्ट्या पुरेशी असल्याने त्यानुसार सुधारणा करण्यात आली आहे. तसेच रोहित्राच्या क्षमतेमध्ये आवश्यक सुधारणा करण्यात आली आहे.
- 11) Smart metering या उपांगात वॉटरमिटरचे जे परिमाण घेण्यात आले आहे त्याबाबत महानगरपालिकेकडून खात्री करणे आवश्यक आहे.
- 12) जॅकवेल व पंप हाऊस 15मीटर circular प्रस्तावीत करण्यात आली असून पंपाची क्षमता व Valve size चा विचार करता Rectangular Double floor pump house घेणे आवश्यक राहिल.
- 13) प्रस्तावीत जलशुद्धीकरण केंद्र 91 द.ल.ली च्या उपांगात Actuators घेतले नव्हेत तर Actuators स्थापत्य कामाच्या जलशुद्धीकरण केंद्राच्या दरात घेतले आहे काय? या बाबत विचारणा केलेली असता त्यात घेतले नसल्याचे कळविल्याने अंतर्भूत करण्यात आले आहे.
- 14) ESR management च्या उपांगात फ्रक्त monitoring प्रस्तावीत करण्यात आले आहे आपले माहिती व पुढील कार्यवाही करीता सविनय सादर.

सहपत्र:- वरील प्रमाणे

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 अधीक्षक अभियंता (पो)

प्रत:-अधीक्षक अभियंता, म.जी.प्रा. मंडळ, लातूर यांना माहिती व पुढील कार्यवाही करीता सन्नेह अर्पित
 प्रत:- कार्यकारी अभियंता (यां), म.जी.प्रा. मंडळ, लातूर यांना माहिती व पुढील कार्यवाही करीता.
 प्रत:- कार्यकारी अभियंता, म.जी.प्रा. विभाग, लातूर यांना माहिती व पुढील कार्यवाही करीता.