



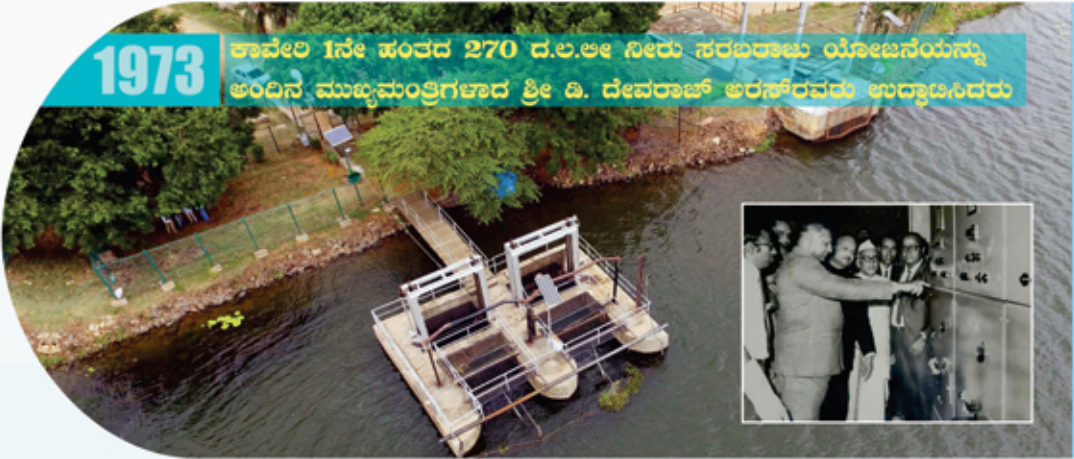
**1933**

28 ಕಿ.ಮಿ. ದೂರದಲ್ಲರುವ ಚಾಮರಾಜನಾಗರದಿಂದ (ಪಿಚ್ಚುಗೊಂಡನಹಳ್ಳಿ) 27ದ.ಲ.ಅ ನೀರನ್ನು 135 ದ.ಲ.ಅ ನೀರನ್ನು ಪೂರೈಸುವ ಯೋಜನೆಯ ಕಾರಣಕರ್ತರು ಸರ್.ವಿಂ.ಬಿಶ್ವೇಶ್ವರಯ್ಯನವರು.



**1973**

ಕಾವೇರಿ 1ನೇ ಹಂತದ 270 ದ.ಲ.ಅ ನೀರು ಸರಬರಾಜು ಯೋಜನೆಯನ್ನು ಅಂದಿನ ಮುಖ್ಯಮಂತ್ರಿಗಳಾದ ಶ್ರೀ ವಿ. ದೇವರಾಜ್ ಅರಸೇಂದ್ರರು ಉದ್ಘಾಟಿಸಿದರು



# ನೀರು ಸರಬರಾಜು ಮತ್ತು ಒಳಚರಂಡಿ ಕಾಮಗಾರಿಗಳ ಏಕರೂಪ ದರಪಟ್ಟಿ 2023-2024

**ಸಂಪುಟ 5**

**COMMON SCHEDULE OF RATES 2023 - 2024  
FOR  
WATER SUPPLY AND SEWERAGE WORKS**

**VOLUME 5**

PREPARED BY  
**BWSSB, RDW&SD, KUWS&DB**



**GOVERNMENT OF KARNATAKA**



**COMMON SCHEDULE OF RATES FOR  
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**VOLUME - 5**



# *Tribute*



*M. Visvesvaraya*

**1861 - 1962**

## *Sayings of Sir M.Visvesvaraya*

- *It is better to Work out than Rust out.*
- *Work performed with higher knowledge or skill, capacity or ambitions, usually brings a correspondingly higher reward.*
- *An Engineer is a person who applies the skills and Knowledge of basic Science for the good of society.*
- *Hard work performed in a disciplined manner will in most cases keep the worker fit and also prolong his life.*





Phone : 080-22945340  
E-mail : cedesign@bwssb.gov.in

## **BANGALORE WATER SUPPLY AND SEWERAGE BOARD**

**Office of the Chief Engineer (Design & Quality Assurance),**  
Cauvery Bhavan, 9<sup>th</sup> Floor, K.G. Road, Bangalore - 560 009.

**No. BWSSB/CE(D&QA)/ACE(D)/1363/2023-24    Date: 15-11-2023**

### **MEMORANDUM**

**Sub:** Implementation of Common Schedule of Rates for Water Supply and Sewerage Works for the Year 2023-24.

- Ref:**
1. Proceedings of the Common SR committee meeting held on 03.07.2023 in the Chamber of Chief Engineer (Design & Quality Assurance), BWSSB, Cauvery Bhavan, Bengaluru.
  2. G.O. No. PWD 86 RDF 2022, Bengaluru, dated: 15.11.2023

### **Preamble:-**

Government of Karnataka constituted Technical Working Group (TWG) vide G. O. No. FD 259 F-2/2018 dated: 17.02.2020 to guide and suggest the Departments / Organizations to prepare the Common Schedule of Rates (CSR) in different Volumes based on similar nature of work by the respective Departments / Organisations. Bengaluru Water Supply and Sewerage Board, Karnataka Urban Water Supply & Drainage Board and Karnataka Rural Drinking Water & Sanitation Department were grouped by TWG with Bengaluru Water Supply and Sewerage Board as the Nodal Organisation to prepare and publish the Common Schedule of Rates pertaining to Water Supply and Sewerage Works. The same has been consented by Secretary PWD during the meeting in this regard. Accordingly, the following committee has been constituted vide G.O. No. UDD 08/MNI 2021 (E-Office), Bengaluru, dtd: 04.12.2021.

<b>Sl. No.</b>	<b>Designation</b>	<b>Role in the Committee</b>
1	Chief Engineer (Design & QA), BWSSB	Chairman cum Implementing Officer
2	Additional Chief Engineer (Design), BWSSB	Co-ordinating and Working member
3	Superintendent Engineer ( Design & Monitoring), KUWS&DB	Co-ordinating and Working member
4	Superintendent Engineer, Bengaluru Circle, KRWD & SD	Co-ordinating and Working member

During the CSR Review Committee meeting held on 17.12.2020, the committee decided to consider 10% Over Head Charges (OHC) and 6.5% Contractors Profit (CP) as against the TWG recommendation of 10% each. As the water supply & UGD works involve material component at 70% of the estimated cost, the Contractor's Profit is considered at 6.5% instead of 10%. Quotation rates were considered for all major items like DI/MS/RCC/PVC/HDPE pipes. For Construction materials and Usage charges of machineries, rates furnished by TWG / as in Common SR Volume-I has been considered.

BWSSB has developed an IT Tool for the preparation of Schedule of Rates during the year 2017-18 with mechanism for regular updation of methodology automatically. This IT application tool is used for developing Schedule of Rates for each item with frame work assimilation using basic items viz., materials, labour, tools and plants and others with the standard procedures, practices and methodologies for arriving the finished rate, wherein the back-end data are revised for the materials and the labour.

During the Common Schedule of Rates Review Committee meeting held on 17.12.2020, the Committee discussed to adopt Electronically Integrated Schedule of Rates as developed previously by BWSSB in respect of water supply and Sewerage items.

After series of meetings, discussions & review by TWG, many concerns were addressed and the draft Common Schedule of Rates (Water Supply & Sewerage Works) has been prepared with many improvisations and aimed at better understanding of the users. Members of the Committee have expressed their satisfaction over the prepared Common Schedule of Rates (Water Supply & Sewerage Works) and opined to implement the same.

**ORDERS THERE ON:**

Common Schedule of Rates for Water Supply & Sewerage Works for the Year 2023-24 is approved by the Government vide G.O. No. PWD 86 RDF 2022, Bengaluru, dated: 15.11.2023 for adoption with effect from 15.11.2023, the same is herewith issued and shall be in force until further orders.

**Sd/-**  
**Chief Engineer**  
**(Design & Quality Assurance)**  
**Bengaluru Water Supply and Sewerage Board**  
**and Chairman cum Implementing Officer,**  
**Common SR Committee for Water Supply & Sewerage Works**

## **GENERAL NOTES**

- 1) Area specific loading, rates of common materials, usage charges of machinery, wages to labour and Royalty provided in the Common SR Volume-1 for the year 2023-2024 shall be applicable.
- 2) Common SR Volume-1 is applicable for all kinds of Earthwork Excavation, Concrete items-plain and Reinforced, mortar items.
- 3) The prevailing market rates of pipes will be assessed by considering the basic rates. The bare rates will be approved by the Common SR Committee and the issue rates shall be published quarterly i.e., 1<sup>st</sup> April, 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and whenever the variation in price is more or less than 10% over the previously approved rates. In case of abnormal variations, issue rates will be revised in the middle of the quarter based on the proposal of Chief Engineers and Additional Chief Engineers/Superintending Engineers. These approved rates shall be adopted for preparation of estimates and evaluation of tenders.
- 4) The cost of Cement, Steel, Structural Steel and Bitumen as notified by PWD from time to time shall be considered for the preparation of estimates and for Evaluation of Tenders.
- 5) The rates for finished item of works indicated in the Schedule of rates are inclusive of all loading and unloading charges, lead irrespective of mode / type of lead involved and lift charges except otherwise mentioned.
- 6) Data Rates for any specialized items or non – scheduled items shall be got approved by the respective circles of the concerned Departments.
- 7) All the pipes, valves, specials and other materials shall conform to relevant BIS specification with latest amendments.
- 8) Royalty charges for materials supplied / used by the Contractors shall be recovered as per the latest orders of Government.
- 9) The material component rates considered in the Schedule of Rates are the bare rates excluding GST, but inclusive of all other charges such as Royalty, lead, lift, loading & unloading.
- 10) GST of 18% presently or as prevailing will be added separately in the estimate as per Government Order.





ಡಾ: ಎಸ್. ಸೆಲ್ವಕುಮಾರ್, ಭಾ.ಆ.ಸೇ.,  
ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ,  
ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ.



ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಸಚಿವಾಲಯ,  
ಕೊಠಡಿ ಸಂಖ್ಯೆ: 335-336, 3ನೇ ಮಹಡಿ,  
ವಿಕಾಸಸೌಧ, ಬೆಂಗಳೂರು-560001.

**Dr. S. Selvakumar, I.A.S.,**  
Principal Secretary to  
Government,  
Public Works Department

Karnataka Government Secretariat  
Room No. 335-336, 3<sup>rd</sup> Floor, Vikasa Soudha,  
Bengaluru-560 001  
Tel : 080-22034839/22251449  
E-mail : prs.pwd@gmail.com

ದಿನಾಂಕ 15-11-2023

## ಸಂದೇಶ

2021-22ನೇ ಸಾಲಿನಲ್ಲಿ ರಾಜ್ಯದ ವಿವಿಧ ಇಲಾಖೆಗಳ ದರಪಟ್ಟಿಗಳನ್ನು ಅಧ್ಯಯನ ಮಾಡಿ 8 ಸಂಪುಟಗಳನ್ನಾಗಿ ಒಗ್ಗೂಡಿಸಿ ರಾಜ್ಯವ್ಯಾಪಿ ಅನ್ವಯವಾಗುವಂತೆ ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯ ನೇತೃತ್ವದಲ್ಲಿ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ಪ್ರಕಟಿಸಲಾಗಿತ್ತು. ಈ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ಪರಿಷ್ಕರಿಸಿ 2023-24ನೇ ಸಾಲಿಗೆ ಪ್ರಕಟಿಸಲು ನಿರ್ಧರಿಸಿ ಈ ಕಾರ್ಯವನ್ನು ಇಲಾಖೆ ನಿವೃತ್ತ ಅಧಿಕಾರಿಗಳನ್ನು ಒಳಗೊಂಡ "ತಾಂತ್ರಿಕ ಕಾರ್ಯ ನಿರತ ತಂಡ"ವನ್ನು ಪುನರ್ ರಚಿಸಿ ವಹಿಸಲಾಯಿತು.

ಈ ತಂಡದ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ಎಲ್ಲ ಇಂಜಿನಿಯರಿಂಗ್ ಇಲಾಖೆಗಳು ಒಟ್ಟಾರೆ ಸಮಾಲೋಚಿಸಿ ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ, ನೀರಾವರಿ ಇಲಾಖೆ, ಇಂಧನ ಇಲಾಖೆ, ಬಿಡಬ್ಲ್ಯುಎಸ್‌ಎಸ್‌ಬಿ, ಕೆಯುಡಬ್ಲ್ಯುಎಸ್‌ಎಸ್‌ಬಿ, ಗ್ರಾಮೀಣ ನೀರು ಸರಬರಾಜು ಇಲಾಖೆಗಳ ಒಟ್ಟು 6 ಸಂಪುಟಗಳ ಸಂಪುಟ-I, II, III IV, V ಮತ್ತು VIರ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ತಯಾರಿಸಿದ್ದು, ಈ ದರಪಟ್ಟಿಗಳನ್ನು ಸರ್ಕಾರವು ದಿನಾಂಕ 15-11-2023ರಿಂದ ಅನ್ವಯವಾಗುವಂತೆ ಅಂಗೀಕರಿಸಿ ಆದೇಶ ಹೊರಡಿಸಿದೆ. ಹಾಗೂ ಎಲ್ಲ ದರಪಟ್ಟಿಗಳ ಸಂಪುಟಗಳನ್ನು ಸಾರ್ವಜನಿಕರಿಗೆ ಲಭ್ಯವಾಗುವಂತೆ ಇಲಾಖೆಯ ಅಂತರ್‌ಜಾಲದಲ್ಲಿ ಪ್ರಕಟಿಸಲಾಗಿದೆ ಈ ಕಾರ್ಯವನ್ನು ಯಶಸ್ವಿಯಾಗಿ ಪೂರ್ಣಗೊಳಿಸಿದ ತಾಂತ್ರಿಕ ಕಾರ್ಯಪಡೆಯ ಸದಸ್ಯರು ಮತ್ತು ಎಲ್ಲ ಇಲಾಖೆಗಳ ಅಧಿಕಾರಿಗಳಿಗೆ ಅಭಿನಂದನೆಗಳು.

ಈ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ಮುಂದಿನ ವರ್ಷಗಳಲ್ಲಿ ಇನ್ನೂ ಉತ್ತಮಪಡಿಸಲು ಸಂಬಂಧಪಟ್ಟ ಎಲ್ಲ ಬಳಕೆದಾರರು ತಮ್ಮ ಸಲಹೆಗಳು/ಅಭಿಪ್ರಾಯವನ್ನು ಮುಕ್ತವಾಗಿ ಹಂಚಿಕೊಳ್ಳಲು ಕೋರುತ್ತೇನೆ.

— . . . —



## ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ವಿಷಯ: 2023-24ನೇ ಸಾಲಿನ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಪಟ್ಟಿಗಳನ್ನು ಪರಿಷ್ಕರಿಸಿ ತಯಾರಿಸಲು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು (Technical Working Group) ಪುನರ್ ರಚಿಸುವ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ 1. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಲೋಇ 65 ಆರ್‌ಡಿಎಫ್ 2018, ದಿನಾಂಕ: 04.04.2019.

2. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಆಇ 259 ಆಕೋ-2/2018, ದಿನಾಂಕ: 17.02.2020.

3. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಲೋಇ 51 ಆರ್‌ಡಿಎಫ್ 2019,ಬೆಂಗಳೂರು, ದಿನಾಂಕ:18.03.2022, 25-03-2022 ಮತ್ತು 31-03-2022.

### ಪ್ರಸ್ತಾವನೆ:

ಮೇಲೆ (1)ರಲ್ಲಿ ಒದಲಾದ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿ ಅನುಸೂಚಿ ದರಗಳ ರಚನಾ ಸಮಿತಿಯು ತಯಾರಿಸುವ 2019-20ನೇ ಸಾಲಿನ ಏಕ ರೂಪ ದರಪಟ್ಟಿಯನ್ನು ಪರಿಶೀಲಿಸಲು "ಅನುಸೂಚಿ ದರಗಳ ಪರಿಶೀಲನಾ ಸಮಿತಿ"ಯನ್ನು ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ ವಿವಿಧ ಇಲಾಖೆಗಳ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು / ಕಾರ್ಯದರ್ಶಿಗಳ ಸದಸ್ಯರುಗಳನ್ನು ಒಳಗೊಂಡು ಸೃಜಿಸಲಾಗಿರುತ್ತದೆ. ಈ ಸಮಿತಿಯು ಏಕರೂಪ ದರಪಟ್ಟಿಯ ರಚನಾ ಸಮಿತಿಯು ತಯಾರಿಸುವ ದರಪಟ್ಟಿಗಳನ್ನು ಪರಿಶೀಲಿಸಿ ಜಾರಿಗೊಳಿಸಲು ಕ್ರಮವಹಿಸಲು ಆರ್ಥಿಕ ಇಲಾಖೆಯ ಟಿಪ್ಪಣಿ ಸಂಖ್ಯೆ ಆಇ 259 ಆಕೋ-2/2018, ದಿನಾಂಕ:14.03.2019ರನ್ವಯ ಆದೇಶ ಹೊರಡಿಸಲಾಗಿರುತ್ತದೆ.

ಮೇಲೆ (2)ರಲ್ಲಿ ಒದಲಾದ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಯಾರಿಸಲು "ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡ" (Technical Working Group) ರಚಿಸಿ ವಿವಿಧ ಇಲಾಖೆಗಳೊಂದಿಗೆ ಸಭೆಯನ್ನು ನಡೆಸಿ ಮಾರ್ಚ್-2020ರ ಮಾಹೆಯೊಳಗೆ ಏಕರೂಪ ದರಪಟ್ಟಿಯನ್ನು ಸರ್ಕಾರಕ್ಕೆ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಸಲ್ಲಿಸುವಂತೆ ಆದೇಶ ಹೊರಡಿಸಲಾಗಿರುತ್ತದೆ.

ಮೇಲೆ (3)ರಲ್ಲಿ ಒದಲಾದ ಸರ್ಕಾರದ ಆದೇಶಗಳಲ್ಲಿ ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ವಿವಿಧ ಇಲಾಖೆಗಳು ತಯಾರಿಸಿರುವ ಕೆಳಕಂಡ 2021-22ನೇ ಸಾಲಿನ ಅನುಸೂಚಿತ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಸಂಪುಟಗಳನ್ನು ಮುಂದಿನ ಆದೇಶದವರೆಗೆ ಜಾರಿಗೆ ತರಲಾಗಿದೆ.

ಕ್ರ.ಸಂ	ಇಲಾಖೆಗಳು	ನೋಡಲ್ ಇಲಾಖೆಗಳು	ಏಕರೂಪ ದರಪಟ್ಟಿಯ ಸಂಪುಟ ಸಂಖ್ಯೆ
1	PWD, & PRED(Including Buildings*)	PWD	I, II & III
2	WRDO, MI & KPCL	WRDO	IV
3	BWSSB /KUWS&DB /RWS	BWSSB	V
4	KPTCL, ESCOMS, PWD ELECTRICAL	BESCOM	VI
5	PORTS & IWTD	PORTS	VII
6	FOREST, WATERSHED & HORTICULTURE	FOREST	VIII

ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಆಇ 259 ಆಕೋ-2/2018, ದಿನಾಂಕ:17.02.2020.

ಆದೇಶದಂತೆ ಹಾಗೂ ಉಲ್ಲೇಖ(3)ರಲ್ಲಿ ಈಗಾಗಲೇ ಪ್ರಕಟಿಸಿರುವ 2021-22ನೇ

ಸಾಲಿನ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಸಂಪುಟಗಳನ್ನು ಪರಿಷ್ಕರಿಸಿ 2023-24ನೇ ಸಾಲಿನ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ತಯಾರಿಸಲು ಕ್ರಮ ವಹಿಸಬೇಕಾಗಿರುವ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಈ ಕೆಳಕಂಡಂತೆ ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು (Technical Working Group) ಪುನರ್ ರಚಿಸಲು ನಿರ್ಧರಿಸಲಾಗಿದೆ.

**ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಲೋಇ 86 ಆರ್‌ಡಿಎಫ್ 2022, ಬೆಂಗಳೂರು.**

**ದಿನಾಂಕ: 13.02.2023**

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಲಾದ ಅಂಶಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, 2023-24ನೇ ಸಾಲಿನ ರಾಜ್ಯವ್ಯಾಪಿ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟ-I ರಿಂದ VIII ಪರಿಷ್ಕರಿಸಲು ಈ ಕೆಳಕಂಡ ಸದಸ್ಯರುಗಳನ್ನೊಳಗೊಂಡಂತೆ ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು (Technical Working Group) ಪುನರ್ ರಚಿಸಿ ಆದೇಶಿಸಿದೆ.

ಕ್ರ. ಸಂ	ಶ್ರೀಯುತ/ಅಧಿಕಾರಿಗಳು	
1.	ಆರ್. ಜೈಪ್ರಸಾದ್, ನಿವೃತ್ತ ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್	ಅಧ್ಯಕ್ಷರು
2.	ಬಿ. ಗುರುಪ್ರಸಾದ್, ನಿವೃತ್ತ ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿ ಮತ್ತು ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ	ಸದಸ್ಯರು
3.	ಕೆ. ಮೋಹನ್ ನಿವೃತ್ತ ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ.	ಸದಸ್ಯರು
4.	ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಗ್ರಾಮೀಣ ನೀರು ಸರಬರಾಜು ಇಲಾಖೆ, ಕಾವೇರಿ ಭವನ, ಕೆಜಿ ರಸ್ತೆ, ಬೆಂಗಳೂರು.	ಸದಸ್ಯರು
5.	ರಮೇಶ್ ಹೆಚ್.ಜಿ. ಜನರಲ್ ಮ್ಯಾನೇಜರ್, Quality Standard and Safety, BESCO, ಬೆಂಗಳೂರು	ಸದಸ್ಯರು
6.	ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಬೆಂಗಳೂರು ನಗರ ನೀರು ಸರಬರಾಜು ಮತ್ತು ಒಳಚರಂಡಿ ಮಂಡಳಿ	ಸದಸ್ಯರು
7.	ರವಿಕುಮಾರ, ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್ (ನಿವೃತ್ತ) ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು ಪಂಚಾಯತ್ ರಾಜ್ ಇಲಾಖೆ	ಸದಸ್ಯರು
8.	ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಬೆಂಗಳೂರು ವೃತ್ತ, ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು ಪಂಚಾಯತ್ ರಾಜ್ ಇಲಾಖೆ	ಸದಸ್ಯರು
9.	ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಬೆಂಗಳೂರು ವೃತ್ತ, ಸಣ್ಣ ನೀರಾವರಿ ಇಲಾಖೆ, ಜಯನಗರ, ಬೆಂಗಳೂರು	ಸದಸ್ಯರು
10.	ತಾರಾನಾಥ್ ಎಸ್. ರಾಥೋಡ್, ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಕರ್ನಾಟಕ ಜಲ ಸಾರಿಗೆ ಮಂಡಳಿ, ಕಾರವಾರ	ಸದಸ್ಯರು
11.	ರಾಜೇಶ್, ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್ (ವಿದ್ಯುತ್ ವಿಭಾಗ) ಲೋಇ ಬೆಂಗಳೂರು	ಸದಸ್ಯರು
12.	ಶ್ರೀಮತಿ ಪವಿತ್ರ, ಉಪ ಮುಖ್ಯ ಇಂಜಿನಿಯರ್ ಕೆಯುಡಬ್ಲ್ಯುಎಸ್‌ಎಸ್‌ಬಿ, ಬೆಂಗಳೂರು.	ಸದಸ್ಯರು

*Handwritten signature*


ಕ್ರ. ಸಂ	ಶ್ರೀಯುತ/ಅಧಿಕಾರಿಗಳು	
13.	ಕೃಷ್ಣರಾವ್, ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಕೆಇಆರ್‌ಎಸ್, ಮೈಸೂರು	ಸದಸ್ಯರು
14.	ಶ್ರೀನಿವಾಸ್, ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಎಂ & ಇ ವಿಭಾಗ, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ, ಬೆಂಗಳೂರು	ಸದಸ್ಯರು
15.	ಕೆ.ವಿ. ಗೋಪಾಲಕೃಷ್ಣ, ನಿವೃತ್ತ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ	ಸದಸ್ಯರು
16.	ಎನ್. ಬಿ. ಅನ್ವರ್ ಪಾಷ, ನಿವೃತ್ತ ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್,	ಸದಸ್ಯರು
17.	ಅರಣ್ಯ ಸಂರಕ್ಷಣಾಧಿಕಾರಿ, ಅರಣ್ಯ ಇಲಾಖೆ.	ಸದಸ್ಯರು
18.	ಶ್ರೀಮತಿ ದಿವ್ಯ, ಸಹಾಯಕ ನಿರ್ದೇಶಕರು, ತೋಟಗಾರಿಕೆ ಇಲಾಖೆ	ಸದಸ್ಯರು
19.	ಅಧೀಕ್ಷಕ ಅಭಿಯಂತರರು, ಲೋಕೋಪಯೋಗಿ ವೃತ್ತ, ಬೆಂಗಳೂರು.	ಸದಸ್ಯ ಕಾರ್ಯದರ್ಶಿ/ ಸಮನ್ವಯಾಧಿಕಾರಿ

- i) ಈ ತಂಡವು ವಿವಿಧ ಇಲಾಖೆಗಳ ಸದಸ್ಯರೊಂದಿಗೆ ಸಭೆಯನ್ನು ನಡೆಸಿ ಏಪ್ರಿಲ್-2023ರ ಅಂತ್ಯದೊಳಗೆ ವಿವಿಧ ಇಲಾಖೆಗಳ ಏಕರೂಪ ದರಪಟ್ಟಿಯನ್ನು ಪರಿಷ್ಕರಿಸಿ ಸಲ್ಲಿಸುವುದು.
- ii) ವಿವಿಧ ಇಲಾಖೆಗಳ ಸದಸ್ಯರು ಏಕರೂಪ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆ, ವಿಶಿಷ್ಟ ವಿವರಣೆ ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆ ಮುಂತಾದ ವಿವರಗಳನ್ನು ತಾಂತ್ರಿಕ ತಂಡದೊಂದಿಗೆ ಚರ್ಚಿಸಿ ಅಂತಿಮಗೊಳಿಸುವುದು ಹಾಗೂ ಪರಿಷ್ಕರಿಸಿದ ಕರಡು ಏಕರೂಪ ದರಪಟ್ಟಿಗಳಿಗೆ ಆಯಾ ಇಲಾಖೆಯ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರದ ಅನುಮೋದನೆ ಪಡೆದು ಸಲ್ಲಿಸುವುದು.
- iii) ಮೇಲ್ಕಂಡ ತಂಡದ ಅಧಿಕಾರೇತರ ಸದಸ್ಯರುಗಳಿಗೆ ಸೇವಾ ಶುಲ್ಕವನ್ನು ನೀಡುವ ಕುರಿತಂತೆ ಸಮನ್ವಯಾಧಿಕಾರಿಯಾಗಿರುವ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಲೋಕೋಪಯೋಗಿ ವೃತ್ತ, ಬೆಂಗಳೂರು ಇವರು ಕ್ರಮ ವಹಿಸುವುದು.
- iv) ಈ ಕಾರ್ಯವನ್ನು ನಿರ್ವಹಿಸಲು ಅಗತ್ಯವಿರುವ ಕಛೇರಿಯ ಸ್ಥಳಾವಕಾಶವನ್ನು ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಸಂಪರ್ಕ ಮತ್ತು ಕಟ್ಟಡಗಳು (ದಕ್ಷಿಣ) ಕಛೇರಿಯ 3ನೇ ಮಹಡಿಯಲ್ಲಿ ಸಭಾಂಗಣ ಮತ್ತು ಪೀಠೋಪಕರಣ, ಲೇಖನ ಸಾಮಗ್ರಿಗಳು ಹಾಗೂ ಇತರ ಅಗತ್ಯ ಸೌಕರ್ಯಗಳನ್ನು ಒದಗಿಸುವುದು.
- v) ಈ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಪರಿಷ್ಕರಣೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಸಂಬಂಧಪಟ್ಟ ಇಲಾಖೆಗಳ ಮುಖ್ಯ ಇಂಜಿನಿಯರ್/ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ಗಳು ಸೂಕ್ತ ಸಲಹೆ ಮತ್ತು ಅಭಿಪ್ರಾಯಗಳನ್ನು ಕಾರ್ಯ ನಿರತ ತಂಡದ ಮಾಹಿತಿಗೆ ಸಲ್ಲಿಸುವುದು.

*(Signature)*

vi) ತಾಂತ್ರಿಕ ಕಾರ್ಯ ನಿರತ ತಂಡವು 2023-24ನೇ ಸಾಲಿನ ಎಲ್ಲ ಸಂಪುಟಗಳ ಪರಿಷ್ಕರಣೆಯನ್ನು ಏಪ್ರಿಲ್-23ರ ಅಂತ್ಯದೊಳಗೆ ಪೂರ್ಣಗೊಳಿಸಿ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರಕ್ಕೆ ಸಲ್ಲಿಸುವುದು.

ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ  
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ

  
13/02/2023  
(ಕೆ.ಎಸ್. ಹರೀಶ್)

ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ,  
ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ (ನಬಾರ್ಡ್)

### ಇವರಿಗೆ:

1. ಮಹಾಲೇಖಪಾಲರು, (ಲೆಕ್ಕ ಪರೀಕ್ಷೆ -II), ಕರ್ನಾಟಕ, ಬೆಂಗಳೂರು.
2. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
3. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ.
4. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಇಂಧನ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
5. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ನಗರಾಭಿವೃದ್ಧಿ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
6. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ, ಅರಣ್ಯ, ಪರಿಸರ ಮತ್ತು ಜೀವಿಶಾಸ್ತ್ರ, ಇಲಾಖೆ, ಬೆಂಗಳೂರು. ಬಹುಮಹಡಿ ಕಟ್ಟಡಗಳು, ಬೆಂಗಳೂರು
7. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿ, ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು ಪಂಚಾಯತ್ ರಾಜ್ ಇಲಾಖೆ, ಬಹುಮಹಡಿ ಕಟ್ಟಡಗಳು, ಬೆಂಗಳೂರು
8. ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ, ವಸತಿ ಇಲಾಖೆ.
9. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ (ವೆಚ್ಚ), ಬೆಂಗಳೂರು.
10. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
11. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಸಣ್ಣನೀರಾವರಿ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
12. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಬೆಸ್ಕಾಂ, ಬೆಂಗಳೂರು
13. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಕೆಪಿಟಿಸಿಎಲ್, ಬೆಂಗಳೂರು
14. ಮುಖ್ಯ ಅರಣ್ಯ ಸಂರಕ್ಷಣಾಧಿಕಾರಿ, ಅರಣ್ಯ ಭವನ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು
15. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಸಂಪರ್ಕ ಮತ್ತು ಕಟ್ಟಡಗಳು (ದಕ್ಷಿಣ), (ಉತ್ತರ), (ಈಶಾನ್ಯ) ಮತ್ತು ಕೇಂದ್ರ ವಲಯಗಳು, ಬೆಂಗಳೂರು, ಧಾರವಾಡ, ಕಲಬುರಗಿ, ಶಿವಮೊಗ್ಗ.
16. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್‌ಗಳು, ಇತರೆ ಇಲಾಖೆಗಳು.
17. ಎಲ್ಲಾ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ಗಳು, ಲೋಇ ಮತ್ತು ಇತರೆ ಇಲಾಖೆಗಳು.
18. ಎಲ್ಲಾ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್‌ಗಳು, ಲೋಇ ಮತ್ತು ಇತರೆ ಇಲಾಖೆಗಳು.

### ಪ್ರತಿ ಮಾಹಿತಿಗಾಗಿ.

1. ಶ್ರೀ ಆರ್. ಜೈಪ್ರಸಾದ್, ನಿವೃತ್ತ ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್,
2. ಶ್ರೀ. ಬಿ. ಗುರುಪ್ರಸಾದ್, ನಿವೃತ್ತ ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿ ಮತ್ತು ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್,
3. ಕಾರ್ಯ ನಿರತ ತಂಡದ ಎಲ್ಲ ಸದಸ್ಯರು

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## ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ವಿಷಯ:- 2023-24ನೇ ಸಾಲಿನ ಏಕರೂಪ ಅನುಸೂಚಿತ ದರಪಟ್ಟಿಯ ಪ್ರಕಟಣೆ

- ಓದಲಾಗಿದೆ. -
1. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಪಿಡಬ್ಲ್ಯುಡಿ 65 ಆರ್‌ಡಿಎಫ್ 2018 ದಿನಾಂಕ 04-04-2019.
  2. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಪಿಡಬ್ಲ್ಯುಡಿ 86 ಆರ್‌ಡಿಎಫ್ 2022 ದಿನಾಂಕ 13.02.2023.
  3. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಸಂಪರ್ಕ ಮತ್ತು ಕಟ್ಟಡಗಳು (ದಕ್ಷಿಣ), ಬೆಂಗಳೂರು ಇವರ ಪತ್ರ ಸಂಖ್ಯೆ :ಮುಇಂಸಂಕದ:ಸಾಕೋ:ಸಇ-2: 2023-24 ದಿನಾಂಕ:15-11-2023.
  4. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ ಇವರ ಪತ್ರ ಮುಇಂ/ಜಸಂಇ/ಉ ಮತ್ತು ಮೌ ಘಟಕ/ದಪ/2023-24 203 ದಿನಾಂಕ 20-09-2023.
  5. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್ (ವಿನ್ಯಾಸ ಮತ್ತು ಗುಣ ಆಶ್ವಾಸನೆ) ಬಿಡಬ್ಲ್ಯುಎಸ್‌ಎಸ್‌ಬಿ ಇವರ ಪತ್ರ No. BWSSB/CE (D & QA)/ACE (D)/TA/970/2023-24 dated 20-09-2023.
  6. ಬೆಸ್ಸಾಂ ಪತ್ರ ಸಂಖ್ಯೆ ಬೆವಿಕಂ/ಪ್ರ.ವ್ಯ/ಗು, ಪ್ರ ಮತ್ತು ಸು/ಉಪ್ರವ್ಯ-4/ಸ.ಪ್ರ.ವ್ಯ-5/ಡಿ‌ಸಿ-35/2023-24/821-22 ದಿನಾಂಕ 12-07-2023.

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### ವಿವರ:-

ರಾಜ್ಯದ ಪ್ರಮುಖ ಇಲಾಖೆಗಳಾದ ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ, ನಗರಾಭಿವೃದ್ಧಿ ಇಲಾಖೆ, ವಸತಿ ಇಲಾಖೆ, ಇಂಧನ ಇಲಾಖೆಗಳ 2021-22ನೇ ಸಾಲಿನ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟ-1,2,3,4,5,6,7 ಮತ್ತು 8ರ ಸಂಪುಟಗಳ ಅನುಸೂಚಿತ ದರಗಳನ್ನು (Schedule of Rates) ಮೇಲೆ ಓದಲಾದ ಕ್ರ.ಸಂ-1ರ ಆದೇಶದಂತೆ ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯನ್ನು ನೋಡಲ್ ಇಲಾಖೆಯನ್ನಾಗಿ ನೇಮಿಸಿದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ 2021-22ನೇ ಸಾಲಿನಲ್ಲಿ ಜಾರಿಗೆ ತಂದು ಪ್ರಕಟಿಸಲಾಗಿತ್ತು. ಈ ಎಲ್ಲ ಸಂಪುಟಗಳನ್ನು 2023-24ನೇ ಸಾಲಿನಲ್ಲಿ ಪರಿಷ್ಕರಿಸಲು ನಿರ್ಧರಿಸಿದ್ದು, ಅದರಂತೆ ಈ ಕಾರ್ಯವನ್ನು ಮೇಲೆ ಓದಲಾದ ಕ್ರ.ಸಂ-2 ಸರ್ಕಾರದ ಆದೇಶದನ್ವಯ ಶ್ರೀ.ಆರ್.ಜೈಪ್ರಸಾದ್, ನಿವೃತ್ತ ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್, ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ ವಿವಿಧ ಇಲಾಖೆಗಳ ನಿವೃತ್ತ ಹಾಗೂ ಅಧಿಕಾರಿಗಳನ್ನು ಒಳಗೊಂಡಂತೆ ಪುನರ್ ರಚಿಸಲಾದ ತಾಂತ್ರಿಕ ಕಾರ್ಯ ಪಡೆ (Technical Working Group)ಗೆ ವಹಿಸಲಾಯಿತು. ಸದರಿ ತಂಡವು 2021-22ನೇ ಸಾಲಿನಲ್ಲಿ ಪ್ರಕಟಿಸಲಾದ ಏಕರೂಪ ಅನುಸೂಚಿತ ಸಂಪುಟ-1ರಿಂದ 6ರನ್ನು

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ಪುನರ್ ಅಧ್ಯಯನ ಮಾಡಿ, ಆಯಾ ಇಲಾಖೆಯ ಅಧಿಕಾರಿಗಳೊಂದಿಗೆ ಅನೇಕ ಸಭೆಗಳನ್ನು ನಡೆಸಿದ್ದು 2023-24ನೇ ಸಾಲಿನ ಕರಡು ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಸಂಪುಟಗಳು 1ರಿಂದ 6ನ್ನು ಸಿದ್ಧಪಡಿಸಿ, ಸರ್ಕಾರದ ಅನುಮೋದನೆಗೆ ಶಿಫಾರಸ್ಸು ಮಾಡಿರುತ್ತದೆ.

SR's OF ORGANIZATIONS CONCERNED	NODAL ORGANIZATION	2023-24 UNI SR Volume
PWD (C&B), PRED	PWD	I, II & III
WRDO, MI & KPCL	WRDO	IV
BWSSB , KUWSDB & RWS	BWSSB	V
KPTCL, ESCOMS, PWD ELECTRICAL	BESCOM	VI
PORTS & IWTD & Airports	PORTS	Not updated/revised by the TWG for 2022-23
FOREST, WATERSHED, HORTICULTURE	FOREST	

**ಈ ದರಪಟ್ಟಿಗಳಲ್ಲಿ ಕೆಳಕಂಡ ಅಂಶಗಳನ್ನು ಅಳವಡಿಸಿಕೊಳ್ಳಲಾಗಿದೆ.**

- ನಿರ್ಮಾಣ ಸಾಮಗ್ರಿಗಳ ದರಗಳನ್ನು ಎಲ್ಲ ಇಲಾಖೆಗಳಿಗೆ ಅನ್ವಯವಾಗುವಂತೆ ಏಕರೂಪ ದರಪಟ್ಟಿಯಲ್ಲಿ ಅಳವಡಿಸಿದೆ.
- 2022-23ನೇ ಸಾಲಿನಲ್ಲಿ ಕಾರ್ಮಿಕ ಇಲಾಖೆಯು ಪ್ರಕಟಿಸಿರುವಂತೆ ಕೂಲಿ ಕಾರ್ಮಿಕರ ದರಗಳನ್ನು (Zone-II rates) ಕನಿಷ್ಠ ದರಗಳನ್ನು ಸಹ ಏಕರೂಪ ದರಪಟ್ಟಿಯಲ್ಲಿ ಅವಳಡಿಸಲಾಗಿದೆ.
- ರಾಷ್ಟ್ರೀಯ ಹೆದ್ದಾರಿ ವಲಯದ 2022ನೇ ಸಾಲಿನ ದರಪಟ್ಟಿಯಂತೆ ಯಂತ್ರೋಪಕರಣಗಳ ಬಾಡಿಗೆ ದರಗಳನ್ನು ಏಕರೂಪ ದರಪಟ್ಟಿಯಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ.
- ಗುತ್ತಿಗೆದಾರರ ಲಾಭಾಂಶವನ್ನು ಗರಿಷ್ಠ ಶೇ10% ಪ್ರತಿಶತ ಅಥವಾ ಆಯಾ ಇಲಾಖೆಗಳು ನಿಗದಿಪಡಿಸಿರುವ ಇವುಗಳಲ್ಲಿ ಯಾವುದು ಕಡಿಮೆಯೋ ಅದನ್ನು ಏಕರೂಪ ದರಪಟ್ಟಿಯಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ.
- Overhead charges ದರಗಳನ್ನು ಗರಿಷ್ಠ ಶೇ10% ಪ್ರತಿಶತ ಏಕರೂಪ ದರಪಟ್ಟಿಯಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ.
- Area specific loading ಎಲ್ಲ ಇಲಾಖೆಗಳ ಕಾಮಗಾರಿಗಳಿಗೆ ಅನ್ವಯವಾಗುವಂತೆ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟ-1ರಲ್ಲಿ ಅಳವಡಿಸಲಾಗಿದೆ.

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- Earth work, Cement concrete items with shuttering and surveying ಐಟಂಗಳನ್ನು ಸಹ ಈ ದರಪಟ್ಟಿಯಲ್ಲಿ ಎಲ್ಲ ಇಲಾಖೆಗಳಿಗೆ ಅನ್ವಯವಾಗುವಂತೆ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟ-1ರಲ್ಲಿ ಅಳವಡಿಸಿರುತ್ತದೆ.
- ಇತರೆ ಇಂಜಿನಿಯರಿಂಗ್ ಇಲಾಖೆಗಳು ತಮ್ಮ ಕಾರ್ಯಕ್ಷೇತ್ರಕ್ಕೆ ಅವಶ್ಯವಿರುವಂತಹ specific construction materials and itemsಗಳನ್ನು ತಮ್ಮ ದರಪಟ್ಟಿಯಲ್ಲಿ ಪ್ರತ್ಯೇಕವಾಗಿ ಅಳವಡಿಸಿಕೊಂಡಿರುತ್ತವೆ.

ಮೇಲಿನ ಅಂಶಗಳನ್ನು ಪರಿಗಣಿಸಿ ವಿವಿಧ ಇಲಾಖೆಗಳ ತಂಡಗಳು 2023-24ನೇ ಸಾಲಿನ ಏಕರೂಪ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದ ಮಾರ್ಗದರ್ಶನದಂತೆ 2022-23ನೇ ಸಾಲಿನ ಏಕರೂಪ ಅನುಸೂಚಿತ ದರಗಳನ್ನು ತಯಾರಿಸಲಾಗಿರುತ್ತದೆ.

ಅಂತಿಮಗೊಳಿಸಿದ 2023-24ನೇ ಸಾಲಿನ ಕರಡು ಏಕರೂಪ ಅನುಸೂಚಿತ ದರಪಟ್ಟಿ ಸಂಪುಟ-I, II, III, IV, V & VIಅನ್ನು ಮೇಲೆ ಓದಲಾದ ಕ್ರ.ಸಂ-3ರಿಂದ 6ರಲ್ಲಿ ಸರ್ಕಾರದಿಂದ ಅನುಮೋದನೆ ದೊರಕಿಸಿಕೊಡಲು ನೋಡಲ್ ಇಲಾಖೆಗಳು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದ ಮೂಲಕ ಸರ್ಕಾರಕ್ಕೆ ಸಲ್ಲಿಸಿರುತ್ತದೆ.

ಈ ಎಲ್ಲ ಕರಡು ಏಕರೂಪ ಅನುಸೂಚಿ ದರಪಟ್ಟಿಗಳ ಬಗ್ಗೆ ದಿನಾಂಕ:07-11-2023 ರಂದು ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿಗಳು, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ ಇವರ ಅಧ್ಯಕ್ಷತೆಯಲ್ಲಿ ನಡೆದ ಏಕರೂಪ ದರಗಳ ಪರಿಶೀಲನಾ ಸಮಿತಿಯಲ್ಲಿ ಸಂಬಂಧಪಟ್ಟ ಇಲಾಖೆಗಳು ಮತ್ತು ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದೊಂದಿಗೆ ಚರ್ಚಿಸಿದ್ದು, ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ವಿವಿಧ ಇಲಾಖೆಗಳು ಅಂತಿಮಗೊಳಿಸಿರುವ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟಗಳು-1 ರಿಂದ 6 ಅನ್ನು ಅಂಗೀಕರಿಸಿ ಜಾರಿಗೆ ತರಲು ನಿರ್ದೇಶಿಸಲಾಗಿದ್ದು, ಅದರಂತೆ ಕೆಳಕಂಡಂತೆ ಆದೇಶಿಸಲಾಗಿದೆ.

**ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಲೋಇ 86 ಆರ್‌ಡಿಎಫ್ 2022, ಬೆಂಗಳೂರು  
ದಿನಾಂಕ:15-11-2023**

ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದ ಮಾರ್ಗದರ್ಶನದಲ್ಲಿ ನೋಡಲ್ ಇಲಾಖೆಗಳು ತಯಾರಿಸಿರುವ ಕೆಳಕಂಡ 2023-24ನೇ ಸಾಲಿನ **Common Schedule of Rates Volume-I to VI** ಎಲ್ಲ ಇಲಾಖೆಗಳಿಗೆ ಅನ್ವಯವಾಗುವಂತೆ ತಕ್ಷಣದಿಂದ ಹಾಗೂ ಮುಂದಿನ ಆದೇಶದವರೆಗೆ ಜಾರಿಗೆ ತರಲಾಗಿದೆ.

UNI SRs 2023-24	2023-24 UNI SR Volume
Common material rates, labour rates, buildings and roads and bridges.	I, II & III

UNI SRs 2023-24	2023-24 UNI SR Volume
WRDO, MI & KPCL organization specific for irrigation and dam works.	IV
BWSSB , KUWSDB & RWS for water supply and sanitary works.	V
KPTCL, ESCOMS, PWD ELECTRICAL for transmission, distribution and consumption related works.	VI

ಸರ್ಕಾರದ ಎಲ್ಲಾ ಇಲಾಖೆಗಳು/ನಿಗಮ/ಮಂಡಳಿ/ ಸಂಸ್ಥೆಗಳು ತಕ್ಷಣದಿಂದಲೇ ಜಾರಿಗೆ ಬರುವಂತೆ 2023-24ನೇ ಸಾಲಿನ ಏಕರೂಪ ದರಪಟ್ಟಿಯ ದರಗಳನ್ನು ಅಂದಾಜು ತಯಾರಿಕೆ, ಗುತ್ತಿಗೆ ಪ್ರಕ್ರಿಯೆ ಮತ್ತು ಅನುಷ್ಠಾನಗೊಳಿಸುವಲ್ಲಿ ಅಳವಡಿಕೊಳ್ಳತಕ್ಕದ್ದು.

ಈ ಏಕರೂಪ ಅನುಸೂಚಿತ ಎಲ್ಲ ಸಂಪುಟವನ್ನು ಆಯಾ ಇಲಾಖೆಗಳ ಅಂತರ್ಜಾಲದಲ್ಲಿ ಪ್ರಕಟಿಸುವುದು. 2023-24ನೇ ಸಾಲಿನ ಎಲ್ಲ ಸಂಪುಟಗಳನ್ನು eproc-2 ತಂತ್ರಾಂಶದಲ್ಲಿ ಕಡ್ಡಾಯವಾಗಿ ಅಳವಡಿಸಲು ನೋಡಲ್ ಇಲಾಖೆಗಳು ಕ್ರಮ ವಹಿಸುವುದು.

ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್, ಬೆಂಗಳೂರು ವೃತ್ತ, ಬೆಂಗಳೂರು ಇವರು ಸಿಮೆಂಟ್, ಉಕ್ಕು ಮತ್ತು ಡಾಂಬರು ಬೆಲೆಗಳನ್ನು ಪ್ರತಿ ತ್ರೈಮಾಸಿಕ ಅವಧಿಗೆ ಪ್ರತಿಶತ ಶೇ.10% ಕ್ಕಿಂತ ದರ ವ್ಯತ್ಯಾಸವಾದಲ್ಲಿ ಪರಿಷ್ಕೃತ ದರಗಳನ್ನು ಧಾರವಾಡ, ಮಂಗಳೂರು ಮತ್ತು ಬಳ್ಳಾರಿ ವೃತ್ತಗಳ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ಗಳೊಂದಿಗೆ ಸಮಾಲೋಚಿಸಿ ಪ್ರಕಟಿಸುವುದು.

ವಿದ್ಯುತ್ ಇಲಾಖೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಮುಖ್ಯ ನಿರ್ಮಾಣ ಸಾಮಗ್ರಿಗಳಾದ Aluminum, copper, Steel, Insulating material, PVC/XLPE compound, CRGO core, Transformer oil ದರಗಳು IEEMA ಪ್ರಕಾರ ಪ್ರತಿ ತ್ರೈಮಾಸಿಕ ಅವಧಿಗೆ ಪರಿಷ್ಕೃತ ದರಗಳನ್ನು ಅಳವಡಿಸಿಕೊಳ್ಳತಕ್ಕದ್ದು. ಇದೇ ರೀತಿ ಇತರೆ ಇಲಾಖೆಗಳ ಮುಖ್ಯ ಸಾಮಗ್ರಿಗಳ ದರಗಳನ್ನು ಅಳವಡಿಸಿಕೊಳ್ಳತಕ್ಕದ್ದು.

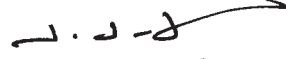
ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಬಿಡಬ್ಲ್ಯೂಎಸ್‌ಎಸ್‌ಬಿ ಇವರು ಕೆಯುಡಬ್ಲ್ಯೂಎಸ್‌ಎಸ್‌ಬಿ ಮತ್ತು ಆರ್‌ಡಿಡಬ್ಲ್ಯೂ ಅಂಡ್ ಎಸ್‌ಡಿ ಇಲಾಖೆಗಳೊಂದಿಗೆ ಸಮಾಲೋಚಿಸಿ ಎಲ್ಲ ರೀತಿಯ ಕೊಳವೆಗಳ (pipes) ಬೆಲೆಗಳನ್ನು ಪ್ರತಿ ತ್ರೈಮಾಸಿಕ ಅವಧಿಗೆ ಅಧವಾ ಶೇ.10ಕ್ಕಿಂತ ದರ ವ್ಯತ್ಯಾಸವಾದಲ್ಲಿ ಪರಿಷ್ಕೃತ ದರಗಳನ್ನು ಪ್ರಕಟಿಸುವುದು.

**ಈ ಅನುಸೂಚಿ ಏಕರೂಪ ದರಪಟ್ಟಿ ಸಂಪುಟ-IV, V VIಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಎಲ್ಲ ಸಾಧ್ಯತೆ ಮತ್ತು ಭಾದ್ಯತೆಗಳನ್ನು ಸಂಬಂಧಪಟ್ಟ ಇಲಾಖೆಗಳು ಹೊಂದಿರುತ್ತವೆ. (WRD, MI, KPCL-Vol IV, BWSSB , KUWSDB & RWS-Vol V, Escoms, KPTCL and PWD-Vol-VI)**



ಆರ್ಥಿಕ ಇಲಾಖೆಯ ಸುತ್ತೋಲೆ ಸಂಖ್ಯೆ ಆಇ 447 ವೆಚ್ಚ-12 /2022 ದಿನಾಂಕ: 30.07.2022 ರಂತೆ ಶೇ.18% ಜಿಎಸ್‌ಟಿ ಪ್ರತಿಶತವನ್ನು ಅಂದಾಜುಪಟ್ಟಿಯಲ್ಲಿ ಪ್ರತ್ಯೇಕವಾಗಿ ಸೇರ್ಪಡೆ ಮಾಡುವುದು.

**ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ  
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ**



(ಡಾ.ಎಸ್. ಸೆಲ್ವಕುಮಾರ್)

ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿ  
ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ  
ಹಾಗೂ ಅಧ್ಯಕ್ಷರು, ಅನುಸೂಚಿ  
ದರಗಳ ಅಂಗೀಕಾರ ಸಮಿತಿ,

ಇವರಿಗೆ:

1. ಮಹಾಲೇಖಪಾಲರು, (ಲೆಕ್ಕ ಪರಿಶೀಲನೆ-II), ಕರ್ನಾಟಕ, ಬೆಂಗಳೂರು.
2. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
3. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ.
4. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಇಂಧನ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
5. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ನಗರಾಭಿವೃದ್ಧಿ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
6. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಅರಣ್ಯ, ಪರಿಸರ ಮತ್ತು ಜೀವಿಶಾಸ್ತ್ರ, ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
7. ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿಗಳು, ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು ಪಂಚಾಯತ್‌ರಾಜ್ ಇಲಾಖೆ.
8. ಸರ್ಕಾರದ ಪ್ರಧಾನ ಕಾರ್ಯದರ್ಶಿಗಳು, ವಸತಿ ಇಲಾಖೆ.
9. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ (ವೆಚ್ಚ), ಬೆಂಗಳೂರು.
10. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ (ಆಯವ್ಯಯ), ಬೆಂಗಳೂರು
11. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
12. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, ಸಣ್ಣನೀರಾವರಿ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
13. ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿಗಳು, e-governance ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
14. ಪ್ರಧಾನ ಇಂಜಿನಿಯರ್, ರಸ್ತೆ, ಯೋಜನೆ ಮತ್ತು ಆಸ್ತಿ ನಿರ್ವಹಣೆ ಕೇಂದ್ರ,(PRAMC), ಬೆಂಗಳೂರು- 6-ಸಂಪುಟಗಳನ್ನು ((PORTS & IWTD & Airports), (FOREST, WATERSHED, HORTICULTURE) ಹೊರತುಪಡಿಸಿ) ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯ ಅಂತರ್ಜಾಲದಲ್ಲಿ ಪ್ರಕಟಿಸುವುದು.
15. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್, ಸಂಪರ್ಕ ಮತ್ತು ಕಟ್ಟಡಗಳು (ದಕ್ಷಿಣ), (ಉತ್ತರ), (ಈಶಾನ್ಯ) ಮತ್ತು ಕೇಂದ್ರ ವಲಯಗಳು, ಬೆಂಗಳೂರು, ಧಾರವಾಡ, ಕಲಬುರಗಿ, ಶಿವಮೊಗ್ಗ.
16. ಮುಖ್ಯ ಇಂಜಿನಿಯರ್‌ಗಳು, ಇತರೆ ಇಲಾಖೆಗಳು.
17. ಎಲ್ಲಾ ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ಗಳು, ಲೋಇ ಮತ್ತು ಇತರೆ ಇಲಾಖೆಗಳು.
18. ಎಲ್ಲಾ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್‌ಗಳು, ಲೋಇ ಮತ್ತು ಇತರೆ ಇಲಾಖೆಗಳು.



## ಮುನ್ನುಡಿ

ಸರ್ಕಾರದ ಆರ್ಥಿಕ ಇಲಾಖೆಯು ತನ್ನ ಆದೇಶ ಸಂಖ್ಯೆ ಆಇ 259 ಆಕೋ-2 2018 ದಿನಾಂಕ: 17-02-2020 ರಂದು ರಾಜ್ಯದ ಪ್ರಮುಖ ಇಲಾಖೆಗಳಾದ, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆ, ಜಲಸಂಪನ್ಮೂಲ ಇಲಾಖೆ, ನಗರಾಭಿವೃದ್ಧಿ, ವಸತಿ, ಇಂಧನ ಮುಂತಾದ ಇಲಾಖೆಗಳು ತಮ್ಮದೇ ಆದ ಅನುಸೂಚಿ ದರಗಳನ್ನು ತಯಾರಿಸಿದ್ದು, ವಿವಿಧ ಕಾಮಗಾರಿಗಳ ಅಂದಾಜುಗಳ ತಯಾರಿಕೆಯಲ್ಲಿ ಬೇರೆ ಬೇರೆ ಇಲಾಖೆಗಳ ದರಗಳನ್ನು ಅಳವಡಿಸಿ, ಅಂದಾಜುಗಳನ್ನು ತಯಾರಿಸಲಾಗುತ್ತಿರುವುದನ್ನು ಮತ್ತು ಜಿ.ಎಸ್.ಟಿ ನಂತರದ ದರಗಳು ಜಾರಿಯಾದ ನಂತರ ಅಂದಾಜುಗಳನ್ನು ತಯಾರಿಸಲು ಮತ್ತು ಟೆಂಡರ್ ಮೌಲ್ಯಮಾಪನ ಮಾಡುವಲ್ಲಿ ಅನೇಕ ಸಮಸ್ಯೆಗಳು ಉದ್ಭವವಾಗುತ್ತಿದ್ದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ರಾಜ್ಯದಲ್ಲಿ ಏಕರೂಪಿ ಸಮಗ್ರ ಅನುಸೂಚಿತ ದರಗಳನ್ನು ತಯಾರಿಸಿ ಪ್ರಕಟಿಸುವುದು ಸೂಕ್ತವೆಂದು ನಿರ್ಧರಿಸಿ, ಇದರನ್ವಯ ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯನ್ನು ನೋಡಲ್ ಇಲಾಖೆಯನ್ನಾಗಿ ನೇಮಿಸಿ, ಎಲ್ಲಾ ಪ್ರಮುಖ ಇಲಾಖೆಗಳ ಪ್ರತಿನಿಧಿಗಳನ್ನೊಳಗೊಂಡ ಅನುಸೂಚಿ ದರಗಳ ಪರಿಶೀಲನಾ ಸಮಿತಿಯನ್ನು ಸರ್ಕಾರದ ಆದೇಶ ಲೋಇ 65 ಆರ್.ಡಿ.ಎಫ್ 2018 ದಿನಾಂಕ: 04-04-2019 ರಲ್ಲಿ ರಚಿಸಿದ್ದು ಸರ್ಕಾರದ ಕಾರ್ಯದರ್ಶಿ, ಲೋಕೋಪಯೋಗಿ ಇಲಾಖೆಯವರು ಅನುಸರಿಸಬೇಕಾದ ಕ್ರಮಗಳ ಬಗ್ಗೆ ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡದೊಂದಿಗೆ ಚರ್ಚಿಸಿರುತ್ತಾರೆ. ತದನಂತರ ದಿನಾಂಕ:05-02-2020 ರಂದು ಸಮಿತಿಯು ದೀರ್ಘವಾಗಿ ಚರ್ಚಿಸಿ, ಕೈಗೊಳ್ಳಬೇಕಾದ ತೀರ್ಮಾನಗಳನ್ನು ಅಂತಿಮಗೊಳಿಸಿರುತ್ತದೆ.

ಇದರನ್ವಯ ವಿವಿಧ ಇಲಾಖೆಗಳನ್ನು ಒಗ್ಗೂಡಿಸಿ, ದರಪಟ್ಟಿಯನ್ನು ಲೋಕೋಪಯೋಗಿ, ನೀರಾವರಿ, ನೀರು ಸರಬರಾಜು, ಒಳಚರಂಡಿ, ವಿದ್ಯುಚ್ಛಕ್ತಿ, ಬಂದರು ಹಾಗೂ ಅರಣ್ಯ ಇಲಾಖೆಗಳಂತೆ ವಿಂಗಡಿಸಿ, ಒಟ್ಟಾರೆ, ಸಾಮಾನ್ಯ ಸಂಪುಟವಲ್ಲದೇ, 6 ಏಕರೂಪ ದರಪಟ್ಟಿಗಳನ್ನು ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಲೋಇ 51 ಆರ್.ಡಿ.ಎಫ್ 2019 ದಿನಾಂಕ 18-03-2022 ರಂತೆ ಜಾರಿಗೊಳಿಸಿರುತ್ತದೆ. ಮುಂದುವರೆದು, ಸರ್ಕಾರವು ಈಗಾಗಲೇ ಪ್ರಕಟಿಸಿರುವ 2021-22 ನೇ ಸಾಲಿನ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಸಂಪುಟಗಳನ್ನು 2023-24 ನೇ ಸಾಲಿನಲ್ಲಿ ಪರಿಷ್ಕರಣೆಗೊಳಿಸಲು ಕ್ರಮ ವಹಿಸಬೇಕಾಗಿರುವ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ ಲೋಇ 86 ಆರ್.ಡಿ.ಎಫ್ 2022 ದಿನಾಂಕ 13-02-2023 ರಲ್ಲಿ ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡವನ್ನು ಪುನರ್ ರಚಿಸಿದೆ. ಮುಂದುವರೆಸುತ್ತಾ, ಕೆಳಕಂಡ ಅಂಶಗಳನ್ನು ಸದರಿ ಆದೇಶದಲ್ಲಿ ಸೂಚಿಸಿದೆ.

ಅ) ಈ ತಂಡವು ವಿವಿಧ ಇಲಾಖೆಗಳ ಸದಸ್ಯರೊಂದಿಗೆ ಸಭೆಯನ್ನು ನಡೆಸಿ ಏಪ್ರಿಲ್-2023 ರ ಅಂತ್ಯದೊಳಗೆ ವಿವಿಧ ಇಲಾಖೆಗಳ ಏಕರೂಪ ದರಪಟ್ಟಿಯನ್ನು ಪರಿಷ್ಕರಿಸಿ ಸಲ್ಲಿಸುವುದು.

ಆ) ವಿವಿಧ ಇಲಾಖೆಗಳ ಸದಸ್ಯರು ಏಕರೂಪ ದರಪಟ್ಟಿಯ ತಯಾರಿಕೆ, ವಿಶಿಷ್ಟ ವಿವರಣೆ ಹಾಗೂ ಡೇಟಾ ವಿಶ್ಲೇಷಣೆ ಮುಂತಾದ ವಿವರಗಳನ್ನು ತಾಂತ್ರಿಕ ತಂಡದೊಂದಿಗೆ ಚರ್ಚಿಸಿ ಅಂತಿಮಗೊಳಿಸುವುದು ಹಾಗೂ ಪರಿಷ್ಕರಿಸಿದ ಕರಡು ಏಕರೂಪ ದರಪಟ್ಟಿಗಳಿಗೆ ಆಯಾ ಇಲಾಖೆಯ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರದ ಅನುಮೋದನೆ ಪಡೆದು ಸಲ್ಲಿಸುವುದು.

ಇ) ಈ ಏಕರೂಪ ದರಪಟ್ಟಿಗಳ ಪರಿಷ್ಕರಣೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ಸಂಬಂಧಪಟ್ಟ ಇಲಾಖೆಗಳ ಮುಖ್ಯ ಇಂಜಿನಿಯರ್ / ಅಧೀಕ್ಷಕ ಇಂಜಿನಿಯರ್‌ಗಳು ಸೂಕ್ತ ಸಲಹೆ ಮತ್ತು ಅಭಿಪ್ರಾಯಗಳನ್ನು ಕಾರ್ಯ ನಿರತ ತಂಡದ ಮಾಹಿತಿಗೆ ಸಲ್ಲಿಸುವುದು.

ಈ) ತಾಂತ್ರಿಕ ಕಾರ್ಯ ನಿರತ ತಂಡವು 2023-24 ಸಾಲಿನ ಎಲ್ಲ ಸಂಪುಟಗಳ ಪರಿಷ್ಕರಣೆಯನ್ನು ಏಪ್ರಿಲ್ 2023 ರ ಅಂತ್ಯದೊಳಗೆ ಪೂರ್ಣಗೊಳಿಸಿ ಸಕ್ಷಮ ಪ್ರಾಧಿಕಾರಕ್ಕೆ ಸಲ್ಲಿಸುವುದು.

ಸರ್ಕಾರದ ಆದೇಶಗಳ ಸೂಚನೆಗಳಂತೆ ಕಾರ್ಯಪಡೆಯು ಪ್ರತಿಯೊಂದು ಇಲಾಖೆಯೊಂದಿಗೆ ಚರ್ಚಿಸಿ, ಆಯಾ ಇಲಾಖೆಗಳ ದರಪಟ್ಟಿಗಳನ್ನು ಸಲ್ಲಿಸಿರುವಂತೆ, ಪ್ರತ್ಯೇಕವಾಗಿ ಪರಿಶೀಲಿಸಿ ಹಾಗೂ ಒಟ್ಟಾರೆ ತಾಂತ್ರಿಕವಾಗಿ ಹಾಗೂ ಕೆಲವೊಂದು ವೈಜ್ಞಾನಿಕವಾಗಿ ಸಮರ್ಥನೀಯ ಬದಲಾವಣೆಗಳನ್ನು ತಿಳಿಸಿರುತ್ತದೆ. ಇದರಂತೆ ಇಲಾಖೆಗಳು ಅಂತಿಮ ದರಪಟ್ಟಿಗಳನ್ನು ತಯಾರಿಸಿ, ಕಾರ್ಯಪಡೆಗೆ ಸಲ್ಲಿಸಿದ್ದು, ಕಾರ್ಯಪಡೆಯು ದರಪಟ್ಟಿಗಳನ್ನು ಪರಿಶೀಲಿಸಿ, ಸಹಮತಿಸಿರುತ್ತದೆ.

(ಆರ್. ಜೈ ಪ್ರಸಾದ್)

ಅಧ್ಯಕ್ಷರು, ತಾಂತ್ರಿಕ ಕಾರ್ಯನಿರತ ತಂಡ

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## ABBREVIATIONS

<b>Sl. No.</b>	<b>ABBREVIATIONS</b>	<b>FULL FORM</b>
1	AGR	AGGREGATES
2	ALM	ALUMINIUM
3	BHT	BOUGHTOUT
4	BRK	BRICKS
5	BRS	BRASS FITTINGS
6	C&S	CEMENT & STEEL
7	D&H	DWC HDPE PIPES
8	D&M	DIRECT MATERIAL SUPPLY
9	D&R	DIRECT RATES
10	EQP	EQUIPMENTS
11	FTN	FITTINGS
12	L&C	LABOUR CHARGES
13	LAB	LABOUR RATES
14	LSA	LUMPSUM
15	MIS	MISCELLANEOUS
16	PNT	PAINTING
17	SAF	SANITARY FIXTURES
18	SAM	SANITARY MISCELLANEOUS
19	SAP	SANITARY PIPES
20	STL	STEEL
21	STN	STONE & BRICK
22	WAF	WATER SUPPLY FIXTURES
23	WAM	WATER SUPPLY MISCELLANEOUS
24	WAP	WATER SUPPLY PIPES
25	WOD	WOOD & GLASS

## Material List

Sl. No.	Material Description	UNIT	RATE
1	Analytical Weight Box 1mg to 200gm with NABL Class F2	Each	22180
2	Aprons	Each	380
3	Beaker 1000ml Borosil	Each	426
4	Beaker 100ml Borosil	Each	120
5	Beaker 250ml Borosil	Each	132
6	Beaker 500ml Borosil	Each	210
7	Beaker 50ml Borosil	Each	120
8	Beaker Plastic 100ml	Each	30
9	Bleaching Powder	kg	60
10	BOD Bottle 300ml	Each	515
11	Burette 50ml Borosil A Grade with NABL	Each	7900
12	Calcium Hardness - Calcium carbonate AR	500gm	361
13	Calcium Hardness - Calconcarboxylic acid AR	25gm	871
14	Calcium Hardness - EDTA AR	500gm	1289
15	Calcium Hardness - Sodium Hydroxide AR	500gm	374
16	Calcium Hardness - Sodium Sulphate AR	500gm	338
17	Calcium Hardness - Triethenolamine AR	500ml	883
18	Calibration of flow meter sensors and testing	SET	9000
19	Caution/Warning Tape	m	6.5
20	Chemical/ Reagents- BACTARIOLOGICAL VIALS, Reagent-LR	1 voil	400
21	Chemical/ Reagents- HYDROCHORIC ACIDE, Reagent-LR	500ml	336
22	Chemical/ Reagents- MURAXIDE INDICATOR, Reagent-LR	5gm	238
23	Chemical/ Reagents- REAGENT-Free Chlorine/DPD	100ml	4436
24	Chemical/ Reagents- SODIUM HYDROXIDE, Reagent-LR	500gm	374
25	Chemical/ Reagents- STD Fluoride Solution 100 ppm, Reagent-RD7, NIST trasable standard	500ml	7700
26	Chemical/ Reagents- STD. SULPHATE SOLUTION 1000 PPM, Reagent-SRS,NIST trasable standard	100ml	7548
27	Chemical/ Reagents- SULPHURIC ACID CONC 99%, Reagent-LR	500ml	337
28	Chemical/ Reagents-BARIUM CHLORIDE, Reagent-AR	500gm	410
29	Chemical/ Reagents-Buffer Solution (ammonia/Amm.chloride), Reagent-SR2	500ml	315
30	Chemical/ Reagents-BUFFER SOLUTION 4, 7, 10, Reagent-RS2	SET	1866
31	Chemical/ Reagents-EBT 1%, Reagent-SR3	100gm	861
32	Chemical/ Reagents-EDTA 0.02 N std, O-Xylanol], Reagent-SR4	500ml	299
33	Chemical/ Reagents-HYDROCHLORIC ACID, Reagent-AR	500ml	361

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
34	Chemical/ Reagents-Mercury Papers/(Mercuric Iodide), Reagent-SR31	pkt	<b>1550</b>
35	Chemical/ Reagents-Methyl Orange 0.040%, Reagent-SR12	100gm	<b>668</b>
36	Chemical/ Reagents-NFEDA Reagent/Sulphanalimide/Zin, Reagent-SR14	100gm	<b>1009</b>
37	Chemical/ Reagents-Phenolphthalein %, Reagent-SR11	100gm	<b>990</b>
38	Chemical/ Reagents-POTASSIUM CHLORIDE, Reagent-AR	500gm	<b>488</b>
39	Chemical/ Reagents-Reagent-7 (Zirconium Oxochloride, O-Xylenol), Reagent-SR7	500gm	<b>2468</b>
40	Chemical/ Reagents-Reagent-8(1:10phenolphthalein base, Hydroxyl amine hydrochloride, ammonium acetate), Reagent-SR8	10gm	<b>756</b>
41	Chemical/ Reagents-Reductant Reagent/Acetic Acid/Citric, Reagent-SR15	500gm	<b>301</b>
42	Chemical/ Reagents-Sdt. 40 Ntu Sol. (Hydrazine Sulphate, Hexamethylene Tetramide), Reagent-RST,NIST traceable standard	100ml	<b>15158</b>
43	Chemical/ Reagents-SDT. Nitrate Solution 1000gm/l, Reagent-RS14,NIST traceable standard	500ml	<b>6240</b>
44	Chemical/ Reagents-Silver Nitrate 0.02N std, Reagent-SR5	500ml	<b>671</b>
45	Chemical/ Reagents-Silver Nitrate 0.02N std, Reagent-SR6	500ml	<b>671</b>
46	Chemical/ Reagents-SODIUM CHLORIDE SOL.STD 1000 PPM, Reagent-RS1	500ml	<b>200</b>
47	Chemical/ Reagents-STD Iron Solution 100 PPM, Reagent-RS8, NIST traceable standard	500ml	<b>4788</b>
48	Chemical/ Reagents-Sulphamic Acid, Reagent-SR32	500gm	<b>1997</b>
49	Chemical/ Reagents-Sulphuric Acid 0.02N std, Reagent-SR13	500ml	<b>396</b>
50	Chemical/ Reagents-Tisab 3 buffer solution, Reagent-SR51, NIST traceable standard	500ml	<b>13125</b>
51	Chemical/ Reagents-Zinc Granules, Reagent-SR33	500gm	<b>1641</b>
52	Chloride - Potassium Chromate AR	500gm	<b>1437</b>
53	Chloride - Silver Nitrate AR	25gm	<b>6490</b>
54	Chloride - Sodium Chloride AR	500gm	<b>200</b>
55	Chlorine Di Oxide (ClO <sub>2</sub> ) Generator	SET	<b>585000</b>
56	CI double flanged pipes 200mm dia	m	<b>4554</b>
57	CI double flanged pipes 100mm dia.	m	<b>2018</b>
58	CI double flanged pipes 150mm dia	m	<b>3400</b>
59	CI double flanged pipes 250mm dia.	m	<b>6161</b>
60	CI double flanged pipes 300mm dia.	m	<b>7857</b>
61	CI double flanged pipes 350mm dia.	m	<b>10625</b>
62	CI double flanged pipes 400mm dia.	m	<b>12857</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
63	CI double flanged pipes 450mm dia.	m	<b>15536</b>
64	CI double flanged pipes 500mm dia.	m	<b>18214</b>
65	CI double flanged pipes 600mm dia.	m	<b>24375</b>
66	CI double flanged pipes 80mm dia.	m	<b>1607</b>
67	Clamps & M.S stay incl. b&n for 50mm	Each	<b>31</b>
68	Compressor Oil	L	<b>1032</b>
69	Concrete Pump	hr	<b>904</b>
70	Conical flask 1000ml borosil	Each	<b>498</b>
71	Conical flask 100ml borosil	Each	<b>115</b>
72	Conical flask 250ml borosil	Each	<b>175</b>
73	Conical flask 500ml borosil	Each	<b>245</b>
74	Cost of making MS specials	Kg	<b>30</b>
75	Crushed stone aggregate 37.5mm and below	m <sup>3</sup>	<b>1250</b>
76	Crystalline Mortor 4:5	m <sup>2</sup>	<b>410</b>
77	Crystalline Slurry of Hydrophilic	m <sup>2</sup>	<b>370</b>
78	Cut & Repair XLPE cable	JOB	<b>9880</b>
79	Cuvette for Turbiditymeter	Each	<b>30</b>
80	Cuvette for UV Glass	Each	<b>2200</b>
81	Cuvette for UV Quartz	Each	<b>3800</b>
82	Dessicator 300mm Glass with Borosilicate 3.3 Glass Complies with IS6128	Each	<b>21250</b>
83	Digital Hygrometer with NABL Certificate	Each	<b>4400</b>
84	Disc Type Active Electronic Marker	Each	<b>1720</b>
85	Disc Type Passive Electronic Marker	Each	<b>940</b>
86	Dismantle, transport, re-instal and commission the bulk flow meters	L.S	<b>31500</b>
87	Ductile Iron Pipe Class K-7 1000mm dia.,	m	<b>22772</b>
88	Ductile Iron Pipe Class K-7 100mm dia.	m	<b>1185</b>
89	Ductile Iron Pipe Class K-7 1100mm dia.,	m	<b>25518</b>
90	Ductile Iron Pipe Class K-7 1200mm dia.	m	<b>28357</b>
91	Ductile Iron Pipe Class K-7 150mm dia.,	m	<b>1633</b>
92	Ductile Iron Pipe Class K-7 200mm dia.,	m	<b>2071</b>
93	Ductile Iron Pipe Class K-7 250mm dia.,	m	<b>2458</b>
94	Ductile Iron Pipe Class K-7 300mm dia.,	m	<b>3122</b>
95	Ductile Iron Pipe Class K-7 350mm dia.,	m	<b>3977</b>
96	Ductile Iron Pipe Class K-7 400mm dia.,	m	<b>4778</b>
97	Ductile Iron Pipe Class K-7 450mm dia.,	m	<b>5696</b>
98	Ductile Iron Pipe Class K-7 500mm dia.,	m	<b>6489</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
99	Ductile Iron Pipe Class K-7 600mm dia.,	m	<b>8496</b>
100	Ductile Iron Pipe Class K-7 700mm dia.,	m	<b>11850</b>
101	Ductile Iron Pipe Class K-7 750mm dia.,	m	<b>13655</b>
102	Ductile Iron Pipe Class K-7 800mm dia.,	m	<b>15274</b>
103	Ductile Iron Pipe Class K-7 900mm dia.,	m	<b>18942</b>
104	Ductile Iron Pipe Class K-9 1000mm dia.,	m	<b>25067</b>
105	Ductile Iron Pipe Class K-9 100mm dia.,	m	<b>1365</b>
106	Ductile Iron Pipe Class K-9 1100mm dia.,	m	<b>30714</b>
107	Ductile Iron Pipe Class K-9 1200mm dia	m	<b>34239</b>
108	Ductile Iron Pipe Class K-9 150mm dia.,	m	<b>1936</b>
109	Ductile Iron Pipe Class K-9 200mm dia.,	m	<b>2557</b>
110	Ductile Iron Pipe Class K-9 250mm dia.,	m	<b>3017</b>
111	Ductile Iron Pipe Class K-9 300mm dia.,	m	<b>3821</b>
112	Ductile Iron Pipe Class K-9 350mm dia.,	m	<b>4834</b>
113	Ductile Iron Pipe Class K-9 400mm dia.,	m	<b>5804</b>
114	Ductile Iron Pipe Class K-9 450mm dia.	m	<b>6969</b>
115	Ductile Iron Pipe Class K-9 500mm dia.,	m	<b>7979</b>
116	Ductile Iron Pipe Class K-9 600mm dia.,	m	<b>10575</b>
117	Ductile Iron Pipe Class K-9 700mm dia.,	m	<b>13735</b>
118	Ductile Iron Pipe Class K-9 750mm dia.,	m	<b>15457</b>
119	Ductile Iron Pipe Class K-9 800mm dia.,	m	<b>16865</b>
120	Ductile Iron Pipe Class K-9 900mm dia.	m	<b>20871</b>
121	DWC (Doub. Wall Corrug) pipe SN 8, 1000mm dia	m	<b>12200</b>
122	DWC (Doub. Wall Corrug) pipe SN 8, 100mm dia	m	<b>171</b>
123	DWC (Doub. Wall Corrug) pipe SN 8, 135mm dia	m	<b>247</b>
124	DWC (Doub. Wall Corrug) pipe SN 8, 150mm dia	m	<b>315</b>
125	DWC (Doub. Wall Corrug) pipe SN 8, 170mm dia	m	<b>441</b>
126	DWC (Doub. Wall Corrug) pipe SN 8, 200mm dia	m	<b>548</b>
127	DWC (Doub. Wall Corrug) pipe SN 8, 250mm dia	m	<b>851</b>
128	DWC (Doub. Wall Corrug) pipe SN 8, 300mm dia	m	<b>1142</b>
129	DWC (Doub. Wall Corrug) pipe SN 8, 400mm dia	m	<b>2201</b>
130	DWC (Doub. Wall Corrug) pipe SN 8, 500mm dia	m	<b>3156</b>
131	DWC (Doub. Wall Corrug) pipe SN 8, 600mm dia	m	<b>4746</b>
132	DWC (Doub. Wall Corrug) pipe SN 8, 800mm dia	m	<b>8170</b>
133	E-coli - H2S vials-1 box contain 10 bottles	Box	<b>450</b>
134	ELCB	Each	<b>4117</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
135	Electrofusion saddle	Each	<b>350</b>
136	Electromagnetic Induction Bulk Flow Meters for 100mm dia	Each	<b>135000</b>
137	Electromagnetic Induction Bulk Flow Meters for 150mm dia	Each	<b>159000</b>
138	Electromagnetic Induction Bulk Flow Meters for 200mm dia	Each	<b>182000</b>
139	Electromagnetic Induction Bulk Flow Meters for 250mm dia	Each	<b>211000</b>
140	Electromagnetic Induction Bulk Flow Meters for 300 mm dia	Each	<b>237000</b>
141	Electromagnetic Induction Bulk Flow Meters for 400 mm dia	Each	<b>325000</b>
142	Electromagnetic Induction Bulk Flow Meters for 450 mm dia	Each	<b>375000</b>
143	Electromagnetic Induction Bulk Flow Meters for 600 mm dia	Each	<b>453000</b>
144	Electromagnetic Induction Bulk Flow Meters for 700 mm dia	Each	<b>775000</b>
145	Electromagnetic Induction Bulk Flow Meters for 800 mm dia	Each	<b>950000</b>
146	Enamelled Guage plate 0.23M wide	m	<b>510</b>
147	Engine Oil	L	<b>342</b>
148	Erection and positioning of RCC Hume pipe	Each	<b>1882</b>
149	Evaporating Dish 55x23	Each	<b>545</b>
150	Extension spindle + fittings for gate valve for 200 mm to 450mm	m	<b>5100</b>
151	Extension spindle + fittings for gate valve for 50 mm to 150mm	m	<b>3660</b>
152	Ferrule Brass CI mouth 20mm dia.	Each	<b>85</b>
153	Finial red oxidised copper with base	Each	<b>1521</b>
154	First Aid Box metal with All Accessories	Each	<b>3600</b>
155	Flow control valve	Each	<b>255</b>
156	Fluoride Method (1) Zirconium oxychloride method - Alazarin S AR	25gm	<b>607</b>
157	Fluoride Method (1) Zirconium oxychloride method - Conc. Hydrochloric Acid AR	500ml	<b>361</b>
158	Fluoride Method (1) Zirconium oxychloride method - Conc. Sulphuric Acid AR	500ml	<b>396</b>
159	Fluoride Method (1) Zirconium oxychloride method - Sodium Fluoride AR	500gm	<b>2122</b>
160	Fluoride Method (1) Zirconium oxychloride method - Sodium Hydroxide AR	500gm	<b>366</b>
161	Fluoride Method (1) Zirconium oxychloride method - Sodium Thiosulphate AR	500gm	<b>290</b>
162	Fluoride Method (1) Zirconium oxychloride method - Zirconium Oxychloride AR	100gm	<b>816</b>
163	Fluoride Method (2) Ion Selective Electrode Method - Fluoride Standard Solution 1000mg/L NIST	500ml	<b>7700</b>
164	Fluoride Method (2) Ion Selective Electrode Method - TISAB III Concentrated NIST	500ml	<b>13450</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
165	Fluoride Method (3) SPADNS Photometric method - Conc. Hydrochloric acid AR	500ml	<b>361</b>
166	Fluoride Method (3) SPADNS Photometric method - conc. Sulphuric acid AR	500ml	<b>396</b>
167	Fluoride Method (3) SPADNS Photometric method - Silver Sulphate AR	25gm	<b>7370</b>
168	Fluoride Method (3) SPADNS Photometric method - Sodium Arsenite AR	100gm	<b>4343</b>
169	Fluoride Method (3) SPADNS Photometric method - Sodium fluoride AR	500gm	<b>2122</b>
170	Fluoride Method (3) SPADNS Photometric method - SPADNS Reagent AR	25gm	<b>5148</b>
171	Fluoride Method (3) SPADNS Photometric method - Zirconium oxy chloride octahydrate AR	100gm	<b>816</b>
172	Foot valve suitable for centrifugal pump above 12.50HP	Each	<b>2200</b>
173	Foot valve suitable for centrifugal pump upto 10HP	Each	<b>1750</b>
174	Foreceps 6"	Each	<b>30</b>
175	Funnel 2" Glass	Each	<b>45</b>
176	Funnel 6" Glass	Each	<b>150</b>
177	GI Heavy Duty pipes 100mm dia	m	<b>1021</b>
178	GI Heavy-Duty pipes 15mm dia.	m	<b>122</b>
179	GI Heavy-Duty pipes 20mm dia.	m	<b>150</b>
180	GI Heavy-Duty pipes 25mm dia.	m	<b>220</b>
181	GI Heavy-Duty pipes 32mm dia.	m	<b>276</b>
182	GI Heavy-Duty pipes 40mm dia.	m	<b>326</b>
183	GI Heavy-Duty pipes 50mm dia.	m	<b>456</b>
184	GI Heavy-Duty pipes 65mm dia.	m	<b>573</b>
185	GI Heavy-Duty pipes 80mm dia.	m	<b>701</b>
186	GI Light-Duty pipes 100mm dia	m	<b>720</b>
187	GI Light-Duty pipes 15mm dia.	m	<b>95</b>
188	GI Light-Duty pipes 20mm dia.	m	<b>118</b>
189	GI Light-Duty pipes 25mm dia.	m	<b>160</b>
190	GI Light-Duty pipes 32mm dia.	m	<b>196</b>
191	GI Light-Duty pipes 40mm dia.	m	<b>252</b>
192	GI Light-Duty pipes 50mm dia.	m	<b>254</b>
193	GI Light-Duty pipes 65mm dia.	m	<b>431</b>
194	GI Light-Duty pipes 80mm dia.	m	<b>498</b>
195	GI Medium Duty pipes 100mm dia	m	<b>879</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
196	GI Medium Duty pipes 15mm dia.	m	<b>104</b>
197	GI Medium Duty pipes 20mm dia.	m	<b>135</b>
198	GI Medium Duty pipes 25mm dia.	m	<b>188</b>
199	GI Medium Duty pipes 32mm dia.	m	<b>236</b>
200	GI Medium Duty pipes 40mm dia.	m	<b>317</b>
201	GI Medium Duty pipes 50mm dia.	m	<b>375</b>
202	GI Medium Duty pipes 65mm dia.	m	<b>475</b>
203	GI Medium Duty pipes 80mm dia.	m	<b>600</b>
204	Glass Droppers	Each	<b>30</b>
205	Glass Rod 20cm	Each	<b>10</b>
206	Glassware Cleaner	L	<b>860</b>
207	GPRS + GSM based EMI flow meters on the Bulk waters - 100 mm dia	Each	<b>94500</b>
208	GPRS + GSM based EMI flow meters on the Bulk waters - 150 mm dia	Each	<b>119500</b>
209	GPRS + GSM based EMI flow meters on the Bulk waters - 200 mm dia	Each	<b>159500</b>
210	GPRS + GSM based EMI flow meters on the Bulk waters - 250 mm dia	Each	<b>219500</b>
211	GPRS + GSM based EMI flow meters on the Bulk waters - 300 mm dia	Each	<b>250000</b>
212	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 1000/1100mm	Each	<b>446500</b>
213	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 1200mm	Each	<b>462212</b>
214	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 1800mm	Each	<b>533350</b>
215	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 450mm	Each	<b>328000</b>
216	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 600mm	Each	<b>367400</b>
217	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 700mm	Each	<b>395100</b>
218	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 800mm	Each	<b>438500</b>
219	GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters - 900mm	Each	<b>442000</b>
220	Gravel 2.36mm downsize	m <sup>3</sup>	<b>190</b>
221	Gunmetal Ball Valve	Each	<b>180</b>
222	Hand Gloves	PAIR	<b>50</b>
223	Hand wash Cleaner	L	<b>860</b>
224	HDPE MH 1.2 M dia 1m depth	Each	<b>8300</b>
225	HDPE MH 1.2 M dia 2m depth	Each	<b>15400</b>
226	HDPE MH 1.2 M dia 4m depth	Each	<b>48000</b>
227	HDPE MH 1.2 M dia 5m depth	Each	<b>58000</b>
228	HDPE MH 1.2 M dia 6m depth	Each	<b>66000</b>



<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
229	HDPE MH 1.2M dia 3m depth	Each	<b>29000</b>
230	HDPE Pipe Drop Arrangement 1000 to 1100 mm	m	<b>58000</b>
231	HDPE Pipe Drop Arrangement 1200 to 1400 mm	m	<b>89500</b>
232	HDPE Pipe Drop Arrangement 150 to 200 mm	m	<b>3370</b>
233	HDPE Pipe Drop Arrangement 1500 to 1800 mm	m	<b>133500</b>
234	HDPE Pipe Drop Arrangement 250 mm	m	<b>5270</b>
235	HDPE Pipe Drop Arrangement 300 mm	m	<b>8100</b>
236	HDPE Pipe Drop Arrangement 350 to 500 mm	m	<b>12600</b>
237	HDPE Pipe Drop Arrangement 600 to 750 mm	m	<b>25300</b>
238	HDPE Pipe Drop Arrangement 800 to 900 mm	m	<b>39000</b>
239	HDPE pipe grade PE100-PN 10, 63mm	m	<b>132</b>
240	HDPE pipe grade PE100-PN 10, 75mm	m	<b>186</b>
241	HDPE pipe grade PE100-PN 12.5, 63mm	m	<b>160</b>
242	HDPE pipe grade PE100-PN 12.5, 75mm	m	<b>225</b>
243	HDPE pipe grade PE100-PN 16.0, 75mm	m	<b>266</b>
244	HDPE pipe grade PE100-PN 3.0, 63mm	m	<b>55</b>
245	HDPE pipe grade PE100-PN 3.0, 75mm	m	<b>72</b>
246	HDPE pipe grade PE100-PN 3.0, 90mm	m	<b>98</b>
247	HDPE pipe grade PE100-PN10.0, 110 mm	m	<b>393</b>
248	HDPE pipe grade PE100-PN10.0, 125 mm	m	<b>531</b>
249	HDPE pipe grade PE100-PN10.0, 140 mm	m	<b>665</b>
250	HDPE pipe grade PE100-PN10.0, 160 mm	m	<b>872</b>
251	HDPE pipe grade PE100-PN10.0, 180 mm	m	<b>1103</b>
252	HDPE pipe grade PE100-PN10.0, 200 mm	m	<b>1357</b>
253	HDPE pipe grade PE100-PN10.0, 225 mm	m	<b>1722</b>
254	HDPE pipe grade PE100-PN10.0, 250 mm	m	<b>2117</b>
255	HDPE pipe grade PE100-PN10.0, 280 mm	m	<b>2658</b>
256	HDPE pipe grade PE100-PN10.0, 315 mm	m	<b>3362</b>
257	HDPE pipe grade PE100-PN10.0, 355 mm	m	<b>4639</b>
258	HDPE pipe grade PE100-PN10.0, 400 mm	m	<b>5908</b>
259	HDPE pipe grade PE100-PN10.0, 450 mm	m	<b>7484</b>
260	HDPE pipe grade PE100-PN10.0, 500 mm	m	<b>9247</b>
261	HDPE pipe grade PE100-PN10.0, 560 mm	m	<b>11590</b>
262	HDPE pipe grade PE100-PN10.0, 630 mm	m	<b>14678</b>
263	HDPE pipe grade PE100-PN10.0, 710 mm	m	<b>18643</b>
264	HDPE pipe grade PE100-PN10.0, 90 mm	m	<b>267</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
265	HDPE pipe grade PE100-PN12.5, 110 mm	m	475
266	HDPE pipe grade PE100-PN12.5, 125 mm	m	646
267	HDPE pipe grade PE100-PN12.5, 140 mm	m	810
268	HDPE pipe grade PE100-PN12.5, 160 mm	m	1056
269	HDPE pipe grade PE100-PN12.5, 180 mm	m	1332
270	HDPE pipe grade PE100-PN12.5, 200 mm	m	1643
271	HDPE pipe grade PE100-PN12.5, 225 mm	m	2084
272	HDPE pipe grade PE100-PN12.5, 250 mm	m	2572
273	HDPE pipe grade PE100-PN12.5, 280 mm	m	3224
274	HDPE pipe grade PE100-PN12.5, 315 mm	m	4079
275	HDPE pipe grade PE100-PN12.5, 355 mm	m	5628
276	HDPE pipe grade PE100-PN12.5, 400 mm	m	7145
277	HDPE pipe grade PE100-PN12.5, 450 mm	m	9066
278	HDPE pipe grade PE100-PN12.5, 500 mm	m	11207
279	HDPE pipe grade PE100-PN12.5, 90 mm	m	320
280	HDPE pipe grade PE100-PN16.0, 110 mm	m	570
281	HDPE pipe grade PE100-PN16.0, 125 mm	m	768
282	HDPE pipe grade PE100-PN16.0, 140 mm	m	964
283	HDPE pipe grade PE100-PN16.0, 160 mm	m	1256
284	HDPE pipe grade PE100-PN16.0, 180 mm	m	1587
285	HDPE pipe grade PE100-PN16.0, 200 mm	m	1963
286	HDPE pipe grade PE100-PN16.0, 225 mm	m	2479
287	HDPE pipe grade PE100-PN16.0, 250 mm	m	3062
288	HDPE pipe grade PE100-PN16.0, 280 mm	m	3845
289	HDPE pipe grade PE100-PN16.0, 315 mm	m	4855
290	HDPE pipe grade PE100-PN16.0, 355 mm	m	6727
291	HDPE pipe grade PE100-PN16.0, 400 mm	m	8538
292	HDPE pipe grade PE100-PN16.0, 450 mm	m	10819
293	HDPE pipe grade PE100-PN16.0, 500 mm	m	13369
294	HDPE pipe grade PE100-PN16.0, 90 mm	m	379
295	HDPE pipe grade PE100-PN3.0, 1000mm	m	12964
296	HDPE pipe grade PE100-PN3.0, 110mm	m	148
297	HDPE pipe grade PE100-PN3.0, 1200mm	m	18681
298	HDPE pipe grade PE100-PN3.0, 125mm	m	191
299	HDPE pipe grade PE100-PN3.0, 140mm	m	243
300	HDPE pipe grade PE100-PN3.0, 160mm	m	307

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
301	HDPE pipe grade PE100-PN3.0, 180mm	m	387
302	HDPE pipe grade PE100-PN3.0, 200mm	m	480
303	HDPE pipe grade PE100-PN3.0, 225mm	m	608
304	HDPE pipe grade PE100-PN3.0, 250mm	m	745
305	HDPE pipe grade PE100-PN3.0, 280mm	m	944
306	HDPE pipe grade PE100-PN3.0, 315mm	m	1186
307	HDPE pipe grade PE100-PN3.0, 355mm	m	1648
308	HDPE pipe grade PE100-PN3.0, 400mm	m	2089
309	HDPE pipe grade PE100-PN3.0, 450mm	m	2634
310	HDPE pipe grade PE100-PN3.0, 500mm	m	3243
311	HDPE pipe grade PE100-PN3.0, 560mm	m	4083
312	HDPE pipe grade PE100-PN3.0, 630mm	m	5151
313	HDPE pipe grade PE100-PN3.0, 710mm	m	6531
314	HDPE pipe grade PE100-PN3.0, 800mm	m	8309
315	HDPE pipe grade PE100-PN3.0, 900mm	m	10530
316	HDPE pipe grade PE100-PN4.0, 1000mm	m	15996
317	HDPE pipe grade PE100-PN4.0, 110mm	m	182
318	HDPE pipe grade PE100-PN4.0, 1200mm	m	23052
319	HDPE pipe grade PE100-PN4.0, 125mm	m	233
320	HDPE pipe grade PE100-PN4.0, 140mm	m	293
321	HDPE pipe grade PE100-PN4.0, 160mm	m	382
322	HDPE pipe grade PE100-PN4.0, 180mm	m	484
323	HDPE pipe grade PE100-PN4.0, 200mm	m	592
324	HDPE pipe grade PE100-PN4.0, 225mm	m	754
325	HDPE pipe grade PE100-PN4.0, 250mm	m	924
326	HDPE pipe grade PE100-PN4.0, 280mm	m	1157
327	HDPE pipe grade PE100-PN4.0, 315mm	m	1468
328	HDPE pipe grade PE100-PN4.0, 355mm	m	2014
329	HDPE pipe grade PE100-PN4.0, 450mm	m	3260
330	HDPE pipe grade PE100-PN4.0, 500mm	m	4011
331	HDPE pipe grade PE100-PN4.0, 560mm	m	5026
332	HDPE pipe grade PE100-PN4.0, 630mm	m	6350
333	HDPE pipe grade PE100-PN4.0, 63mm	m	86
334	HDPE pipe grade PE100-PN4.0, 710mm	m	8111
335	HDPE pipe grade PE100-PN4.0, 75mm	m	85
336	HDPE pipe grade PE100-PN4.0, 800mm	m	10264

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
337	HDPE pipe grade PE100-PN4.0, 900mm	m	<b>12972</b>
338	HDPE pipe grade PE100-PN4.0, 90mm	m	<b>124</b>
339	HDPE pipe grade PE100-PN6.0, 110 mm	m	<b>270</b>
340	HDPE pipe grade PE100-PN6.0, 125 mm	m	<b>358</b>
341	HDPE pipe grade PE100-PN6.0, 140 mm	m	<b>448</b>
342	HDPE pipe grade PE100-PN6.0, 160 mm	m	<b>587</b>
343	HDPE pipe grade PE100-PN6.0, 180 mm	m	<b>738</b>
344	HDPE pipe grade PE100-PN6.0, 200 mm	m	<b>914</b>
345	HDPE pipe grade PE100-PN6.0, 225 mm	m	<b>1155</b>
346	HDPE pipe grade PE100-PN6.0, 250 mm	m	<b>1424</b>
347	HDPE pipe grade PE100-PN6.0, 280 mm	m	<b>1779</b>
348	HDPE pipe grade PE100-PN6.0, 315 mm	m	<b>2242</b>
349	HDPE pipe grade PE100-PN6.0, 355 mm	m	<b>3092</b>
350	HDPE pipe grade PE100-PN6.0, 400 mm	m	<b>3936</b>
351	HDPE pipe grade PE100-PN6.0, 450 mm	m	<b>5014</b>
352	HDPE pipe grade PE100-PN6.0, 500 mm	m	<b>6186</b>
353	HDPE pipe grade PE100-PN6.0, 560 mm	m	<b>7742</b>
354	HDPE pipe grade PE100-PN6.0, 630 mm	m	<b>9780</b>
355	HDPE pipe grade PE100-PN6.0, 63mm	m	<b>88</b>
356	HDPE pipe grade PE100-PN6.0, 710 mm	m	<b>12471</b>
357	HDPE pipe grade PE100-PN6.0, 75mm	m	<b>125</b>
358	HDPE pipe grade PE100-PN6.0, 90 mm	m	<b>179</b>
359	HDPE pipe grade PE100-PN8.0, 110 mm	m	<b>321</b>
360	HDPE pipe grade PE100-PN8.0, 125 mm	m	<b>434</b>
361	HDPE pipe grade PE100-PN8.0, 140 mm	m	<b>545</b>
362	HDPE pipe grade PE100-PN8.0, 160 mm	m	<b>715</b>
363	HDPE pipe grade PE100-PN8.0, 180 mm	m	<b>897</b>
364	HDPE pipe grade PE100-PN8.0, 200 mm	m	<b>1108</b>
365	HDPE pipe grade PE100-PN8.0, 225 mm	m	<b>1402</b>
366	HDPE pipe grade PE100-PN8.0, 250 mm	m	<b>1724</b>
367	HDPE pipe grade PE100-PN8.0, 280 mm	m	<b>2167</b>
368	HDPE pipe grade PE100-PN8.0, 315 mm	m	<b>2746</b>
369	HDPE pipe grade PE100-PN8.0, 355 mm	m	<b>3777</b>
370	HDPE pipe grade PE100-PN8.0, 400 mm	m	<b>4806</b>
371	HDPE pipe grade PE100-PN8.0, 450 mm	m	<b>6100</b>
372	HDPE pipe grade PE100-PN8.0, 500 mm	m	<b>7542</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
373	HDPE pipe grade PE100-PN8.0, 560 mm	m	<b>9442</b>
374	HDPE pipe grade PE100-PN8.0, 630 mm	m	<b>11939</b>
375	HDPE pipe grade PE100-PN8.0, 63mm	m	<b>105</b>
376	HDPE pipe grade PE100-PN8.0, 710 mm	m	<b>15186</b>
377	HDPE pipe grade PE100-PN8.0, 75mm	m	<b>152</b>
378	HDPE pipe grade PE100-PN8.0, 90 mm	m	<b>214</b>
379	HDPE pipe grade PE80-PN 10, 63mm	m	<b>160</b>
380	HDPE pipe grade PE80-PN 10, 75mm	m	<b>225</b>
381	HDPE pipe grade PE80-PN 12.5, 63mm	m	<b>187</b>
382	HDPE pipe grade PE80-PN 12.5, 75mm	m	<b>265</b>
383	HDPE pipe grade PE80-PN 16.0, 63mm	m	<b>224</b>
384	HDPE pipe grade PE80-PN 16.0, 75mm	m	<b>313</b>
385	HDPE pipe grade PE80-PN 4.0, 63mm	m	<b>74</b>
386	HDPE pipe grade PE80-PN 4.0, 75mm	m	<b>102</b>
387	HDPE pipe grade PE80-PN10.0, 110mm	m	<b>473</b>
388	HDPE pipe grade PE80-PN10.0, 125mm	m	<b>637</b>
389	HDPE pipe grade PE80-PN10.0, 140mm	m	<b>799</b>
390	HDPE pipe grade PE80-PN10.0, 160mm	m	<b>1042</b>
391	HDPE pipe grade PE80-PN10.0, 180mm	m	<b>1313</b>
392	HDPE pipe grade PE80-PN10.0, 200mm	m	<b>1619</b>
393	HDPE pipe grade PE80-PN10.0, 225mm	m	<b>2053</b>
394	HDPE pipe grade PE80-PN10.0, 250mm	m	<b>2535</b>
395	HDPE pipe grade PE80-PN10.0, 280mm	m	<b>3176</b>
396	HDPE pipe grade PE80-PN10.0, 315mm	m	<b>4019</b>
397	HDPE pipe grade PE80-PN10.0, 355mm	m	<b>5628</b>
398	HDPE pipe grade PE80-PN10.0, 400mm	m	<b>7145</b>
399	HDPE pipe grade PE80-PN10.0, 450mm	m	<b>9066</b>
400	HDPE pipe grade PE80-PN10.0, 500mm	m	<b>11207</b>
401	HDPE pipe grade PE80-PN10.0, 560mm	m	<b>14037</b>
402	HDPE pipe grade PE80-PN10.0, 630mm	m	<b>17769</b>
403	HDPE pipe grade PE80-PN10.0, 90mm	m	<b>318</b>
404	HDPE pipe grade PE80-PN12.5, 110 mm	m	<b>565</b>
405	HDPE pipe grade PE80-PN12.5, 125 mm	m	<b>757</b>
406	HDPE pipe grade PE80-PN12.5, 140 mm	m	<b>951</b>
407	HDPE pipe grade PE80-PN12.5, 160 mm	m	<b>1239</b>
408	HDPE pipe grade PE80-PN12.5, 180 mm	m	<b>1565</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
409	HDPE pipe grade PE80-PN12.5, 200 mm	m	1935
410	HDPE pipe grade PE80-PN12.5, 225mm	m	2442
411	HDPE pipe grade PE80-PN12.5, 250 mm	m	3017
412	HDPE pipe grade PE80-PN12.5, 280 mm	m	3789
413	HDPE pipe grade PE80-PN12.5, 315 mm	m	4784
414	HDPE pipe grade PE80-PN12.5, 355 mm	m	6727
415	HDPE pipe grade PE80-PN12.5, 400 mm	m	8538
416	HDPE pipe grade PE80-PN12.5, 450 mm	m	10819
417	HDPE pipe grade PE80-PN12.5, 500 mm	m	13369
418	HDPE pipe grade PE80-PN12.5, 90 mm	m	378
419	HDPE pipe grade PE80-PN16.0, 110 mm	m	672
420	HDPE pipe grade PE80-PN16.0, 125 mm	m	893
421	HDPE pipe grade PE80-PN16.0, 140 mm	m	1123
422	HDPE pipe grade PE80-PN16.0, 160 mm	m	1466
423	HDPE pipe grade PE80-PN16.0, 180 mm	m	1851
424	HDPE pipe grade PE80-PN16.0, 200 mm	m	2284
425	HDPE pipe grade PE80-PN16.0, 225 mm	m	2894
426	HDPE pipe grade PE80-PN16.0, 250 mm	m	3562
427	HDPE pipe grade PE80-PN16.0, 280 mm	m	4472
428	HDPE pipe grade PE80-PN16.0, 315 mm	m	5656
429	HDPE pipe grade PE80-PN16.0, 355 mm	m	7945
430	HDPE pipe grade PE80-PN16.0, 400 mm	m	10087
431	HDPE pipe grade PE80-PN16.0, 90 mm	m	450
432	HDPE pipe grade PE80-PN3.0, 1000mm	m	15996
433	HDPE pipe grade PE80-PN3.0, 110mm	m	180
434	HDPE pipe grade PE80-PN3.0, 1200mm	m	23052
435	HDPE pipe grade PE80-PN3.0, 125mm	m	230
436	HDPE pipe grade PE80-PN3.0, 140mm	m	289
437	HDPE pipe grade PE80-PN3.0, 160mm	m	378
438	HDPE pipe grade PE80-PN3.0, 180mm	m	477
439	HDPE pipe grade PE80-PN3.0, 200mm	m	585
440	HDPE pipe grade PE80-PN3.0, 225mm	m	744
441	HDPE pipe grade PE80-PN3.0, 250mm	m	912
442	HDPE pipe grade PE80-PN3.0, 280mm	m	1140
443	HDPE pipe grade PE80-PN3.0, 315mm	m	1446
444	HDPE pipe grade PE80-PN3.0, 355mm	m	2029

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
445	HDPE pipe grade PE80-PN3.0, 400mm	m	2577
446	HDPE pipe grade PE80-PN3.0, 450mm	m	3260
447	HDPE pipe grade PE80-PN3.0, 500mm	m	4011
448	HDPE pipe grade PE80-PN3.0, 560mm	m	5026
449	HDPE pipe grade PE80-PN3.0, 630mm	m	6350
450	HDPE pipe grade PE80-PN3.0, 63mm	m	62
451	HDPE pipe grade PE80-PN3.0, 710mm	m	8111
452	HDPE pipe grade PE80-PN3.0, 75mm	m	83
453	HDPE pipe grade PE80-PN3.0, 800mm	m	10264
454	HDPE pipe grade PE80-PN3.0, 900mm	m	12972
455	HDPE pipe grade PE80-PN3.0, 90mm	m	122
456	HDPE pipe grade PE80-PN4.0, 1000mm	m	20158
457	HDPE pipe grade PE80-PN4.0, 110mm	m	217
458	HDPE pipe grade PE80-PN4.0, 1200mm	m	29000
459	HDPE pipe grade PE80-PN4.0, 125mm	m	287
460	HDPE pipe grade PE80-PN4.0, 140mm	m	359
461	HDPE pipe grade PE80-PN4.0, 160mm	m	471
462	HDPE pipe grade PE80-PN4.0, 180mm	m	597
463	HDPE pipe grade PE80-PN4.0, 200mm	m	731
464	HDPE pipe grade PE80-PN4.0, 225mm	m	928
465	HDPE pipe grade PE80-PN4.0, 250mm	m	1149
466	HDPE pipe grade PE80-PN4.0, 280mm	m	1431
467	HDPE pipe grade PE80-PN4.0, 315mm	m	1815
468	HDPE pipe grade PE80-PN4.0, 355mm	m	2532
469	HDPE pipe grade PE80-PN4.0, 400mm	m	3204
470	HDPE pipe grade PE80-PN4.0, 450mm	m	4071
471	HDPE pipe grade PE80-PN4.0, 500mm	m	5044
472	HDPE pipe grade PE80-PN4.0, 560mm	m	6331
473	HDPE pipe grade PE80-PN4.0, 630mm	m	8000
474	HDPE pipe grade PE80-PN4.0, 710mm	m	10143
475	HDPE pipe grade PE80-PN4.0, 800mm	m	12901
476	HDPE pipe grade PE80-PN4.0, 900mm	m	16350
477	HDPE pipe grade PE80-PN4.0, 90mm	m	147
478	HDPE pipe grade PE80-PN6.0, 110mm	m	319
479	HDPE pipe grade PE80-PN6.0, 125mm	m	428
480	HDPE pipe grade PE80-PN6.0, 140mm	m	538

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
481	HDPE pipe grade PE80-PN6.0, 160mm	m	705
482	HDPE pipe grade PE80-PN6.0, 180mm	m	884
483	HDPE pipe grade PE80-PN6.0, 200mm	m	1091
484	HDPE pipe grade PE80-PN6.0, 225mm	m	1381
485	HDPE pipe grade PE80-PN6.0, 250mm	m	1698
486	HDPE pipe grade PE80-PN6.0, 280mm	m	2135
487	HDPE pipe grade PE80-PN6.0, 315mm	m	2705
488	HDPE pipe grade PE80-PN6.0, 355mm	m	3777
489	HDPE pipe grade PE80-PN6.0, 400mm	m	4806
490	HDPE pipe grade PE80-PN6.0, 450mm	m	6100
491	HDPE pipe grade PE80-PN6.0, 500mm	m	7542
492	HDPE pipe grade PE80-PN6.0, 630mm	m	11939
493	HDPE pipe grade PE80-PN6.0, 63mm	m	106
494	HDPE pipe grade PE80-PN6.0, 710mm	m	15186
495	HDPE pipe grade PE80-PN6.0, 75mm	m	152
496	HDPE pipe grade PE80-PN6.0, 90mm	m	213
497	HDPE pipe grade PE80-PN6.0,560mm	m	9442
498	HDPE pipe grade PE80-PN8.0, 110mm	m	391
499	HDPE pipe grade PE80-PN8.0, 125mm	m	524
500	HDPE pipe grade PE80-PN8.0, 140mm	m	656
501	HDPE pipe grade PE80-PN8.0, 160mm	m	860
502	HDPE pipe grade PE80-PN8.0, 180mm	m	1086
503	HDPE pipe grade PE80-PN8.0, 200mm	m	1337
504	HDPE pipe grade PE80-PN8.0, 225mm	m	1697
505	HDPE pipe grade PE80-PN8.0, 250mm	m	2086
506	HDPE pipe grade PE80-PN8.0, 280mm	m	2619
507	HDPE pipe grade PE80-PN8.0, 315mm	m	3313
508	HDPE pipe grade PE80-PN8.0, 355mm	m	4639
509	HDPE pipe grade PE80-PN8.0, 400mm	m	5907
510	HDPE pipe grade PE80-PN8.0, 450mm	m	7484
511	HDPE pipe grade PE80-PN8.0, 500mm	m	9247
512	HDPE pipe grade PE80-PN8.0, 560mm	m	11590
513	HDPE pipe grade PE80-PN8.0, 630mm	m	14678
514	HDPE pipe grade PE80-PN8.0, 63mm	m	132
515	HDPE pipe grade PE80-PN8.0, 710mm	m	18643
516	HDPE pipe grade PE80-PN8.0, 75mm	m	187



<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
517	HDPE pipe grade PE80-PN8.0, 90mm	m	<b>265</b>
518	HDPE Sleeve Pipe 50mm dia	Each	<b>45</b>
519	HDPE water meter box	Each	<b>275</b>
520	Heating of rewounded and insulated motor in the oven to get required insulation resistance before assembly	Job	<b>90</b>
521	Heavy duty CI adopter set complete	SET	<b>1550</b>
522	Heavy duty unplasticized PVC Column pipes	m	<b>550</b>
523	Indoor Distr Panel	Each	<b>58470</b>
524	Inspection Chamber (1.5 x 1.5 ft)	Each	<b>510.44</b>
525	Installation charges for HDPE MH	Each	<b>2700</b>
526	Insulated cable on messenger wire using 2 single core wire	m	<b>90</b>
527	Iodized Salt (Rock Salt)	L.S	<b>60000</b>
528	Iron Method (1) 1-10 Phenanthroline Method - 1,10, Phenanthroline monohydrate AR	5gm	<b>685</b>
529	Iron Method (1) 1-10 Phenanthroline Method - Ammonium Acetate AR	500gm	<b>511</b>
530	Iron Method (1) 1-10 Phenanthroline Method - Conc. Hydrochloric Acid AR	500ml	<b>361</b>
531	Iron Method (1) 1-10 Phenanthroline Method - Ferrous ammonium sulphate AR	500gm	<b>426</b>
532	Iron Method (1) 1-10 Phenanthroline Method - Glacial Acetic Acid AR	500ml	<b>301</b>
533	Iron Method (1) 1-10 Phenanthroline Method - Hydroxylamine Hydrochloride AR	500gm	<b>3079</b>
534	Iron Method (1) 1-10 Phenanthroline Method - Pottassium permanganate AR	500gm	<b>1400</b>
535	Iron Method (1) 1-10 Phenanthroline Method - Sodium Acetate AR	500gm	<b>482</b>
536	Isolator & capacitor panel fuses	Job	<b>29220</b>
537	Laterite bricks	100S	<b>1500</b>
538	LD rectang. 455x610 mm without frame	Each	<b>900</b>
539	LD rectang. cover 455x610 mm with frame	Each	<b>1300</b>
540	Level guage	Each	<b>750</b>
541	LG UT cable having aluminium conductor PVC	m	<b>68</b>
542	Lighting distribution board	Each	<b>3500</b>
543	M.S End Plates 100.00 mm	Each	<b>535</b>
544	M.S End Plates 150.00 mm	Each	<b>960</b>
545	M.S End Plates 200.00 mm	Each	<b>1600</b>
546	M.S End Plates 250.00 mm	Each	<b>2350</b>
547	M.S End Plates 300.00 mm	Each	<b>3580</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
548	M.S.Sheet 600x600x6mm dia for Lightning arrestor	L.S	<b>314</b>
549	Mask	PAIR	<b>50</b>
550	MCB (Miniature Circuit Breakers)	per 3 poles	<b>1150</b>
551	MDPE compression fittings and specials	Each	<b>500</b>
552	Measuring Cylinder 50ml Borosil A Class	Each	<b>460</b>
553	Measuring Cylinder 1000ml Borosil A Class	Each	<b>2520</b>
554	Measuring Cylinder 100ml Borosil A Class	Each	<b>520</b>
555	Measuring Cylinder 10ml Borosil A Class	Each	<b>365</b>
556	Measuring Cylinder 25ml Borosil A Class	Each	<b>420</b>
557	Measuring Cylinder 500ml Borosil A Class	Each	<b>1255</b>
558	Measuring Cylinder 5ml Borosil A Class	Each	<b>305</b>
559	Mechanical woltman meter for 100mm dia with GSM/GPRS system	Each	<b>58500</b>
560	Mechanical woltman meter for 150mm dia with GSM/GPRS system	Each	<b>70500</b>
561	Mechanical woltman meter for 200mm dia with GSM/GPRS system	Each	<b>87000</b>
562	Mechanical woltman meter for 250mm dia with GSM/GPRS system	Each	<b>115000</b>
563	Mechanical woltman meter for 300mm dia with GSM/GPRS system	Each	<b>245000</b>
564	Mechanical woltman meter for 50mm dia with GSM/GPRS system	Each	<b>50000</b>
565	Mechanical woltman meter for 80mm dia with GSM/GPRS system	Each	<b>54000</b>
566	Micropipette tips 1ml	Each	<b>560</b>
567	Micropipette tips 5ml	Each	<b>580</b>
568	MINI Chlorinator 200gms/Batch	Each	<b>135000</b>
569	MINI Chlorinator 80gms/Batch	Each	<b>71500</b>
570	Mobile Concrete Batching / Mixing Plant	hr	<b>615</b>
571	Moorum (good earth)	m <sup>3</sup>	<b>190</b>
572	Motor and Pestle 4"	Each	<b>315</b>
573	Motor and Pestle 6"	Each	<b>489</b>
574	MP Grease	L	<b>186</b>
575	MS saddle (16mm x 160mm x 360mm) for 4 sensors	Each	<b>10800</b>
576	MS saddle (16mm x 160mm x 360mm) for 8 sensors	Each	<b>18000</b>
577	Multi-core sensor cable from the sensor probes to the transmitter panel	m	<b>270</b>
578	Multijet water meter 15 mm dia	Each	<b>1200</b>
579	Multijet water meter 20 mm dia	Each	<b>2050</b>
580	Multijet water meter 25 mm dia	Each	<b>4500</b>
581	Nessler's Tube 50ml Borosil	Each	<b>310</b>
582	New power capacitor	kVAR	<b>550</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
583	Nitrate Method (1) UV Spectrophotometer Screening Method - Conc. Hydrochloric Acid AR	500ml	<b>361</b>
584	Nitrate Method (1) UV Spectrophotometer Screening Method - Phottassium Nitrate A	500gm	<b>709</b>
585	Nitrate Method (2) Chromototropic acid Method - Anhydrous Sodium Sulphate AR	500gm	<b>405</b>
586	Nitrate Method (2) Chromototropic acid Method - Antimony Metal	500gm	<b>6135</b>
587	Nitrate Method (2) Chromototropic acid Method - Chromotropic Acid Crystals AR	25gm	<b>1640</b>
588	Nitrate Method (2) Chromototropic acid Method - Conc Hydrochloric Acid AR	500ml	<b>361</b>
589	Nitrate Method (2) Chromototropic acid Method - Conc Sulphuric Acid AR	500ml	<b>396</b>
590	Nitrate Method (2) Chromototropic acid Method - Potassium Nitrate AR	500gm	<b>709</b>
591	Nitrate Method (2) Chromototropic acid Method - Urea AR	500gm	<b>445</b>
592	Nitrate Method (3) Ion Selective Electrode Method - Aluminium Sulphate AR	500gm	<b>282</b>
593	Nitrate Method (3) Ion Selective Electrode Method - Boric Acid AR	500gm	<b>865</b>
594	Nitrate Method (3) Ion Selective Electrode Method - Silver Sulphate AR	25gm	<b>7370</b>
595	Nitrate Method (3) Ion Selective Electrode Method - Sodium Hydroxie Flakes AR	500gm	<b>374</b>
596	Nitrate Method (3) Ion Selective Electrode Method - Sulphamic Acid AR	500gm	<b>480</b>
597	Non Absorbent Cotton Roll	Each	<b>310</b>
598	O M.S Single acting spring hinges 100mm	Each	<b>128</b>
599	Oil filters	Each	<b>14</b>
600	Online Sensor	SET	<b>1724250</b>
601	OPVC pipes of Class 500- PN-16 110mm dia.	m	<b>928</b>
602	OPVC pipes of Class 500- PN-16 160mm dia.	m	<b>1584</b>
603	OPVC pipes of Class 500- PN-16 200mm dia.	m	<b>2106</b>
604	OPVC pipes of Class 500- PN-16 250mm dia.	m	<b>2907</b>
605	OPVC pipes of Class 500- PN-16 315mm dia.	m	<b>3895</b>
606	OPVC pipes of Class 500- PN-16 400mm dia.	m	<b>5564</b>
607	OPVC pipes of Class 500- PN-25 110mm dia.	m	<b>1299</b>
608	OPVC pipes of Class 500- PN-25 160mm dia.	m	<b>2218</b>
609	OPVC pipes of Class 500- PN-25 200mm dia.	m	<b>2948</b>
610	OPVC pipes of Class 500- PN-25 250mm dia.	m	<b>4070</b>
611	OPVC pipes of Class 500- PN-25 315mm dia.	m	<b>5453</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
612	OPVC pipes of Class 500- PN-25 400mm dia.	m	<b>7790</b>
613	Painting of transformers	Job	<b>24120</b>
614	Passive electronic marker locater	Each	<b>144650</b>
615	Petri Plates	Each	<b>135</b>
616	pH Buffer solution (Himedia/Merckfor normal pH meter) 7-100 Capsules/500ml	500ml	<b>263</b>
617	PH Buffer solution (Himedia/Merckfor normal pH meter) 10-100 Capsules/500ml	500ml	<b>219</b>
618	pH Buffer solution 4(Himedia/Merckfor normal pH meter) 4-100 Capsules/500ml	500ml	<b>263</b>
619	Pipette Graduated 10ml Borosil A Grade with NABL Certificate	Each	<b>1480</b>
620	Pipette Graduated 1ml Borosil A Grade with NABL Certificate	Each	<b>1200</b>
621	Pipette Graduated 25ml Borosil A Grade with NABL Certificate	Each	<b>1870</b>
622	Pipette Graduated 2ml Borosil A Grade with NABL Certificate	Each	<b>1255</b>
623	Pipette Graduated 5ml Borosil A Grade with NABL Certificate	Each	<b>1235</b>
624	Plastic Burette Stand with clamps	Each	<b>860</b>
625	Plastic Pipette Stand Round	Each	<b>355</b>
626	Plastic Test Tube Stand 3 Tier 25mmx36	Each	<b>185</b>
627	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -110 mm Outer dia	m	<b>1831</b>
628	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -160 mm Outer dia	m	<b>3945</b>
629	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -20 mm Outer dia	m	<b>62</b>
630	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -25 mm Outer dia	m	<b>94</b>
631	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -32 mm Outer dia	m	<b>151</b>
632	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -40 mm Outer dia	m	<b>243</b>
633	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -50 mm Outer dia	m	<b>381</b>
634	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -63 mm Outer dia	m	<b>616</b>
635	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -75 mm Outer dia	m	<b>854</b>
636	Poly Propylene Random Co-polymer (PPR) pipe with fitting SDR 7.4 -90 mm Outer dia	m	<b>1295</b>
637	Poly Propylene Random Co-polymer (PPR) pipe with fittings SDR 7.4 -16 mm Outer dia	m	<b>59</b>
638	Potassium Permanganate	kg	<b>1650</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
639	Providing & fixing of Aluminium Ventilators	m <sup>2</sup>	<b>3180</b>
640	Providing and fixing MS casing collars	Each	<b>150</b>
641	Providing and fixing PVC water stopper	m	<b>310</b>
642	Providing main connection from pole PVC insulated sheathed steel wire cable in GI pipe	m	<b>85</b>
643	Providing main connection from pole PVC insulated sheathed steel wire cable in new trench	m	<b>135</b>
644	Providing, fixing, applying of contraction joint with suitable type PVC water stopper	m	<b>600</b>
645	PV LIQUID	L	<b>50</b>
646	PVC liner material(including import duty ,freight charges)	m	<b>932</b>
647	PVC pipe - OD 110mm and 6 Kg/sqcm	m	<b>255</b>
648	PVC pipe - OD 140mm and 6 Kg/sqcm	m	<b>398</b>
649	PVC pipe - OD 160mm and 6 Kg/sqcm	m	<b>420</b>
650	PVC pipe - OD 200mm and 6 Kg/sqcm	m	<b>831</b>
651	PVC pipe - OD 250mm and 6 Kg/sqcm	m	<b>1100</b>
652	PVC pipe - OD 25mm and 10 Kg/sqcm	m	<b>23</b>
653	PVC pipe - OD 315mm and 6 Kg/sqcm	m	<b>1550</b>
654	PVC pipe - OD 32mm and 10 Kg/sqcm	m	<b>33</b>
655	PVC pipe - OD 50mm and 6 Kg/sqcm	m	<b>52</b>
656	PVC pipe - OD 63mm and 6 Kg/sqcm	m	<b>88</b>
657	PVC pipe - OD 75mm and 6 Kg/sqcm	m	<b>123</b>
658	PVC pipe - OD 90mm and 6 Kg/sqcm	m	<b>174</b>
659	PVC pipes of 6 Kg/cm <sup>2</sup> for 140mm(3.097)	m	<b>342</b>
660	PVC pipes of 8 Kg/cm <sup>2</sup> for 140mm(3.097)	m	<b>456</b>
661	PVC pipes of 10 Kg/cm <sup>2</sup> for 140mm	m	<b>549</b>
662	PVC pipes of 10 Kg/cm <sup>2</sup> for 63mm	m	<b>114</b>
663	PVC pipes of 10 Kg/cm <sup>2</sup> for 160mm	m	<b>720</b>
664	PVC pipes of 10 Kg/cm <sup>2</sup> for 200mm	m	<b>1155</b>
665	PVC pipes of 10 Kg/cm <sup>2</sup> for 75mm	m	<b>160</b>
666	PVC pipes of 10 Kg/cm <sup>2</sup> for 90mm	m	<b>228</b>
667	PVC pipes of 4 Kg/cm <sup>2</sup> for 110mm(1.315)	m	<b>145</b>
668	PVC pipes of 4 Kg/cm <sup>2</sup> for 140mm(2.131)	m	<b>239</b>
669	PVC pipes of 4 Kg/cm <sup>2</sup> for 160mm(2.753)	m	<b>310</b>
670	PVC pipes of 4 Kg/cm <sup>2</sup> for 63mm(0.465)	m	<b>51</b>
671	PVC pipes of 4 Kg/cm <sup>2</sup> for 90mm(0.917)	m	<b>102</b>
672	PVC pipes of 4 Kg/cm <sup>2</sup> for 200mm(4.256)	m	<b>488</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
673	PVC pipes of 4 Kg/cm2 for 75mm(0.651)	m	<b>72</b>
674	PVC pipes of 6 Kg/cm2 for 75mm(0.917)	m	<b>99</b>
675	PVC pipes of 6 Kg/cm2 for 63mm(0.662)	m	<b>70</b>
676	PVC pipes of 6 Kg/cm2 for 90mm(1.313)	m	<b>143</b>
677	PVC pipes of 6 Kg/cm2 for 110mm(1.894)	m	<b>210</b>
678	PVC pipes of 6 Kg/cm2 for 160mm(3.923)	m	<b>444</b>
679	PVC pipes of 6 Kg/cm2 for 200mm(6.233)	m	<b>705</b>
680	PVC pipes of 8 Kg/cm2 for 75mm(0.917)	m	<b>142</b>
681	PVC pipes of 8 Kg/cm2 for 63mm(0.662)	m	<b>102</b>
682	PVC pipes of 8 Kg/cm2 for 90mm(1.313)	m	<b>206</b>
683	PVC pipes of 8 Kg/cm2 for 110mm(1.894)	m	<b>283</b>
684	PVC pipes of 8 Kg/cm2 for 160mm(3.923)	m	<b>609</b>
685	PVC pipes of 8 Kg/cm2 for 200mm(6.233)	m	<b>937</b>
686	PVC pipes of 10 Kg/cm2 for 110mm	m	<b>335</b>
687	Radar Survey along road for 6M wide	m	<b>30</b>
688	Radar Survey at road cross & dividers 60m wide	m	<b>70725</b>
689	Radar Survey at road cross & dividers upto 50m wide	m	<b>55600</b>
690	Radar Survey at road cross for every 1 M above 60m wide	m	<b>1875</b>
691	Radar Survey at road cross upto 30m wide	m	<b>27300</b>
692	RCC hume pipe Cir pump house	Each	<b>14000</b>
693	RCC Perforated rings- 1200 mmx1250 mm	Each	<b>7000</b>
694	RCC Perforated rings-900 mmx1100 mm	Each	<b>4500</b>
695	RCC pipe NP3 1000 mm dia & 2.5 M long	m	<b>3800</b>
696	RCC pipe NP3 1100 mm dia & 2.5 M long	m	<b>6735</b>
697	RCC pipe NP3 1200 mm dia & 2.5 M long	m	<b>5800</b>
698	RCC pipe NP3 1400 mm dia & 2.5 M long	m	<b>8000</b>
699	RCC pipe NP3 1600 mm dia & 2.5 M long	m	<b>10000</b>
700	RCC pipe NP3 1800 mm dia & 2.5 M long	m	<b>14000</b>
701	RCC pipe NP3 2000 mm dia & 2.5 M long	m	<b>18000</b>
702	RCC pipe NP3 2200 mm dia & 2.5 M long	m	<b>22000</b>
703	RCC pipe NP3 2400 mm dia & 2.5 M long	m	<b>35629</b>
704	RCC pipe NP3 250 mm dia & 2.0 M long	m	<b>762</b>
705	RCC pipe NP3 300 mm dia & 2.5 M long	m	<b>850</b>
706	RCC pipe NP3 350 mm dia & 2.5 M long	m	<b>1200</b>
707	RCC pipe NP3 400 mm dia & 2.5 M long	m	<b>1400</b>
708	RCC pipe NP3 450 mm dia & 2.5 M long	m	<b>1680</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
709	RCC pipe NP3 500 mm dia & 2.5 M long	m	<b>1800</b>
710	RCC pipe NP3 600 mm dia & 2.5 M long	m	<b>2200</b>
711	RCC pipe NP3 700 mm dia & 2.5 M long	m	<b>2600</b>
712	RCC pipe NP3 800 mm dia & 2.5 M long	m	<b>3000</b>
713	RCC pipe NP3 900 mm dia & 2.5 M long	m	<b>3400</b>
714	Reagent Bottle Amber 1000ml Borosilicate 3.3 Glass	Each	<b>1490</b>
715	Reagent Bottle Narrow 1000ml Borosilicate 3.3 Glass	Each	<b>1212</b>
716	Reagent Bottle Narrow 100ml Borosilicate 3.3 Glass	Each	<b>318</b>
717	Reagent Bottle Narrow 2000ml Borosilicate 3.3 Glass	Each	<b>2650</b>
718	Reagent Bottle Narrow 250ml Borosilicate 3.3 Glass	Each	<b>386</b>
719	Reagent Bottle Narrow 500ml Borosilicate 3.3 Glass	Each	<b>612</b>
720	Reagent Bottle Narrow 60ml Borosilicate 3.3 Glass	Each	<b>265</b>
721	Reconditioning of bearing housing with all materials etc complete	Job	<b>90</b>
722	Reconditioning of bronze or SS impeller with all materials etc complete	Job	<b>90</b>
723	Reconditioning of GM neck ring with all materials etc complete	Job	<b>90</b>
724	Reconditioning of sleeve ( Leaded Bronze / Gun metal / SS) with all materials etc complete	Job	<b>90</b>
725	Reconditioning of stuffing box with all materials etc complete	Job	<b>90</b>
726	Repair or replacement of existing panel for painting, welding,etc	Each	<b>5400</b>
727	Repair capacitor bank breakers	Job	<b>28790</b>
728	Repair diverter switch	Job	<b>64150</b>
729	Repair filter house breakers <800amps	Job	<b>57925</b>
730	Repair LT breaker <400 amps	Job	<b>57925</b>
731	Repair OLTC of transf.	Job	<b>40100</b>
732	Repair reactor of Isolator	Job	<b>58550</b>
733	Repair soft starter panel	Job	<b>58925</b>
734	Repairing of Carbon steel / SS shaft EN-8 with all materials etc complete	Job	<b>90</b>
735	Repairing of end shield and moto shaft with all material etc complete	Job	<b>90</b>
736	Repairing of rotor with all materials etc complete	Job	<b>90</b>
737	Repairing the totalizer unit	Each	<b>4500</b>
738	Re-placement of GSM modem by GPRS.	Each	<b>13500</b>
739	Replacement of bush / type coupling with all materials etc complete	Job	<b>90</b>
740	Replacement of gland packing with all materials etc complete	Job	<b>90</b>
741	Replacement of new mechanical water seal with material etc complete	Job	<b>90</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
742	Rewind HV side transf. <100KVA	Job	<b>64172</b>
743	Rewind LV side transf. <100KVA	Job	<b>60300</b>
744	Rubber Gasket SBR Quality 1000mm dia.	Each	<b>990</b>
745	Rubber Gasket SBR Quality 100mm dia.	Each	<b>25</b>
746	Rubber Gasket SBR Quality 1100mm dia.	Each	<b>1116</b>
747	Rubber Gasket SBR Quality 1200mm dia.	Each	<b>1660</b>
748	Rubber Gasket SBR Quality 150mm dia.	Each	<b>31</b>
749	Rubber Gasket SBR Quality 200mm dia.	Each	<b>55</b>
750	Rubber Gasket SBR Quality 2200mm dia.	Each	<b>3719</b>
751	Rubber Gasket SBR Quality 2400mm dia.	Each	<b>4835</b>
752	Rubber Gasket SBR Quality 250mm dia.	Each	<b>65</b>
753	Rubber Gasket SBR Quality 300mm dia.	Each	<b>95</b>
754	Rubber Gasket SBR Quality 350mm dia.	Each	<b>110</b>
755	Rubber Gasket SBR Quality 400mm dia.	Each	<b>198</b>
756	Rubber Gasket SBR Quality 450mm dia.	Each	<b>231</b>
757	Rubber Gasket SBR Quality 500mm dia.	Each	<b>251</b>
758	Rubber Gasket SBR Quality 600mm dia.	Each	<b>313</b>
759	Rubber Gasket SBR Quality 700mm dia.	Each	<b>474</b>
760	Rubber Gasket SBR Quality 800mm dia.	Each	<b>626</b>
761	Rubber Gasket SBR Quality 900mm dia.	Each	<b>824</b>
762	Rubber insertion 3mm thk for 1000mm dia. pipes	Each	<b>159</b>
763	Rubber insertion 3mm thk for 100mm dia. pipes	Each	<b>12</b>
764	Rubber insertion 3mm thk for 1100mm dia. pipes	Each	<b>203</b>
765	Rubber insertion 3mm thk for 1200mm dia. pipes	Each	<b>213</b>
766	Rubber insertion 3mm thk for 150mm dia. pipes	Each	<b>17</b>
767	Rubber insertion 3mm thk for 200mm dia. pipes	Each	<b>20</b>
768	Rubber insertion 3mm thk for 250mm dia. pipes	Each	<b>32</b>
769	Rubber insertion 3mm thk for 300mm dia. pipes	Each	<b>37</b>
770	Rubber insertion 3mm thk for 350mm dia. pipes	Each	<b>41</b>
771	Rubber insertion 3mm thk for 400mm dia. pipes	Each	<b>60</b>
772	Rubber insertion 3mm thk for 450mm dia. pipes	Each	<b>76</b>
773	Rubber insertion 3mm thk for 500mm dia. pipes	Each	<b>91</b>
774	Rubber insertion 3mm thk for 50mm dia. pipes	Each	<b>6</b>
775	Rubber insertion 3mm thk for 600mm dia. pipes	Each	<b>103</b>
776	Rubber insertion 3mm thk for 700mm dia. pipes	Each	<b>114</b>
777	Rubber insertion 3mm thk for 800mm dia. pipes	Each	<b>125</b>



<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
778	Rubber insertion 3mm thk for 80mm dia. pipes	Each	<b>8</b>
779	Rubber insertion 3mm thk for 900mm dia. pipes	Each	<b>144</b>
780	Salt	BAG	<b>100</b>
781	Seismic Refraction Survey for pipes	m	<b>345</b>
782	Sensor cable from flow sensor to transmitter panel.	m	<b>270</b>
783	Service Motors upto 1250KW, 6.6KV	Job	<b>58050</b>
784	Servicing breakers of motors	Job	<b>64125</b>
785	Servicing LOCB breakers	Job	<b>15642</b>
786	Servicing transf. <400KVA	Job	<b>59360</b>
787	SFRC MH Circ. 560 Frame + Cover MD	Each	<b>845</b>
788	SFRC MH Circ. 560 Frame+Cover HD	Each	<b>1400</b>
789	Shifting of transmitter panel with all points accessories	SET	<b>9000</b>
790	SMC Pump House	Each	<b>12000</b>
791	Sodium Hypochlorite Solution with Tank	Each	<b>80000</b>
792	Spactula 6" SS	Each	<b>30</b>
793	Specific Conductance - Potassium chloride AR	500gm	<b>488</b>
794	Spun yarn	Kg	<b>34</b>
795	SS saddle strap fittings for 15mm	Each	<b>500</b>
796	SS saddle strap fittings for 20mm	Each	<b>580</b>
797	SS saddle strap fittings for 25mm	Each	<b>700</b>
798	Stringing of heavy duty Naylone/PP rope	m	<b>40</b>
799	Sulphate Method (1) Nephelo Turbidity meter - Conc. Hydrochloric Acid AR	500ml	<b>361</b>
800	Sulphate Method (1) Nephelo Turbidity meter - Glycerol AR	500ml	<b>1267</b>
801	Sulphate Method (1) Nephelo Turbidity meter - Iso-propyl alcohol AR	500ml	<b>351</b>
802	Sulphate Method (1) Nephelo Turbidity meter - Sodium Chloride AR	500gm	<b>254</b>
803	Sulphate Method (1) Nephelo Turbidity meter - Sodium Sulphate AR	500gm	<b>315</b>
804	Sulphate Method (2) Spectrophotometer Method - Barium Chloride AR	500ml	<b>410</b>
805	Sulphate Method (2) Spectrophotometer Method - Conc Hydrochloric Acid AR	500ml	<b>361</b>
806	Sulphate Method (2) Spectrophotometer Method - Glacial Acetic Acid AR	500ml	<b>301</b>
807	Sulphate Method (2) Spectrophotometer Method - Magnesium Chloride AR	500gm	<b>378</b>
808	Sulphate Method (2) Spectrophotometer Method - Potassium Nitrate AR	500gm	<b>709</b>
809	Sulphate Method (2) Spectrophotometer Method - Sodium Acetate AR	500gm	<b>405</b>
810	Sulphate Method (2) Spectrophotometer Method - Sodium Sulphate AR	500gm	<b>338</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
811	Supply & braze motor cable	Job	<b>28790</b>
812	Supply & replace insulator	Job	<b>14150</b>
813	Supply of Chlorine Gas in 100 KG Cylinder	Each	<b>17000</b>
814	Supply of Chlorine Gas in 900 KG Cylinder	Each	<b>49000</b>
815	Supply of new Ball bearing ( make SKF / FAG/NBC or equivalent with ISI / ISO specification ) after removing the old bearing	Job	<b>90</b>
816	Supply of New Ball bearing (make SKF/FAG/NBC or equivalent with ISI / ISO specification) after removing the Old Bearing.	Job	<b>90</b>
817	Supply of new roller/ thrust bearing ( make SKF / FAG/NBC or equivalent with ISI /ISO specification ) after removing the old bearing	Job	<b>90</b>
818	Supply of suitable super enamelled copper wires with F class insulation etc.Complete	Job	<b>90</b>
819	Supplying and fixing LT cable of size 4 x 25 Sqm	m	<b>562</b>
820	Surface box & synthetic lid for gate valve	Each	<b>2500</b>
821	Surface Box H4057 MD-KU	Each	<b>2250</b>
822	SW junction pipes of 150 x 100mm dia.	Each	<b>331</b>
823	SW junction pipes of 200 x 100mm dia.	Each	<b>450</b>
824	SW junction pipes of 225 x 100mm dia.	Each	<b>525</b>
825	SW pipe G-A 60cm L 100 mm dia	Each	<b>147</b>
826	SW pipe G-A 60cm L 150 mm dia	Each	<b>237</b>
827	SW pipe G-A 60cm L 200 mm dia	Each	<b>270</b>
828	SW pipe G-A 60cm L 230 mm dia	Each	<b>360</b>
829	SW pipe G-A 60cm L 250 mm dia	Each	<b>400</b>
830	SW pipe G-A 60cm L 300 mm dia	Each	<b>450</b>
831	SW pipe G-A 60cm L 380 mm dia	Each	<b>840</b>
832	Test Tube Cleaning Brush	Each	<b>20</b>
833	Test Tube Holders	Each	<b>30</b>
834	Thermometer 110C	Each	<b>100</b>
835	Thermometer 360C	Each	<b>240</b>
836	Tongs 12"	Each	<b>120</b>
837	Total Alkanity - Methyl Orange Indicator	125ml	<b>175</b>
838	Total Alkanity - Phenolphthalein indicator	125ml	<b>175</b>
839	Total Alkanity - Sodium carbonate AR	500gm	<b>443</b>
840	Total Alkanity - Sulphuric Acid AR	500ml	<b>396</b>
841	Total Coliforms - H2S vials-1 box contain 10 bottles	1box	<b>450</b>
842	Total Dissolved Solid - Potassium chloride AR	500gm	<b>488</b>
843	Total Hardness - Ammonia A	500ml	<b>279</b>

<b>Sl. No.</b>	<b>Material Description</b>	<b>UNIT</b>	<b>RATE</b>
844	Total Hardness - Ammonium Chloride AR	500gm	<b>403</b>
845	Total Hardness - Calcium carbonate AR	500gm	<b>361</b>
846	Total Hardness - EDTA AR	500gm	<b>1185</b>
847	Total Hardness - Eriochrome Black T AR	25gm	<b>283</b>
848	Total Hardness - Triethenolamime AR	500ml	<b>883</b>
849	Transit Mixer (Mixer of 6m <sup>3</sup> capacity at 2.5 interval)	hr	<b>1608</b>
850	Turbidity - Hexamethylene Tetramine AR	500gm	<b>994</b>
851	Turbidity - Hydrazine sulphate AR	100gm	<b>620</b>
852	UPVC foam core pipe SN4 ring fit IS 16098 160mm dia.	m	<b>335</b>
853	UPVC foam core pipe SN4 self fit IS 16098 160mm dia.	m	<b>340</b>
854	UPVC foam core pipe SN4 self fit IS 16098 200mm dia.	m	<b>550</b>
855	UPVC foam core pipe SN4 self fit IS 16098 250mm dia.	m	<b>900</b>
856	UPVC foam core pipe SN4 self fit IS 16098 315mm dia.	m	<b>1400</b>
857	UPVC foam core pipe SN8 ring fit IS 16098 160mm dia.	m	<b>395</b>
858	UPVC foam core pipe SN8 self fit IS 16098 160mm dia.	m	<b>425</b>
859	UPVC foam core pipe SN8 self fit IS 16098 200mm dia.	m	<b>650</b>
860	UPVC foam core pipe SN8 self fit IS 16098 250mm dia.	m	<b>1050</b>
861	UPVC foam core pipe SN8 self fit IS 16098 315mm dia.	m	<b>1700</b>
862	UPVC pipe IS 16098 SN 4 - 110mm dia	m	<b>160</b>
863	UPVC pipe IS 16098 SN 4 - 125mm dia	m	<b>235</b>
864	UPVC pipe IS 16098 SN 4 - 160mm dia	m	<b>390</b>
865	UPVC pipe IS 16098 SN 4 - 200mm dia	m	<b>600</b>
866	UPVC pipe IS 16098 SN 4 - 250mm dia	m	<b>970</b>
867	UPVC pipe IS 16098 SN 4 - 315mm dia	m	<b>1575</b>
868	UPVC pipe IS 16098 SN 4 - 75mm dia	m	<b>120</b>
869	UPVC pipe IS 16098 SN 8 - 110mm dia	m	<b>210</b>
870	UPVC pipe IS 16098 SN 8 - 125mm dia	m	<b>285</b>
871	UPVC pipe IS 16098 SN 8 - 160mm dia	m	<b>493</b>
872	UPVC pipe IS 16098 SN 8 - 200mm dia	m	<b>773</b>
873	UPVC pipe IS 16098 SN 8 - 250mm dia	m	<b>1198</b>
874	UPVC pipe IS 16098 SN 8 - 315mm dia	m	<b>1860</b>
875	Watch Glass 4"	Each	<b>30</b>
876	Water Supply /Sewer work main pipes	m	<b>10</b>
877	Whatman Filter Paper No.41	Each	<b>3800</b>
878	Wooden planks 8x 7.2 x 0.9 x 0.025	m <sup>3</sup>	<b>25558</b>
879	Wooden rafters (10x 7.2 x 0.18 x 0.09)	m <sup>3</sup>	<b>25558</b>
880	Y -type foundation bolts M33X300mm length of SS304 with nut & washer	Kg	<b>254</b>

**Chapter - 1**  
**WATER SUPPLY - DUCTILE IRON (DI)**  
**SPECIALS**



Sl. No.	Specification	Unit	Rate ₹
<b>1 WATER SUPPLY - DUCTILE IRON (DI) SPECIALS</b>			
1.1	Providing Ductile Iron Push on special confirming to IS 9523:2000		
1.1.1	100mm diameter 11.25 <sup>0</sup>	Each	<b>1366</b>
1.1.2	100mm diameter 22.50 <sup>0</sup>	Each	<b>1464</b>
1.1.3	100mm diameter 45 <sup>0</sup>	Each	<b>2064</b>
1.1.4	100mm diameter 90 <sup>0</sup>	Each	<b>1817</b>
1.1.5	150mm diameter 11.25 <sup>0</sup>	Each	<b>2148</b>
1.1.6	150mm diameter 22.50 <sup>0</sup>	Each	<b>2207</b>
1.1.7	150mm diameter 45 <sup>0</sup>	Each	<b>2480</b>
1.1.8	150mm diameter 90 <sup>0</sup>	Each	<b>3145</b>
1.1.9	200mm diameter 11.25 <sup>0</sup>	Each	<b>3232</b>
1.1.10	200mm diameter 22.50 <sup>0</sup>	Each	<b>3396</b>
1.1.11	200mm diameter 45 <sup>0</sup>	Each	<b>4172</b>
1.1.12	200mm diameter 90 <sup>0</sup>	Each	<b>5369</b>
1.1.13	250mm diameter 11.25 <sup>0</sup>	Each	<b>4235</b>
1.1.14	250mm diameter 22.50 <sup>0</sup>	Each	<b>4622</b>
1.1.15	250mm diameter 45 <sup>0</sup>	Each	<b>5706</b>
1.1.16	250mm diameter 90 <sup>0</sup>	Each	<b>7465</b>
1.1.17	300mm diameter 11.25 <sup>0</sup>	Each	<b>5932</b>
1.1.18	300mm diameter 22.50 <sup>0</sup>	Each	<b>7077</b>
1.1.19	300mm diameter 45 <sup>0</sup>	Each	<b>8673</b>
1.1.20	300mm diameter 90 <sup>0</sup>	Each	<b>11217</b>
1.1.21	350mm diameter 11.25 <sup>0</sup>	Each	<b>7801</b>
1.1.22	350mm diameter 22.50 <sup>0</sup>	Each	<b>9197</b>
1.1.23	350mm diameter 45 <sup>0</sup>	Each	<b>11701</b>
1.1.24	350mm diameter 90 <sup>0</sup>	Each	<b>16627</b>
1.1.25	400mm diameter 11.25 <sup>0</sup>	Each	<b>11195</b>
1.1.26	400mm diameter 22.50 <sup>0</sup>	Each	<b>12825</b>
1.2	Providing Ductile Iron Push on special confirming to IS 9523:2000		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.2.1	400mm diameter 45 <sup>0</sup>	Each	<b>16224</b>
1.2.2	400mm diameter 90 <sup>0</sup>	Each	<b>22716</b>
1.2.3	450mm diameter 11.25 <sup>0</sup>	Each	<b>13998</b>
1.2.4	450mm diameter 22.50 <sup>0</sup>	Each	<b>15967</b>
1.2.5	450mm diameter 45 <sup>0</sup>	Each	<b>20976</b>
1.2.6	450mm diameter 90 <sup>0</sup>	Each	<b>28788</b>
1.2.7	500mm diameter 11.25 <sup>0</sup>	Each	<b>16939</b>
1.2.8	500mm diameter 22.50 <sup>0</sup>	Each	<b>20568</b>
1.2.9	500mm diameter 45 <sup>0</sup>	Each	<b>28165</b>
1.2.10	500mm diameter 90 <sup>0</sup>	Each	<b>39127</b>
1.2.11	600mm diameter 11.25 <sup>0</sup>	Each	<b>25143</b>
1.2.12	600mm diameter 22.50 <sup>0</sup>	Each	<b>31833</b>
1.2.13	600mm diameter 45 <sup>0</sup>	Each	<b>41729</b>
1.2.14	600mm diameter 90 <sup>0</sup>	Each	<b>60864</b>
1.3	Providing Ductile Iron Push on special confirming to IS 9523:2000 - Socketed D.I. Equal Tees		
1.3.1	100mm X 100mm X 100mm	Each	<b>2499</b>
1.3.2	150mm X 150mm X 150mm	Each	<b>3946</b>
1.3.3	200mm X 200mm X 200mm	Each	<b>6423</b>
1.3.4	250mm X 250mm X 250mm	Each	<b>6809</b>
1.3.5	300mm X 300mm X 300mm	Each	<b>13825</b>
1.3.6	450mm X 450mm X 450mm	Each	<b>31634</b>
1.3.7	500mm X 500mm X 500mm	Each	<b>40497</b>
1.3.8	600mm X 600mm X 600mm	Each	<b>57855</b>
1.4	Providing Ductile Iron Push on special confirming to IS 9523:2000 - Double Socketed with flanged Branch D.I. Un-Equal Tees		
1.4.1	150mm X 150mm X 100mm	Each	<b>2728</b>
1.4.2	200mm X 200mm X 100mm	Each	<b>3836</b>
1.4.3	250mm X 250mm X 100mm	Each	<b>5010</b>
1.4.4	300mm X 300mm X 100mm	Each	<b>6528</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.4.5	350mm X 350mm X 100mm	Each	<b>10768</b>
1.4.6	400mm X 400mm X 100mm	Each	<b>9436</b>
1.4.7	450mm X 450mm X 100mm	Each	<b>13841</b>
1.4.8	500mm X 500mm X 100mm	Each	<b>17346</b>
1.4.9	600mm X 600mm X 150mm	Each	<b>21320</b>
1.5	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Socketed D.I. Un-Equal Tees		
1.5.1	100mm X 80mm	Each	<b>2413</b>
1.5.2	150mm X 80mm	Each	<b>3521</b>
1.5.3	150mm X 100mm	Each	<b>3417</b>
1.5.4	200mm X 80mm	Each	<b>4804</b>
1.5.5	200mm X 100mm	Each	<b>4867</b>
1.5.6	200mm X 150mm	Each	<b>5585</b>
1.5.7	250mm X 80mm	Each	<b>6299</b>
1.5.8	250mm X 100mm	Each	<b>6258</b>
1.5.9	250mm X 150mm	Each	<b>7445</b>
1.5.10	250mm X 200mm	Each	<b>7978</b>
1.5.11	300mm X 100mm	Each	<b>6874</b>
1.5.12	300mm X 150mm	Each	<b>10085</b>
1.5.13	300mm X 200mm	Each	<b>10902</b>
1.5.14	300mm X 250mm	Each	<b>12088</b>
1.5.15	350mm X 100mm	Each	<b>9996</b>
1.5.16	350mm X 150mm	Each	<b>11729</b>
1.5.17	350mm X 200mm	Each	<b>13716</b>
1.5.18	350mm X 250mm	Each	<b>16159</b>
1.5.19	All Socketed D.I. Un-Equal Tees 350mm X 300mm	Each	<b>19673</b>
1.5.20	400mm X 80mm	Each	<b>13441</b>
1.5.21	400mm X 100mm	Each	<b>13634</b>
1.5.22	400mm X 150mm	Each	<b>14919</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.5.23	400mm X 200mm	Each	<b>16974</b>
1.5.24	400mm X 250mm	Each	<b>18214</b>
1.5.25	400mm X 300mm	Each	<b>20249</b>
1.5.26	400mm X 350mm	Each	<b>26755</b>
1.6	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Socketed D.I. Un-Equal Tees		
1.6.1	450mm X 100mm	Each	<b>16182</b>
1.6.2	450mm X 150mm	Each	<b>18642</b>
1.6.3	450mm X 200mm	Each	<b>20483</b>
1.6.4	All Socketed D.I. Un-Equal Tees 450mm X 250mm	Each	<b>23151</b>
1.6.5	450mm X 300mm	Each	<b>24186</b>
1.6.6	450mm X 350mm	Each	<b>29234</b>
1.6.7	450mm X 400mm	Each	<b>32063</b>
1.6.8	500mm X 100mm	Each	<b>19932</b>
1.6.9	500mm X 150mm	Each	<b>21910</b>
1.6.10	500mm X 200mm	Each	<b>25034</b>
1.6.11	500mm X 250mm	Each	<b>27344</b>
1.6.12	500mm X 300mm	Each	<b>31193</b>
1.6.13	500mm X 350mm	Each	<b>31897</b>
1.6.14	500mm X 400mm	Each	<b>33217</b>
1.6.15	500mm X 450mm	Each	<b>19932</b>
1.6.16	600mm X 100mm	Each	<b>28378</b>
1.6.17	600mm X 150mm	Each	<b>30798</b>
1.6.18	600mm X 200mm	Each	<b>32226</b>
1.6.19	600mm X 250mm	Each	<b>33767</b>
1.6.20	600mm X 300mm	Each	<b>37000</b>
1.6.21	600mm X 350mm	Each	<b>39993</b>
1.6.22	600mm X 400mm	Each	<b>44437</b>
1.6.23	600mm X 450mm	Each	<b>47341</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.6.24	600mm X 500mm	Each	<b>48726</b>
1.7	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Socketed D.I. Reducers / Tapers		
1.7.1	100 X 80 mm	Each	<b>1347</b>
1.7.2	150 X 80 mm	Each	<b>2217</b>
1.7.3	150 X 100 mm	Each	<b>2368</b>
1.7.4	200 X 100 mm	Each	<b>3416</b>
1.7.5	200 X 150 mm	Each	<b>3252</b>
1.7.6	250 X 100 mm	Each	<b>4684</b>
1.7.7	250 X 150 mm	Each	<b>4786</b>
1.7.8	250 X 200 mm	Each	<b>4356</b>
1.7.9	300 X 100 mm	Each	<b>6913</b>
1.7.10	300 X 150 mm	Each	<b>6913</b>
1.7.11	300 X 200 mm	Each	<b>6738</b>
1.7.12	300 X 250 mm	Each	<b>6347</b>
1.7.13	350 X 150 mm	Each	<b>9753</b>
1.7.14	350 X 200 mm	Each	<b>9075</b>
1.7.15	350 X 250 mm	Each	<b>8476</b>
1.7.16	350 X 300 mm	Each	<b>8023</b>
1.7.17	400 X 150 mm	Each	<b>8968</b>
1.7.18	400 X 200 mm	Each	<b>13291</b>
1.7.19	400 X 250 mm	Each	<b>12390</b>
1.7.20	400 X 300 mm	Each	<b>10979</b>
1.7.21	400 X 350 mm	Each	<b>10172</b>
1.7.22	450 X 250 mm	Each	<b>14891</b>
1.7.23	450 X 300 mm	Each	<b>15239</b>
1.7.24	450 X 350 mm	Each	<b>14021</b>
1.7.25	450 X 400 mm	Each	<b>12825</b>
1.7.26	500 X 100 mm	Each	<b>10689</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.8	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Socketed D.I. Reducers / Tapers		
1.8.1	500 X 150 mm	Each	<b>10703</b>
1.8.2	500 X 200 mm	Each	<b>11387</b>
1.8.3	500 X 250 mm	Each	<b>20433</b>
1.8.4	500 X 300 mm	Each	<b>20433</b>
1.8.5	500 X 350 mm	Each	<b>19051</b>
1.8.6	500 X 400 mm	Each	<b>18324</b>
1.8.7	500 X 450 mm	Each	<b>16059</b>
1.8.8	600 X 150 mm	Each	<b>12423</b>
1.8.9	600 X 200 mm	Each	<b>13215</b>
1.8.10	600 X 250 mm	Each	<b>14057</b>
1.8.11	600 X 300 mm	Each	<b>14957</b>
1.8.12	600 X 350 mm	Each	<b>29997</b>
1.8.13	600 X 400 mm	Each	<b>29345</b>
1.8.14	600 X 450 mm	Each	<b>27806</b>
1.8.15	600 X 500 mm	Each	<b>25356</b>
1.9	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All D.I. Flanged Socketed, D.I. Flanged Spigot, MS End Plates		
1.9.1	D.I. Flanged Socketed 100.00 mm	Each	<b>1543</b>
1.9.2	D.I. Flanged Socketed 150.00 mm	Each	<b>2499</b>
1.9.3	D.I. Flanged Socketed 200.00 mm	Each	<b>3374</b>
1.9.4	D.I. Flanged Socketed 250.00 mm	Each	<b>4978</b>
1.9.5	D.I. Flanged Socketed 300.00 mm	Each	<b>6179</b>
1.9.6	D.I. Flanged Socketed 350.00 mm	Each	<b>8882</b>
1.9.7	D.I. Flanged Socketed 400.00 mm	Each	<b>10778</b>
1.9.8	D.I. Flanged Socketed 450.00 mm	Each	<b>13152</b>
1.9.9	D.I. Flanged Socketed 500.00 mm	Each	<b>16738</b>
1.9.10	D.I. Flanged Socketed 600.00 mm	Each	<b>24455</b>
1.9.11	D.I. Flanged Socketed 700.00 mm	Each	<b>40278</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.9.12	D.I. Flanged Socketed 800.00 mm	Each	<b>53745</b>
1.9.13	D.I. Flanged Socketed 900.00 mm	Each	<b>67347</b>
1.9.14	D.I. Flanged Socketed 1000.00 mm	Each	<b>99556</b>
1.9.15	D.I. Flanged Spigot 100.00 mm	Each	<b>1739</b>
1.9.16	D.I. Flanged Spigot 150.00 mm	Each	<b>2902</b>
1.9.17	D.I. Flanged Spigot 200.00 mm	Each	<b>4175</b>
1.9.18	D.I. Flanged Spigot 250.00 mm	Each	<b>5886</b>
1.9.19	D.I. Flanged Spigot 300.00 mm	Each	<b>7536</b>
1.9.20	D.I. Flanged Spigot 350.00 mm	Each	<b>11168</b>
1.9.21	D.I. Flanged Spigot 400.00 mm	Each	<b>13673</b>
1.9.22	D.I. Flanged Spigot 450.00 mm	Each	<b>16907</b>
1.9.23	D.I. Flanged Spigot 500.00 mm	Each	<b>21396</b>
1.9.24	D.I. Flanged Spigot 600.00 mm	Each	<b>30163</b>
1.9.25	D.I. Flanged Spigot 700.00 mm	Each	<b>48426</b>
1.9.26	D.I. Flanged Spigot 800.00 mm	Each	<b>62829</b>
1.9.27	D.I. Flanged Spigot 900.00 mm	Each	<b>79028</b>
1.9.28	D.I. Flanged Spigot 1000.00 mm	Each	<b>101444</b>
1.9.29	MS End Plates 100.00 mm	Each	<b>770</b>
1.9.30	MS End Plates 150.00 mm	Each	<b>1382</b>
1.9.31	MS End Plates 200.00 mm	Each	<b>2303</b>
1.9.32	MS End Plates 250.00 mm	Each	<b>3383</b>
1.9.33	MS End Plates 300.00 mm	Each	<b>5154</b>
1.10	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All D.I. Flanged MJ COLLAR		
1.10.1	100.00 mm	Each	<b>1231</b>
1.10.2	150.00 mm	Each	<b>1756</b>
1.10.3	200.00 mm	Each	<b>3171</b>
1.10.4	250.00 mm	Each	<b>5788</b>
1.10.5	300.00 mm	Each	<b>8449</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.10.6	350.00 mm	Each	<b>7064</b>
1.10.7	400.00 mm	Each	<b>8498</b>
1.10.8	450.00 mm	Each	<b>13784</b>
1.10.9	500.00 mm	Each	<b>17774</b>
1.10.10	600.00 mm	Each	<b>24903</b>
1.10.11	700.00 mm	Each	<b>45246</b>
1.10.12	800.00 mm	Each	<b>57512</b>
1.10.13	900.00 mm	Each	<b>95423</b>
1.10.14	1000.00 mm	Each	<b>155297</b>
1.11	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Double Chambered Restarined Joint DI K12 Specials: (To be Considered for Alternative to avoid concrete thrust blocks along with minimum length of Restarined joint DI pipes at bends).		
1.11.1	80 X 11.25	Each	<b>2634</b>
1.11.2	80 X 22.5	Each	<b>2416</b>
1.11.3	80 X 45	Each	<b>2591</b>
1.11.4	80 X 90	Each	<b>3075</b>
1.11.5	100 X 11.25	Each	<b>3075</b>
1.11.6	100 X 22.5	Each	<b>3294</b>
1.11.7	100 X 45	Each	<b>3685</b>
1.11.8	100 X 90	Each	<b>4087</b>
1.11.9	150 X 11.25	Each	<b>4831</b>
1.11.10	150 X 22.5	Each	<b>4965</b>
1.11.11	150 X 45	Each	<b>5580</b>
1.11.12	150 X 90	Each	<b>7077</b>
1.11.13	200 X 11.25	Each	<b>7271</b>
1.11.14	200X 22.5	Each	<b>7641</b>
1.11.15	200 X 45	Each	<b>9387</b>
1.11.16	200 X 90	Each	<b>12980</b>
1.11.17	250 X 11.25	Each	<b>9528</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.11.18	250 X 22.5	Each	<b>10401</b>
1.11.19	250 X 45	Each	<b>12841</b>
1.11.20	250 X 90	Each	<b>16798</b>
1.11.21	300 X 11.25	Each	<b>13349</b>
1.11.22	300 X 22.5	Each	<b>15923</b>
1.11.23	300 X 45	Each	<b>19513</b>
1.11.24	300 X 90	Each	<b>27521</b>
1.11.25	350 X 11.25	Each	<b>17551</b>
1.11.26	350 X 22.5	Each	<b>20693</b>
1.11.27	350 X 45	Each	<b>26326</b>
1.11.28	350 X 90	Each	<b>37409</b>
1.11.29	400 X 11.25	Each	<b>25237</b>
1.11.30	400 X 22.5	Each	<b>29030</b>
1.11.31	400 X 45	Each	<b>36504</b>
1.11.32	400 X 90	Each	<b>52732</b>
1.11.33	450 X 22.5	Each	<b>35928</b>
1.11.34	450 X 11.25	Each	<b>31496</b>
1.11.35	450 X 45	Each	<b>47197</b>
1.11.36	450 X 90	Each	<b>64775</b>
1.11.37	500 X 11.25	Each	<b>38112</b>
1.11.38	500 X 22.5	Each	<b>46278</b>
1.11.39	500 X 45	Each	<b>64343</b>
1.11.40	500 X 90	Each	<b>95577</b>
1.11.41	600 X 11.25	Each	<b>56572</b>
1.11.42	600 X 22.5	Each	<b>71621</b>
1.11.43	600 X 45	Each	<b>93893</b>
1.11.44	600 X 90	Each	<b>142448</b>
1.11.45	700 X 11.25	Each	<b>92395</b>
1.11.46	700 X 22.5	Each	<b>115083</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
1.11.47	700 X 45	Each	<b>146619</b>
1.11.48	700 X 90	Each	<b>226288</b>
1.11.49	750 X 11.25	Each	<b>124758</b>
1.11.50	750 X 22.5	Each	<b>152028</b>
1.11.51	750 X 45	Each	<b>197289</b>
1.11.52	750 X 90	Each	<b>318217</b>
1.11.53	800 X 11.25	Each	<b>136943</b>
1.11.54	800 X 22.5	Each	<b>164798</b>
1.11.55	800 X 45	Each	<b>171180</b>
1.11.56	800 X 90	Each	<b>318566</b>
1.11.57	900 X 11.25	Each	<b>194087</b>
1.11.58	900 X 22.5	Each	<b>219223</b>
1.11.59	900 X 45	Each	<b>292942</b>
1.11.60	900 X 90	Each	<b>455083</b>
1.12	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All DI PN :16.0 Dismanting Joints :		
1.12.1	80mm	Each	<b>3147</b>
1.12.2	150mm	Each	<b>5564</b>
1.12.3	200mm	Each	<b>8167</b>
1.12.4	250mm	Each	<b>11764</b>
1.12.5	300mm	Each	<b>15199</b>
1.12.6	350mm	Each	<b>21678</b>
1.12.7	400mm	Each	<b>25444</b>
1.12.8	450mm	Each	<b>29466</b>
1.12.9	500mm	Each	<b>41246</b>
1.12.10	600mm	Each	<b>60190</b>
1.12.11	700mm	Each	<b>78704</b>
1.12.12	800mm	Each	<b>104486</b>
1.12.13	900mm	Each	<b>144518</b>

**Chapter - 2**  
**WATER SUPPLY WORKS**





Sl. No.	Specification	Unit	Rate ₹
<b>2 WATER SUPPLY WORKS</b>			
2.1	Removing the G.I. pipes, cleaning, washing and using at spot or conveying from workspot to office/store with all lead and lift including removal of all items such as collars, elbows, tees, bends, gland cocks, cuts and threads with appurtenances.		
2.1.1	Pipes of dia 15mm to 25mm	m	26
2.1.2	Pipes of dia 32mm to 80mm	m	48
2.1.3	Pipes of dia 100mm	m	62
2.2	Cutting and threading G.I. pipes for pump fitting, public fountains with appurtenances., where the length of pipe laid is less than 6 metres		
2.2.1	Pipes of dia 15mm to 32mm	Each	100
2.2.2	Pipes of dia 32mm to 80mm	Each	322
2.2.3	Pipes of dia 100mm	Each	619
2.3	Removing gland cock with fittings and refixing the same for sizes 15mm to 65mm..	Each	25
2.4	Dismantling the Cast Iron fountain and fittings and returning the materials to the stores.	Each	126
2.5	Painting CI fountain stand and fittings with two coats of approved paint.	Each	99
2.6	Labour charges for laying and jointing GI pipes with earth work including fixing collars, elbows, tees, bends, gland cocks and other fittings with cuts and threads, white lead paints wherever necessary, conveying the materials from office to workspot and retuning the surplus materials from workspot to stores etc complete.		
2.6.1	15mm dia. GI pipes & specials.	m	10
2.6.2	20mm dia. GI pipes & specials.	m	13
2.6.3	25mm dia. GI pipes & specials.	m	19
2.6.4	40mm dia. GI pipes & specials.	m	24
2.6.5	50mm dia. GI pipes & specials.	m	32
2.6.6	65mm dia. GI pipes & specials.	m	32
2.6.7	80mm dia. GI pipes & specials.	m	32
2.6.8	100mm dia. GI pipes & specials.	m	53

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.7	Removing GI pipes without earth work excavation and filling in all soils but including cutting in tar roads, gravel roads, metal roads and clearing, washing at spot or conveying from workspot to office store including removal of fittings such as collars, elbows, tees, bends gland cocks, cuts and threads etc. for:		
2.7.1	GI pipes of 15mm dia.	m	<b>16</b>
2.7.2	GI pipes of 20mm dia.	m	<b>16</b>
2.7.3	GI pipes of 25mm dia.	m	<b>19</b>
2.7.4	GI pipes of 40mm dia.	m	<b>24</b>
2.7.5	GI pipes of 50mm dia.	m	<b>22</b>
2.7.6	GI pipes of 65mm dia.	m	<b>27</b>
2.7.7	GI pipes of 80mm dia.	m	<b>32</b>
2.8	Cutting charges for cutting CI / DI pipes already laid in the ground with necessary approved tools for:		
2.8.1	50mm dia pipes	Each	<b>46</b>
2.8.2	65mm dia pipes	Each	<b>54</b>
2.8.3	80mm dia pipes	Each	<b>58</b>
2.8.4	100mm dia pipes	Each	<b>75</b>
2.8.5	125mm dia pipes	Each	<b>79</b>
2.8.6	150mm dia pipes	Each	<b>83</b>
2.8.7	175mm dia pipes	Each	<b>92</b>
2.8.8	200mm dia pipes	Each	<b>117</b>
2.8.9	225mm dia pipes	Each	<b>125</b>
2.8.10	250mm dia pipes	Each	<b>167</b>
2.8.11	300mm dia pipes	Each	<b>208</b>
2.8.12	375mm dia pipes	Each	<b>229</b>
2.8.13	400mm dia pipes	Each	<b>250</b>
2.8.14	450mm dia pipes	Each	<b>292</b>
2.8.15	600mm dia pipes	Each	<b>334</b>
2.8.16	700mm dia pipes	Each	<b>417</b>
2.8.17	750mm dia pipes	Each	<b>501</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.8.18	900mm dia pipes	Each	<b>585</b>
2.8.19	1200mm dia pipes	Each	<b>669</b>
2.9	Cutting of CI/DI pipes neatly on the surface with necessary approved tools for:		
2.9.1	50mm dia pipes	Each	<b>34</b>
2.9.2	65mm dia pipes	Each	<b>41</b>
2.9.3	80mm dia pipes	Each	<b>43</b>
2.9.4	100mm dia pipes	Each	<b>56</b>
2.9.5	125mm dia pipes	Each	<b>59</b>
2.9.6	150mm dia pipes	Each	<b>63</b>
2.9.7	175mm dia pipes	Each	<b>69</b>
2.9.8	200mm dia pipes	Each	<b>88</b>
2.9.9	225mm dia pipes	Each	<b>94</b>
2.9.10	250mm dia pipes	Each	<b>125</b>
2.9.11	300mm dia pipes	Each	<b>167</b>
2.9.12	375mm dia pipes	Each	<b>209</b>
2.9.13	400mm dia pipes	Each	<b>250</b>
2.9.14	450mm dia pipes	Each	<b>291</b>
2.9.15	600mm dia pipes	Each	<b>333</b>
2.9.16	700mm dia pipes	Each	<b>376</b>
2.9.17	750mm dia pipes	Each	<b>418</b>
2.9.18	900mm dia pipes	Each	<b>461</b>
2.9.19	1200mm dia pipes	Each	<b>503</b>
2.10	Making cement mortar (1:1) and hemp yarn joint for CI pipes including cost of all materials like cement, sand, hemp yarn, water proofing materials, curing for 10 days and shall ensure to withstand working pressure and giving satisfactory hydraulic test pressure of 60 meters head of water etc. complete for :		
2.10.1	80 mm dia. pipes	Joint	<b>97</b>
2.10.2	100 mm dia. pipes	Joint	<b>137</b>
2.10.3	150 mm dia. pipes	Joint	<b>169</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.10.4	200 mm dia. pipes	Joint	<b>228</b>
2.10.5	225 mm dia. pipes	Joint	<b>255</b>
2.10.6	250 mm dia. pipes	Joint	<b>266</b>
2.10.7	300 mm dia. pipes	Joint	<b>319</b>
2.10.8	350 mm dia. pipes	Joint	<b>424</b>
2.10.9	375 mm dia. pipes	Joint	<b>458</b>
2.10.10	400 mm dia. pipes	Joint	<b>526</b>
2.10.11	450 mm dia. pipes	Joint	<b>675</b>
2.10.12	525 mm dia. pipes	Joint	<b>810</b>
2.10.13	600 mm dia. pipes	Joint	<b>940</b>
2.11	Removing the CI/DI valves and its tail piece from the pipe line, cleaning, washing, painting and returning the same to the stores etc. for:		
2.11.1	50mm dia. pipe line	Each	<b>148</b>
2.11.2	80mm dia. pipe line	Each	<b>250</b>
2.11.3	100mm dia. pipe line	Each	<b>265</b>
2.11.4	125mm dia. pipe line	Each	<b>267</b>
2.11.5	150mm dia. pipe line	Each	<b>339</b>
2.11.6	175mm dia. pipe line	Each	<b>353</b>
2.11.7	200mm dia. pipe line	Each	<b>473</b>
2.11.8	225mm dia. pipe line	Each	<b>491</b>
2.11.9	250mm dia. pipe line	Each	<b>691</b>
2.11.10	300mm dia. pipe line	Each	<b>819</b>
2.11.11	375mm dia. pipe line	Each	<b>828</b>
2.11.12	400mm dia. pipe line	Each	<b>1166</b>
2.11.13	450mm dia. pipe line	Each	<b>1315</b>
2.11.14	600mm dia. pipe line	Each	<b>1587</b>
2.11.15	700mm dia. pipe line	Each	<b>1775</b>
2.11.16	750mm dia. pipe line	Each	<b>1978</b>
2.11.17	900mm dia. pipe line	Each	<b>2208</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.12	Making main bore in CI/DI pipes with approved tools and procedures etc complete.		
2.12.1	15mm dia. bore	Each	<b>87</b>
2.12.2	20mm dia. bore	Each	<b>99</b>
2.12.3	25mm dia. bore	Each	<b>169</b>
2.12.4	40mm dia. bore	Each	<b>329</b>
2.12.5	50mm dia. bore	Each	<b>352</b>
2.12.6	65mm dia. bore	Each	<b>444</b>
2.13	Removing and cleaning the CI / DI pipes and specials including jointing materials, washing (excluding valves) etc complete		
2.13.1	80mm dia. pipes & specials	m	<b>67</b>
2.13.2	100mm dia. pipes & specials	m	<b>81</b>
2.13.3	150mm dia. pipes & specials	m	<b>98</b>
2.13.4	200mm dia. pipes & specials	m	<b>109</b>
2.13.5	250mm dia. pipes & specials	m	<b>126</b>
2.13.6	300mm dia. pipes & specials	m	<b>155</b>
2.13.7	350mm dia. pipes & specials	m	<b>178</b>
2.13.8	400mm dia. pipes & specials	m	<b>202</b>
2.13.9	450mm dia. pipes & specials	m	<b>219</b>
2.13.10	600mm dia. pipes & specials	m	<b>256</b>
2.13.11	700mm dia. pipes & specials	m	<b>282</b>
2.13.12	750mm dia. pipes & specials	m	<b>301</b>
2.13.13	900mm dia. pipes & specials	m	<b>362</b>
2.14	Painting the CI/ M.S/ D.I pipes and specials with two coats of bitumastic paint both inside and outside etc. complete		
2.14.1	80mm dia. pipes	m	<b>34</b>
2.14.2	100mm dia. Pipes	m	<b>43</b>
2.14.3	150mm dia. Pipes	m	<b>65</b>
2.14.4	175 mm dia. pipes	m	<b>76</b>
2.14.5	200mm dia. Pipes	m	<b>86</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.14.6	225mm dia. Pipes	m	<b>108</b>
2.14.7	250mm dia. Pipes	m	<b>124</b>
2.14.8	300mm dia. Pipes	m	<b>130</b>
2.14.9	375mm dia. Pipes	m	<b>162</b>
2.14.10	400mm dia. Pipes	m	<b>172</b>
2.14.11	450mm dia. Pipes	m	<b>194</b>
2.14.12	600mm dia. Pipes	m	<b>260</b>
2.14.13	700mm dia. Pipes	m	<b>302</b>
2.14.14	750mm dia. Pipes	m	<b>324</b>
2.14.15	900mm dia. Pipes	m	<b>389</b>
2.15	Removing and restoring house connections (Labour Charges only)	Each	<b>185</b>
2.16	Conveying CI / DI pipes and specials through transporting vehicles like lorry, trucks etc. as detailed complete.		
2.16.1	Conveyance including loading and unloading per quintal for distance upto 5.00 KM	QNT	<b>150</b>
2.16.2	Conveyance excluding loading and unloading per quintal for distance 5.00 to 10.00 KM	QNT	<b>26</b>
2.16.3	Conveyance excluding loading and unloading per quintal for distance beyond 10.00 KM	QNT	<b>16</b>
2.17	Fixing DI/CI specials of mechanical jointing of different sizes after setting into the pipe line system, including cleaning, introducing rubber gasket to proper alignment and tightening with bolts and nuts. The cost includes hire charges of tools and plants with appurtenances etc. complete as per specification.		
2.17.1	For CI / DI mechanical specials of 100 to 200mm dia.	Each	<b>46</b>
2.17.2	For CI / DI mechanical specials of 250 to 400mm dia.	Each	<b>76</b>
2.17.3	For CI / DI mechanical specials of 450 to 700mm dia.	Each	<b>155</b>
2.17.4	For CI / DI mechanical specials of 750 to 1000mm dia.	Each	<b>209</b>
2.18	Labour charges for conveying and fixing standard size fire hydrants as per specifications including fixing duck foot bend and hydrant post etc. complete	Each	<b>379</b>
2.19	Removing and refixing fire hydrants after cleaning and repainting.	Each	<b>420</b>

Sl. No.	Specification	Unit	Rate ₹
2.20	Providing and fixing pot rest slab of size 0.45 x 0.30 x 0.20 meters with central dip for resting the pot including two line dressing and edges rounded and with all lead etc. complete	Each	586
2.21	<p>Providing house connection with excavation in all types of soils cutting with machine cutter without damaging the other utilities and Providing and laying of MDPE pipe (PE80)-PN 12.5 manufactured in accordance with ISO 4427-1996 with minimum required strength of 8 Mpa, hydraulic design stress of 6.3 Mpa and with minimum wall thickness of 2.3mm/ GI pipe by making the bore of 15mm dia. size on the distribution mains using drilling bits or machines only and laying the pipe line at a depth not less than 0.45 mtrs. from the road surface, including providing 40mm dia. "A" class GI pipe as casing over the MDPE pipe from the bore point and upto the entrance of the premises and removing the stone slab covering of the drain and dismantling the size stone masonry wherever necessary and making bore in the wall of the premises. On entering the premises, connection should be continued with 20mm GI pipe by making "U" shape for the meter point below the ground level by making pit with sufficient space for the easy installation and removal of the water meter and providing vertical stand pipes on both sides of the meter. The connection should be secured firmly on the distribution main pipe with SS / Brass ferrule of size 1/2" x 3/4" and fixing the union joint and gate valve / stop cock before the meter point and a reflex valve / non-return valve should be fixed on the connection after the meter point. (All these fixtures should be of standard quality conforming to IS). The compression fittings for MDPE pipes conforming to ISO 14236 and its latest versions. If the connection is of HDPE pipe the work include electric fusion tapping T or saddles, PE 100 black colour pipe of PN 16 /SDR 11 or Higher grade conforming to standards with brass cutter cum flow regulator, water tight cap with O'ring, long spigot for making bore/tapping suitable to HDPE pipe by Electro fusion welding as per BS EN 12201-3 &amp; EN 1555-3 standards. The Product should be tested to comply with BS 6920 for drinking water service in WRC - NSF, UK and DVGW certificate, Germany. The Saddle should be manufactured Virgin Compounded PE 100 material. Tapping Tee or Saddles with coupler and compression fittings with cost of GI pipes, as per diagram, all specials such as GI tee, GI elbow, GI coupler, stopper with appurtenances, and brass or SS tap The excavated trench should be refilled with soft selected earth and the dismantled masonry of the drain should be re-constructed with available size stones in CM 1:8 and providing coping in CC 1:3:6 wherever required and the stone slab covering should be refixed in position with pointing in CM 1:3 and also the bored wall of the premises should be re-done to the original position and the rates are inclusive of the cost of all the materials, cement, sand water etc., required for these works. The road surface should be compacted well and brought to the original condition and the excess earth or debris should be disposed off to a distance with an initial lead of 10 Kms. etc. complete for the following diameters: (for minimum length of 2m) etc. complete</p>		



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.21.1	For 15 mm dia	Each	<b>6547</b>
2.21.2	For 20mm dia	Each	<b>6670</b>
2.21.3	For 25mm dia	Each	<b>6805</b>
2.21.4	For connection pipe length beyond 2.0 mtrs for every 1 mtr. or part thereof	m	<b>945</b>
2.22	Providing and fixing of non-corrosive Engineering Plastic moulded composite strap saddle with Stainless steel 304 threaded metal inserted for trapping outlet suiting for different sizes of clear bore conforming to IS 554 wide strap with elastometric insulation for proper grip around the DI pipe with SS 304 bolts and nuts. Saddle to have rubber SBR grade 30 'O' ring around the tapping hole. All metal parts shall be made of SS 304 and saddle seal shall be of virgin rubber SBR grade 30/NBR (NSF 61 approved). Fastners shall be of stainless steel 202 NC rolled threaded. M12 with tightening torque 14-15 Kg-m. For 100mm dia. pipes: etc. complete		
2.22.1	For 15mm connections	Each	<b>729</b>
2.22.2	For 20mm connections	Each	<b>822</b>
2.22.3	For 25mm connections	Each	<b>963</b>
2.23	Providing and fixing DI Resilient seated soft sealing SLUICE VALVE of various dia. with body bonnet of Ductile Iron (DI) conforming to IS-1865 with the latest amendments and of grade GGG 40/50, shaft of stainless steel, wedge fully rubber lined with EDPM seals of NBR and the valves should be vacuum tight and 100% leak proof with face to face dimensions as per IS 14846-2000 with the latest amendments only. The stem sealing should be with toroidal sealing rings (minimum 2 " O " rings). Body and bonnet should be coated with Electrostatically applied Epoxy Powder Coating with minimum coating thickness of 250 micron both inside and outside. The rate is inclusive of cost of valves, T.P set, galvanized bolts & nuts and rubber insertions etc. but excluding earth work. For PN-10: (Note: TP set should be considered only for DI pipes estimate. For MS pipes estimates, TP sets cost of corresponding dia shall be deducted from the SR rates of valves and provision for corresponding dia MS flanges should be made in the estimate.) etc. complete		
2.23.1	For sluice Valve of PN - 10.0 and 50mm	Each	<b>5535</b>
2.23.2	For sluice Valve of PN -10.0 and 80mm	Each	<b>10393</b>
2.23.3	For sluice Valve of PN - 10.0 and 100mm	Each	<b>10884</b>
2.23.4	For sluice Valve of PN10.0 and 150mm	Each	<b>17490</b>
2.23.5	For sluice Valve of PN -10.0 and 200mm	Each	<b>28709</b>
2.23.6	For sluice Valve of PN - 10.0 and 250mm	Each	<b>46491</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.23.7	For sluice Valve of PN -10.0 and 300mm	Each	<b>60325</b>
2.23.8	For sluice Valve of PN - 10.0 and 350mm	Each	<b>93233</b>
2.23.9	For sluice Valve of PN - 10.0 and 400mm	Each	<b>125367</b>
2.23.10	For sluice Valve of PN - 10.0 and 450mm	Each	<b>154869</b>
2.23.11	For sluice Valve of PN -10.0and 500mm	Each	<b>203780</b>
2.23.12	For sluice Valve of PN -10.0and 600mm	Each	<b>293472</b>
2.24	For PN 16.0:		
2.24.1	For sluice Valve of PN 16.0 and 50mm	Each	<b>6929</b>
2.24.2	For sluice Valve of PN 16.0 and 80mm	Each	<b>10393</b>
2.24.3	For sluice Valve of PN 16.0 and 100mm	Each	<b>12456</b>
2.24.4	For sluice Valve of PN 16.0 and 150mm	Each	<b>21150</b>
2.24.5	For sluice Valve of PN 16.0 and 200mm	Each	<b>33036</b>
2.24.6	For sluice Valve of PN 16.0 and 250mm	Each	<b>51727</b>
2.24.7	For sluice Valve of PN 16.0 and 300mm	Each	<b>70444</b>
2.24.8	For sluice Valve of PN 16.0 and 350mm	Each	<b>130884</b>
2.24.9	For sluice Valve of PN 16.0 and 400mm	Each	<b>166972</b>
2.24.10	For sluice Valve of PN 16.0 and 450mm	Each	<b>222844</b>
2.24.11	For sluice Valve of PN 16.0 and 500mm	Each	<b>297081</b>
2.24.12	For sluice Valve of PN 16.0 and 600mm	Each	<b>447406</b>
2.25	For PN-25:		
2.25.1	For sluice Valve of PN - 25 and 50mm	Each	<b>23171</b>
2.25.2	For sluice Valve of PN - 25 and 80mm	Each	<b>25831</b>
2.25.3	For sluice Valve of PN - 25 and 100mm	Each	<b>45032</b>
2.25.4	For sluice Valve of PN - 25 and 150mm	Each	<b>57933</b>
2.25.5	For sluice Valve of PN - 25 and 200mm	Each	<b>87656</b>
2.25.6	For sluice Valve of PN - 25 and 250mm	Each	<b>134522</b>
2.25.7	For sluice Valve of PN - 25 and 300mm	Each	<b>183155</b>
2.25.8	For sluice Valve of PN - 25 and 400mm	Each	<b>480596</b>
2.25.9	For sluice Valve of PN - 25 and 500mm	Each	<b>748565</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.26	Supply and fixing of Cast steel ASTM A 216 Gr.WCB double flanged Dual plate check valve Conforming to API 594 with latest amendments Shaft material shall be SS420/431 and spring shall be spring steel superior grade quality as detailed below of following diameters and types and conveying to work site, loading, unloading, stacking with appurtenances., complete with all lead and lift. The rates are inclusive of cost of Galvanised Bolts and Nuts: For class 150 etc. complete		
2.26.1	80mm	Each	<b>4488</b>
2.26.2	100mm	Each	<b>4690</b>
2.26.3	150mm	Each	<b>7976</b>
2.26.4	200mm	Each	<b>15122</b>
2.26.5	250mm	Each	<b>22042</b>
2.26.6	300mm	Each	<b>27732</b>
2.26.7	350mm	Each	<b>37864</b>
2.26.8	400mm	Each	<b>53597</b>
2.26.9	450mm	Each	<b>64331</b>
2.26.10	500mm	Each	<b>74277</b>
2.26.11	600mm	Each	<b>93280</b>
2.26.12	700mm	Each	<b>121028</b>
2.26.13	750mm	Each	<b>133905</b>
2.26.14	800mm	Each	<b>148598</b>
2.26.15	900mm	Each	<b>205875</b>
2.26.16	1000mm	Each	<b>263917</b>
2.26.17	1100mm	Each	<b>784835</b>
2.26.18	1200mm	Each	<b>1013120</b>
2.27	For Class 300		
2.27.1	80mm	Each	<b>4863</b>
2.27.2	100mm	Each	<b>5117</b>
2.27.3	150mm	Each	<b>8743</b>
2.27.4	200mm	Each	<b>16580</b>
2.27.5	250mm	Each	<b>24150</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.27.6	300mm	Each	<b>30519</b>
2.27.7	350mm	Each	<b>41531</b>
2.27.8	400mm	Each	<b>58951</b>
2.27.9	450mm	Each	<b>70762</b>
2.27.10	500mm	Each	<b>81716</b>
2.27.11	600mm	Each	<b>93280</b>
2.27.12	700mm	Each	<b>132918</b>
2.27.13	750mm	Each	<b>147084</b>
2.27.14	800mm	Each	<b>163218</b>
2.27.15	900mm	Each	<b>226200</b>
2.27.16	1000mm	Each	<b>290018</b>
2.28	Providing and fixing Wafer type single flange Butterfly valve conforming to relevant IS 13099/9991 EN GGG40/50 with latest amendments as detailed below of the following diameter and types with TP set and conveying to work site, loading and unloading, stacking etc. with all lead and lift. The rate is inclusive of the cost of valve, TP set, rubber insertion, bolts and nuts and excluding earth work excavation. For PN 10.0 (Note: TP set should be considered only for DI pipes estimate. For MS pipes estimates, TP sets cost of corresponding dia shall be deducted from the SR rates of valves and provision for corresponding dia MS flanges should be made in the estimate.		
2.28.1	For Valve of PN - 10.0 and 100mm	Each	<b>5849</b>
2.28.2	For Valve of PN 10.0 and 150mm	Each	<b>12553</b>
2.28.3	For Valve of PN 10.0 and 200mm	Each	<b>13971</b>
2.28.4	For Valve of PN 10.0 and 250mm	Each	<b>15374</b>
2.28.5	For Valve of PN 10.0 and 300mm	Each	<b>17346</b>
2.28.6	For Valve of PN 10.0 and 350mm	Each	<b>23477</b>
2.28.7	For Valve of PN 10.0 and 400mm	Each	<b>33092</b>
2.28.8	For Valve of PN 10.0 and 450mm	Each	<b>39217</b>
2.28.9	For Valve of PN 10.0 and 500mm	Each	<b>50146</b>
2.28.10	For Valve of PN 10.0 and 600mm	Each	<b>75468</b>
2.29	For PN 16		
2.29.1	For Valve of PN 16.0 and 100mm	Each	<b>6036</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.29.2	For Valve of PN 16.0 and 150mm	Each	<b>12553</b>
2.29.3	For Valve of PN 16.0 and 200mm	Each	<b>14575</b>
2.29.4	For Valve of PN 16.0 and 250mm	Each	<b>16742</b>
2.29.5	For Valve of PN 16.0 and 300mm	Each	<b>19660</b>
2.29.6	For Valve of PN 16.0 and 350mm	Each	<b>25867</b>
2.29.7	For Valve of PN 16.0 and 400mm	Each	<b>36668</b>
2.29.8	For Valve of PN 16.0 and 450mm	Each	<b>46366</b>
2.29.9	For Valve of PN 16.0 and 500mm	Each	<b>57299</b>
2.29.10	For Valve of PN 16.0 and 600mm	Each	<b>83141</b>
2.30	Providing and fixing of Double Flanged Resilient seated short body Butterfly valves of various dis. As per IS 13095/en 593 with integral DI seat face with approved soft sealing with body and disc of Ductile Iron (DI) of grade GGG-40/50, Body seat & Seal retaining ring of SS 304/CF8, Shaft of stainless steel AISI 410/420/431, Bronze shaft bearing, periferal disk, seal end "o" rings of EPDM, double eccentric disk. Body and disk should be coated with electrostatcially applied epoxy powder coating with a coating thickness of 250 micron both inside and out side. The rate is inclusive of cost of valve, TP set, galvanised bolts and nuts and rubber insertions. For PN 10.0 (All the drilled holes in the body shall be of through holes, no tapped holes will be allowed.) (Note: TP set should be considered only for DI pipes estimate. For MS pipes estimates, TP sets cost of corresponding dia shall be deducted from the SR rates of valves and provision for corresponding dia MS flanges should be made in the estimate.) etc. complete		
2.30.1	For Valve of PN 10.0 and 700mm	Each	<b>184739</b>
2.30.2	For Valve of PN 10.0 and 750mm	Each	<b>239773</b>
2.30.3	For Valve of PN 10.0 and 800mm	Each	<b>265385</b>
2.30.4	For Valve of PN 10.0 and 900mm	Each	<b>313821</b>
2.30.5	For Valve of PN 10.0 and 1000mm	Each	<b>407895</b>
2.30.6	For Valve of PN 10.0 and 1100mm	Each	<b>710168</b>
2.30.7	For Valve of PN 10.0 and 1200mm	Each	<b>707715</b>
2.31	For PN-16.0:		
2.31.1	For Valve of PN 16.0 and 700mm	Each	<b>201435</b>
2.31.2	For Valve of PN 16.0 and 750mm	Each	<b>263611</b>
2.31.3	For Valve of PN 16.0 and 800mm	Each	<b>291613</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.31.4	For Valve of PN 16.0 and 900mm	Each	<b>373411</b>
2.31.5	For Valve of PN 16.0 and 1000mm	Each	<b>490726</b>
2.31.6	For Valve of PN 16.0 and 1100mm	Each	<b>692476</b>
2.31.7	For Valve of PN 16.0 and 1200mm	Each	<b>804250</b>
2.32	Providing & Fixing sluice valves/ Butterfly Valves (labour charges only) conforming to relevant ISS with latest amendments as detailed below for the following diameter and types with two Each of MJ collars, two flanged spigots, conveying to work site, loading, unloading, stacking with appurtenances. with all lead and lifts, aligning, fixing and testing with appurtenances. etc. complete.		
2.32.1	For sluice valve with accessories - 50mm dia.	Each	<b>341</b>
2.32.2	For sluice valve with accessories - 80mm dia.	Each	<b>381</b>
2.32.3	For sluice valve with accessories - 100mm dia.	Each	<b>463</b>
2.32.4	For sluice valve with accessories - 150mm dia.	Each	<b>524</b>
2.32.5	For sluice valve with accessories - 200mm dia.	Each	<b>769</b>
2.32.6	For sluice valve with accessories - 250mm dia.	Each	<b>1167</b>
2.32.7	For sluice valve with accessories - 300mm dia.	Each	<b>1262</b>
2.32.8	For sluice valve with accessories - 350mm dia.	Each	<b>1301</b>
2.32.9	For sluice valve with accessories - 400mm dia.	Each	<b>1418</b>
2.32.10	For sluice valve with accessories - 450mm dia.	Each	<b>3697</b>
2.32.11	For sluice valve with accessories - 500mm dia.	Each	<b>4086</b>
2.32.12	For sluice valve with accessories - 600mm dia.	Each	<b>4908</b>
2.33	Providing and fixing kinetic AIR VALVE of PN 16.0 for automatic discharge of accumulate air during working condition, conforming to IS 14845 / EN 1074-4. Body and bonnet of DI conforming to IS-1865 of grade GGG-40/50, seals are made of approved EPDM, SS 304 float, guide and internals. Flange drilling according to IS-1538 with appurtenances. complete. Body and bonnet shall be coated with electrostatically applied epoxy powder coating with a coating thickness of 250 micron both inside and outside etc. complete		
2.33.1	For K Air Valves of 80mm dia.	Each	<b>26343</b>
2.33.2	For K Air Valves of 100mm dia.	Each	<b>27610</b>
2.33.3	For K Air Valves of 150mm dia.	Each	<b>39210</b>
2.33.4	For K Air Valves of 200mm dia.	Each	<b>50480</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.34	Labour Charges only for fixing double / isolated AIR VALVES (CI tamper proof of PN 16.0) conforming to ISS 14845 - 2000 and as detailed below with required stub and flange, conveying to work site, loading, unloading, stacking, with all lead and lifts, alignment, fixing and testing with appurtenances etc. complete.		
2.34.1	For Air Valves of 50mm dia.	Each	<b>256</b>
2.34.2	For Air Valves of 80mm dia.	Each	<b>278</b>
2.34.3	For Air Valves of 100mm dia.	Each	<b>348</b>
2.34.4	For Air Valves of 150mm dia.	Each	<b>377</b>
2.34.5	For Air Valves of 200mm dia.	Each	<b>554</b>
2.35	Providing and fixing of Single/ Double chamber triple function tamper proof (Both the orifices to be housed in the single chamber) Air valves with Body and cover in Ductile cast iron of grade GGG 40/ 50. All internal parts such as float, shell with appurtenances, all cover bolts of austenitic alloy / SS 304 steel, DN 50 float of HOSTAFLOX / SS 304 and gaskets and seals of EPDM. Epoxy powder coating (EP-P) inside and outside colour blue RAL5005. The valves should be designed for all the three functions i.e., 1. Large orifice for venting of large air volumes on start up. 2. Large orifice for intake of large air volumes. 3. Small orifice for discharge of pressurized air during operation. For PN 10.0 etc. complete		
2.35.1	For TP Air Valves of 50mm dia.	Each	<b>28191</b>
2.35.2	For TP Air Valves of 80mm dia.	Each	<b>29005</b>
2.35.3	For TP Air Valves of 100mm dia.	Each	<b>37079</b>
2.35.4	For TP Air Valves of 150mm dia.	Each	<b>48572</b>
2.35.5	For TP Air Valves of 200mm dia.	Each	<b>50454</b>
2.36	For PN 16.0		
2.36.1	For TP Air Valves of 50mm dia.	Each	<b>28191</b>
2.36.2	For TP Air Valves of 80mm dia.	Each	<b>29005</b>
2.36.3	For TP Air Valves of 100mm dia.	Each	<b>37079</b>
2.36.4	For TP Air Valves of 150mm dia.	Each	<b>48572</b>
2.36.5	For TP Air Valves of 200mm dia.	Each	<b>50454</b>
2.37	For PN 25.0		
2.37.1	For TP Air Valves of 50mm dia.	Each	<b>33438</b>
2.37.2	For TP Air Valves of 80mm dia.	Each	<b>48985</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.37.3	For TP Air Valves of 100mm dia.	Each	<b>45268</b>
2.37.4	For TP Air Valves of 150mm dia.	Each	<b>54546</b>
2.37.5	For TP Air Valves of 200mm dia.	Each	<b>63752</b>
2.38	Providing and fixing DI MJ specials such as branches and bends suitable for DI K7 and K9 pipes and CI LA class pipes, as per IS 13382 with latest amendments with complete accessories and fixing at site excluding earth work but including loading, unloading, freight charges etc. complete for:		
2.38.1	DI MJ specials - Branch 100 x 100mm	Each	<b>1701</b>
2.38.2	DI MJ specials - Branch 150 x 150mm	Each	<b>2673</b>
2.38.3	DI MJ specials - Branch 150 x 100mm	Each	<b>2322</b>
2.38.4	DI MJ specials - Bend 100 x 90 degree mm	Each	<b>1203</b>
2.38.5	DI MJ specials - Bend 100 x 45 degree	Each	<b>1174</b>
2.38.6	DI MJ specials - Bend 150 x 90 degree	Each	<b>2322</b>
2.38.7	DI MJ specials - collar 100mm dia.	Each	<b>2287</b>
2.38.8	DI MJ specials - collar 150mm dia.	Each	<b>4102</b>
2.39	Providing, fabricating and fixing at site various diameter MS MJ ends with dummy plates (END CAPS) to suit CI / DI spigots end as per the sketch. The cost is inclusive of all materials, i.e, rubber 'O' rings, flanges, bolts and nuts, dummy plates, consumables, hire charges, tools and welding equipments, lead and lifts, etc. complete as per the instructions of Engineer in charge.		
2.39.1	For CI / DI pipes of 100mm dia.	Each	<b>1158</b>
2.39.2	For CI / DI pipes of 150mm dia.	Each	<b>1609</b>
2.39.3	For CI / DI pipes of 200mm dia.	Each	<b>2226</b>
2.39.4	For CI / DI pipes of 250mm dia.	Each	<b>3213</b>
2.39.5	For CI / DI pipes of 300mm dia.	Each	<b>3230</b>
2.39.6	For CI / DI pipes of 400mm dia.	Each	<b>5077</b>
2.39.7	For CI / DI pipes of 450mm dia.	Each	<b>5551</b>
2.39.8	For CI / DI pipes of 600mm dia.	Each	<b>7770</b>
2.39.9	For CI / DI pipes of 700mm dia.	Each	<b>9218</b>
2.39.10	For CI / DI pipes of 900mm dia.	Each	<b>13221</b>



Sl. No.	Specification	Unit	Rate ₹
2.40	Providing and fixing of DI Double flanged wafer type (Concentric) / double eccentrically disc, Resilient seated Butterfly valves conforming to BS EN 593 / IS 13095 with shaft shall be of stainless steel AISI 410/431/420 and Renewable soft seal on the disc and body seat face of nickel weld overlay micro finished/Bolted External Seat of SS 304 / CF8 with Powder or liquid epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside. Face to face dimensions as per EN 558-1 Basic series 14 (DIN 3203 F4) or AWWA C 504 : 80 or IS 13095. The valves shall be supplied along with the required number of standard make galvanized Bolts and nuts. The flange drilling standard is IS 1538. hence, drilling of hole in the valves shall match with the pipe flange drilling standard, the valves are to be suitable for buried operation with the gear box sealed and lubricated for life time operation. ( All the drilled holes in the body shall be of through holes, no tapped holes will be allowed)		
2.40.1	50mm dia	Each	<b>13540</b>
2.40.2	80mm dia	Each	<b>14619</b>
2.40.3	100mm dia	Each	<b>13730</b>
2.40.4	150mm dia	Each	<b>21250</b>
2.41	For PN 16		
2.41.1	50mm dia	Each	<b>13540</b>
2.41.2	80mm dia	Each	<b>14619</b>
2.41.3	100mm dia	Each	<b>13730</b>
2.41.4	150mm dia	Each	<b>21510</b>
2.42	DI Double Flanged Eccentric Butterfly Valve For PN 10.0		
2.42.1	200mm dia	Each	<b>32679</b>
2.42.2	250mm dia	Each	<b>39933</b>
2.42.3	300mm dia	Each	<b>61059</b>
2.42.4	350mm dia	Each	<b>85709</b>
2.42.5	400mm dia	Each	<b>94244</b>
2.42.6	450mm dia	Each	<b>146135</b>
2.42.7	500mm dia	Each	<b>156878</b>
2.42.8	600mm dia	Each	<b>235090</b>
2.42.9	700mm dia	Each	<b>412470</b>
2.42.10	800 mm dia	Each	<b>597897</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.42.11	900mm dia	Each	<b>746182</b>
2.42.12	1000mm dia	Each	<b>972681</b>
2.42.13	1200mm dia	Each	<b>1610019</b>
2.43	For PN 16.0		
2.43.1	200mm dia	Each	<b>32679</b>
2.43.2	250mm dia	Each	<b>39933</b>
2.43.3	300mm dia	Each	<b>61059</b>
2.43.4	350mm dia	Each	<b>85709</b>
2.43.5	400mm dia	Each	<b>94244</b>
2.43.6	450mm dia	Each	<b>146135</b>
2.43.7	500mm dia	Each	<b>156878</b>
2.43.8	600mm dia	Each	<b>235090</b>
2.43.9	700mm dia	Each	<b>412470</b>
2.43.10	800 mm dia	Each	<b>597897</b>
2.43.11	900mm dia	Each	<b>746182</b>
2.43.12	1000mm dia	Each	<b>972681</b>
2.43.13	1200mm dia	Each	<b>1610091</b>
2.44	For PN 25.0		
2.44.1	400mm dia	Each	<b>298195</b>
2.44.2	500mm dia	Each	<b>505170</b>
2.44.3	600mm dia	Each	<b>586684</b>
2.44.4	700mm dia	Each	<b>1118781</b>
2.44.5	800 mm dia	Each	<b>1154574</b>
2.44.6	900mm dia	Each	<b>2024712</b>
2.44.7	1000mm dia	Each	<b>2365894</b>
2.44.8	1200mm dia	Each	<b>2980724</b>
2.45	Providing and fixing of Extension spindle rods,PN 10 /16 suitable for Gate valve of following dia for open and closing application, Extension Spindle lengths shall be available on required sizes as per site conditions, spindle shall be of fixed type, suitable size of MS Square bar epoxy coated, bottom adaptor & Spindle cap (epoxy coated /galvanised) ductile iron		

Sl. No.	Specification	Unit	Rate ₹
	grade of EN1563 EN-EJS-400-15 / IS1865 Spheroidal Graphite Iron Gr40. Protection tube of PVC, Top and Bottom cover / Bottom Connector shall be made by PVC, Bolt shall be made by Zinc coated steel 8.8 Split pin shall be made by Electro galvanized, this set up should help to have a buried application of Gate Valves etc. complete as per the directions of the Engineer-in-Charge.		
2.45.1	50 - 150mm dia	m	4762
2.45.2	200 - 450mm dia	m	6449
2.46	Providing and fixing surface box of required dia. and size with synthetic lid for valves or spindle rods. The surface box should be usable for 50 to 400mm dia. valves, PN 10 / 16 and will consist of lid, housing, locking clip, notched bolt, cross bar, washer and torque nut etc. complete	m	3403
2.47	Providing & fixing RCC Pre-cast Cover Slab of size 0.8 m x 0.8 m x 0.2m of M25-Design mix concrete with 12 mm steel @ 120 mm c/c both ways, over Gate valve extension spindle with central opening along with lid for smooth operation with appurtenances., complete with all lead and lifts etc. complete	Each	2890
2.48	Providing and fixing of ductile iron double flanged swing check valves with slanted seat or with lever weight with straight disc, with metallic corrosion proof and wear resistant seat faces with nickel overlay micro - finished/ Integral seat with body and disc in Ductile Iron in GGG 40/50 shaft of stainless steel and bearings of zinc free bronze and surface protection with epoxy liquid of GSK quality etc complete For PN 10.0		
2.48.1	50mm dia	Each	12100
2.48.2	80mm dia	Each	14942
2.48.3	100mm dia	Each	17111
2.48.4	150mm dia	Each	30578
2.48.5	200mm dia	Each	56091
2.48.6	250mm dia	Each	86905
2.48.7	300mm dia	Each	122336
2.48.8	350mm dia	Each	384812
2.48.9	400mm dia	Each	413736
2.48.10	450mm dia	Each	477747
2.48.11	500mm dia	Each	480517
2.48.12	600mm dia	Each	654162

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.48.13	700mm dia	Each	<b>1533891</b>
2.48.14	800mm dia	Each	<b>1798456</b>
2.48.15	900mm dia	Each	<b>2047938</b>
2.48.16	1000mm dia	Each	<b>2505259</b>
2.49	For PN 16.0		
2.49.1	50mm dia	Each	<b>12100</b>
2.49.2	80mm dia	Each	<b>14942</b>
2.49.3	100mm dia	Each	<b>17088</b>
2.49.4	150mm dia	Each	<b>30578</b>
2.49.5	200mm dia	Each	<b>56091</b>
2.49.6	250mm dia	Each	<b>86905</b>
2.49.7	300mm dia	Each	<b>122336</b>
2.49.8	350mm dia	Each	<b>384812</b>
2.49.9	400mm dia	Each	<b>413736</b>
2.49.10	450mm dia	Each	<b>611318</b>
2.49.11	500mm dia	Each	<b>530575</b>
2.49.12	600mm dia	Each	<b>665070</b>
2.49.13	700mm dia	Each	<b>1533912</b>
2.49.14	800mm dia	Each	<b>1866953</b>
2.49.15	900mm dia	Each	<b>2150202</b>
2.49.16	1000mm dia	Each	<b>2537027</b>
2.50	Providing and fixing of fixed height surface box H-4057 MD-KU with PP 40% GF Lid, Housing of PA+, Locking clip of PP with Notched bolt M 12 x 130 hexagon head A2-70 for service connection valves, design derived from DIN 4057, should be supplied with Support tile I (FSL, FSS, SI). Should be able to receive class AA traffic loads etc. complete	Each	<b>2750</b>
2.51	Providing & fixing RCC Pre-cast Cover Slab of size 0.8 m x 0.8 m x 0.15m of M25-Design mix concrete with 12 mm steel @ 120 mm c/c both ways, over Gate valve extension spindle with central opening along with lid for smooth operation with appurtenances., complete with all lead and lifts etc. complete	Each	<b>2386</b>

Sl. No.	Specification	Unit	Rate ₹
2.52	Providing and fixing Multijet class B inferential type, AMR compatible water meters with IP 68 protection totalizer conforming to IS 779 with its latest amendments of following size to service connections including conveying and fixing of necessary G.I. specials with appurtenances etc. complete, with all lead and lift.		
2.52.1	15mm dia	Each	1700
2.52.2	20mm dia	Each	2696
2.52.3	25mm dia	Each	5566
2.53	Conveying with all lead & lift and fixing C.I/D.I specials, bends, branches, tees, with appurtenances, all sizes and aligning.		
2.53.1	50 mm dia to 100 mm dia	Each	105
2.53.2	125 mm dia to 225 mm dia	Each	131
2.53.3	250 mm dia to 600 mm dia	Each	203
2.53.4	above 600 mm dia to 900mm dia	Each	848
2.54	Providing RCC vertical fountain slab with CC 1:1½ :3 with 20 mm and down size granite jelly with nominal reinforcements as per design plastered with C.M. 1:4, 20 mm thick, with all lead and lift including plank centering, form work, machine mixing, tamping, curing with appurtenances, Complete as per specifications including cost of steel etc.	Each	1780
2.55	Providing at site RCC curb slab with granite metal 20mm and down size with C.C. 1:1½:3 proportion including wooden planks form work, centering, curing, machine mixing, tamping and plastering with CM 1:4 proportion 20mm thick with all lead & lift as per specification including cost of reinforcement, size 1.22 m x 0.30 m x 0.05 m for square public fountains (One set of 4 Each). etc. complete	Each	2417
2.57	Providing at site RCC curb slab with granite metal 20mm and down size with C.C. 1:1½:3 proportion including wooden planks form work, centering, curing, machine mixing, tamping and plastering with CM 1:4 proportion 20mm thick with all lead & lift as per specification including cost of reinforcement, size 1.22 m x 0.30 m x 0.05 m for circular public fountains (One set of 4 Each) etc. complete	Each	1947
2.58	Providing pot rest slab of 0.45mx0.30mx0.20m in CC. 1:2:4 proportion with granite metal 20 mm and down size including plank centering and form work, machine mixing, tamping including plastering 20 mm thick in C.M. 1:4 proportion with all lead as per specification with appurtenances, etc. complete	Each	444
2.59	Labour charges for fixing a set of precast RCC Public fountain slab viz, (1) Vertical slab, (2) Pot rest slab, (3) Curb slab or Curbing including necessary earthwork and fixing them in proper position with necessary cement mortar curing for 10 days wherever required	Each	439

Sl. No.	Specification	Unit	Rate ₹
2.60	Providing of Gunmetal Ball Valve of Non rising stem, screwed in bonnet, inside screw, integral seats, screwed female ends to IS:554/ BS 21/ ISO 7, Unbreakable sheet metal Handwheel, conforming to IS:778 Class-1 including provision of re-packing under pressure with appurtenances, complete : 150 mm nominal bore etc. complete	Each	211
2.61	Providing and constructing stand post 1.22m x 1.22m size for public fountain with R.C.C. post of size 1.22m x 0.38m x 0.10m with top rounded and R.C.C. curb slab of size 1.22m x 0.30m x 0.05m in CC 1:2:4 proportion with 20 mm and down size granite jelly with nominal reinforcement as per design, plastered with CM. 1:4, 20 mm thick to the exposed faces with pot rest slab of size 0.45m x 0.30m x 0.20m in CC 1:2:4 proportion 10 cms thick and smooth finishing with CM 1:4 to the exposed faces with necessary form work centering, machine mixing, tamping, curing as per specifications including cost of steel and necessary earth work excavation and disposing off the excavated earth as directed with all lead and lift with appurtenances., etc. complete.	Each	5229
2.62	Providing and fixing 3 layer PP-R (Poly Propylene Random Copolymer) pipes conforming to IS.15801: 2008 OR WRAS, NSF certificates which is UV stabilized and anti-microbial fusion welded, having thermal stability for hot and cold water supply, including all PP-R plain and brass threaded polypropylene random fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes Lot wise test report as per the relevant IS/ ISO/DIN/BIS codes and also testing of joints complete as per direction of Engineer-In- Charge.etc. complete		
2.62.1	PN - 16 Pipe, SDR 7.4 -16 mm OD	m	190
2.62.2	PN - 16 Pipe, SDR 7.4 -20 mm OD	m	205
2.62.3	PN - 16 Pipe, SDR 7.4-25 mm OD	m	254
2.62.4	PN - 16 Pipe,SDR 7.4- 32 mm OD	m	345
2.62.5	PN - 16 Pipe,SDR 7.4-40 mm OD	m	502
2.62.6	PN - 16 Pipe,SDR 7.4-50 mm OD	m	666
2.62.7	PN - 16 Pipe,SDR 7.4-63 mm OD	m	944
2.62.8	PN - 16 Pipe,SDR 7.4-75 mm OD	m	1223
2.62.9	PN - 16 Pipe,SDR 7.4-90 mm OD	m	1740
2.62.10	PN - 16 Pipe,SDR 7.4-110 mm OD	m	2368
2.62.11	PN - 16 Pipe,SDR 7.4-160 mm OD	m	4844
2.63	Supply of PPR Reducing TEE confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.63.1	Reducing TEE 20mmx16mmx20mm	Each	21

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.63.2	Reducing TEE 25mmx16mmx25mm	Each	<b>23</b>
2.63.3	Reducing TEE 25mmx20mmx25mm	Each	<b>28</b>
2.63.4	Reducing TEE 32mmx20mmx32mm	Each	<b>50</b>
2.63.5	Reducing TEE 32mmx25mmx32mm	Each	<b>51</b>
2.63.6	Reducing TEE 40mmx20mmx40mm	Each	<b>73</b>
2.63.7	Reducing TEE 40mmx25mmx40mm	Each	<b>77</b>
2.63.8	Reducing TEE 40mmx32mmx40mm	Each	<b>79</b>
2.63.9	Reducing TEE 50mmx20mmx50mm	Each	<b>132</b>
2.63.10	Reducing TEE 50mmx25mmx50mm	Each	<b>138</b>
2.63.11	Reducing TEE 50mmx32mmx50mm	Each	<b>141</b>
2.63.12	Reducing TEE 50mmx40mmx50mm	Each	<b>143</b>
2.63.13	Reducing TEE 63mmx20mmx63mm	Each	<b>245</b>
2.63.14	Reducing TEE 63mmx25mmx63mm	Each	<b>248</b>
2.63.15	Reducing TEE 63mmx32mmx63mm	Each	<b>249</b>
2.63.16	Reducing TEE 63mmx40mmx63mm	Each	<b>254</b>
2.63.17	Reducing TEE 63mmx50mmx63mm	Each	<b>258</b>
2.64	Supply of PPR End Cap confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.64.1	PPR End Cap 16mm	Each	<b>9</b>
2.64.2	PPR End Cap 20mm	Each	<b>11</b>
2.64.3	PPR End Cap 25mm	Each	<b>13</b>
2.64.4	PPR End Cap 32mm	Each	<b>21</b>
2.64.5	PPR End Cap 40mm	Each	<b>29</b>
2.64.6	PPR End Cap 50mm	Each	<b>49</b>
2.64.7	PPR End Cap 63mm	Each	<b>85</b>
2.65	Supply of PPR Flange core (stub end) confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.65.1	PPR Flange core (stub end) 20mm	Each	<b>89</b>
2.65.2	PPR Flange core (stub end) 25mm	Each	<b>100</b>
2.65.3	PPR Flange core (stub end) 32mm	Each	<b>111</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.65.4	PPR Flange core (stub end) 40mm	Each	<b>117</b>
2.65.5	PPR Flange core (stub end) 50mm	Each	<b>131</b>
2.65.6	PPR Flange core (stub end) 63mm	Each	<b>135</b>
2.66	Supply of PPR Slip-on flange confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.66.1	PPR Slip-on flange 20mm	Each	<b>230</b>
2.66.2	PPR Slip-on flange 25mm	Each	<b>241</b>
2.66.3	PPR Slip-on flange 32mm	Each	<b>253</b>
2.66.4	PPR Slip-on flange 40mm	Each	<b>284</b>
2.66.5	PPR Slip-on flange 50mm	Each	<b>306</b>
2.66.6	PPR Slip-on flange 63mm	Each	<b>361</b>
2.67	Supply of PPR Plain Union confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.67.1	PPR Plain Union 20mm	Each	<b>58</b>
2.67.2	PPR Plain Union 25mm	Each	<b>95</b>
2.67.3	PPR Plain Union 32mm	Each	<b>180</b>
2.67.4	PPR Plain Union 40mm	Each	<b>227</b>
2.67.5	PPR Plain Union 50mm	Each	<b>449</b>
2.67.6	PPR Plain Union 63mm	Each	<b>774</b>
2.68	Supply of PPR 4way/cross TEE confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.68.1	PPR 4way/cross TEE 16mm	Each	<b>27</b>
2.68.2	PPR 4way/cross TEE 20mm	Each	<b>29</b>
2.68.3	PPR 4way/cross TEE 25mm	Each	<b>45</b>
2.68.4	PPR 4way/cross TEE 32mm	Each	<b>60</b>
2.68.5	PPR 4way/cross TEE 40mm	Each	<b>100</b>
2.68.6	PPR 4way/cross TEE 50mm	Each	<b>158</b>
2.68.7	PPR 4way/cross TEE 63mm	Each	<b>221</b>
2.69	Supply of PPR Pipe Clamp confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.69.1	PPR Pipe Clamp 16mm	Each	<b>8</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.69.2	PPR Pipe Clamp 20mm	Each	<b>9</b>
2.69.3	PPR Pipe Clamp 25mm	Each	<b>10</b>
2.69.4	PPR Pipe Clamp 32mm	Each	<b>12</b>
2.69.5	PPR Pipe Clamp 40mm	Each	<b>21</b>
2.69.6	PPR Pipe Clamp 50mm	Each	<b>27</b>
2.69.7	PPR Pipe Clamp 63mm	Each	<b>42</b>
2.70	Supply of PPR Long Plug confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.70.1	PPR Long Plug 1/2"	Each	<b>9</b>
2.70.2	PPR Long Plug 3/4"	Each	<b>12</b>
2.70.3	PPR Long Plug 1"	Each	<b>13</b>
2.71	Supply of PPR Tank Connector confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.71.1	PPR Tank Connector 20mm	Each	<b>73</b>
2.71.2	PPR Tank Connector 25mm	Each	<b>128</b>
2.71.3	PPR Tank Connector 32mm	Each	<b>148</b>
2.71.4	PPR Tank Connector 40mm	Each	<b>151</b>
2.71.5	PPR Tank Connector 50mm	Each	<b>262</b>
2.71.6	PPR Tank Connector 63mm	Each	<b>318</b>
2.72	Supply of PPR Ball Valve Plastic (Heavy Body) confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.72.1	PPR Ball Valve Plastic (Heavy Body) 20mm	Each	<b>146</b>
2.72.2	PPR Ball Valve Plastic (Heavy Body) 25mm	Each	<b>206</b>
2.72.3	PPR Ball Valve Plastic (Heavy Body) 32mm	Each	<b>343</b>
2.72.4	PPR Ball Valve Plastic (Heavy Body) 40mm	Each	<b>469</b>
2.72.5	PPR Ball Valve Plastic (Heavy Body) 50mm	Each	<b>637</b>
2.72.6	PPR Ball Valve Plastic (Heavy Body) 63mm	Each	<b>900</b>
2.73	Supply of PPR Male Threaded Coupling confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.73.1	PPR Male Threaded Coupling 16X1/2mm	Each	<b>81</b>
2.73.2	PPR Male Threaded Coupling 20X1/2mm	Each	<b>82</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.73.3	PPR Male Threaded Coupling 25X1/2mm	Each	<b>94</b>
2.73.4	PPR Male Threaded Coupling 25X3/4mm	Each	<b>137</b>
2.73.5	PPR Male Threaded Coupling 32X1/2mm	Each	<b>123</b>
2.73.6	PPR Male Threaded Coupling 32X3/4mm	Each	<b>160</b>
2.73.7	PPR Male Threaded Coupling 32X1mm	Each	<b>203</b>
2.73.8	PPR Male Threaded Coupling 40X1-1/4mm	Each	<b>381</b>
2.73.9	PPR Male Threaded Coupling 50X1-1/2mm	Each	<b>682</b>
2.73.10	PPR Male Threaded Coupling 63X2mm	Each	<b>1090</b>
2.74	Supply of PPR Female Threaded Coupling confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.74.1	PPR Female Threaded Coupling 16X1/2mm	Each	<b>53</b>
2.74.2	PPR Female Threaded Coupling 20X1/2mm	Each	<b>59</b>
2.74.3	PPR Female Threaded Coupling 25X1/2mm	Each	<b>66</b>
2.74.4	PPR Female Threaded Coupling 25X3/4mm	Each	<b>116</b>
2.74.5	PPR Female Threaded Coupling 32X1/2mm	Each	<b>98</b>
2.74.6	PPR Female Threaded Coupling 32X3/4mm	Each	<b>136</b>
2.74.7	PPR Female Threaded Coupling 32X1mm	Each	<b>172</b>
2.74.8	PPR Female Threaded Coupling 40X1-1/4mm	Each	<b>293</b>
2.74.9	PPR Female Threaded Coupling 50X1-1/2mm	Each	<b>486</b>
2.74.10	PPR Female Threaded Coupling 63X2mm	Each	<b>823</b>
2.75	Supply of PPR Female Threaded TEE confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.75.1	PPR Female Threaded TEE 16X1/2mm	Each	<b>56</b>
2.75.2	PPR Female Threaded TEE 20X1/2mm	Each	<b>60</b>
2.75.3	PPR Female Threaded TEE 25X1/2mm	Each	<b>74</b>
2.75.4	PPR Female Threaded TEE 25X3/4mm	Each	<b>133</b>
2.75.5	PPR Female Threaded TEE 32X1/2mm	Each	<b>119</b>
2.75.6	PPR Female Threaded TEE 32X3/4mm	Each	<b>167</b>
2.75.7	PPR Female Threaded TEE 32X1mm	Each	<b>207</b>
2.75.8	PPR Female Threaded TEE 40X1-1/4mm	Each	<b>311</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.76	Supply of PPR Male Threaded TEE confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.76.1	PPR Male Threaded TEE 16X1/2mm	Each	<b>91</b>
2.76.2	PPR Male Threaded TEE 20X1/2mm	Each	<b>92</b>
2.76.3	PPR Male Threaded TEE 25X1/2mm	Each	<b>102</b>
2.76.4	PPR Male Threaded TEE 25X3/4mm	Each	<b>156</b>
2.76.5	PPR Male Threaded TEE 32X1/2mm	Each	<b>149</b>
2.76.6	PPR Male Threaded TEE 32X3/4mm	Each	<b>193</b>
2.76.7	PPR Male Threaded TEE 32X1mm	Each	<b>223</b>
2.76.8	PPR Male Threaded TEE 40X1-1/4mm	Each	<b>404</b>
2.77	Supply of PPR Female Threaded Elbow confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.77.1	PPR Female Threaded Elbow 16X1/2mm	Each	<b>53</b>
2.77.2	PPR Female Threaded Elbow 20X1/2mm	Each	<b>56</b>
2.77.3	PPR Female Threaded Elbow 25X1/2mm	Each	<b>70</b>
2.77.4	PPR Female Threaded Elbow 25X3/4mm	Each	<b>115</b>
2.77.5	PPR Female Threaded Elbow 32X1/2mm	Each	<b>112</b>
2.77.6	PPR Female Threaded Elbow 32X3/4mm	Each	<b>169</b>
2.77.7	PPR Female Threaded Elbow 32X1mm	Each	<b>210</b>
2.77.8	PPR Female Threaded Elbow 40X1-1/4mm	Each	<b>307</b>
2.78	Supply of PPR Male Threaded Elbow confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.78.1	PPR Male Threaded Elbow 16X1/2mm	Each	<b>81</b>
2.78.2	PPR Male Threaded Elbow 20X1/2mm	Each	<b>82</b>
2.78.3	PPR Male Threaded Elbow 25X1/2mm	Each	<b>98</b>
2.78.4	PPR Male Threaded Elbow 25X3/4mm	Each	<b>148</b>
2.78.5	PPR Male Threaded Elbow 32X1/2mm	Each	<b>130</b>
2.78.6	PPR Male Threaded Elbow 32X3/4mm	Each	<b>166</b>
2.78.7	PPR Male Threaded Elbow 32X1mm	Each	<b>206</b>
2.78.8	PPR Male Threaded Elbow 40X1-1/4mm	Each	<b>410</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
2.79	Supply of PPR Gate valve confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.79.1	PPR Gate valve 20mm	Each	<b>378</b>
2.79.2	PPR Gate valve 25mm	Each	<b>415</b>
2.79.3	PPR Gate valve 32mm	Each	<b>585</b>
2.79.4	PPR Gate valve 40mm	Each	<b>880</b>
2.79.5	PPR Gate valve 50mm	Each	<b>1083</b>
2.79.6	PPR Gate valve 63mm	Each	<b>1466</b>
2.80	Supply of PPR Male Threaded Union confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.80.1	PPR Male Threaded Union 20X1/2mm	Each	<b>275</b>
2.80.2	PPR Male Threaded Union 25X3/4mm	Each	<b>326</b>
2.80.3	PPR Male Threaded Union 30X1mm	Each	<b>503</b>
2.80.4	PPR Male Threaded Union 40X1-1/4mm	Each	<b>786</b>
2.80.5	PPR Male Threaded Union 50X1-1/2mm	Each	<b>1467</b>
2.80.6	PPR Male Threaded Union 63X2mm	Each	<b>2347</b>
2.81	Supply of PPR Female Thraeded Union confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.81.1	PPR Female Thraeded Union 20X1/2mm	Each	<b>226</b>
2.81.2	PPR Female Thraeded Union 25X3/4mm	Each	<b>315</b>
2.81.3	PPR Female Thraeded Union 32X1mm	Each	<b>463</b>
2.81.4	PPR Female Thraeded Union 40X1-1/4mm	Each	<b>749</b>
2.81.5	PPR Female Thraeded Union 50X1-1/2mm	Each	<b>1257</b>
2.81.6	PPR Female Thraeded Union 60X2mm	Each	<b>2156</b>
2.82	Supply of PPR Double Union Ball Valveconfirming to IS 15801-2008 and DIN Standards 8077/8092		
2.82.1	PPR Double Union Ball Valve 20mm	Each	<b>789</b>
2.82.2	PPR Double Union Ball Valve 25mm	Each	<b>1076</b>
2.82.3	PPR Double Union Ball Valve 32mm	Each	<b>1784</b>
2.82.4	PPR Double Union Ball Valve 40mm	Each	<b>3670</b>
2.82.5	PPR Double Union Ball Valve 50mm	Each	<b>5505</b>

Sl. No.	Specification	Unit	Rate ₹
2.82.6	PPR Double Union Ball Valve 63mm	Each	7859
2.83	Supply of PPR By Pass Bend confirming to IS 15801-2008 and DIN Standards 8077/8092		
2.83.1	PPR By Pass Bend 20mm	Each	73
2.83.2	PPR By Pass Bend 25mm	Each	78
2.83.3	PPR By Pass Bend 32mm	Each	179
2.83.4	PPR By Pass Bend 40mm	Each	303
2.84	Flow control Valve 5LPM/10LPM/15LPM : Providing, & fixing Flow control valve using food grade materials SS 316 ball /1/2" [15mm] including cost of all materials, labour charges, HOM and testing complete as per of following specification.		
2.84.1	flow control valve	Each	255

**Note:** Bolt, Nuts and Rubber Insertions Required to Fix Valves

Sl No.	Valves Nominal dia (mm)	Dia & length of bolts (mm)	No of bolts (each)	Weight of bolts (kg)
1	50	16x50	8	2
2	80	16x50	8	2
3	100	16x75	16	4
4	150	16x75	16	4
5	200	20x90	16	6
6	250	20x90	24	8
7	300	20x100	24	9
8	400	24x100	32	20
9	450	24x100	40	25
10	600	27x150	40	38
11	700	27x150	48	46
12	800	27x150	52	56
13	900	27x150	56	64

Sl. No.	Specification	Unit	Rate ₹
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**STANDARD FLANGE DRILLING OF FLANGED PIPES AND FITTINGS**  
All dimension in millimetres

A- No of HOLES  
EQUALLY SPACED

HOLES DRILLED OFF-CENTRES  
UNLESS OTHERWISE SPECIFIED

Nominal Diameter (DN)	D	C	Holes		Diameter of Bolts'
			Number A	Diameter d	
(1)	(2)	(3)	(4)	(5)	(6)
80	200	160	4	19	16
100	220	180	8	19	16
125	250	210	8	19	16
150	285	240	8	23	20
200	340	295	8	23	20
250	395	350	12	23	20
300	445	400	12	23	20
350	505	460	16	23	20
400	565	515	16	28	24
450	615	565	20	28	24
500	670	620	20	28	24
600	780	725	20	31	27
700	895	840	24	31	27
750	960	900	24	31	27
800	1015	950	24	34	30
900	1115	1050	28	34	30
1000	1230	1160	28	37	33
1050	1258	1194	28	37	33
1100	1340	1270	32	37	33
1200	1455	1380	32	40	36
1500	1800	1710	40	43	39



**Chapter - 3**  
**ATTENDING LEAKS ON**  
**WATER SUPPLY LINES**





Sl. No.	Specification	Unit	Rate ₹
<b>3 ATTENDING LEAKS ON WATER SUPPLY LINES</b>			
3.1	Providing & fixing CI/DI pipes socket leak repair MJ clamps for attending to leak joints in socket / spigot joints of CI / DI pipes with necessary earth work excavation including using of pneumatic breakers and JCB excavator wherever required and providing DI MJ leak repair clamp, including cost of all materials required for jointing comprising of DI MJ clamps and its accessories such as rubber gaskets made of SBR / EPDM on the socket face, making the socket / spigot joint water tight at the operating pressure, backfilling with available earth and consolidation and bailing out water wherever necessary etc. complete and In all types of road surfaces like Concrete, Asphalt roads etc, for:		
3.1.1	CI / DI pipes of 100mm dia.	Each	<b>2357</b>
3.1.2	CI / DI pipes of 150mm dia.	Each	<b>3563</b>
3.1.3	CI / DI pipes of 200mm dia.	Each	<b>4032</b>
3.1.4	CI / DI pipes of 250mm dia.	Each	<b>5255</b>
3.1.5	CI / DI pipes of 300mm dia.	Each	<b>6426</b>
3.1.6	CI / DI pipes of 400mm dia.	Each	<b>9059</b>
3.1.7	CI / DI pipes of 450mm dia.	Each	<b>11257</b>
3.2	Attending to leaking socket / spigots joints in CI / DI pipes in all types of road surfaces including concrete and asphalt roads, with necessary earth work excavation including using of pneumatic breakers and JCB excavator wherever required for jointing DI MJ clamp and its accessories such as rubber gaskets made of SBR / EPDM on the socket face, making the socket / spigot joint water tight at the operating pressure, backfilling with available earth and consolidation and bailing out water wherever necessary etc.complete.		
3.2.1	For CI / DI pipes of 100mm dia.	Each	<b>722</b>
3.2.2	For CI / DI pipes of 150mm dia.	Each	<b>814</b>
3.2.3	For CI / DI pipes of 200mm dia.	Each	<b>820</b>
3.2.4	For CI / DI pipes of 250mm dia.	Each	<b>954</b>
3.2.5	For CI / DI pipes of 300mm dia.	Each	<b>1254</b>
3.2.6	For CI / DI pipes of 400mm dia.	Each	<b>1289</b>
3.2.7	For CI / DI pipes of 450mm dia.	Each	<b>1406</b>

Sl. No.	Specification	Unit	Rate ₹
3.3	Cutting Asphalt /Concrete road surface using machine cutter for leakage pit with earth work excavation in all classifications of soil including all lead and lifts bailing out water with pumps including barricading, danger lighting etc., as per requirement and disposing of the excavated stuff as directed. After attending the leak, refilling the trench for 30 cm depth quarry dust above and around pipelines and balance with available earth in layers not exceeding 20 cms in depth, compacting Each deposited layer by ramming including watering and consolidation by mechanical means approved by Engineer Incharge. (Work to be carried out as per leak repair manual and the rate includes hire charges of dewatering Pump, tractor, Jeep with all kinds of Labour in a Complete manner).	m <sup>3</sup>	1157
3.4	Road Reinstatement of Asphalt /Concrete roads after leak attending with earth work excavation of compacted soil depositing on bank with all lead and lifts including danger lighting and barricading. Providing, laying, spreading and compacting graded stones aggregate as per wet mix macadam specifications. Applying tack coat on granular base such as WBM and WMM surface hot bitumen primer at 4 kg per 10 sqm, heating bitumen in layer to be laid with boiler fitted with spray set of 300 mm thickness. Above laid with bituminous concrete or M20 concrete premixed with bituminous binder at 5.4 to 5.6% of mix and filler, to achieve the desired compaction to give minimum of 45mm thickness compacted. The work shall be carried as per leak repair manual and includes all kinds of materials disposing off the excess excavated Earth with all lead and lifts by vehicle including loading, unloading, labour, HOM of machinery etc. in a complete manner.	m <sup>2</sup>	1690

**Chapter - 4**  
**DUCTILE IRON (DI) PIPES**



Sl. No.	Specification	Unit	Rate ₹
<b>4 DUCTILE IRON (DI) PIPES</b>			
4.1	Providing and laying Ductile Iron pipes of class conforming to IS 8329:2000 with latest amendments, conveying to work site, rolling and lowering into trenches, laying true to line, level and perfect linking at joints, testing and commissioning, including loading and unloading at both destinations, cutting of pipes wherever necessary, jointing with DI specials (excluding cost of specials) and rubber gaskets, cleaning the socket and spigot end with soap solution, applying soft soap to the socket and spigot ends before insertion of rubber gaskets, jacking and fixing in perfect conditions etc. The cost to include soap solution, soft soap, waste etc. and giving necessary hydraulic test to the required pressure as per ISS with all lead and lifts and cost of all jointing materials. (The contractor will make his own arrangements for water for testing. Earth work excavation in trenches to be measured and paid for seperately) Note: In sewerage projects for internal cement mortal lining ( CML ) of DI pipes, if High Alumina Cement ( HAC ) as recommended in Annexure B clause 16.3 of IS8329:2000 is considered in place of Slag or Sulphate Resistance Cement ( SRC ), the cost of pipes may be increased by 5-6% from the prices listed. For DI K7 pipes:		
4.1.1	100mm dia pipe	m	<b>1460</b>
4.1.2	150mm dia pipe	m	<b>2016</b>
4.1.3	200mm dia pipe	m	<b>2576</b>
4.1.4	250mm dia pipe	m	<b>3140</b>
4.1.5	300mm dia pipe	m	<b>3968</b>
4.1.6	350mm dia pipe	m	<b>4999</b>
4.1.7	400mm dia pipe	m	<b>5976</b>
4.1.8	450mm dia pipe	m	<b>7098</b>
4.1.9	500mm dia pipe	m	<b>8038</b>
4.1.10	600mm dia pipe	m	<b>10489</b>
4.1.11	700mm dia pipe	m	<b>14534</b>
4.1.12	750mm dia pipe	m	<b>16675</b>
4.1.13	800mm dia pipe	m	<b>18670</b>
4.1.14	900mm dia pipe	m	<b>23067</b>
4.1.15	1000mm dia pipe	m	<b>27702</b>
4.1.16	1100mm dia pipe	m	<b>31030</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
4.1.17	1200mm dia pipe	m	34997
4.2	For DI K9 Pipes:		
4.2.1	100mm dia pipe	m	1671
4.2.2	150mm dia pipe .	m	2371
4.2.3	200mm dia pipe	m	3145
4.2.4	250mm dia pipe	m	3795
4.2.5	300mm dia pipe	m	4787
4.2.6	350mm dia pipe	m	6003
4.2.7	400mm dia pipe	m	7178
4.2.8	450mm dia pipe	m	8589
4.2.9	500mm dia pipe	m	9784
4.2.10	600mm dia pipe	m	12924
4.2.11	700mm dia pipe	m	16742
4.2.12	750mm dia pipe	m	18759
4.2.13	800mm dia pipe	m	20534
4.2.14	900mm dia pipe	m	25327
4.2.15	1000mm dia pipe	m	30390
4.2.16	1100mm dia pipe	m	39721
4.2.17	1200mm dia pipe	m	41496
4.3	Providing & fixing Mechanical joints to cast iron pipes or Ductile iron pipes including cost of rubber gaskets and testing of joints. mechanical joints items will be supplied by the department. (contractor will make his own arrangements for procuring water for testing) for etc. complete		
4.3.1	100mm dia pipes.	Joint	270
4.3.2	150mm dia pipes.	Joint	353
4.3.3	200mm dia pipes.	Joint	604
4.3.4	250mm dia pipes.	Joint	1778
4.3.5	300mm dia pipes.	Joint	1991
4.3.6	350mm dia pipes.	Joint	2152
4.3.7	400mm dia pipes.	Joint	2424

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
4.3.8	450mm dia pipes.	Joint	<b>2627</b>
4.3.9	500mm dia pipes.	Joint	<b>2793</b>
4.3.10	600mm dia pipes.	Joint	<b>3011</b>
4.3.11	700mm dia pipes.	Joint	<b>3388</b>
4.3.12	800mm dia pipes.	Joint	<b>3752</b>
4.3.13	900mm dia pipes.	Joint	<b>4175</b>
4.3.14	1000mm dia pipes.	Joint	<b>4430</b>
4.3.15	1100mm dia pipes.	Joint	<b>4643</b>
4.3.16	1200mm dia pipes.	Joint	<b>5332</b>
4.4	Labour charges for laying & jointing of DI pipes of all classes rolling and lowering into trenches, laying true to line, level and perfect linking at joints and commissioning, including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of DI pipes and specials (excluding cost of pipes, rubber gasket and specials) with rubber gaskets including cleaning the sockets and spigot ends with soap solutions and applying soft soap to the spigot and socket end before insertion of rubber gaskets, jointing and fixing in perfect conditions including the cost of soap solution, soft soap, waste etc. and giving necessary hydraulic test to the required pressure as per ISS etc. with all leads and lifts (Earth work excavation in trenches, conveying of materials from stores to be measured and paid for separately) (Contractor will make his own arrangements for procuring water for testing) etc. complete for:		
4.4.1	100mm dia pipe	m	<b>72</b>
4.4.2	150mm dia pipe	m	<b>103</b>
4.4.3	200mm dia pipe	m	<b>150</b>
4.4.4	250mm dia pipe	m	<b>261</b>
4.4.5	300mm dia pipe	m	<b>311</b>
4.4.6	350mm dia pipe	m	<b>339</b>
4.4.7	400mm dia pipe	m	<b>378</b>
4.4.8	450mm dia pipe	m	<b>425</b>
4.4.9	500mm dia pipe	m	<b>437</b>
4.4.10	600mm dia pipe	m	<b>536</b>
4.4.11	700mm dia pipe	m	<b>651</b>
4.4.12	800mm dia pipe	m	<b>777</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
4.4.13	900mm dia pipe	m	<b>876</b>
4.4.14	1000mm dia pipe	m	<b>1024</b>
4.4.15	1100mm dia pipe	m	<b>1135</b>
4.4.16	1200mm dia.	m	<b>1385</b>
4.5	Labour charges for making flanged joints including cost of jointing materials comprising of rubber insertion, galvanised bolts and nuts including giving hydraulic test to the required pressure as per ISS with all lead & lift (contractor will make his own arrangement for procuring water for testing) etc. complete		
4.5.1	Pipes and specials of dia 50mm.	Each	<b>113</b>
4.5.2	Pipes and specials of dia 80mm.	Each	<b>124</b>
4.5.3	Pipes and specials of dia 100mm.	Each	<b>208</b>
4.5.4	Pipes and specials of dia 150mm.	Each	<b>310</b>
4.5.5	Pipes and specials of dia 200mm.	Each	<b>334</b>
4.5.6	Pipes and specials of dia 250mm.	Each	<b>498</b>
4.5.7	Pipes and specials of dia 300mm.	Each	<b>520</b>
4.5.8	Pipes and specials of dia 350mm.	Each	<b>707</b>
4.5.9	Pipes and specials of dia 400mm.	Each	<b>1033</b>
4.5.10	Pipes and specials of dia 450mm.	Each	<b>1292</b>
4.5.11	Pipes and specials of dia 500mm.	Each	<b>1361</b>
4.5.12	Pipes and specials of dia 600mm.	Each	<b>1792</b>
4.5.13	Pipes and specials of dia 700mm.	Each	<b>2123</b>
4.5.14	Pipes and specials of dia 800mm.	Each	<b>2156</b>
4.5.15	Pipes and specials of dia 900mm	Each	<b>2511</b>
4.5.16	Pipes and specials of dia 1000mm	Each	<b>2548</b>
4.5.17	Pipes and specials of dia 1100mm	Each	<b>2763</b>
4.5.18	Pipes and specials- pipe dia 1200mm.	Each	<b>2961</b>
4.6	Providing RUBBER JOINTING for CI / DI pipes with rubber gaskets including cleaning the socket and spigot ends with soap solution and applying soft soap to the spigot and socket ends before insertion of rubber gaskets, jacking and fixing in perfect conditions including cost of soap solution, soft soap, waste etc with all lead and lift including cost of jointing materials etc.complete for:		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
4.6.1	100mm	Each	<b>90</b>
4.6.2	150mm	Each	<b>123</b>
4.6.3	200mm	Each	<b>132</b>
4.6.4	250mm	Each	<b>165</b>
4.6.5	300mm	Each	<b>193</b>
4.6.6	350mm	Each	<b>220</b>
4.6.7	400mm	Each	<b>248</b>
4.6.8	450mm	Each	<b>272</b>
4.6.9	500mm	Each	<b>299</b>
4.6.10	600mm	Each	<b>331</b>
4.6.11	700mm	Each	<b>185</b>
4.6.12	750mm	Each	<b>436</b>
4.6.13	900mm	Each	<b>498</b>
4.6.14	1000mm	Each	<b>549</b>
4.6.15	1100mm	Each	<b>624</b>
4.6.16	1200mm	Each	<b>675</b>
4.7	Providing and fixing of DI specials with ISI mark conforming to IS 9523 / 2000 suitable for jointing 100 mm to 600 mm dia DI pipes coated with rust prevention coatings as below: NOTE: A) External coating: a) Metallic zinc with finishing layer of bituminous as per Annexure "A" of IS:9523/2000 b) Zinc rich paint with finishing layer of bituminous as per Annexure "A" of IS:9523 / 2000 c) Bituminous paint as per Annexure "C" of IS:9523 / 2000 B) Internal Lining: a) Portland Cement (with or without additives) mortar as per Annexure - "B" of IS:9523/2000 b) Cement Mortar with coat coat as per Annexure "B" of IS:9523 / 2000 c) Bituminous paint as per Annexure "C" of IS:9523 / 2000 etc. complete	Kg	<b>188</b>
4.8	Providing and laying of Double Chambered Restrained Joint DI K9 Pipes ( to be used to for minimum required length as per design along with Double Chambered Restrained DI fittings to avoid concrete thrust block at bends) conforming to IS 5382-1985 with latest amendments, conveying to work site, rolling and lowering into trenches, laying true to line, level and perfect linking at joints, testing and commissioning, including loading and unloading at both destinations, cutting of pipes wherever necessary, jointing with DI specials (excluding cost of specials) and rubber gaskets, cleaning the socket and spigot end with soap solution, applying soft soap to the socket and spigot ends before insertion of rubber gaskets, jacking and fixing in perfect conditions etc. The cost to		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
	include soap solution, soft soap, waste etc. and giving necessary hydraulic test to the required pressure as per ISS with all lead and lifts and cost of all jointing materials. (The contractor will make his own arrangements for water for testing. Earth work excavation in trenches to be measured and paid for seperately) etc. complete		
4.8.1	100mm dia	m	<b>1972</b>
4.8.2	150mm dia	m	<b>2720</b>
4.8.3	200mm dia	m	<b>3401</b>
4.8.4	250mm dia	m	<b>4565</b>
4.8.5	300mm dia	m	<b>5788</b>
4.8.6	350mm dia	m	<b>7091</b>
4.8.7	400mm dia	m	<b>8669</b>
4.8.8	450mm dia	m	<b>10336</b>
4.8.9	500mm dia	m	<b>12089</b>
4.8.10	600mm dia	m	<b>15852</b>
4.8.11	700mm dia	m	<b>18532</b>
4.8.12	750mm dia	m	<b>20598</b>
4.8.13	800mm dia	m	<b>22760</b>
4.8.14	900mm dia	m	<b>27742</b>
4.8.15	1000mm dia	m	<b>33514</b>
4.8.16	1100mm dia	m	<b>38883</b>
4.8.17	1200mm dia	m	<b>45041</b>

**Chapter - 5**  
**MILD STEEL (MS) PIPES AND SPECIALS**



Sl. No.	Specification	Unit	Rate ₹
<b>5 MILD STEEL (MS) PIPES AND SPECIALS</b>			
5.1	<p>Manufacturing, providing, trasporting, rolling, lowering, laying, jointing and commissioning of ERW (Electric Resistance Welded)/SAW (Submerged Arc Welded) MS pipes of Outer dia (Fe-410 grade) conforming to IS 3589-2001 with latest amendments, including perfect linking and welding of joints to correct position, cost of the pipes, conveyance, lead, lift charges, cost of all labour and giving satisfactory hydraulic test as per IS 3589-2001 with latest amendments for test pressure and working pressure both at factory and site etc. complete as per detailed specifications inside with CM 1:1.5 lining of minimum 10mm thick for pipes upto 610mm OD and with minimum 12mm thick beyond 610mm OD and out side with minimum 25mm thick coating in CM 1:3 over 50 x 50mm weld mesh of 13 gauge, including loading and unloading of pipes for the following diameters and specified thickness of plate as noted below, including bailing out of water wherever necessary. (Contractor will make his own arrangements for procuring water for testing). For MS Pipes of 219mm dia</p> <p><b>Note:</b> a) No Negative tolerance in respect of thickness is permissible. b) Basic Cost of MS Plate is considered as Rs.71,700/- per MT c) The pipe costs are FOR destination anywhere in Karnataka.</p>		
5.1.1	Pipe of 219mm dia -4.8mm thick	m	3635
5.1.2	Pipe of 219mm dia 5.4mm thick	m	3927
5.1.3	Pipe of 219mm dia 5.6mm thick	m	4036
5.1.4	Pipe of 219mm dia 6.0mm thick	m	4235
5.1.5	Pipe of 219mm dia 6.4mm thick	m	4433
5.1.6	Pipe of 219mm dia 7.0mm thick	m	4730
5.1.7	Pipe of 219mm dia 7.9mm thick	m	5170
5.1.8	Pipe of 219mm dia 8.2mm thick	m	5316
5.1.9	Pipe of 219mm dia 8.7mm thick	m	5560
5.1.10	Pipe of 219mm dia 9.5mm thick	m	5945
5.2	For MS pipe of 273.1mm dia		
5.2.1	Pipe of 273.1mm dia -4.8mm thick	m	4520
5.2.2	Pipe of 273.1mm dia -5.6mm thick	m	5022
5.2.3	Pipe of 273.1mm dia -6mm thick	m	5275
5.2.4	Pipe of 273.1mm dia -6.4mm thick	m	5526

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.2.5	Pipe of 273.1mm dia -7.2mm thick	m	6024
5.2.6	Pipe of 273.1mm dia -7.8mm thick	m	6395
5.2.7	Pipe of 273.1mm dia -8.7mm thick	m	6950
5.2.8	Pipe of 273.1mm dia -9.3mm thick	m	7317
5.3	For MS pipes of 323.9mm dia		
5.3.1	Pipe of 323.9mm dia -5.6mm thick	m	5977
5.3.2	Pipe of 323.9mm dia -6.0mm thick	m	6277
5.3.3	Pipe of 323.9mm dia -6.4mm thick	m	6576
5.3.4	Pipe of 323.9mm dia -7.1mm thick	m	7097
5.3.5	Pipe of 323.9mm dia -7.9mm thick	m	7690
5.3.6	Pipe of 323.9mm dia -8.4mm thick	m	8046
5.3.7	Pipe of 323.9mm dia -8.7mm thick	m	8280
5.3.8	Pipe of 323.9mm dia -9.5mm thick	m	8867
5.04	For MS pipes of 355.6mm dia		
5.4.1	Pipe of 355.6mm dia -5.6mm thick	m	6549
5.4.2	Pipe of 355.6mm dia -6.0mm thick	m	6880
5.4.3	Pipe of 355.6mm dia -6.4mm thick	m	7209
5.4.4	Pipe of 355.6mm dia -7.1mm thick	m	7785
5.4.5	Pipe of 355.6mm dia -7.9mm thick	m	8393
5.4.6	Pipe of 355.6mm dia -8.7mm thick	m	9090
5.4.7	Pipe of 355.6mm dia -9.5mm thick	m	9737
5.5	For MS pipe of 406mm dia		
5.5.1	Pipe of 406mm dia -5.6mm thick	m	7489
5.5.2	Pipe of 406mm dia -6mm thick	m	7900
5.5.3	Pipe of 406mm dia -6.4mm thick	m	8245
5.5.4	Pipe of 406mm dia -7.1mm thick	m	8904
5.5.5	Pipe of 406mm dia -7.9mm thick	m	9655
5.5.6	Pipe of 406mm dia -8.7mm thick	m	10403
5.5.7	Pipe of 406mm dia -9.5mm thick	m	11148

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.5.8	Pipe of 406mm dia -10mm thick	m	<b>11611</b>
5.6	For MS pipe of 457mm dia		
5.6.1	Pipe of 457mm dia-5.6mm thick	m	<b>8431</b>
5.6.2	Pipe of 457mm dia-6.4mm thick	m	<b>9285</b>
5.6.3	Pipe of 457mm dia-7.1mm thick	m	<b>10031</b>
5.6.4	Pipe of 457mm dia-7.9mm thick	m	<b>10879</b>
5.6.5	Pipe of 457mm dia-8.7mm thick	m	<b>11725</b>
5.6.6	Pipe of 457mm dia-9.5mm thick	m	<b>12568</b>
5.6.7	Pipe of 457mm dia-10mm thick	m	<b>13094</b>
5.7	For MS pipe of 508mm dia		
5.7.1	Pipe of 508mm dia-5.6mm thick	m	<b>9370</b>
5.7.2	Pipe of 508mm dia-6.4mm thick	m	<b>10323</b>
5.7.3	Pipe of 508mm dia-7.1mm thick	m	<b>11153</b>
5.7.4	Pipe of 508mm dia-7.9mm thick	m	<b>12100</b>
5.7.5	Pipe of 508mm dia-8.7mm thick	m	<b>13046</b>
5.7.6	Pipe of 508mm dia-9.5mm thick	m	<b>13981</b>
5.7.7	Pipe of 508mm dia-10mm thick	m	<b>14565</b>
5.8	For MS pipe of 559mm dia		
5.8.1	Pipe of 559mm dia-5.6mm thick	m	<b>10300</b>
5.8.2	Pipe of 559mm dia-6.4mm thick	m	<b>11360</b>
5.8.3	Pipe of 559mm dia-7.1mm thick	m	<b>12278</b>
5.8.4	Pipe of 559mm dia-7.9mm thick	m	<b>13321</b>
5.8.5	Pipe of 559mm dia-8.7mm thick	m	<b>14363</b>
5.8.6	Pipe of 559mm dia-9.5mm thick	m	<b>15405</b>
5.8.7	Pipe of 559mm dia-10mm thick	m	<b>16047</b>
5.9	For MS pipe of 610mm dia		
5.9.1	Pipe of 610mm dia-5.6mm thick	m	<b>11735</b>
5.9.2	Pipe of 610mm dia-6.4mm thick	m	<b>12389</b>
5.9.3	Pipe of 610mm dia-7.1mm thick	m	<b>13390</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.9.4	Pipe of 610mm dia-7.9mm thick	m	<b>14043</b>
5.9.5	Pipe of 610mm dia-8.7mm thick	m	<b>15620</b>
5.9.6	Pipe of 610mm dia-9.5mm thick	m	<b>16808</b>
5.9.7	Pipe of 610mm dia-10mm thick	m	<b>17519</b>
5.9.8	Pipe of 610mm dia-12mm thick	m	<b>20343</b>
5.10	For MS pipe of 660mm dia		
5.10.1	Pipe of 660mm dia-6.4mm thick	m	<b>13550</b>
5.10.2	Pipe of 660mm dia-7.1mm thick	m	<b>14641</b>
5.10.3	Pipe of 660mm dia-7.9mm thick	m	<b>15868</b>
5.10.4	Pipe of 660mm dia-8.7mm thick	m	<b>17114</b>
5.10.5	Pipe of 660mm dia-9.5mm thick	m	<b>18341</b>
5.10.6	Pipe of 660mm dia-10mm thick	m	<b>19111</b>
5.11	For MS pipe of 711mm dia		
5.11.1	Pipe of 711mm dia-6.4mm thick	m	<b>14608</b>
5.11.2	Pipe of 711mm dia-7.1mm thick	m	<b>15786</b>
5.11.3	Pipe of 711mm dia-7.9mm thick	m	<b>17120</b>
5.11.4	Pipe of 711mm dia-8.7mm thick	m	<b>18454</b>
5.11.5	Pipe of 711mm dia-9.5mm thick	m	<b>19789</b>
5.11.6	Pipe of 711mm dia-10.0mm thick	m	<b>20616</b>
5.11.7	Pipe of 711mm dia-12mm thick	m	<b>23927</b>
5.12	For MS pipe of 762mm dia		
5.12.1	Pipe of 762mm dia-7.1mm thick	m	<b>16931</b>
5.12.2	Pipe of 762mm dia-7.9mm thick	m	<b>18967</b>
5.12.3	Pipe of 762mm dia-8.7mm thick	m	<b>19794</b>
5.12.4	Pipe of 762mm dia-9.5mm thick	m	<b>21226</b>
5.12.5	Pipe of 762mm dia-10mm thick	m	<b>22122</b>
5.13	For MS pipe of 813mm dia		
5.13.1	Pipe of 813mm dia-7.1mm thick	m	<b>18090</b>
5.13.2	Pipe of 813mm dia-7.9mm thick	m	<b>19628</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.13.3	Pipe of 813mm dia-8.7mm thick	m	<b>21157</b>
5.13.4	Pipe of 813mm dia-9.5mm thick	m	<b>22676</b>
5.13.5	Pipe of 813mm dia-10mm thick	m	<b>23630</b>
5.13.6	Pipe of 813mm dia-12mm thick	m	<b>27428</b>
5.14	For MS pipe of 864mm dia		
5.14.1	Pipe of 864mm dia-7.9mm thick	m	<b>20843</b>
5.14.2	Pipe of 864mm dia-8.7mm thick	m	<b>22470</b>
5.14.3	Pipe of 864mm dia-9.5mm thick	m	<b>24096</b>
5.14.4	Pipe of 864mm dia-10mm thick	m	<b>25109</b>
5.15	For MS pipe of 914mm dia		
5.15.1	Pipe of 914mm dia-7.9mm thick	m	<b>22072</b>
5.15.2	Pipe of 914mm dia-8.7mm thick	m	<b>23796</b>
5.15.3	Pipe of 914mm dia-9.5mm thick	m	<b>25520</b>
5.15.4	Pipe of 914mm dia-10mm thick	m	<b>26591</b>
5.15.5	Pipe of 914mm dia-12mm thick	m	<b>30876</b>
5.16	For MS pipe of 965mm dia		
5.16.1	Pipe of 965mm dia-8.7mm thick	m	<b>25118</b>
5.16.2	Pipe of 965mm dia-9.5mm thick	m	<b>26930</b>
5.16.3	Pipe of 965mm dia-10mm thick	m	<b>28069</b>
5.17	For MS pipe of 1016mm dia		
5.17.1	Pipe of 1016mm dia-8.7mm thick	m	<b>26489</b>
5.17.2	Pipe of 1016mm dia-9.5mm thick	m	<b>28407</b>
5.17.3	Pipe of 1016mm dia-10mm thick	m	<b>29595</b>
5.17.4	Pipe of 1016mm dia-12mm thick	m	<b>34367</b>
5.18	For MS pipe of 1067 mm dia		
5.18.1	Pipe of 1067mm dia-8.7mm thick	m	<b>27801</b>
5.18.2	Pipe of 1067mm dia-9.5mm thick	m	<b>29817</b>
5.18.3	Pipe of 1067mm dia-10mm thick	m	<b>31073</b>
5.19	For MS pipe of 1118mm dia		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.19.1	Pipe of 1118mm dia-8.7mm thick	m	<b>29112</b>
5.19.2	Pipe of 1118mm dia-9.5mm thick	m	<b>31225</b>
5.19.3	Pipe of 1118mm dia-10mm thick	m	<b>32540</b>
5.20	For MS pipe of 1168mm dia		
5.20.1	Pipe of 1168mm dia-9.5mm thick	m	<b>32610</b>
5.20.2	Pipe of 1168mm dia-10mm thick	m	<b>33983</b>
5.21	For MS pipe of 1219mm dia		
5.21.1	Pipe of 1219mm dia-10mm thick	m	<b>35571</b>
5.21.2	Pipe of 1219mm dia-12.5mm thick	m	<b>42740</b>
5.22	For MS pipe of 1422mm dia		
5.22.1	Pipe of 1422mm dia-12.5mm thick	m	<b>50270</b>
5.22.2	Pipe of 1422mm dia-14.20mm thick	m	<b>55953</b>
5.23	For MS pipe of 1626 mm dia		
5.23.1	Pipe of 1626mm dia-14.20mm thick	m	<b>64030</b>
5.23.2	Pipe of 1626mm dia-16.00mm thick	m	<b>70911</b>
5.24	For MS pipe of 1829 mm dia		
5.24.1	Pipe of 1829mm dia-14.20mm thick	m	<b>72159</b>
5.24.2	Pipe of 1829mm dia-16.00mm thick	m	<b>79945</b>
5.24.3	Pipe of 1829mm dia-17.50mm thick	m	<b>86392</b>
5.25	For MS pipe of 2032 mm dia		
5.25.1	Pipe of 2032 mm dia-16.00mm thick	m	<b>89514</b>
5.25.2	Pipe of 2032 mm dia-17.50mm thick	m	<b>96697</b>
5.25.3	Pipe of 2032 mm dia-20.00mm thick	m	<b>108671</b>
5.26	For MS pipe of 2235 mm dia		
5.26.1	Pipe of 2235 mm dia-16.00mm thick	m	<b>98518</b>
5.26.2	Pipe of 2235 mm dia-17.50mm thick	m	<b>106441</b>
5.26.3	Pipe of 2235 mm dia-20.00mm thick	m	<b>119619</b>
5.27	For MS pipe of 2540 mm dia		
5.27.1	Pipe of 2540 mm dia-20.00mm thick	m	<b>135979</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.27.2	Pipe of 2540 mm dia-22.20mm thick	m	<b>149170</b>
5.27.3	Pipe of 2540 mm dia-25.00mm thick	m	<b>165912</b>
5.28	Providing, fabricating and fixing at site various diameter MS SPECIALS of mechanised ends as per sketch to suite for PSC pipes roll on joint and confined O ring system. The cost is inclusive of all materials including rubber 'O' rings, labour, consumables, hire charges for tools, tackles, welding equipments, lead and lifts, etc. complete as per the instructions of Engineer in charge.		
5.28.1	For PSC pipes of 450mm dia.	Each	<b>7721</b>
5.28.2	For PSC pipes of 600mm dia.	Each	<b>11364</b>
5.28.3	For PSC pipes of 700mm dia.	Each	<b>13779</b>
5.29	Providing, fabricating and fixing at site various diameter MS MJ ends to suit CI / DI pipe as per the sketch . The cost is inclusive of all materials, i.e, rubber 'O' rings, flanges, bolts and nuts, consumables, hire charges, tools and tackles, welding equipments, lead and lifts, etc. complete as per the instructions of Engineer in charge.		
5.29.1	For CI / DI pipes of 100mm dia.	Each	<b>2098</b>
5.29.2	For CI / DI pipes of 150mm dia.	Each	<b>2515</b>
5.29.3	For CI / DI pipes of 200mm dia.	Each	<b>3260</b>
5.29.4	For CI / DI pipes of 250mm dia.	Each	<b>4536</b>
5.29.5	For CI / DI pipes of 300mm dia.	Each	<b>4861</b>
5.29.6	For CI / DI pipes of 400mm dia.	Each	<b>6704</b>
5.29.7	For CI / DI pipes of 450mm dia.	Each	<b>7542</b>
5.29.8	For CI / DI pipes of 600mm dia.	Each	<b>9863</b>
5.29.9	For CI / DI pipes of 700mm dia.	Each	<b>11538</b>
5.29.10	For CI / DI pipes of 900mm dia.	Each	<b>15550</b>
5.30	Providing, fabricaing and fixing at site various diameters of MS Flanges as per IS standards to fix sluice valves as per sketch. The rate to include cost of all materials, labour, consumables, hire charges for tools and tackles, weldiing equipments etc. complete as per instructions of the Engineer in charge for:		
5.30.1	Flanges of 100mm dia and 10mm thick.	Each	<b>691</b>
5.30.2	Flanges of 100mm dia and 8mm thick.	Each	<b>579</b>
5.30.3	Flanges of 150mm dia and 16mm thick.	Each	<b>1608</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.30.4	Flanges of 150mm dia and 12mm thick.	Each	<b>1223</b>
5.30.5	Flanges of 200mm dia and 20mm thick.	Each	<b>2688</b>
5.30.6	Flanges of 200mm dia and 16mm thick.	Each	<b>2251</b>
5.30.7	Flanges of 250mm dia and 20mm thick.	Each	<b>3595</b>
5.30.8	Flanges of 250mm dia and 16mm thick.	Each	<b>2975</b>
5.30.9	Flanges of 300mm dia and 20mm thick.	Each	<b>4180</b>
5.30.10	Flanges of 300mm dia and 16mm thick.	Each	<b>3467</b>
5.30.11	Flanges of 400mm dia and 25mm thick.	Each	<b>6611</b>
5.30.12	Flanges of 400mm dia and 20mm thick.	Each	<b>5426</b>
5.30.13	Flanges of 450mm dia and 25mm thick.	Each	<b>7650</b>
5.30.14	Flanges of 450mm dia and 20mm thick.	Each	<b>6433</b>
5.30.15	Flanges of 600mm dia and 25mm thick.	Each	<b>9472</b>
5.30.16	Flanges of 600mm dia and 20mm thick.	Each	<b>8138</b>
5.30.17	Flanges of 700mm dia and 30mm thick.	Each	<b>11848</b>
5.30.18	Flanges of 700mm dia and 25mm thick.	Each	<b>12483</b>
5.30.19	Flanges of 900mm dia and 32mm thick.	Each	<b>16395</b>
5.30.20	Flanges of 900mm dia and 28mm thick.	Each	<b>14517</b>
5.30.21	Flanges of 1000mm dia and 32mm thick.	Each	<b>17926</b>
5.30.22	Flanges of 1000mm dia and 30mm thick.	Each	<b>16989</b>
5.30.23	Flanges of 1100mm dia and 30mm thick.	Each	<b>19135</b>
5.30.24	Flanges of 1100mm dia and 32mm thick.	Each	<b>21478</b>
5.30.25	Flanges of 1200mm dia and 32mm thick.	Each	<b>22686</b>
5.31	Providing Inner lining by spinning to M.S pipes including cleaning the inside surface, removing rust, millscalls etc., with CM 1:1.5 lining of minimum 10 mm thick upto 610mm outer dia and minimum 12 mm thick beyond 610mm OD and conforming to IS-11906 / 1986 etc. complete for:		
5.31.1	Inside of 219mm dia pipes for 10mm thick	m	<b>249</b>
5.31.2	Inside of 273.1 mm dia pipes for 10 mm thick	m	<b>270</b>
5.31.3	Inside of 323.9 mm dia pipes for 10 mm thick	m	<b>322</b>
5.31.4	Inside of 355.6 mm dia pipes for 10 mm thick	m	<b>354</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.31.5	Inside of 406 mm dia pipes for 10 mm thick	m	<b>406</b>
5.31.6	Inside of 457 mm dia pipes for 10 mm thick	m	<b>459</b>
5.31.7	Inside of 508 mm dia pipes for 10 mm thick	m	<b>512</b>
5.31.8	Inside of 559 mm dia pipes for 10 mm thick	m	<b>565</b>
5.31.9	Inside of 610 mm dia pipes for 10 mm thick	m	<b>618</b>
5.31.10	Inside of 660 mm dia pipes for 12 mm thick	m	<b>775</b>
5.31.11	Inside of 711 mm dia pipes for 12 mm thick	m	<b>836</b>
5.31.12	Inside of 762 mm dia pipes for 12 mm thick	m	<b>897</b>
5.31.13	Inside of 813 mm dia pipes for 12 mm thick	m	<b>957</b>
5.31.14	Inside of 864 mm dia pipes for 12 mm thick	m	<b>1018</b>
5.31.15	Inside of 914 mm dia pipes for 12 mm thick	m	<b>1079</b>
5.31.16	Inside of 965 mm dia pipes for 12mm thick	m	<b>1141</b>
5.31.17	Inside of 1016 mm dia pipes for 12mm thick	m	<b>1200</b>
5.31.18	Inside of 1067 mm dia pipes for 12 mm thick	m	<b>1264</b>
5.31.19	Inside of 1118 mm dia pipes for 12 mm thick	m	<b>1325</b>
5.31.20	Inside of 1168 mm dia pipes for 12 mm thick	m	<b>1385</b>
5.31.21	Inside of 1219 mm dia pipes for 12 mm thick	m	<b>1446</b>
5.31.22	Inside of 1422 mm dia pipes for 12mm thick	m	<b>1685</b>
5.31.23	Inside of 1626 mm dia pipes for 12 mm thick	m	<b>1923</b>
5.31.24	Inside of 1829 mm dia pipes for 12 mm thick	m	<b>2165</b>
5.31.25	Inside of 2032 mm dia pipes for 12 mm thick	m	<b>2403</b>
5.31.26	Inside of 2235 mm dia pipes for 12 mm thick	m	<b>2645</b>
5.31.27	Inside of 2540 mm dia pipes for 12 mm thick	m	<b>3002</b>
5.32	Providing Outer lining to M.S pipes by spinning including cleaning the outer surface, removing rust, millscalls etc., with CM 1:3 for minimum 25mm thick over 50x50 weldmesh of 13 gauge lining and conforming to IS-11906/1986 etc. etc. complete for:		
5.32.1	Outside of 219mm dia pipes	m	<b>625</b>
5.32.2	Outside of 273.1mm dia pipes	m	<b>767</b>
5.32.3	Outside of 323.9mm dia pipes	m	<b>901</b>
5.32.4	Outside of 355.6mm dia pipes	m	<b>999</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.32.5	Outside of 406mm dia pipes	m	<b>1142</b>
5.32.6	Outside of 457mm dia pipes	m	<b>1280</b>
5.32.7	Outside of 508mm dia pipes	m	<b>1424</b>
5.32.8	Outside of 559mm dia pipes	m	<b>1567</b>
5.32.9	Outside of 610mm dia pipes	m	<b>1710</b>
5.32.10	Outside of 660mm dia pipes	m	<b>1847</b>
5.32.11	Outside of 711mm dia pipes	m	<b>1990</b>
5.32.12	Outside of 762mm dia pipes	m	<b>2133</b>
5.32.13	Outside of 813mm dia pipes	m	<b>2275</b>
5.32.14	Outside of 864mm dia pipes	m	<b>2418</b>
5.32.15	Outside of 914mm dia pipes	m	<b>2561</b>
5.32.16	Outside of 965mm dia pipes	m	<b>2704</b>
5.32.17	Outside of 1016mm dia pipes	m	<b>2846</b>
5.32.18	Outside of 1067mm dia pipes	m	<b>2989</b>
5.32.19	Outside of 1118mm dia pipes	m	<b>3132</b>
5.32.20	Outside of 1168mm dia pipes	m	<b>3266</b>
5.32.21	Outside of 1219mm dia pipes	m	<b>3417</b>
5.32.22	Outside of 1422mm dia pipes	m	<b>3989</b>
5.32.23	Outside of 1626mm dia pipes	m	<b>4560</b>
5.32.24	Outside of 1829mm dia pipes	m	<b>5131</b>
5.32.25	Outside of 2032mm dia pipes	m	<b>5693</b>
5.32.26	Outside of 2232mm dia pipes	m	<b>6264</b>
5.32.27	Outside of 2540mm dia pipes	m	<b>7121</b>
5.33	Lowering, laying, jointing and commissioning of ERW (Electric Resistance Welded)/ SAW (Submerged Arc Welded) MS pipes of Outer dia , including perfect linking and site welding of joints to M.S pipes after cleaning the surface including removing rust, millscals by using standard welding rod conforming to IS 6419 to correct position and giving satisfactory hydraulic test as per IS 3589-2001 at site as per detailed specifications for the following diameters as noted below, including bailing out of water wherever necessary including cost of all labour etc. complete . (Contractor will make his own arrangements for procuring water for testing)		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.33.1	M.S pipe 219mm dia	m	290
5.33.2	M.S pipe 273.1mm dia	m	343
5.33.3	M.S pipe 323.9mm dia	m	402
5.33.4	M.S pipe 355.6mm dia	m	437
5.33.5	M.S pipe 406mm dia	m	484
5.33.6	M.S pipe 457mm dia	m	536
5.33.7	M.S pipe 508mm dia	m	577
5.33.8	M.S pipe 559mm dia	m	636
5.33.9	M.S pipe 610mm dia	m	677
5.33.10	M.S pipe 660mm dia	m	759
5.33.11	M.S pipe 711mm dia	m	825
5.33.12	M.S pipe 762mm dia	m	890
5.33.13	M.S pipe 813mm dia	m	969
5.33.14	M.S pipe 864mm dia	m	1012
5.33.15	M.S pipe 914mm dia	m	1088
5.33.16	M.S pipe 965mm dia	m	1130
5.33.17	M.S pipe 1016mm dia	m	1230
5.33.18	M.S pipe 1067mm dia	m	1273
5.33.19	M.S pipe 1118mm dia	m	1316
5.33.20	M.S pipe 1168mm dia	m	1357
5.33.21	M.S pipe 1219mm dia	m	1505
5.33.22	M.S pipe 1422mm dia	m	2109
5.33.23	M.S pipe 1626mm dia	m	2385
5.33.24	M.S pipe 1829mm dia	m	2744
5.33.25	M.S pipe 2032m dia	m	3659
5.33.26	M.S pipe 2235 mm dia	m	3991
5.33.27	M.S pipe 2540mm dia	m	4437
5.34	Providing coal taring two coats to the outer surface of M.S pipes as per AWWA specifications including the cost of coal tar etc.complete for:		
5.34.1	M.S pipes of 219 mm dia..	m	59



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
5.34.2	M.S pipes of 273 mm dia..	m	73
5.34.3	M.S pipes of 324 mm dia..	m	86
5.34.4	M.S pipes of 355 mm dia..	m	94
5.34.5	M.S pipes of 406mm dia.	m	108
5.34.6	M.S pipes of 457mm dia.	m	122
5.34.7	M.S pipes of 508mm dia.	m	135
5.34.8	M.S pipes of 559mm dia.	m	149
5.34.9	M.S pipes of 610mm dia.	m	162
5.34.10	M.S pipes of 660mm dia.	m	176
5.34.11	M.S pipes of 711mm dia.	m	189
5.34.12	M.S pipes of 762mm dia.	m	203
5.34.13	M.S pipes of 813mm dia.	m	215
5.34.14	M.S pipes of 864mm dia.	m	230
5.34.15	M.S pipes of 914mm dia.	m	243
5.34.16	M.S pipes of 965mm dia.	m	257
5.34.17	M.S pipes 1016mm dia.	m	270
5.34.18	M.S pipes 1067mm dia.	m	284
5.34.19	M.S pipes 1118mm dia.	m	298
5.34.20	M.S pipes 1168mm dia.	m	311
5.34.21	M.S pipes 1219mm dia.	m	324
5.34.22	M.S pipes 1422mm dia.	m	375
5.34.23	M.S pipes 1626mm dia.	m	429
5.34.24	M.S pipes 1829mm dia.	m	483
5.34.25	M.S pipes 2032mm dia.	m	536
5.34.26	M.S pipes 2232mm dia.	m	589
5.34.27	M.S pipes 2540mm dia.	m	670

Sl. No.	Specification	Unit	Rate ₹
5.35	Providing and applying Rigid Direct to Metal, 100% Solids Polyurethane Coating meeting AWWA C-222 (Latest Revision) and certified for drinking water as per WRAS : BS- 6920 / Singapore SS375 to a thickness of 500 microns (SSPCPA2) on the internal surface of MS pipe after blast cleaning to SSPCSP-10/ NACE 2 & 1/2 with anchor profile of >75 microns using steel grit, in factory premises with automated equipment. The Coating should meet Total Organic Carbon (TOC) as per APHA - AWWA WEF 5310C < 2.0 mg/l. Site application shall not be permitted. The product shall be supplied and applied as per detailed specification.for internal surface etc. complete	m2	407
5.36	Providing and applying Rigid, Direct to Metal, 100% Solids Polyurethane Coating meeting BIS 16719 (Latest Revision) or AWWA C-222 (Latest Revision) to thickness specified below on the external surface of MS pipe after blast cleaning to SSPC SP-10/ NACE 2 & 1/2 with anchor profile of >75 microns using steel grit. Pipelining shall only be permitted in the pipe manufacturer's facility with automated equipment. Site application shall not be permitted. The product shall be supplied and applied as per the detailed specification. Nominal Dry Film Thickness (DFT) shall be as under: External Coating Pipe Dia DFT(Microns) >400mm upto 1000mm 625 >1000mm upto 1500mm 750 >1500mm upto 2200mm 875 >2200mm upto 3200mm 1000 etc. complete	m2	572
5.37	Manufacturing, providing, trasporting, rolling, lowering, laying, jointing & testing and commissioning of MS specials of minimum 8mm thick such as bends, tail pieces, reduces etc. conforming to IS-7322:1985 with latest amendments and including perfect linking and welding of joints to correct position includng cost and conveyance of materials with all lead and lifts, cost all labour and giving satisfactory hydraulic test as per IS:3589:2001 with latest amendments for test pressure and working pressure both at factory and site etc. complete as per detailed specifications with inside lining two coat of food grade epoxy painting of approved make with Each coat of 250 micron thick (after dry) over one coat of food grade epoxy primer of approved make with minium of 50 micron thick (after dry) and outside 25mm thick coating in CM 1:3 by providing 50x50mm weld mesh including loading and unloading of the pipes for the following category to suit PSC / MS / CI / AC / DI / PVC pipes. The weight of MS shell only by considered before lining and coating for arriving at the rate. The thickness of plate will be specified by the engineer. (Contractor will make his own arrangements for procuring water for testing for: Note: 1) For small works where the C.M. lining is not practicable for inside surface of the pipe, food grade epoxy painting of two coat over one coat of epoxy primer may be proposed and got approved. 2) The above rates are applicable only for pipe works etc. complete		
5.37.1	Pipe bends,branches, tail pieces, reducers etc. for upto 500mm dia pipes	KGS	170
5.37.2	Pipe bends,branches, tail pieces, reducers etc. for above 500mm dia pipes	Kg	155



**Chapter - 6**  
**LABORATORY CHEMICALS AND**  
**EQUIPMENTS**



Sl. No.	Specification	Unit	Rate ₹
<b>6 LABORATORY CHEMICALS AND EQUIPMENTS</b>			
6.1	Providing & preparing sodium hypochlorite solution for 500 ltrs capacity tank. The hypochlorite generator tank should consist of non-metallic tank of 500 ltrs capacity. Preferably sintex / supreme / voltas or equivalent fitted with a drain cock at the bottom for cleaning and periodic maintenance and outlet valve to let out the prepared sodium hypochlorite at bottom an orifice to fill the water at the top edge with lid and funnel. (water will be supplied by the organisation). Iodized salt should be provided by the firm for one year for the preparation of hypochlorite. The elements to generate hypochlorite are to be made of imported electrode material "intri" mounted in PVC housing with wire leads for energizing in a water proof sealing. The electrode assembly should be mounted inside the hypochlorite generator tank. The hypochlorite generation tank should be mounted on a MS fabricated stand. The power panel should consist of on-off button, fuse, MCB, line charger indicator, process complete indicator, and timer unit housed in a cabinet with panel lock facility. The firm should provide dosing pump for suitable dosage operated by 230V 50 Hz AC mains provided by the organisation. The residual chlorine at a radius of 2 Km should be maintained at 0.02 ppm at end. etc. complete	Each	<b>93720</b>
6.2	Supply & preparing of Iodized salt for one 500 ml tank along with operation of plant with operator, consumables, maintenance and supply of spares for effective and successful operation of the plants for second year ie., after one year of commissioning	L.S	<b>70290</b>
6.3	Laboratory Chemicals & Equipments		
6.3.1	Potassium Permanganate	KGS	<b>1650</b>
6.3.2	Bleaching Powder	KGS	<b>60</b>
6.3.3	Glassware Cleaner	L.S	<b>860</b>
6.3.4	Hand wash Cleaner	L.S	<b>860</b>
6.3.5	Hand Gloves	PAIR	<b>50</b>
6.3.6	Mask	PAIR	<b>50</b>
6.3.7	Aprons	Each	<b>380</b>
6.3.8	Conical flask 1000ml Borosilicate Class- A	Each	<b>498</b>
6.3.9	Conical flask 500ml Borosilicate Class- A	Each	<b>245</b>
6.3.10	Conical flask 250ml Borosilicate Class- A	Each	<b>175</b>
6.3.11	Conical flask 100ml Borosilicate Class- A	Each	<b>115</b>
6.3.12	Beaker 1000ml Borosilicate	Each	<b>426</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.3.13	Beaker 500ml Borosilicate	Each	<b>210</b>
6.3.14	Beaker 250ml Borosilicate	Each	<b>132</b>
6.3.15	Beaker 100ml Borosilicate	Each	<b>120</b>
6.3.16	Beaker 50ml Borosilicate	Each	<b>120</b>
6.3.17	Pipette Graduated 10ml Borosilicate A Grade with NABL Certificate	Each	<b>1480</b>
6.3.18	Pipette Graduated 5ml Borosilicate A Grade with NABL Certificate	Each	<b>1235</b>
6.3.19	Pipette Graduated 2ml Borosilicate A Grade with NABL Certificate	Each	<b>1255</b>
6.3.20	Pipette Graduated 1ml Borosilicate A Grade with NABL Certificate	Each	<b>1200</b>
6.3.21	Volumetric Pipette 10ml A Class with NABL Certificate	Each	<b>1260</b>
6.3.22	Volumetric Pipette 5ml A Class with NABL Certificate	Each	<b>1195</b>
6.3.23	Volumetric Pipette 2ml A Class with NABL Certificate	Each	<b>1115</b>
6.3.24	Volumetric Pipette 1ml A Class with NABL Certificate	Each	<b>1045</b>
6.3.25	Measuring Cylinder 1000ml Borosilicate Class A	Each	<b>2520</b>
6.3.26	Measuring Cylinder 500ml Borosilicate Class A	Each	<b>1255</b>
6.3.27	Measuring Cylinder 100ml Borosilicate Class A	Each	<b>520</b>
6.3.28	Measuring Cylidner 50ml Borosilicate Class A	Each	<b>460</b>
6.3.29	Measuring Cylinder 25ml Borosilicate Class A	Each	<b>420</b>
6.3.30	Measuring Cylinder 10ml Borosilicate Class A	Each	<b>365</b>
6.3.31	Measuring Cylinder 5ml Borosilicate Class A	Each	<b>305</b>
6.3.32	Glass Rod 20cm	Each	<b>10</b>
6.3.33	Volumetric Flask 2000ml Borosilicate A Grade with NABL Certificate	Each	<b>8065</b>
6.3.34	Volumetric Flask 1000ml Borosilicate A Grade with NABL Certificate	Each	<b>5135</b>
6.3.35	Volumetric Flask 500ml Borosilicate A Grade with NABL Certificate	Each	<b>3475</b>
6.3.36	Volumetric Flask 250ml Borosilicate A Grade with NABL Certified	Each	<b>2785</b>
6.3.37	Volumetric Flask 100ml Borosilicate A Grade with NABL Certificate	Each	<b>1835</b>
6.3.38	Volumetric Flask 50ml Borosilicate A Grade with NABL Certificate	Each	<b>1780</b>
6.3.39	Volumetric Flask 25ml Borosilicate A Grade with NABL Certificate	Each	<b>1780</b>
6.3.40	Volumetric Flask 10ml Borosilicate A Grade with NABL Certificate	Each	<b>1915</b>
6.3.41	Nessler's Tube 50ml Borosilicate	Each	<b>310</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.3.42	Reagent Bottle Narrow 2000ml Borosilicatecate 3.3 Glass	Each	<b>2650</b>
6.3.43	Reagent Bottle Narrow 1000ml Borosilicatecate 3.3 Glass	Each	<b>1212</b>
6.3.44	Reagent Bottle Narrow 500ml Borosilicatecate 3.3 Glass	Each	<b>612</b>
6.3.45	Reagent Bottle Narrow 250ml Borosilicatecate 3.3 Glass	Each	<b>386</b>
6.3.46	Reagent Bottle Narrow 100ml Borosilicatecate 3.3 Glass	Each	<b>318</b>
6.3.47	Reagent Bottle Amber 1000ml Borosilicatecate 3.3 Glass	Each	<b>1490</b>
6.3.48	Spactula 6" SS	Each	<b>30</b>
6.3.49	Burette 50ml Borosilicate A Grade with NABL	Each	<b>7900</b>
6.3.50	Foreceps 6"	Each	<b>30</b>
6.3.51	Mortar and Pestle 6"	Each	<b>489</b>
6.3.52	Mortar and Pestle 4"	Each	<b>315</b>
6.3.53	Plastic Pipette Stand Round	Each	<b>355</b>
6.3.54	Plastic Burette Stand with clamps	Each	<b>860</b>
6.3.55	BOD Bottle 300ml	Each	<b>515</b>
6.3.56	Test Tube Holders	Each	<b>30</b>
6.3.57	Glass Droppers	Each	<b>30</b>
6.3.58	Funnel 6" Glass	Each	<b>150</b>
6.3.59	Funnel 2" Glass	Each	<b>45</b>
6.3.60	Analytical Weight Box 1mg to 200gm with NABL Class F2	Each	<b>22180</b>
6.3.61	Test Tube Cleaning Brush	Each	<b>20</b>
6.3.62	Non Absorbent Cotton Roll	Each	<b>310</b>
6.3.63	Petri Plates	Each	<b>135</b>
6.3.64	Evaporating Dish 55x23	Each	<b>545</b>
6.3.65	Watch Glass 4"	Each	<b>30</b>
6.3.66	Cuvette for UV Quartz	Each	<b>3800</b>
6.3.67	Cuvette for UV Glass	Each	<b>2200</b>
6.3.68	Cuvette for Turbiditymeter	Each	<b>30</b>
6.3.69	Tongs 12"	Each	<b>120</b>
6.3.70	Micropipette finn Thermo 5- 500	Each	<b>11200</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.3.71	Micropipette tips 5ml	Each	<b>580</b>
6.3.72	Micropipette tips 1ml	Each	<b>560</b>
6.3.73	Dessicator 300mm Glass with Borosilicateicate 3.3 Glass Complies with IS6128	Each	<b>21250</b>
6.3.74	Whatman Filter Paper No.41	Each	<b>3800</b>
6.3.75	Thermometer 110C	Each	<b>100</b>
6.3.76	Thermometer 360C	Each	<b>240</b>
6.3.77	Digital Hygrometer with NABL Certificate	Each	<b>4400</b>
6.3.78	First Aid Box metal with All Accessories	Each	<b>3600</b>
6.3.79	Beaker Plastic 100ml	Each	<b>30</b>
6.04	Chemical & Reagents Required for Taluka & District Water Quality Testing Laboratory		
6.4.1	Chemical/ Reagents-Phenolphthien %,Reagent-SR11 (100 gm) each	100gm	<b>990</b>
6.4.2	Chemical/ Reagents-Sulphuric Acid 0.02N std,Reagent-SR13	500ml	<b>396</b>
6.4.3	Chemical/ Reagents-Methyl Orange 0.040%, Reagent-SR12	100gm	<b>668</b>
6.4.4	Chemical/ Reagents-Silver Nitrate 0.02N std, Reagent-SR6	500ml	<b>671</b>
6.4.5	Chemical/ Reagents-Silver Nitrate 0.02N std, Reagent-SR5	500ml	<b>671</b>
6.4.6	Chemical/ Reagents-Reagent-7 (Zirconium Oxychloride, O-Xylanol), Reagent-SR7	500gm	<b>2468</b>
6.4.7	Chemical/ Reagents- STD Fluoride Solution 100 ppm, Reagent-RD7,NIST trasable standard	500ml	<b>7700</b>
6.4.8	Chemical/ Reagents-Tisab 3 buffer solution, Reagent-SR51,,NIST trasable standard	500ml	<b>13125</b>
6.4.9	Chemical/ Reagents-EBT 1%, Reagent-SR3	100gm	<b>861</b>
6.4.10	Chemical/ Reagents-Buffer Solution (ammonia/Amm.chloride), Reagent-SR2	500ml	<b>315</b>
6.4.11	Chemical/ Reagents-Reagent-8(1:10phenonetrolie base, Hydroxyl amine hydrochloride, ammonium acetate), Reagent-SR8	10gm	<b>756</b>
6.4.12	Chemical/ Reagents-HYDROCHLORIC ACID, Reagent-AR	500ml	<b>361</b>
6.4.13	Chemical/ Reagents-SDT. Nitrate Solution 1000gm/l, Reagent-RS14, NIST trasable standard	500ml	<b>6240</b>
6.4.14	Chemical/ Reagents- NEEDA Reagent/ Sulphanalimde/Zin, Reagent-SR14	100gm	<b>1009</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.4.15	Chemical/ Reagents-Reductant Reagent/Acetic Acid/Citric, Reagent-SR15	500gm	<b>301</b>
6.4.16	Chemical/ Reagents-POTASSIUM CHLORIDE, Reagent-AR	500gm	<b>488</b>
6.4.17	Chemical/ Reagents-BUFFER SOLUTION 4, 7, 10, Reagent-RS2	SET	<b>1866</b>
6.4.18	Chemical/ Reagents-SODIUM CHLORIDE SOL.STD 1000 PPM, Reagent-RS1	500ml	<b>200</b>
6.4.19	Chemical/ Reagents-Mercury Papers/(Mercuric Iodide), Reagent-SR31	pkt	<b>1550</b>
6.4.20	Chemical/ Reagents-Sulphamic Acid, Reagent-SR32	500gm	<b>1997</b>
6.4.21	Chemical/ Reagents-Zinc Granules, Reagent-SR33	500gm	<b>1641</b>
6.4.22	Chemical/ Reagents-BARIUM CHLORIDE, Reagent-AR	500gm	<b>410</b>
6.4.23	Chemical/ Reagents- STD. SULPHATE SOLUTION 1000 PPM, Reagent-SRS,NIST trasable standard	100ml	<b>7548</b>
6.4.24	Chemical/ Reagents- REAGENT-Free Chlorine/DPD	100ml	<b>4436</b>
6.4.25	Chemical/ Reagents- SODIUM HYDROXIDE, Reagent-LR	500gm	<b>374</b>
6.4.26	Chemical/ Reagents- SULPHURIC ACID CONC 99%, Reagent-LR	500ml	<b>337</b>
6.4.27	Chemical/ Reagents- MURAXIDE INDICATOR, Reagent-LR	5gm	<b>238</b>
6.4.28	Chemical/ Reagents- HYDROCHORIC ACIDE, Reagent-LR	500ml	<b>336</b>
6.4.29	Chemical/ Reagents- BACTARIOLOGICAL VIALS, Reagent-LR	1 voil	<b>400</b>
6.5	pH Buffer solution 4(Himedia/Merckfor normal pH meter) 4-100 Capsules/500ml	500ml	<b>263</b>
6.6	pH Buffer solution (Himedia/Merckfor normal pH meter)7-100 Capsules/500ml	500ml	<b>263</b>
6.7	PH Buffer solution (Himedia/Merckfor normal pH meter)10-100 Capsules/500ml	500ml	<b>219</b>
6.8	Specific Conductance - Potassium chloride AR	500gm	<b>488</b>
6.9	Turbidity - Hydrazine sulphate AR	100gm	<b>620</b>
6.10	Turbidity - Hexamethylene Tetramine AR	500gm	<b>994</b>
6.11	Total Alkanity - Phenolphthalein indicator	125ml	<b>175</b>
6.12	Total Alkanity - Methyl Orange Indicatorrr	125ml	<b>175</b>
6.13	Total Alkanity - Sodium carbonate AR	500gm	<b>443</b>
6.14	Total Alkanity - Sulphuric Acid AR	500ml	<b>396</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.15	Total Hardness - Eriochrome Black T AR	25gm	<b>283</b>
6.16	Total Hardness - EDTA AR	500gm	<b>1185</b>
6.17	Total Hardness -Ammonium Chloride AR	500gm	<b>403</b>
6.18	Total Hardness - Triethenolamime AR	500ml	<b>883</b>
6.19	Total Hardness - Calcium carbonate AR	500gm	<b>361</b>
6.20	Calcium Hardness - Calconcarboxylic acid AR	25gm	<b>871</b>
6.21	Calcium Hardness - Sodium Sulphate AR	500gm	<b>338</b>
6.22	Chloride - Pottassium Chromate AR	500gm	<b>1437</b>
6.23	Chloride - Silver Nitrate AR	25gm	<b>6490</b>
6.24	Chloride - Sodium Chloride AR	500gm	<b>200</b>
6.25	Iron Method (1) 1-10 Phenanthroline Method - Ammonium Acetate AR	500gm	<b>511</b>
6.26	Iron Method (1) 1-10 Phenanthroline Method -Glacial Acetic Acid AR	500ml	<b>301</b>
6.27	Iron Method (1) 1-10 Phenanthroline Method -1,10,Phenanthroline monohydrate AR	5gm	<b>685</b>
6.28	Iron Method (1) 1-10 Phenanthroline Method -Hydroxylamine Hydrochloride AR	500gm	<b>3079</b>
6.29	Iron Method (1) 1-10 Phenanthroline Method -Conc.Hydrochloric Acid AR	500ml	<b>361</b>
6.30	Iron Method (1) 1-10 Phenanthroline Method -Sodium Acetate AR	500gm	<b>482</b>
6.31	Iron Method (1) 1-10 Phenanthroline Method -Ferrous ammonium sulphate AR	500gm	<b>426</b>
6.32	Iron Method (1) 1-10 Phenanthroline Method -Pottassium permanganate AR	500gm	<b>1400</b>
6.33	Fluoride Method (1) Zirconium oxychloride method - Sodium Fluoride AR	500gm	<b>2122</b>
6.34	Fluoride Method (1) Zirconium oxychloride method - Alazarin S AR	25gm	<b>607</b>
6.35	Fluoride Method (1) Zirconium oxychloride method - Zirconium Oxychloride AR	100gm	<b>816</b>
6.36	Fluoride Method (1) Zirconium oxychloride method - Sodium Thiosulphate AR	500gm	<b>290</b>
6.37	Fluoride Method (2) Ion Selective Electrode Method - Fluoride Standard Solution 1000mg/L NIST	500ml	<b>7700</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
6.38	Fluoride Method (2) Ion Selective Electrode Method - TISAB III Concentrated NIST	500ml	<b>13450</b>
6.39	Fluoride Method (3) SPADNS Photometric method - Silver Sulphate AR	25gm	<b>7370</b>
6.40	Fluoride Method (3) SPADNS Photometric method - Sodium fluoride AR	500gm	<b>2122</b>
6.41	Fluoride Method (3) SPADNS Photometric method - SPADNS Reagent AR	25gm	<b>5148</b>
6.42	Fluoride Method (3) SPADNS Photometric method - Zirconium oxy chloride octahydrate AR	100gm	<b>816</b>
6.43	Fluoride Method (3) SPADNS Photometric method - Sodium Arsenite AR	100gm	<b>4343</b>
6.44	Fluoride Method (3) SPADNS Photometric method - Conc. Hydrochloric acid AR	500ml	<b>361</b>
6.45	Nitrate Method (1) UV Spectrophotometer Screening Method - Potassium Nitrate A	500gm	<b>709</b>
6.46	Nitrate Method (2) Chromotropic acid Method - Potassium Nitrate AR	500gm	<b>709</b>
6.47	Nitrate Method (2) Chromotropic acid Method - Anhydrous Sodium Sulphate AR	500gm	<b>405</b>
6.48	Nitrate Method (2) Chromotropic acid Method - Urea AR	500gm	<b>445</b>
6.49	Nitrate Method (2) Chromotropic acid Method -Antimony Metal	500gm	<b>6135</b>
6.50	Nitrate Method (2) Chromotropic acid Method - Chromotropic Acid Crystals AR	25gm	<b>1640</b>
6.51	Nitrate Method (3) Ion Selective Electrode Method - Aluminium Sulphate AR	500gm	<b>282</b>
6.52	Nitrate Method (3) Ion Selective Electrode Method - Silver Sulphate AR	25gm	<b>7370</b>
6.53	Nitrate Method (3) Ion Selective Electrode Method - Boric Acid AR	500gm	<b>865</b>
6.54	Sulphate Method (1) Nephelo Turbidity meter - Iso-propyl alcohol AR	500ml	<b>351</b>
6.55	Sulphate Method (1) Nephelo Turbidity meter - Glycerol AR	500ml	<b>1267</b>
6.56	Sulphate Method (2) Spectrophotometer Method - Magnesium Chloride AR	500gm	<b>378</b>
6.57	Sulphate Method (2) Spectrophotometer Method - Sodium Acetate AR	500gm	<b>405</b>



**Chapter - 7**  
**RCC OVER HEAD TANKS**



Sl. No.	Specification	Unit	Rate ₹
<b>7 RCC OVER HEAD TANKS</b>			
7.1	Providing and fixing MS ladder between landings, 45 cms wide using angle iron of specified sizes, 20mm MS bars at 25 cms. centre to centre, with necessary supports of same angle iron etc. as directed, including hand railing on both sides with 25mm dia. GI pipes with angle iron props at 2 mtrs. intervals and 0.5M heigh, including fixing in ground with CC 1:2:4 and two coats of anticorrosive bituminous paint etc. with all lead and lifts etc. complete with:		
7.1.1	MS angle of 65 x 65 x 8mm	m	<b>4377</b>
7.1.2	MS angle of 65 x 65 x 10mm	m	<b>4801</b>
7.2	Providing and fixing RCC final and ventilators as per approved design and specifications with form works and protected with wire mesh. The plinth to be of RCC circular pillars and canopy with an ornamental finish at top. The first 22.5 cms height to be covered with RCC panelling as per detailed drawings etc. with all lead and lifts and excluding reinforcement steel.		
7.2.1	For over head tanks upto 2.5 lakhs capacity.	Each	<b>6412</b>
7.2.2	For over head tanks 2.5 to 5.0 lakhs capacity.	Each	<b>9129</b>
7.2.3	For over head tanks 5 to 10 lakhs capacity.	Each	<b>10799</b>
7.3	Providing and fixing MS inspection door of size 60 cms x 60 cms, including MS frame made of 50x50x6mm angle, shutters made of 3mm thick MS sheets, with hinges, locking arrangements at top etc. including painting with anticorrosive approved paint etc. complete including all lead and lifts etc.	Each	<b>2140</b>
7.4	Providing and fixing gauge with iron sheet or enamelled guage plate of 3mm to 4mm thick, 0.23 M width with copper floats indicators and flexible nylon wires, painting figures with approved enamel paint etc. with all lead and lifts, complete for:		
7.4.1	M.S Guage sheet for 1.5 Mtrs depth	Each	<b>3733</b>
7.4.2	MS Guage sheet for 2.0 Mtrs depth	Each	<b>4839</b>
7.4.3	MS Guage sheet for 2.5 Mtrs depth	Each	<b>5958</b>
7.4.4	Extra for MS Guage sheet for every 0.5 M beyond 2.5 Mtrs depth	Each	<b>1086</b>
7.4.5	Enamelled Guage plate for 1.5 Mtrs depth	Each	<b>3248</b>
7.4.6	Enamelled guage plate for 2.0 Mtrs depth	Each	<b>3967</b>
7.4.7	Enamelled guage plate for 2.5 Mtrs depth	Each	<b>4654</b>
7.4.8	Extra for enamelled guage plate for every 0.5 M beyond 2.5 Mtrs depth	Each	<b>835</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
7.5	Providing and fixing DI/CI puddle flanges conforming to IS 7181-1986 with latest ammendments., in position for RCC walls including hoisting and conveying them to work spot with all lead and lifts etc. complete .		
7.5.1	For DI/CI puddle flanges of 80mm dia.	Each	<b>1580</b>
7.5.2	For DI/CI puddle flanges of 100mm dia.	Each	<b>1861</b>
7.5.3	For DI/CI puddle flanges of 150mm dia.	Each	<b>2369</b>
7.5.4	For DI/CI puddle flanges of 200mm dia.	Each	<b>3209</b>
7.5.5	For DI/CI puddle flanges of 250mm dia.	Each	<b>4510</b>
7.5.6	For DI/CI puddle flanges of 300mm dia.	Each	<b>5681</b>
7.5.7	For DI/CI puddle flanges of 350mm dia.	Each	<b>7415</b>
7.5.8	For DI/CI puddle flanges of 400mm dia.	Each	<b>9466</b>
7.5.9	For DI/CI puddle flanges of 450mm dia.	Each	<b>11418</b>
7.5.10	For DI/CI puddle flanges of 500mm dia.	Each	<b>15693</b>
7.5.11	For DI/CI puddle flanges of 600mm dia.	Each	<b>21340</b>
7.6	Providing, Laying and Jointing Cast Iron (CI) double flanged pipes true to line / hoisting of DI flanged pipe in position and aligning to correct plumb, including cost of jointing materials, conveying to work spot with all lead and lifts etc.complete.		
7.6.1	For double flanged CI pipes of 80mm dia.	m	<b>2245</b>
7.6.2	For double flanged CI pipes of 100mm dia.	m	<b>3010</b>
7.6.3	For double flanged CI pipes of 150mm dia.	m	<b>4808</b>
7.6.4	For double flanged CI pipes of 200mm dia.	m	<b>6592</b>
7.6.5	For double flanged CI pipes of 250mm dia.	m	<b>9272</b>
7.6.6	For double flanged CI pipes of 300mm dia.	m	<b>11823</b>
7.6.7	For double flanged CI pipes of 350mm dia.	m	<b>15717</b>
7.6.8	For double flanged CI pipes of 400mm dia.	m	<b>19614</b>
7.6.9	For double flanged CI pipes of 450mm dia.	m	<b>23040</b>
7.6.10	For double flanged CI pipes of 500mm dia.	m	<b>26743</b>
7.6.11	For double flanged CI pipes of 600mm dia.	m	<b>34605</b>

Sl. No.	Specification	Unit	Rate ₹
7.7	Providing and fixing lightening arrestor with aluminium strip 25mm x 3mm size including finial and grounding, aluminium strip to be embeded in one of the columns in and independent GI conduit of 40mm dia. pipe suitably jointed by collars with all specials with all lead and lifts etc. complete for:		
7.7.1	For Over Head Tanks upto 6 M staging	Each	<b>8088</b>
7.7.2	For Over Head Tanks upto 9 M staging	Each	<b>9387</b>
7.7.3	For Over Head Tanks upto 12M staging	Each	<b>11530</b>
7.7.4	For Over Head Tanks upto 15M staging	Each	<b>13889</b>
7.8	Providing and fixing 40mm dia. GI pipe medium duty pipes hand railing 3 rows fixed to RCC 1:2:4 vibrated post of 150x150mm at bottom and 100x150mm at top, placed at 2 Mtrs. intervals for a height of 750mm including curing, painting GI pipes with two coats of anticorrosive steel paint over a primer coat etc. with all lead lift etc. (The rate per meter is for 3 rows of GI pipes and RCC post)	m	<b>1327</b>
7.9	Providing, of DI flanged pipe conforming to IS 8329 : 2000 with latest amendments with Cement Mortar Lining (CML) with Portland Slag Cement as per IS 455:1989 and Metallic Zinc Coating as per annexure A of IS 8329 with finishing layer of Bituminous Coating as per Annexure C of IS 8329 and Flanges: Metallic zinc rich epoxy paint & Bituminous Coating, laying true to line and hoisting in position and aligning to correct plumb including cost of jointing material, conveying to work spot with all lead and lifts etc., complete. For PN 10.0		
7.9.1	100mm	m	<b>4671</b>
7.9.2	150mm	m	<b>6635</b>
7.9.3	200mm	m	<b>8978</b>
7.9.4	250mm	m	<b>12996</b>
7.9.5	300mm	m	<b>16360</b>
7.9.6	350mm	m	<b>21118</b>
7.9.7	400mm	m	<b>26020</b>
7.9.8	450mm	m	<b>32902</b>
7.10	For PN 16		
7.10.1	100mm	m	<b>4800</b>
7.10.2	150mm	m	<b>6799</b>
7.10.3	200mm	m	<b>8345</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
7.10.4	250mm	m	<b>13324</b>
7.10.5	300mm	m	<b>16770</b>
7.10.6	350mm	m	<b>21669</b>
7.10.7	400mm	m	<b>27204</b>
7.10.8	450mm	m	<b>33792</b>
7.11	Providing Ductile Iron Push on special confirming to IS 9523:2000 - All Double Socket Duck Foot DI Bends:		
7.11.1	80 X 90	Each	<b>2365</b>
7.11.2	100 X 90	Each	<b>3063</b>
7.11.3	150 X 90	Each	<b>5162</b>
7.11.4	200 X 90	Each	<b>8750</b>
7.11.5	250 X 90	Each	<b>13770</b>
7.11.6	300 X 90;	Each	<b>18320</b>
7.11.7	350 X 90	Each	<b>25842</b>
7.11.8	Double Socket Duck Foot Bend 400 X 90;	Each	<b>32804</b>
7.11.9	450 X 90	Each	<b>38272</b>
7.11.10	500 X 90	Each	<b>63085</b>
7.11.11	600 X 90	Each	<b>140942</b>
7.11.12	700 X 90	Each	<b>161810</b>
7.12	Ladder inside the container: Providing anodized aluminium ladder using 65mm x 32mm x 3.0mm 'C' section for ladder side channel x 25mm dia., fluted pipe for Rungs at 250mm c/c ladder fixed at an angle of 70 degrees to horizontal including necessary 25mm dia., G.I. shutters with necessary G.I. fasteners for bracing the ladders to the Tank walls to prevent buckling of the ladder with necessary (M-15) bed for embedding the ladder bottom complete		
7.12.1	aluminium ladder	MTR	<b>5100</b>

**Chapter - 8**  
**GROUND LEVEL RESERVOIR**



Sl. No.	Specification	Unit	Rate ₹
<b>8 GROUND LEVEL RESERVOIR</b>			
8.1	Labour charges for M.S ladder,final,lightening arrestor and fixing guage	Each	<b>292</b>
8.2	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to RCC structures like floor and walls of reservoirs, sewe, effluent and water treatment plants, over head tanks, etc. prepared by mixing in the ratio of 5:2 (5 parts integral crystalline slurry 2 parts water) for horizontal and vertical surfaces and applying the same from negative (internal) side with the help of synthetic fibre brush. The material shall meet the requirements as specified in ACI - 212-3R-2010 ie. by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 Bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self healing of cracks upto a width of 0.50 mm. The work shall be carried out all complete as per specification and the direction of the Engineer in charge. The product performance shall carry guarantee for 10 years against any leakage. For horizontal and vertical surfaces in two coats @ 0.70 kg per sqm per coat	m2	<b>433</b>
8.3	Providing and applying crystalline mortar by mixing in the ratio of 4.5 : 1 (4.5 parts integral crystalline mortar : 1 parts water) for treatment of faulty construction joints, cracks, tie rod holes, spalled and honey combed surface, coves at junction joints of RCC structures like floor and walls of reservoirs, sewage, effluent and water treatment plants, over head tanks, etc. The crystalline mortar shall conform to EN 1504-3 having compressive strength class R4 > 45 MPa and adhesive bond strength class R3 > 1.5 MPa. The work shall be carried out all complete as per specification and the direction of the Engineer in charge. The product performance shall carry guarantee for 10 years against any leakage. For sealing cracks and faulty construction joints, and making coves at junction joints by preparing the surface, making U shaped groove size 25mm x 25mm and then priming the surface with integral crystalline slurry @ 0.05 kg per running meter and while the surface is tacky, then filling the groove up to top edge with crystalline mortar @ 1.50 kg per running meter. Once crystalline mortar is tocuh dry then finally applying two coats of integral crystalline slurry @ 0.05 kg per running meter per coat on treated surface.	m2	<b>480</b>
8.4	Providing and fixing PVC water stopper of suitable type of 230 mm width and 5 mm thickness for construction joints as per detailed technical specifications and as directed by Engineer-in-charge.	m	<b>310</b>

Sl. No.	Specification	Unit	Rate ₹
8.5	Providing, fixing, applying of contraction joint with suitable type PVC water stopper of 230 mm width and 5 mm thick sealed with 12 mm x 25 mm gun grade polysulphide elastomeric joint sealant of FOSROC make (NITO seal MS 600) over a backer rod and high performance laminated closed cell polyethylene foam joint filler of suitable make (CAPCELL-HD-100) in sheet foam having a density of 100 Kg / Cum, non staining with less than 1% water absorption, having 97% recovery at compression and as directed by Engineer-in-charge.	m	<b>600</b>
8.6	Providing & fixing of Aluminium Ventilators of frame size 40 x 18 mm of 1.3 mm thick, 0.933 Kg/ M all aluminium sections including cutting to required length, joints mitred subdividing the frame tenoned and riveted, in the assembled frame, stiffened with end clips for corners, angles etc., and fixed to the walls, lintels, floor beams/cills as the case may be with necessary steel screws, raul plugs or teak wood gatties including supply along with fixing of SS - 304 mesh with necessary required materials etc., complete.	m2	<b>3180</b>

**Chapter - 9**  
**HDPE PIPE WORKS**





Sl. No.	Specification	Unit	Rate ₹
<b>9 HDPE PIPE WORKS</b>			
9.1	Providing, laying and jointing HDPE pipes of specified grade and conforming to IS 4984-2016 with latest ammendments and conveying to work site including loading and unloading at both destinations and rolling and lowering into trenches, laying true to line and jointing of pipes and specials with electrofusion welding, giving hydraulic test as per relevant ISS with all lead and lifts including encasing the pipe alround to a depth of not less than 15 cms. with soft gravel or selected earth available from the excation, testing and commissioning. The rate is exclusive of required specials and fittings wherever necessary like saddle Tee, stub ends, flanged sets, bedns, reducers etc. complete (Contractor will make his own arrangements for procuring water for testing) etc. complete. NOTE: Upto 110mm dia Coil shall be used. For :HDPE PE 80 PN 6.0		
9.1.1	HDPE Grade PE80-PN6.0, 63mm dia	m	<b>189</b>
9.1.2	HDPE Grade PE80-PN6.0, 75mm dia	m	<b>245</b>
9.1.3	HDPE Grade PE80-PN6.0, 90mm dia	m	<b>321</b>
9.1.4	HDPE Grade PE80-PN6.0,110mm dia	m	<b>469</b>
9.1.5	HDPE Grade PE80-PN6.0,125mm dia	m	<b>608</b>
9.1.6	HDPE Grade PE80-PN6.0,140mm dia	m	<b>752</b>
9.1.7	HDPE Grade PE80-PN6.0,160mm dia	m	<b>959</b>
9.1.8	HDPE Grade PE80-PN6.0,180mm dia	m	<b>1184</b>
9.1.9	HDPE Grade PE80-PN6.0,200mm dia	m	<b>1439</b>
9.1.10	HDPE Grade PE80-PN6.0,225mm dia	m	<b>1792</b>
9.1.11	HDPE Grade PE80-PN6.0,250mm dia	m	<b>2170</b>
9.1.12	HDPE Grade PE80-PN6.0,280mm dia	m	<b>2695</b>
9.1.13	P,L&J HDPE- PE80-PN6.0,315mm dia	m	<b>3374</b>
9.1.14	HDPE Grade PE80-PN6.0,355mm dia	m	<b>4640</b>
9.1.15	HDPE Grade PE80-PN6.0,400mm dia	m	<b>5866</b>
9.1.16	HDPE Grade PE80-PN6.0,450mm dia	m	<b>7397</b>
9.1.17	HDPE Grade PE80-PN6.0,500mm dia	m	<b>9107</b>
9.1.18	HDPE Grade PE80-PN6.0,560mm dia	m	<b>11348</b>
9.1.19	HDPE Grade PE80-PN6.0,630mm dia	m	<b>14284</b>

Sl. No.	Specification	Unit	Rate ₹
9.1.20	HDPE Grade PE80-PN6.0,710mm dia	m	<b>18110</b>
9.2	For :HDPE PE 80 PN 8.0		
9.2.1	HDPE Grade PE80-PN8.0,63mm dia	m	<b>219</b>
9.2.2	HDPE Grade PE80-PN8.0,75mm dia	m	<b>286</b>
9.2.3	HDPE Grade PE80-PN8.0,90mm dia	m	<b>382</b>
9.2.4	HDPE Grade PE80-PN8.0,110mm dia	m	<b>553</b>
9.2.5	HDPE Grade PE80-PN8.0,125mm dia	m	<b>721</b>
9.2.6	HDPE Grade PE80-PN8.0,140mm dia	m	<b>890</b>
9.2.7	HDPE Grade PE80-PN8.0,160mm dia	m	<b>1141</b>
9.2.8	HDPE Grade PE80-PN8.0,180mm dia	m	<b>1420</b>
9.2.9	HDPE Grade PE80-PN8.0,200mm dia	m	<b>1718</b>
9.2.10	HDPE Grade PE80-PN8.0,225mm dia	m	<b>2163</b>
9.2.11	HDPE Grade PE80-PN8.0,250mm dia	m	<b>2625</b>
9.2.12	HDPE Grade PE80-PN8.0,280mm dia	m	<b>3262</b>
9.2.13	HDPE Grade PE80-PN8.0,315mm dia	m	<b>4086</b>
9.2.14	HDPE Grade PE80-PN8.0,355mm dia	m	<b>5650</b>
9.2.15	HDPE Grade PE80-PN8.0,400mm dia	m	<b>7156</b>
9.2.16	HDPE Grade PE80-PN8.0,450mm dia	m	<b>9018</b>
9.2.17	HDPE Grade PE80-PN8.0,500mm dia	m	<b>11104</b>
9.2.18	HDPE Grade PE80-PN8.0,560mm dia	m	<b>13865</b>
9.2.19	HDPE Grade PE80-PN8.0,630mm dia	m	<b>17493</b>
9.2.20	HDPE Grade PE80-PN8.0,710mm dia	m	<b>22160</b>
9.3	For :HDPE PE 80 PN 10.0		
9.3.1	HDPE Grade PE80-PN10.0,63mm dia	m	<b>252</b>
9.3.2	HDPE Grade PE80-PN10.0,75mm dia	m	<b>330</b>
9.3.3	HDPE Grade PE80-PN10.0,90mm dia	m	<b>444</b>
9.3.4	HDPE Grade PE80-PN10.0,110mm dia	m	<b>650</b>
9.3.5	HDPE Grade PE80-PN10.0,125mm dia	m	<b>853</b>
9.3.6	HDPE Grade PE80-PN10.0,140mm dia	m	<b>1058</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.3.7	HDPE Grade PE80-PN10.0,160mm dia	m	<b>1354</b>
9.3.8	HDPE Grade PE80-PN10.0,180mm dia	m	<b>1686</b>
9.3.9	HDPE Grade PE80-PN10.0,200mm dia	m	<b>2058</b>
9.3.10	HDPE Grade PE80-PN10.0,225mm dia	m	<b>2712</b>
9.3.11	HDPE Grade PE80-PN10.0,250mm dia	m	<b>3151</b>
9.3.12	HDPE Grade PE80-PN10.0,280mm dia	m	<b>3914</b>
9.3.13	HDPE Grade PE80-PN10.0,315mm dia	m	<b>4913</b>
9.3.14	HDPE Grade PE80-PN10.0,355mm dia	m	<b>6809</b>
9.3.15	HDPE Grade PE80-PN10.0,400mm dia	m	<b>8606</b>
9.3.16	HDPE Grade PE80-PN10.0,450mm dia	m	<b>10872</b>
9.3.17	HDPE Grade PE80-PN10.0,500mm dia	m	<b>13400</b>
9.3.18	HDPE Grade PE80-PN10.0,560mm dia	m	<b>16731</b>
9.3.19	HDPE Grade PE80-PN10.0,630mm dia	m	<b>21114</b>
9.4	For :HDPE PE 80 PN 12.5		
9.4.1	HDPE Grade PE80-PN12.5,63mm dia	m	<b>283</b>
9.4.2	HDPE Grade PE80-PN12.5, 75mm dia	m	<b>377</b>
9.4.3	HDPE Grade PE80-PN12.5,90mm dia	m	<b>514</b>
9.4.4	HDPE Grade PE80-PN12.5,110mm dia	m	<b>757</b>
9.4.5	HDPE Grade PE80-PN12.5,125mm dia	m	<b>994</b>
9.4.6	HDPE Grade PE80-PN12.5,140mm dia	m	<b>1236</b>
9.4.7	HDPE Grade PE80-PN12.5,160mm dia	m	<b>1585</b>
9.4.8	HDPE Grade PE80-PN12.5,180mm dia	m	<b>1982</b>
9.4.9	HDPE Grade PE80-PN12.5,200mm dia	m	<b>2428</b>
9.4.10	HDPE Grade PE80-PN12.5,225mm dia	m	<b>3035</b>
9.4.11	HDPE Grade PE80-PN12.5,250mm dia	m	<b>3715</b>
9.4.12	HDPE Grade PE80-PN12.5,280mm dia	m	<b>4633</b>
9.4.13	HDPE Grade PE80-PN12.5,315mm dia	m	<b>5810</b>
9.4.14	HDPE Grade PE80-PN12.5,355mm dia	m	<b>8096</b>
9.4.15	HDPE Grade PE80-PN12.5,400mm dia	m	<b>10238</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.4.16	HDPE Grade PE80-PN12.5,450mm dia	m	<b>12925</b>
9.4.17	HDPE Grade PE80-PN12.5,500mm dia	m	<b>15933</b>
9.5	For :HDPE PE 80 PN 16.0		
9.5.1	HDPE Grade PE80-PN16.0, 63mm dia	m	<b>327</b>
9.5.2	HDPE Grade PE80-PN16.0, 75mm dia	m	<b>433</b>
9.5.3	HDPE Grade PE80-PN16.0,90mm dia	m	<b>598</b>
9.5.4	HDPE Grade PE80-PN16.0,110mm dia	m	<b>883</b>
9.5.5	HDPE Grade PE80-PN16.0,125mm dia	m	<b>1153</b>
9.5.6	HDPE Grade PE80-PN16.0,140mm dia	m	<b>1438</b>
9.5.7	HDPE Grade PE80-PN16.0,160mm dia	m	<b>1850</b>
9.5.8	HDPE Grade PE80-PN16.0,180mm dia	m	<b>2317</b>
9.5.9	HDPE Grade PE80-PN16.0,200mm dia	m	<b>2837</b>
9.5.10	HDPE Grade PE80-PN16.0,225mm dia	m	<b>3565</b>
9.5.11	HDPE Grade PE80-PN16.0,250mm dia	m	<b>4354</b>
9.5.12	HDPE Grade PE80-PN16.0,280mm dia	m	<b>5433</b>
9.5.13	HDPE Grade PE80-PN16.0,315mm dia	m	<b>6831</b>
9.5.14	HDPE Grade PE80-PN16.0,355mm dia	m	<b>9523</b>
9.5.15	HDPE Grade PE80-PN16.0,400mm dia	m	<b>12053</b>
9.6	For Grade PE 80 PN 3.0:		
9.6.1	HDPE Grade PE80-PN 3.0, 63mm dia	m	<b>137</b>
9.6.2	HDPE Grade PE80-PN 3.0, 75mm dia	m	<b>164</b>
9.6.3	HDPE Grade PE80-PN 3.0, 90mm dia	m	<b>214</b>
9.6.4	HDPE Grade PE80-PN 3.0,110mm dia	m	<b>306</b>
9.6.5	HDPE Grade PE80-PN 3.0,125mm dia	m	<b>376</b>
9.6.6	HDPE Grade PE80-PN 3.0,140mm dia	m	<b>461</b>
9.6.7	HDPE Grade PE80-PN 3.0,160mm dia	m	<b>576</b>
9.6.8	HDPE Grade PE80-PN 3.0,180mm dia	m	<b>707</b>
9.6.9	HDPE Grade PE80-PN 3.0,200mm dia	m	<b>846</b>
9.6.10	HDPE Grade PE80-PN 3.0,225mm dia	m	<b>1046</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.6.11	HDPE Grade PE80-PN 3.0,250mm dia	m	1249
9.6.12	HDPE Grade PE80-PN 3.0,280mm dia	m	1529
9.6.13	HDPE Grade PE80-PN 3.0,315mm dia	m	1899
9.6.14	HDPE Grade PE80-PN 3.0,355mm dia	m	2592
9.6.15	HDPE Grade PE80-PN 3.0,400mm dia	m	3255
9.6.16	HDPE Grade PE80-PN 3.0,450mm dia	m	4070
9.6.17	HDPE Grade PE80-PN 3.0,500mm dia	m	4970
9.6.18	HDPE Grade PE80-PN 3.0,560mm dia	m	6175
9.6.19	HDPE Grade PE80-PN 3.0,630mm dia	m	7737
9.6.20	HDPE Grade PE80-PN 3.0,710mm dia	m	9822
9.6.21	HDPE Grade PE80-PN 3.0,800mm dia	m	12522
9.6.22	HDPE Grade PE80-PN 3.0,900mm dia	m	15719
9.6.23	HDPE Grade PE80-PN 3.0,1000mm dia	m	19311
9.6.24	HDPE Grade PE80-PN 3.0,1200mm dia	m	27630
9.7	For Grade PE 80 PN 4.0:		
9.7.1	HDPE Grade PE80-PN 4.0, 63mm dia	m	151
9.7.2	HDPE Grade PE80-PN 4.0, 75mm dia	m	186
9.7.3	HDPE Grade PE80-PN 4.0, 90mm dia	m	243
9.7.4	HDPE Grade PE80-PN 4.0,110mm dia	m	350
9.7.5	HDPE Grade PE80-PN 4.0,125mm dia	m	443
9.7.6	HDPE Grade PE80-PN 4.0,140mm dia	m	543
9.7.7	HDPE Grade PE80-PN 4.0,160mm dia	m	685
9.7.8	HDPE Grade PE80-PN 4.0,180mm dia	m	848
9.7.9	HDPE Grade PE80-PN 4.0,200mm dia	m	1017
9.7.10	HDPE Grade PE80-PN 4.0,225mm dia	m	1262
9.7.11	HDPE Grade PE80-PN 4.0,250mm dia	m	1527
9.7.12	HDPE Grade PE80-PN 4.0,280mm dia	m	1870
9.7.13	HDPE Grade PE80-PN 4.0,315mm dia	m	2331
9.7.14	HDPE Grade PE80-PN 4.0,355mm dia	m	3182

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.7.15	HDPE Grade PE80-PN 4.0,400mm dia	m	<b>3989</b>
9.7.16	HDPE Grade PE80-PN 4.0,450mm dia	m	<b>5020</b>
9.7.17	HDPE Grade PE80-PN 4.0,500mm dia	m	<b>6180</b>
9.7.18	HDPE Grade PE80-PN 4.0,560mm dia	m	<b>7704</b>
9.7.19	HDPE Grade PE80-PN 4.0,630mm dia	m	<b>9670</b>
9.7.20	HDPE Grade PE80-PN 4.0,710mm dia	m	<b>12202</b>
9.7.21	HDPE Grade PE80-PN 4.0,800mm dia	m	<b>15611</b>
9.7.22	HDPE Grade PE80-PN 4.0,900mm dia	m	<b>19676</b>
9.7.23	HDPE Grade PE80-PN 4.0,1000mm dia	m	<b>24187</b>
9.7.24	HDPE Grade PE80-PN 4.0,1200mm dia	m	<b>34598</b>
9.8	For Grade PE 100 PN 3.0:		
9.8.1	HDPE Grade PE100-PN 3.0,63mm dia	m	<b>129</b>
9.8.2	HDPE Grade PE100-PN 3.0,75mm dia	m	<b>151</b>
9.8.3	HDPE Grade PE100-PN 3.0, 90mm dia	m	<b>186</b>
9.8.4	HDPE Grade PE100-PN 3.0,110mm dia	m	<b>269</b>
9.8.5	HDPE Grade PE100-PN 3.0,125mm dia	m	<b>330</b>
9.8.6	HDPE Grade PE100-PN 3.0,140mm dia	m	<b>407</b>
9.8.7	HDPE Grade PE100-PN 3.0,160mm dia	m	<b>493</b>
9.8.8	HDPE Grade PE100-PN 3.0,180mm dia	m	<b>602</b>
9.8.9	HDPE Grade PE100-PN 3.0,200mm dia	m	<b>723</b>
9.8.10	HDPE Grade PE100-PN 3.0,225mm dia	m	<b>175</b>
9.8.11	HDPE Grade PE100-PN 3.0,250mm dia	m	<b>1054</b>
9.8.12	HDPE Grade PE100-PN 3.0,280mm dia	m	<b>1300</b>
9.8.13	HDPE Grade PE100-PN 3.0,315mm dia	m	<b>1595</b>
9.8.14	HDPE Grade PE100-PN 3.0,355mm dia	m	<b>2146</b>
9.8.15	HDPE Grade PE100-PN 3.0,400mm dia	m	<b>2683</b>
9.8.16	HDPE Grade PE100-PN 3.0,450mm dia	m	<b>3337</b>
9.8.17	HDPE Grade PE100-PN 3.0,500mm dia	m	<b>4070</b>
9.8.18	HDPE Grade PE100-PN 3.0,560mm dia	m	<b>5070</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.8.19	HDPE Grade PE100-PN 3.0,630mm dia	m	<b>6332</b>
9.8.20	HDPE Grade PE100-PN 3.0,710mm dia	m	<b>7971</b>
9.8.21	HDPE Grade PE100-PN 3.0,800mm dia	m	<b>10232</b>
9.8.22	HDPE Grade PE100-PN 3.0,900mm dia	m	<b>12858</b>
9.8.23	HDPE Grade PE100-PN 3.0,1000mm dia	m	<b>15759</b>
9.8.24	HDPE Grade PE100-PN 3.0,1200mm dia	m	<b>22509</b>
9.9	For Grade PE 100 PN 4.0:		
9.9.1	HDPE Grade PE100-PN 4.0,63mm dia	m	<b>165</b>
9.9.2	HDPE Grade PE100-PN 4.0,75mm dia	m	<b>166</b>
9.9.3	HDPE Grade PE100-PN 4.0, 90mm dia	m	<b>216</b>
9.9.4	HDPE Grade PE100-PN 4.0,110mm dia	m	<b>309</b>
9.9.5	HDPE Grade PE100-PN 4.0,125mm dia	m	<b>380</b>
9.9.6	HDPE Grade PE100-PN 4.0,140mm dia	m	<b>465</b>
9.9.7	HDPE Grade PE100-PN 4.0,160mm dia	m	<b>581</b>
9.9.8	HDPE Grade PE100-PN 4.0,180mm dia	m	<b>715</b>
9.9.9	HDPE Grade PE100-PN 4.0,200mm dia	m	<b>854</b>
9.9.10	HDPE Grade PE100-PN 4.0,225mm dia	m	<b>1058</b>
9.9.11	HDPE Grade PE100-PN 4.0,250mm dia	m	<b>1263</b>
9.9.12	HDPE Grade PE100-PN 4.0,280mm dia	m	<b>1549</b>
9.9.13	HDPE Grade PE100-PN 4.0,315mm dia	m	<b>1925</b>
9.9.14	HDPE Grade PE100-PN 4.0,355mm dia	m	<b>2575</b>
9.9.15	HDPE Grade PE100-PN 4.0,400mm dia	m	<b>3237</b>
9.9.16	HDPE Grade PE100-PN 4.0,450mm dia	m	<b>4070</b>
9.9.17	HDPE Grade PE100-PN 4.0,500mm dia	m	<b>4970</b>
9.9.18	HDPE Grade PE100-PN 4.0,560mm dia	m	<b>6175</b>
9.9.19	HDPE Grade PE100-PN 4.0,630mm dia	m	<b>7737</b>
9.9.20	HDPE Grade PE100-PN 4.0,710mm dia	m	<b>9822</b>
9.9.21	HDPE Grade PE100-PN 4.0,800mm dia	m	<b>12522</b>
9.9.22	HDPE Grade PE100-PN 4.0,900mm dia	m	<b>15719</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.9.23	HDPE Grade PE100-PN 4.0,1000mm dia	m	<b>19311</b>
9.9.24	HDPE Grade PE100-PN 4.0,1200mm dia	m	<b>27630</b>
9.10	For Grade PE 100 PN 6.0:		
9.10.1	HDPE Grade PE100-PN6.0,63mm dia	m	<b>167</b>
9.10.2	HDPE Grade PE100-PN6.0,75mm dia	m	<b>213</b>
9.10.3	HDPE Grade PE100-PN6.0, 90mm dia	m	<b>281</b>
9.10.4	HDPE Grade PE100-PN6.0,110mm dia	m	<b>412</b>
9.10.5	HDPE Grade PE100-PN6.0,125mm dia	m	<b>526</b>
9.10.6	HDPE Grade PE100-PN6.0,140mm dia	m	<b>647</b>
9.10.7	HDPE Grade PE100-PN6.0,160mm dia	m	<b>821</b>
9.10.8	HDPE Grade PE100-PN6.0,180mm dia	m	<b>1013</b>
9.10.9	HDPE Grade PE100-PN6.0,200mm dia	m	<b>1232</b>
9.10.10	HDPE Grade PE100-PN6.0,225mm dia	m	<b>1528</b>
9.10.11	HDPE Grade PE100-PN6.0,250mm dia	m	<b>1849</b>
9.10.12	HDPE Grade PE100-PN6.0,280mm dia	m	<b>2278</b>
9.10.13	P,L&J HDPE- PE100-PN6.0,315mm dia	m	<b>2832</b>
9.10.14	HDPE Grade PE100-PN6.0,355mm dia	m	<b>3838</b>
9.10.15	HDPE Grade PE100-PN6.0,400mm dia	m	<b>4847</b>
9.10.16	HDPE Grade PE100-PN6.0,450mm dia	m	<b>6125</b>
9.10.17	HDPE Grade PE100-PN6.0,500mm dia	m	<b>7518</b>
9.10.18	HDPE Grade PE100-PN6.0,560mm dia	m	<b>9357</b>
9.10.19	HDPE Grade PE100-PN6.0,630mm dia	m	<b>11755</b>
9.10.20	HDPE Grade PE100-PN6.0,710mm dia	m	<b>14930</b>
9.11	For Grade PE 100 PN 8.0:		
9.11.1	HDPE Grade PE100-PN8.0,63mm dia	m	<b>187</b>
9.11.2	HDPE Grade PE100-PN8.0,75mm dia	m	<b>245</b>
9.11.3	HDPE Grade PE100-PN8.0,90mm dia	m	<b>322</b>
9.11.4	HDPE Grade PE100-PN8.0,110mm dia	m	<b>471</b>
9.11.5	HDPE Grade PE100-PN8.0,125mm dia	m	<b>615</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.11.6	HDPE Grade PE100-PN8.0,140mm dia	m	<b>760</b>
9.11.7	HDPE Grade PE100-PN8.0,160mm dia	m	<b>971</b>
9.11.8	HDPE Grade PE100-PN8.0,180mm dia	m	<b>1199</b>
9.11.9	HDPE Grade PE100-PN8.0,200mm dia	m	<b>1459</b>
9.11.10	HDPE Grade PE100-PN8.0,225mm dia	m	<b>1817</b>
9.11.11	HDPE Grade PE100-PN8.0,250mm dia	m	<b>2201</b>
9.11.12	HDPE Grade PE100-PN8.0,280mm dia	m	<b>2732</b>
9.11.13	HDPE Grade PE100-PN8.0,315mm dia	m	<b>3422</b>
9.11.14	HDPE Grade PE100-PN8.0,355mm dia	m	<b>4640</b>
9.11.15	HDPE Grade PE100-PN8.0,400mm dia	m	<b>5866</b>
9.11.16	HDPE Grade PE100-PN8.0,450mm dia	m	<b>7397</b>
9.11.17	HDPE Grade PE100-PN8.0,500mm dia	m	<b>9107</b>
9.11.18	HDPE Grade PE100-PN8.0,560mm dia	m	<b>11348</b>
9.11.19	HDPE Grade PE100-PN8.0,630mm dia	m	<b>14284</b>
9.11.20	HDPE Grade PE100-PN8.0,710mm dia	m	<b>18110</b>
9.12	For Grade PE 100 PN 10.0:		
9.12.1	HDPE Grade PE100-PN10.0,63mm dia	m	<b>219</b>
9.12.2	HDPE Grade PE100-PN10.0, 75mm dia	m	<b>285</b>
9.12.3	HDPE Grade PE100-PN10.0,90mm dia	m	<b>384</b>
9.12.4	HDPE Grade PE100-PN10.0,110mm dia	m	<b>556</b>
9.12.5	HDPE Grade PE100-PN10.0,125mm dia	m	<b>729</b>
9.12.6	HDPE Grade PE100-PN10.0,140mm dia	m	<b>901</b>
9.12.7	HDPE Grade PE100-PN10.0,160mm dia	m	<b>1155</b>
9.12.8	HDPE Grade PE100-PN10.0,180mm dia	m	<b>1440</b>
9.12.9	HDPE Grade PE100-PN10.0,200mm dia	m	<b>1751</b>
9.12.10	HDPE Grade PE100-PN10.0,225mm dia	m	<b>2192</b>
9.12.11	HDPE Grade PE100-PN10.0,250mm dia	m	<b>2661</b>
9.12.12	HDPE Grade PE100-PN10.0,280mm dia	m	<b>3308</b>
9.12.13	HDPE Grade PE100-PN10.0,315mm dia	m	<b>4144</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.12.14	HDPE Grade PE100-PN10.0,355mm dia	m	<b>5650</b>
9.12.15	HDPE Grade PE100-PN10.0,400mm dia	m	<b>7157</b>
9.12.16	HDPE Grade PE100-PN10.0,450mm dia	m	<b>9018</b>
9.12.17	HDPE Grade PE100-PN10.0,500mm dia	m	<b>11104</b>
9.12.18	HDPE Grade PE100-PN10.0,560mm dia	m	<b>13865</b>
9.12.19	HDPE Grade PE100-PN10.0,630mm dia	m	<b>17493</b>
9.12.20	HDPE Grade PE100-PN10.0, 710mm dia	m	<b>22146</b>
9.13	For :HDPE PE 100 PN 12.5		
9.13.1	HDPE Grade PE100-PN 12.5, 63mm dia	m	<b>252</b>
9.13.2	HDPE Grade PE100-PN 12.5, 75 mm dia	m	<b>330</b>
9.13.3	HDPE Grade PE100-PN12.5,90mm dia	m	<b>446</b>
9.13.4	HDPE Grade PE100-PN12.5,110mm dia	m	<b>652</b>
9.13.5	HDPE Grade PE100-PN12.5,125mm dia	m	<b>864</b>
9.13.6	HDPE Grade PE100-PN12.5,140mm dia	m	<b>1071</b>
9.13.7	HDPE Grade PE100-PN12.5,160mm dia	m	<b>1370</b>
9.13.8	HDPE Grade PE100-PN12.5,180mm dia	m	<b>1709</b>
9.13.9	HDPE Grade PE100-PN12.5,200mm dia	m	<b>2086</b>
9.13.10	HDPE Grade PE100-PN 12.5, 225mm dia	m	<b>2616</b>
9.13.11	HDPE Grade PE100-PN 12.5, 250mm dia	m	<b>3194</b>
9.13.12	HDPE Grade PE100-PN 12.5, 280mm dia	m	<b>3971</b>
9.13.13	HDPE Grade PE100-PN 12.5, 315mm dia	m	<b>4984</b>
9.13.14	HDPE Grade PE100-PN 12.5, 355mm dia	m	<b>6809</b>
9.13.15	HDPE Grade PE100-PN 12.5, 400mm dia	m	<b>8606</b>
9.13.16	HDPE Grade PE100-PN 12.5, 450mm dia	m	<b>10872</b>
9.13.17	HDPE Grade PE100-PN 12.5, 500mm dia	m	<b>13400</b>
9.14	For :HDPE PE 100 PN 16.0		
9.14.1	HDPE Grade PE100-PN 16.0, 75 mm dia	m	<b>378</b>
9.14.2	HDPE Grade PE100-PN16.0, 90mm dia	m	<b>515</b>
9.14.3	HDPE Grade PE100-PN16.0, 110mm dia	m	<b>763</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.14.4	HDPE Grade PE100-PN16.0, 125mm dia	m	<b>1006</b>
9.14.5	HDPE Grade PE100-PN16.0, 140mm dia	m	<b>1251</b>
9.14.6	HDPE Grade PE100-PN16.0, 160mm dia	m	<b>1604</b>
9.14.7	HDPE Grade PE100-PN16.0, 180mm dia	m	<b>2007</b>
9.14.8	HDPE Grade PE100-PN16.0, 200mm dia	m	<b>2461</b>
9.14.9	HDPE Grade PE100-PN16.0, 225mm dia	m	<b>3079</b>
9.14.10	HDPE Grade PE100-PN 16.0, 250mm dia	m	<b>3768</b>
9.14.11	HDPE Grade PE100-PN 16.0, 280mm dia	m	<b>4698</b>
9.14.12	HDPE Grade PE100-PN 16.0, 315mm dia	m	<b>5893</b>
9.14.13	HDPE Grade PE100-PN 16.0, 355mm dia	m	<b>8096</b>
9.14.14	HDPE Grade PE100-PN 16.0, 400 mm dia	m	<b>10238</b>
9.14.15	HDPE Grade PE100-PN 16.0, 450mm dia	m	<b>12925</b>
9.14.16	HDPE Grade PE100-PN 16.0, 500mm dia	m	<b>15933</b>
9.15	Lowering, laying and fusion welding Jointing for HDPE Pipes Grade PE-80 / PE-100 conforming to IS 4984-2016, of specified dia. including hydraulic testing and commissioning etc. (Contractor will make his own arrangements for procuring water for testing) for:		
9.15.1	63mm dia	m	<b>64</b>
9.15.2	75mm dia	m	<b>67</b>
9.15.3	90mm dia	m	<b>71</b>
9.15.4	110mm dia	m	<b>95</b>
9.15.5	125mm dia	m	<b>107</b>
9.15.6	140mm dia	m	<b>122</b>
9.15.7	160mm dia	m	<b>133</b>
9.15.8	180mm dia	m	<b>148</b>
9.15.9	200mm dia	m	<b>161</b>
9.15.10	225mm dia	m	<b>175</b>
9.15.11	250mm dia	m	<b>181</b>
9.15.12	280mm dia	m	<b>194</b>
9.15.13	315mm dia	m	<b>205</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.15.14	355mm dia	m	<b>215</b>
9.15.15	400mm dia	m	<b>236</b>
9.15.16	450mm dia	m	<b>251</b>
9.15.17	500mm dia	m	<b>271</b>
9.15.18	560mm dia	m	<b>287</b>
9.15.19	630mm dia	m	<b>298</b>
9.15.20	710mm dia	m	<b>320</b>
9.15.21	800mm dia	m	<b>498</b>
9.15.22	900mm dia	m	<b>522</b>
9.15.23	1000mm dia	m	<b>572</b>
9.15.24	1200mm dia	m	<b>624</b>
9.16	Providing and installation of Class SN8 Double Wall Corrugated HDPE pipe outer wall corrugated and inner wall smooth piping system in accordance with IS 16098 part 2 and conveying to work site and lowering into trenches, laying true to line and level and perfect linking at joints with the help of two "O" rings and a coupler of suitable size, including loading and unloading at both destination and cutting of pipes where ever necessary including jointing with all labour, all lead and lift including encasing the pipe around to a depth of not less than 15 cm with screened soft soil available from the excavated soil. The testing commissioning including necessary hydraulic test to the required pressure as per ISS shall be done the contractor shall have to make his own arrangement for procuring water for testing etc. complete.		
9.16.1	SN8 Double Wall Corrugated HDPE pipe sizes of 100 mm dia	m	<b>283</b>
9.16.2	SN8 Double Wall Corrugated HDPE pipe sizes of 135 mm dia	m	<b>381</b>
9.16.3	SN8 Double Wall Corrugated HDPE pipe sizes of 150 mm dia	m	<b>471</b>
9.16.4	SN8 Double Wall Corrugated HDPE pipe sizes of 170 mm dia	m	<b>628</b>
9.16.5	SN8 Double Wall Corrugated HDPE pipe sizes of 200 mm dia	m	<b>762</b>
9.16.6	SN8 Double Wall Corrugated HDPE pipe sizes of 250 mm dia	m	<b>1129</b>
9.16.7	SN8 Double Wall Corrugated HDPE pipe sizes of 300 mm dia	m	<b>1502</b>
9.16.8	SN8 Double Wall Corrugated HDPE pipe sizes of 400 mm dia	m	<b>2767</b>
9.16.9	SN8 Double Wall Corrugated HDPE pipe sizes of 500 mm dia	m	<b>3918</b>
9.16.10	SN8 Double Wall Corrugated HDPE pipe sizes of 600 mm dia	m	<b>5814</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.16.11	SN8 Double Wall Corrugated HDPE pipe sizes of 800 mm dia	m	<b>9866</b>
9.16.12	SN8 Double Wall Corrugated HDPE pipe sizes of 1000 mm dia	m	<b>14628</b>
9.17	Providing and installation of Class SN8 Double Wall Corrugated HDPE Specials outer wall corrugated and inner wall smooth piping system in accordance with IS 16098 part 2 and conveying to work site and lowering into trenches, laying true to line and level and perfect linking at joints with the help of two "O" rings and a coupler of suitable size, including loading and unloading at both destination and cutting of pipes where ever necessary including jointing with all labour, all lead and lift including encasing the Specials around to a depth of not less than 15 cm with screened soft soil available from the excavated soil. The testing commissioning including necessary hydraulic test to the required pressure as per ISS shall be done the contractor shall have to make his own arrangement for procuring water for testing etc. complete.		
9.17.1	100 ID COUPLER - fitting for 100mm dia pipes	Each	<b>131</b>
9.17.2	135 ID COUPLER - fitting for 135mm dia pipes	Each	<b>182</b>
9.17.3	150 ID COUPLER - fitting for 150mm dia pipes	Each	<b>214</b>
9.17.4	170 ID COUPLER - fitting for 170mm dia pipes	Each	<b>245</b>
9.17.5	200 ID COUPLER - fitting for 200mm dia pipes	Each	<b>404</b>
9.17.6	250 ID COUPLER - fitting for 250mm dia pipes	Each	<b>548</b>
9.17.7	300 ID COUPLER - fitting for 300mm dia pipes	Each	<b>634</b>
9.17.8	400 ID COUPLER - fitting for 400mm dia pipes	Each	<b>768</b>
9.17.9	500 ID COUPLER - fitting for 500mm dia pipes	Each	<b>903</b>
9.17.10	600 ID COUPLER - fitting for 600mm dia pipes	Each	<b>1054</b>
9.17.11	800 ID COUPLER - fitting for 800mm dia pipes	Each	<b>1563</b>
9.17.12	1000 ID COUPLER - fitting for 1000mm dia pipes	Each	<b>1992</b>
9.17.13	100 ID TEE - fitting for 100mm dia pipes	Each	<b>755</b>
9.17.14	135 ID TEE - fitting for 135mm dia pipes	Each	<b>816</b>
9.17.15	150 ID TEE - fitting for 150mm dia pipes	Each	<b>877</b>
9.17.16	170 ID TEE - fitting for 170mm dia pipes	Each	<b>970</b>
9.17.17	200 ID TEE - fitting for 200mm dia pipes	Each	<b>1299</b>
9.17.18	250 ID TEE - fitting for 250mm dia pipes	Each	<b>1774</b>
9.17.19	300 ID TEE - fitting for 300mm dia pipes	Each	<b>1920</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
9.17.20	100 ID BEND - fitting for 100mm dia pipes	Each	<b>198</b>
9.17.21	135 ID BEND - fitting for 135mm dia pipes	Each	<b>252</b>
9.17.22	150 ID BEND - fitting for 150mm dia pipes	Each	<b>309</b>
9.17.23	170 ID BEND - fitting for 170mm dia pipes	Each	<b>424</b>
9.17.24	200 ID BEND - fitting for 200mm dia pipes	Each	<b>631</b>
9.17.25	250 ID BEND - fitting for 250mm dia pipes	Each	<b>976</b>
9.17.26	300 ID BEND - fitting for 300mm dia pipes	Each	<b>1334</b>
9.17.27	63 MM ELECTRO FUSION COUPLER	Each	<b>141</b>
9.17.28	75 MM ELECTRO FUSION COUPLER	Each	<b>179</b>
9.17.29	90 MM ELECTRO FUSION COUPLER	Each	<b>231</b>
9.17.30	63 MM ELECTRO FUSION TEE	Each	<b>246</b>
9.17.31	75 MM ELECTRO FUSION TEE	Each	<b>358</b>
9.17.32	90 MM ELECTRO FUSION TEE	Each	<b>528</b>
9.17.33	63 MM ELECTRO FUSION ELBOW	Each	<b>247</b>
9.17.34	75 MM ELECTRO FUSION ELBOW	Each	<b>288</b>
9.17.35	90 MM ELECTRO FUSION ELBOW	Each	<b>453</b>
9.17.36	90 X75 MM ELECTRO FUSION REDUCER	Each	<b>504</b>
9.17.37	90X63 MM ELECTRO FUSION REDUCER	Each	<b>442</b>
9.17.38	75X63 MM ELECTRO FUSION REDUCER	Each	<b>281</b>
9.17.39	80 MM STAINER	Each	<b>2166</b>
9.17.40	3 "M.S. FLANGE	Each	<b>200</b>
9.17.41	90 MN HDPE LNC	Each	<b>121</b>
9.17.42	½ CPV FTA	Each	<b>20</b>
9.17.43	½ CPVE ELBOW BRASS	Each	<b>42</b>
9.17.44	63 MM COMPRESSION MTA	Each	<b>200</b>
9.17.45	75 MM COMPRESSION MTA	Each	<b>361</b>
9.17.46	90 MM COMPRESSION MTA	Each	<b>401</b>
9.18	Providing and laying of warning tape / Caution tape / detector tape for HDPE pipes of 200 mm wide, 300 micron thick, blue in colour conforming to relevant ISS with latest amendments with appurtenances., complete	m	<b>8</b>

Sl. No.	Specification	Unit	Rate ₹
9.19	Providing and laying of Disc type Active Electronic Marker (RFID) with all lead and lift. Each Type: Active electronic marker Output / Operating Frequency: Output efficiency: 145.7 KHz Each RFID: The marker should have unique fixed 10 digit ID in hexadecimal mode Construction: High impact polystyrene plastic casing sealed to IP65 Size: Minimum 220mm dia x minnum 25mm thickness Weight : >=250 gms Power Source: Self generated. No batteries required for signal transmission Working : Unit should have capability to receive signal and transmit back Depth range: 1.5 meters Working Life : >= 40 years	Each	<b>2015</b>
9.20	Supply and laying of Disc type Passive Electronic Marker (RFID) with all lead and lift. Each Type: Passive electronic marker Output / Operating Frequency: Output frequency: 145.7 kHz Construction: High impact polystyrene plastic casing sealed to IP65 Size: Minimum 120mm diameter x Minimum 33mm thickness Weight : >=116 grams Power Source: self generated. No batteries required for signal transmission. Working : Unit should have capability to receive signal and transmit back Depth range: 1.5 meters Working Life : >= 40 years	Each	<b>1101</b>
9.21	Passive Electronic Marker Locator (for locating buried passive electronic markers) The electronic marker locator shall be used to locate electronic marker buried under ground and should have the following features: Operating frequency: a. 145.7 KHz for water b. 121.6 KHz for Sewer c. 66.35 Hz for Non potable water Depth range: minimum 5 feet Scan mode provides simultaneous detection of all marker types. User - adjustable detection Threshold Large - character LCD display Bar graph, numeric & audible signal strength indicators Speaker volume adjust Headphone jack Battery level indicator Low battery warning Adjustable time out feature prolongs battery life (and can be turned off) Weather resistant Rugged construction etc. complete.	Each	<b>169457</b>
9.22	Providing 50 mm Dia HDPE Sleeve pipe with allied accessories at ferrule point of HSC to assist in regulating flow with allen key with appurtenances., complete.	Each	<b>293</b>
9.23	Providing and fixing of HDPE water meter box with locking arrangement to protect the water meter of Class 'B' Multijet type of size 15 to 32 mm including HDPE box with base dia 300mm x lid dia 200mm x height 250mm with openable lid and the cover is buried below GL with lid flush with GL including earth work excavation for 600mm x 600mm and base sand filling for 100mm thick over which the cover is placed and enclosed by PCC 1:2:4 using 12-20mm BG jelly for an height of 150mm and refilling with excavated earth for balance 100mm height, disposal of excess earth with all lead and lifts with appurtenances complete as per drawing enclosed etc. complete.	Each	<b>537</b>



Sl. No.	Specification	Unit	Rate ₹
9.24	Providing & fixing electro fusion saddle comply with BS EN12201-3:2011, PN-12.5 rating and food grade raw material as per BS 6920 with material of construction PE 80 or PE 100 and colour of fitting - Blue/Black for water applications, EF tapping saddle is V-Regarding type. Designed to fuse at a fusion voltage of 40 volt AC. EF tapping saddle shall have moulded SS/Brass metal female threaded outlet. EF tapping saddle is fused by using a top loading pillar type pressure exerting 1500N (150 kg apprx.) top load on EF saddle. Fusion time is 170 secs and cooling time is 10mins, Exerted pressure should be removed after completing the 10 mins cooling time. 63x20,75x20,90x20,110x20,140x20 etc. complete.		
9.24.1	electrofusion saddle	Each	<b>350</b>

**Chapter - 10**  
**PVC PIPE WORKS**



Sl. No.	Specification	Unit	Rate ₹
<b>10 PVC PIPE WORKS</b>			
10.1	Providing PVC ringtite pipes conforming to IS 4985:2000 with latest amendments and conveying to worksite, rolling and lowering into trenches, laying true to line and level and perfect linking at joints, testing and commissioning, including loading unloading at both destinations and cuts of pipes wherever necessary including jointing of PVC pipes and specials (excluding cost of specials) with jointing of approved type, with all labour with all lead & lift including encasing the pipe around to a depth of not less than 15 cms. with soft gravel or selected earth available from the excavation etc. complete and giving necessary hydraulic test to the required pressure as per ISS (Contractor will make his own arrangements for procuring water for testing) etc. complete For:		
10.1.1	PVC pipes 25mm dia, 10 kg/sqcm & class 5	m	<b>48</b>
10.1.2	PVC pipes 32mm dia., 10 kg/sqcm & class 5	m	<b>67</b>
10.1.3	PVC pipes 50mm dia., 6 kg/sqcm & class 5	m	<b>101</b>
10.1.4	PVC pipes 63mm dia., 6 kg/sqcm & class 3	m	<b>161</b>
10.1.5	PVC pipes 75mm dia., 6 kg/sqcm & class 3	m	<b>220</b>
10.1.6	PVC pipes 90mm dia., 6 kg/sqcm & class 3	m	<b>294</b>
10.1.7	PVC pipes 110mm dia., 6 kg/sqcm & class 3	m	<b>411</b>
10.1.8	PVC pipes 140mm dia., 6 kg/sqcm & class 3	m	<b>584</b>
10.1.9	PVC pipes 160mm dia., 6 kg/sqcm & class 3	m	<b>618</b>
10.1.10	PVC pipes 200mm dia., 6 kg/sqcm & class 3	m	<b>1115</b>
10.1.11	PVC pipes 250mm dia., 6 kg/sqcm & class 3	m	<b>1445</b>
10.1.12	PVC pipes 315mm dia., 6 kg/sqcm & class 3	m	<b>2005</b>
10.2	Providing UNPLASTICISED PVC pipes conforming to IS 16098:2013 with latest amendments ended with integral sockets with ISI mark and conveying to worksite, rolling and lowering into trenches, laying true to line and level and perfect linking at joints, testing and commissioning, including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type, with all labour, lead & lifts, including encasing the pipes around to a depth of not less than 15 cms. with soft gravel or selected earth available from the excavation etc. complete and giving necessary hydraulic test to the required pressure as per ISS (contractor will make his own arrangements for procuring water for testing) etc. complete for:		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.2.1	Pipes of SN 4, 75mm dia.	m	217
10.2.2	Pipes of SN4, 110mm dia.	m	288
10.2.3	For pipes SN4, 125mm dia.	m	385
10.2.4	Pipes of SN4, 160mm dia.	m	576
10.2.5	Pipes of SN4, 200mm dia.	m	831
10.2.6	Pipes of SN4, 250mm dia.	m	1274
10.2.7	Pipes of SN4, 315mm dia.	m	2016
10.2.8	Pipes of SN 8, 110mm dia.	m	347
10.2.9	Pipes of SN 8, 125mm dia.	m	444
10.2.10	Pipes of SN 8, 160mm dia.	m	697
10.2.11	Pipes of SN 8, 200mm dia.	m	1034
10.2.12	Pipes of SN 8, 250mm dia.	m	1541
10.2.13	Pipes of SN 8, 315mm dia.	m	2350
10.3	Providing UPVC FOAM CORE pipes conforming to IS 16098 P-1 2013 with latest amendments ended with integral sockets with ISI mark and conveying to worksite, rolling and lowering into trenches, laying true to line and level and perfect linking at joints, testing and commissioning, including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of UPVC pipes (with cost of elastomeric sealing rings) and specials (excluding cost of specials) with jointing of approved type, with all labour, lead & lifts, including encasing the pipes around to a depth of not less than 15 cms. with soft gravel or selected earth available from the excavation etc. complete and giving necessary hydraulic test to the required pressure as per ISS (contractor will make his own arrangements for procuring water for testing) etc. complete. for:		
10.3.1	Pipes of SN4 Ring Fit - 160mm dia.	m	512
10.3.2	Pipes of SN8 Ring Fit, 160mm dia.	m	582
10.3.3	Pipes of SN4 Self Fit - 160mm dia.	m	518
10.3.4	Pipes of SN4 Self Fit - 200mm dia.	m	772
10.3.5	Pipes of SN4 Self Fit - 250mm dia.	m	1192
10.3.6	Pipes of SN4 Self Fit - 315mm dia.	m	1811
10.3.7	Pipes of SN8 Self Fit - 160mm dia.	m	617

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.3.8	Pipes of SN8 Self Fit - 200mm dia.	m	<b>890</b>
10.3.9	Pipes of SN8 Self Fit - 250mm dia.	m	<b>1368</b>
10.3.10	Pipes of SN8 Self Fit - 315mm dia.	m	<b>2163</b>
10.4	Providing, laying, Providing jointing materials, jointing and testing but excluding excavation and back filling etc. for Oriented Poly vinyl chloride Pipes or O-PVC Pipes of highest Orientation Class 500 IS 16647 - 2017 with homogeneous socket during orientation process, including supply of Elastomeric sealing ring manufactured as per ISO 16422-2014 and the elastomeric sealing ring gasket conforming to EN 681-1. The manufacturing, testing at factory, Providing, transportation, handling, stacking, installation, jointing and testing at sites shall comply with all applicable standards (ISO 16422-2014) etc. complete.		
10.4.1	Pipes of 110mm dia. , PN - 16 & elastomeric fittings	m	<b>1188</b>
10.4.2	Pipes of 160mm dia., PN - 16 & elastomeric fittings	m	<b>1975</b>
10.4.3	Pipes of 200mm dia., PN - 16 & elastomeric fittings	m	<b>2595</b>
10.4.4	Pipes of 250mm dia., PN - 16 & elastomeric fittings	m	<b>3543</b>
10.4.5	Pipes of 315mm dia., PN - 16 & elastomeric fittings	m	<b>4734</b>
10.4.6	Pipes of 400mm dia., PN - 16 & elastomeric fittings	m	<b>6709</b>
10.4.7	Pipes of 110mm dia. , PN - 25 & elastomeric fittings	m	<b>1623</b>
10.4.8	Pipes of 160mm dia. , PN - 25 & elastomeric fittings	m	<b>2718</b>
10.4.9	Pipes of 200mm dia. , PN - 25 & elastomeric fittings	m	<b>3582</b>
10.4.10	Pipes of 250mm dia. , PN - 25 & elastomeric fittings	m	<b>4906</b>
10.4.11	Pipes of 315mm dia. , PN - 25 & elastomeric fittings	m	<b>6559</b>
10.4.12	Pipes of 400mm dia. , PN - 25 & elastomeric fittings	m	<b>9316</b>
10.4.13	Pipes of 110mm dia. , PN - 12.5 & elastomeric fittings	m	<b>831</b>
10.4.14	Pipes of 160mm dia. , PN - 12.5 & elastomeric fittings	m	<b>1207</b>
10.4.15	Pipes of 200mm dia. , PN - 12.5 & elastomeric fittings	m	<b>1639</b>
10.4.16	Pipes of 250mm dia. , PN - 12.5 & elastomeric fittings	m	<b>2279</b>
10.4.17	Pipes of 315mm dia. , PN - 12.5 & elastomeric fittings	m	<b>3175</b>
10.4.18	Pipes of 400mm dia. , PN - 12.5 & elastomeric fittings	m	<b>4785</b>

Sl. No.	Specification	Unit	Rate ₹
10.5	Labour charges for attending to repairs to the PVC pipes by earth work excavation cutting the old pipe installation and jointing of new pipes to the existing old pipe to the depth and line, level and perfect linking at joints including encasing the pipes around to a depth of not less than 15cms with earth available including cost of all labour,hire charge of equipment,refilling the excavated trenches compacting,finishing neatly by giving satisfactory hydraulic test etc.,complete		
10.5.1	For 63mm (0.075) to 315mm(0.787):	m	<b>332</b>
10.6	RCC hume pipe Circular pump house: Providing precast RCC Circular Hume pipe pump house with M.S door and RCC conical roof as per specification and drawings - Internal dia Mtr. 1200 mm & height of 2.5 Mtr. With Wall thickness 65mm etc. complete.	Each	<b>16401</b>
10.7	Erection and positioning of RCC Hume pipe pump house/Cistern on size stone masory platform including transportation charges and handling,finishing with all necessary tools ,plants and materials etc.,complete as directed by the Engineer in charge of the work.	Each	<b>1882</b>
10.8	Supplying of special moulded variety PVC couplers as per IS 7834/1987 and fabricated as per IG124/1984 with ISI mark and with its latest amendments to walk site etc. complete.		
10.8.1	25mm dia PVC couplers	Each	<b>12</b>
10.8.2	32mm dia PVC couplers	Each	<b>16</b>
10.8.3	40mm dia PVC couplers	Each	<b>23</b>
10.8.4	50mm dia PVC couplers	Each	<b>28</b>
10.8.5	63mm dia PVC couplers	Each	<b>43</b>
10.8.6	75mm dia PVC couplers	Each	<b>67</b>
10.8.7	90mm dia PVC couplers	Each	<b>125</b>
10.8.8	110mm dia PVC couplers	Each	<b>171</b>
10.8.9	140mm dia PVC couplers	Each	<b>219</b>
10.8.10	160mm dia PVC couplers	Each	<b>335</b>
10.8.11	180mm dia PVC couplers	Each	<b>393</b>
10.8.12	200mm dia PVC couplers	Each	<b>473</b>
10.8.13	225mm dia PVC couplers	Each	<b>542</b>
10.8.14	250mm dia PVC couplers	Each	<b>659</b>
10.8.15	280mm dia PVC couplers	Each	<b>841</b>
10.8.16	315mm dia PVC couplers	Each	<b>1188</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.9	Supply and delivery at site special moulded variety PVC elbows as per IS 7834/ 1987 and fabricated as per IG124/ 1984 with ISI mark with its latest amendments		
10.9.1	25 mm dia PVC Elbows	Each	<b>16</b>
10.9.2	32 mm dia PVC Elbows	Each	<b>21</b>
10.9.3	40 mm dia PVC Elbows	Each	<b>41</b>
10.9.4	50 mm dia PVC Elbows	Each	<b>66</b>
10.9.5	63 mm dia PVC Elbows	Each	<b>101</b>
10.9.6	75 mm dia PVC Elbows	Each	<b>192</b>
10.9.7	90 mm dia PVC Elbows	m <sup>2</sup>	<b>276</b>
10.9.8	110 mm dia PVC Elbows	Each	<b>302</b>
10.9.9	140 mm dia PVC Elbows	Each	<b>357</b>
10.9.10	160 mm dia PVC Elbows	Each	<b>471</b>
10.9.11	180 mm dia PVC Elbows	Each	<b>506</b>
10.9.12	200 mm dia PVC Elbows	Each	<b>590</b>
10.9.13	225 mm dia PVC Elbows	Each	<b>738</b>
10.9.14	250 mm dia PVC Elbows	Each	<b>884</b>
10.9.15	280 mm dia PVC Elbows	Each	<b>1140</b>
10.9.16	315 mm dia PVC Elbows	Each	<b>1460</b>
10.10	Supply and delivery at site special moulded variety PVC tee as per IS 7834/ 1987 and fabricated as per IG124/ 1984 with ISI mark with its latest amendments		
10.10.1	25 mm dia PVC Tee	Each	<b>21</b>
10.10.2	32 mm dia PVC Tee	Each	<b>32</b>
10.10.3	40 mm dia PVC Tee	Each	<b>39</b>
10.10.4	50 mm dia PVC Tee	Each	<b>61</b>
10.10.5	63 mm dia PVC Tee	Each	<b>77</b>
10.10.6	75 mm dia PVC Tee	Each	<b>117</b>
10.10.7	90 mm dia PVC Tee	Each	<b>171</b>
10.10.8	110 mm dia PVC Tee	Each	<b>251</b>
10.10.9	140 mm dia PVC Tee	Each	<b>358</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.10.10	160 mm dia PVC Tee	Each	<b>466</b>
10.10.11	180 mm dia PVC Tee	Each	<b>588</b>
10.10.12	200 mm dia PVC Tee	Each	<b>693</b>
10.10.13	225 mm dia PVC Tee	Each	<b>853</b>
10.10.14	250 mm dia PVC Tee	Each	<b>1237</b>
10.10.15	280 mm dia PVC Tee	Each	<b>1796</b>
10.10.16	315 mm dia PVC Tee	Each	<b>2431</b>
10.11	Supply and delivery at site special moulded variety PVC bend as per IS 7834/ 1987 and fabricated as per IG124/ 1984 with ISI mark with its latest amendments		
10.11.1	25 mm dia PVC BEND	Each	<b>24</b>
10.11.2	32 mm dia PVC BEND	Each	<b>36</b>
10.11.3	40 mm dia PVC BEND	Each	<b>57</b>
10.11.4	50 mm dia PVC BEND	Each	<b>89</b>
10.11.5	63 mm dia PVC BEND	Each	<b>167</b>
10.11.6	75 mm dia PVC BEND	Each	<b>245</b>
10.11.7	90 mm dia PVC BEND	Each	<b>390</b>
10.11.8	110 mm dia PVC BEND	Each	<b>492</b>
10.11.9	140 mm dia PVC BEND	Each	<b>597</b>
10.11.10	160 mm dia PVC BEND	Each	<b>674</b>
10.11.11	180 mm dia PVC BEND	Each	<b>781</b>
10.11.12	200 mm dia PVC BEND	Each	<b>938</b>
10.11.13	225 mm dia PVC BEND	Each	<b>1104</b>
10.11.14	250 mm dia PVC BEND	Each	<b>1460</b>
10.11.15	280 mm dia PVC BEND	Each	<b>1854</b>
10.11.16	315 mm dia PVC BEND	Each	<b>2563</b>
10.12	Supply and delivery at site special moulded variety PVC service saddles as per IS 7834/ 1987 and fabricated as per IG124/ 1984 with ISI mark with its latest amendments		
10.12.1	25 mm dia PVC SERVICE SADDLES	Each	<b>38</b>
10.12.2	32 mm dia PVC SERVICE SADDLES	Each	<b>66</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.12.3	40 mm dia PVC SERVICE SADDLES	Each	<b>87</b>
10.12.4	50 mm dia PVC SERVICE SADDLES	Each	<b>103</b>
10.12.5	63 mm dia PVC SERVICE SADDLES	Each	<b>136</b>
10.12.6	75 mm dia PVC SERVICE SADDLES	Each	<b>176</b>
10.12.7	90 mm dia PVC SERVICE SADDLES	Each	<b>211</b>
10.12.8	110 mm dia PVC SERVICE SADDLES	Each	<b>260</b>
10.12.9	140 mm dia PVC SERVICE SADDLES	Each	<b>311</b>
10.12.10	160 mm dia PVC SERVICE SADDLES	Each	<b>387</b>
10.12.11	180 mm dia PVC SERVICE SADDLES	Each	<b>473</b>
10.12.12	200 mm dia PVC SERVICE SADDLES	Each	<b>548</b>
10.12.13	225 mm dia PVC SERVICE SADDLES	Each	<b>666</b>
10.12.14	250 mm dia PVC SERVICE SADDLES	Each	<b>782</b>
10.12.15	280 mm dia PVC SERVICE SADDLES	Each	<b>930</b>
10.12.16	315 mm dia PVC SERVICE SADDLES	Each	<b>1200</b>
10.13	Supply and delivery at site special moulded variety PVC reducer as per IS 7834/ 1987 and fabricated as per IG124/ 1984 with ISI mark with its latest amendments		
10.13.1	25 mm dia PVC REDUCER	Each	<b>34</b>
10.13.2	32 mm dia PVC REDUCER	Each	<b>40</b>
10.13.3	40 mm dia PVC REDUCER	Each	<b>48</b>
10.13.4	50 mm dia PVC REDUCER	Each	<b>59</b>
10.13.5	63 mm dia PVC REDUCER	Each	<b>89</b>
10.13.6	75 mm dia PVC REDUCER	Each	<b>104</b>
10.13.7	90 mm dia PVC REDUCER	Each	<b>148</b>
10.13.8	110 mm dia PVC REDUCER	Each	<b>261</b>
10.13.9	140 mm dia PVC REDUCER	Each	<b>320</b>
10.13.10	160 mm dia PVC REDUCER	Each	<b>505</b>
10.13.11	180 mm dia PVC REDUCER	Each	<b>659</b>
10.13.12	200 mm dia PVC REDUCER	Each	<b>791</b>
10.13.13	225 mm dia PVC REDUCER	Each	<b>953</b>

Sl. No.	Specification	Unit	Rate ₹
10.13.14	250 mm dia PVC REDUCER	Each	1204
10.13.15	280 mm dia PVC REDUCER	Each	1374
10.13.16	315 mm dia PVC REDUCER	Each	1615
10.14	Providing and installing at site of work P.V.C. pipes including cost of pipes and specials and labour, including lowering into trenches, laying true to line, level and perfect linking at joints leak proof including jointing of approved type with all labour charges and all lift charges, handling charges including encasing the pipe around to a depth not less than 15 cms with gravel or selected earth available from the excavation etc. complete.		
10.14.1	4 Kg/m <sup>2</sup> : 63mm(weight of pipe -0.465 kg)	m	117
10.14.2	75mm ( weight of pipe -0.651 kg)	m	161
10.14.3	90mm(weight of pipe -0.917 kg)	m	210
10.14.4	110mm(weight of pipe -1.315 kg)	m	282
10.14.5	140mm(weight of pipe -2.131 kg)	m	398
10.14.6	160mm(weight of pipe -2.753 kg)	m	489
10.14.7	200mm( weight of pipe -4.256 kg)	m	713
10.14.8	6 Kg/m <sup>2</sup> : 63mm(weight of pipe -0.662 kg)	m	139
10.14.9	75mm(weight of pipe -0.917 kg)	m	192
10.14.10	90mm(weight of pipe -1.313 kg)	m	258
10.14.11	110mm(weight of pipe -1.894 kg)	m	358
10.14.12	140mm(weight of pipe -3.097 kg)	m	518
10.14.13	160mm(weight of pipe -3.923 kg)	m	646
10.14.14	200mm(weight of pipe -6.233 kg)	m	967
10.14.15	8 Kg/m <sup>2</sup> : 63mm(weight of pipe -0.662 kg)	m	177
10.14.16	75mm(weight of pipe -0.917 kg)	m	243
10.14.17	90mm(weight of pipe -1.313 kg)	m	332
10.14.18	110mm(weight of pipe -1.894 kg)	m	444
10.14.19	140mm(weight of pipe -3.097 kg)	m	652
10.14.20	160mm(weight of pipe -3.923 kg)	m	839
10.14.21	200mm(weight of pipe -6.233 kg)	m	1239

Sl. No.	Specification	Unit	Rate ₹
10.14.22	10 Kg/m <sup>2</sup> : 63mm	m	191
10.14.23	75mm	m	264
10.14.24	90mm	m	357
10.14.25	110mm	m	505
10.14.26	140mm	m	761
10.14.27	160mm	m	969
10.14.28	200mm	m	1494
10.15	Lowering, laying true to line and level of PVC Ringtite / PVC Pipes and cuts of pipes wherever necessary including jointing of pipes and specials with jointing of approved type, with all labour with encasing the pipe around to a depth of not less than 15 cms. with soft gravel or selected earth available from the excavation etc. complete and giving necessary hydraulic test to the required pressure as per ISS and commissioning (Contractor will make his own arrangements for procuring water for testing) etc. complete for:		
10.15.1	25mm	m	21
10.15.2	32mm	m	29
10.15.3	50mm	m	40
10.15.4	63mm	m	57
10.15.5	75mm	m	76
10.15.6	90mm	m	90
10.15.7	110mm	m	112
10.15.8	140mm	m	118
10.15.9	160mm	m	126
10.15.10	200mm	m	141
10.15.11	250mm	m	157
10.15.12	315mm	m	190
10.16	Supply and delivery at site special moulded variety OPVC compatible fittings as per IS 16647- 2014 and fabricated as per standards with ISI mark with its latest amendments.		
10.16.1	90° Elbow 110mm PN16	m	2412
10.16.2	90° Elbow 160mm PN16	m	3328
10.16.3	90° Elbow 200mm PN16	m	3505

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.16.4	90° Elbow 250mm PN16	m	8723
10.16.5	90° Elbow 315mm PN16	m	13954
10.16.6	90° Elbow 400mm PN16	m	16435
10.16.7	45° Elbow 110mm PN16	m	1856
10.16.8	45° Elbow 160mm PN16	m	2772
10.16.9	45° Elbow 200mm PN16	m	4951
10.16.10	45° Elbow 250mm PN16	m	6842
10.16.11	45° Elbow 315mm PN16	m	9994
10.16.12	45° Elbow 400mm PN16	m	14368
10.16.13	22.5° Elbow 110mm PN16	m	1676
10.16.14	22.5° Elbow 160mm PN16	m	2346
10.16.15	22.5° Elbow 200mm PN16	m	3668
10.16.16	22.5° Elbow 250mm PN16	m	5940
10.16.17	22.5° Elbow 315mm PN16	m	8614
10.16.18	22.5° Elbow 400mm PN16	m	12078
10.16.19	11.25° Elbow 110mm PN16	m	1529
10.16.20	11.25° Elbow 160mm PN16	m	2039
10.16.21	11.25° Elbow 200mm PN16	m	3380
10.16.22	11.25° Elbow 250mm PN16	m	5544
10.16.23	11.25° Elbow 315mm PN16	m	8163
10.16.24	11.25° Elbow 400mm PN16	m	11886
10.16.25	Sliding Coupler 110mm PN16	m	1338
10.16.26	Sliding Coupler 160mm PN16	m	1548
10.16.27	Sliding Coupler 200mm PN16	m	2093
10.16.28	Sliding Coupler 250mm PN16	m	3874
10.16.29	Sliding Coupler 315mm PN16	m	8499
10.16.30	Sliding Coupler 400mm PN16	m	14365
10.16.31	110mm Flange Socket	m	1680
10.16.32	160mm Flange Socket	m	2620

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
10.16.33	200mm Flange Socket	m	3601
10.16.34	250mm Flange Socket	m	4756
10.16.35	315mm Flange Socket	m	5973
10.16.36	400mm Flange Socket	m	9980
10.16.37	Air Tee 110x40	m	2750
10.16.38	Air Tee 160x40	m	3353
10.16.39	Air Tee 200x50	m	4396
10.16.40	Air Tee 250x80	m	5449
10.16.41	Air Tee 315x80	m	6777
10.16.42	Air Tee 400x100	m	11081
10.16.43	Reducer 110X90	m	1750
10.16.44	Reducer 160X110	m	2347
10.16.45	Reducer 200X160	m	3885
10.16.46	Reducer 250X200	m	6051
10.16.47	Reducer 315X250	m	8675
10.16.48	Reducer 400X315	m	12677
10.16.49	110X110 Equal Tee	m	4027
10.16.50	160X160 Equal Tee	m	6220
10.16.51	200X200 Equal Tee	m	8365
10.16.52	250X250 Equal Tee	m	10112
10.16.53	315X315 Equal Tee	m	13016
10.16.54	400X400 Equal Tee	m	16890



**Chapter - 11**  
**GI PIPE WORKS**





Sl. No.	Specification	Unit	Rate ₹
<b>11 GI PIPE WORKS</b>			
11.1	Providing, Laying and Fixing of GI pipes conforming to IS 1239:1990 with latest amendments complete with GI fittings (excluding the cost of fittings) with cuts and threads wherever necessary, including testing for water tightness, with all lead and commissioning. (contractor will make his own arrangements for procuring water for testing) For: Heavy Duty GI Pipe etc. complete.		
11.1.1	Light Duty GI pipe of 15mm dia	m	<b>198</b>
11.1.2	Light Duty GI pipe of 20mm dia	m	<b>225</b>
11.1.3	Light Duty GI pipe of 25mm dia	m	<b>289</b>
11.1.4	Light Duty GI pipe of 32mm dia	m	<b>334</b>
11.1.5	Light Duty GI pipe of 40mm dia	m	<b>412</b>
11.1.6	Light Duty GI pipe of 50mm dia	m	<b>442</b>
11.1.7	Light Duty GI pipe of 65mm dia	m	<b>668</b>
11.1.8	Light Duty GI pipe of 80mm dia	m	<b>772</b>
11.1.9	Light Duty GI pipe of 100mm dia	m	<b>1059</b>
11.2	For Medium Duty GI pipe:		
11.2.1	Medium Duty GI pipe of 15mm dia	m	<b>209</b>
11.2.2	Medium Duty GI pipe of 20mm dia	m	<b>245</b>
11.2.3	Medium Duty GI pipe of 25mm dia	m	<b>322</b>
11.2.4	Medium Duty GI pipe of 32mm dia	m	<b>381</b>
11.2.5	Medium Duty GI pipe of 40mm dia	m	<b>488</b>
11.2.6	Medium Duty GI pipe of 50mm dia	m	<b>584</b>
11.2.7	Medium Duty GI pipe of 65mm dia	m	<b>719</b>
11.2.8	Medium Duty GI pipe of 80mm dia	m	<b>891</b>
11.2.9	Medium Duty GI pipe of 100mm dia	m	<b>1245</b>
11.3	For Heavy Duty GI pipe:		
11.3.1	Heavy Duty GI pipe of 15mm dia	m	<b>230</b>
11.3.2	Heavy Duty GI pipe of 20mm dia	m	<b>263</b>
11.3.3	Heavy Duty GI pipe of 25mm dia	m	<b>359</b>
11.3.4	Heavy Duty GI pipe of 32mm dia	m	<b>428</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.3.5	Heavy Duty GI pipe of 40mm dia	m	<b>498</b>
11.3.6	Heavy Duty GI pipe of 50mm dia	m	<b>679</b>
11.3.7	Heavy Duty GI pipe of 65mm dia	m	<b>834</b>
11.3.8	Heavy Duty GI pipe of 80mm dia	m	<b>1009</b>
11.3.9	Heavy Duty GI pipe of 100mm dia	m	<b>1412</b>
11.4	Providing and fixing GI union in existing GI pipe line, cutting and threading the pipe and making long screws including excavation, refilling the earth or cutting of wall and making good the same complete wherever required etc. complete for:		
11.4.1	15 mm nominal bore	Each	<b>392</b>
11.4.2	20.88.2: 20 mm nominal bore	Each	<b>410</b>
11.4.3	20.88.3: 25 mm nominal bore	Each	<b>420</b>
11.4.4	20.88.4: 32 mm nominal bore	Each	<b>437</b>
11.4.5	20.88.5: 40 mm nominal bore	Each	<b>489</b>
11.4.6	20.88.6: 50 mm nominal bore	Each	<b>660</b>
11.4.7	20.88.7: 65 mm nominal bore	Each	<b>878</b>
11.4.8	20.88.8: 80 mm nominal bore	Each	<b>1041</b>
11.5	Providing lead caulked joints to spun iron or CI pipes and specials with spun yarn and lead, including caulking and giving satisfactory hydraulic test corresponding to the required pressure etc. complete and excluding the cost of pig lead for:		
11.5.1	Spun / CI / DI pipes 80MM	Each	<b>481</b>
11.5.2	Spun / CI / DI pipes 100MM	Each	<b>500</b>
11.5.3	Spun / CI / DI pipes 150MM	Each	<b>747</b>
11.5.4	Spun / CI / DI pipes 200MM	Each	<b>944</b>
11.5.5	Spun / CI / DI pipes 250MM	Each	<b>1210</b>
11.5.6	Spun / CI / DI pipes 300MM	Each	<b>1425</b>
11.5.7	Spun / CI / DI pipes 350MM	Each	<b>1732</b>
11.5.8	Spun / CI / DI pipes 400MM	Each	<b>2193</b>
11.5.9	Spun / CI / DI pipes 450MM	Each	<b>2322</b>
11.5.10	Spun / CI / DI pipes 500MM	Each	<b>2560</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.5.11	Spun / CI / DI pipes 600MM	Each	<b>3251</b>
11.5.12	Spun / CI / DI pipes 700MM	Each	<b>3729</b>
11.5.13	Spun / CI / DI pipes 750MM	Each	<b>4990</b>
11.5.14	Spun / CI / DI pipes 900MM	Each	<b>6947</b>
11.6	Providing wrought mild steel (galvanized) GI collar confirming to IS 1239-II, 1991 with latest amendments if any.		
11.6.1	For 15 mm dia GI collar:	Each	<b>59</b>
11.6.2	For 20 mm dia GI collar:	Each	<b>99</b>
11.6.3	For 25 mm dia GI collar:	Each	<b>141</b>
11.6.4	For 32 mm dia GI collar:	KGS	<b>176</b>
11.6.5	For 40 mm dia GI collar:	Each	<b>206</b>
11.6.6	For 50 mm dia GI collar:	Each	<b>267</b>
11.6.7	For 65 mm dia GI collar:	Each	<b>312</b>
11.6.8	For 80 mm dia GI collar:	Each	<b>421</b>
11.6.9	For 100 mm dia GI collar:	Each	<b>505</b>
11.6.10	For 125 mm dia GI collar:	Each	<b>636</b>
11.6.11	For 150 mm dia GI collar:	Each	<b>695</b>
11.7	Supply and delivery at site wrought middle steel (galvanized) GI elbow confirming to IS 1239-II, 1991 with latest amendments if any for:		
11.7.1	For 15 mm dia GI elbow	Each	<b>59</b>
11.7.2	For 20 mm dia GI elbow	Each	<b>99</b>
11.7.3	For 25 mm dia GI elbow	Each	<b>121</b>
11.7.4	For 32 mm dia GI elbow	Each	<b>160</b>
11.7.5	For 40 mm dia GI elbow	Each	<b>206</b>
11.7.6	For 50 mm dia GI elbow	Each	<b>267</b>
11.7.7	For 65 mm dia GI elbow	Each	<b>297</b>
11.7.8	For 80 mm dia GI elbow	Each	<b>417</b>
11.7.9	For 100 mm dia GI elbow	Each	<b>490</b>
11.7.10	For 125 mm dia GI elbow	Each	<b>578</b>
11.7.11	For 150 mm dia GI elbow	Each	<b>651</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.8	Supply and delivery at site wrought middle steel (galvanized) GI bend confirming to IS 1239-II, 1991 with latest amendments if any.		
11.8.1	For 15 mm dia GI BEND	Each	<b>99</b>
11.8.2	For 20 mm dia GI BEND	Each	<b>122</b>
11.8.3	For 25 mm dia GI BEND	Each	<b>145</b>
11.8.4	For 32 mm dia GI BEND	Each	<b>206</b>
11.8.5	For 40 mm dia GI BEND	Each	<b>267</b>
11.8.6	For 50 mm dia GI BEND	Each	<b>358</b>
11.8.7	For 65 mm dia GI BEND	Each	<b>404</b>
11.8.8	For 80 mm dia GI BEND	Each	<b>490</b>
11.8.9	For 100 mm dia GI BEND	Each	<b>600</b>
11.8.10	For 125 mm dia GI BEND	Each	<b>680</b>
11.8.11	For 150 mm dia GI BEND	Each	<b>724</b>
11.9	Supply and delivery at site wrought middle steel (galvanized) GI tee confirming to IS 1239-II, 1991 with latest amendments if any.		
11.9.1	For 15 mm dia GI TEE	Each	<b>61</b>
11.9.2	For 20 mm dia GI TEE	Each	<b>107</b>
11.9.3	For 25 mm dia GI TEE	Each	<b>138</b>
11.9.4	For 32 mm dia GI TEE	Each	<b>176</b>
11.9.5	For 40 mm dia GI TEE	Each	<b>190</b>
11.9.6	For 50 mm dia GI TEE	Each	<b>297</b>
11.9.7	For 65 mm dia GI TEE	Each	<b>373</b>
11.9.8	For 80 mm dia GI TEE	Each	<b>434</b>
11.9.9	For 100 mm dia GI TEE	Each	<b>607</b>
11.9.10	For 125 mm dia GI TEE	Each	<b>775</b>
11.9.11	For 150 mm dia GI TEE	Each	<b>914</b>
11.10	Supply and delivery at site wrought middle steel (galvanized) GI socket confirming to IS 1239-II, 1991 with latest amendments if any.		
11.10.1	For 15 mm dia GI socket	Each	<b>54</b>
11.10.2	For 20 mm dia GI socket	Each	<b>84</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.10.3	For 25 mm dia GI socket	Each	<b>115</b>
11.10.4	For 32 mm dia GI socket	Each	<b>145</b>
11.10.5	For 40 mm dia GI socket	Each	<b>221</b>
11.10.6	For 50 mm dia GI socket	Each	<b>297</b>
11.10.7	For 65 mm dia GI socket	Each	<b>373</b>
11.10.8	For 80 mm dia GI socket	Each	<b>454</b>
11.10.9	For 100 mm dia GI socket	Each	<b>563</b>
11.10.10	For 125 mm dia GI socket	Each	<b>614</b>
11.10.11	For 150 mm dia GI socket	Each	<b>731</b>
11.11	Supply and delivery at site wrought middle steel (galvanized) GI plugs confirming to IS 1239-II, 1991 with latest amendments if any.		
11.11.1	For 15 mm dia GI Plugs	Each	<b>54</b>
11.11.2	For 20 mm dia GI Plugs	Each	<b>68</b>
11.11.3	For 25 mm dia GI Plugs	Each	<b>99</b>
11.11.4	For 32 mm dia GI Plugs	Each	<b>129</b>
11.11.5	For 40 mm dia GI Plugs	Each	<b>176</b>
11.11.6	For 50 mm dia GI Plugs	Each	<b>199</b>
11.11.7	For 65 mm dia GI Plugs	Each	<b>237</b>
11.11.8	For 80 mm dia GI Plugs	Each	<b>256</b>
11.11.9	For 100 mm dia GI Plugs	Each	<b>358</b>
11.11.10	For 125 mm dia GI Plugs	Each	<b>432</b>
11.11.11	For 150 mm dia GI Plugs	Each	<b>490</b>
11.12	Supply and delivery at site wrought middle steel (galvanized) GI union confirming to IS 1239-II, 1991 with latest amendments if any.		
11.12.1	For 15 mm dia GI Union	Each	<b>84</b>
11.12.2	For 20 mm dia GI Union	Each	<b>129</b>
11.12.3	For 25 mm dia GI Union	Each	<b>160</b>
11.12.4	For 32 mm dia GI Union	Each	<b>190</b>
11.12.5	For 40 mm dia GI Union	Each	<b>237</b>
11.12.6	For 50 mm dia GI Union	Each	<b>267</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.12.7	For 65 mm dia GI Union	Each	<b>351</b>
11.12.8	For 80 mm dia GI Union	Each	<b>578</b>
11.12.9	For 100 mm dia GI Union	Each	<b>622</b>
11.12.10	For 125 mm dia GI Union	Each	<b>666</b>
11.12.11	For 150 mm dia GI Union	Each	<b>783</b>
11.13	Supply and delivery at site wrought middle steel (galvanized) GI back nut/ check nut confirming to IS 1239-II, 1991 with latest amendments if any.		
11.13.1	For 15 mm dia GI Back nut/ check nut	Each	<b>68</b>
11.13.2	For 20 mm dia GI Back nut/ check nut	Each	<b>99</b>
11.13.3	For 25 mm dia GI Back nut/ check nut	Each	<b>145</b>
11.13.4	For 32 mm dia GI Back nut/ check nut	Each	<b>176</b>
11.13.5	For 40 mm dia GI Back nut/ check nut	Each	<b>206</b>
11.13.6	For 50 mm dia GI Back nut/ check nut	Each	<b>267</b>
11.13.7	For 65 mm dia GI Back nut/ check nut	Each	<b>297</b>
11.13.8	For 80 mm dia GI Back nut/ check nut	Each	<b>424</b>
11.13.9	For 100 mm dia GI Back nut/ check nut	Each	<b>790</b>
11.13.10	For 125 mm dia GI Back nut/ check nut	Each	<b>827</b>
11.13.11	For 150 mm dia GI Back nut/ check nut	Each	<b>863</b>
11.14	Supply and delivery at site wrought middle steel (galvanized) GI hexagonal nipple confirming to IS 1239-II, 1991 with latest amendments if any.		
11.14.1	For 15 mm dia GI hexagonal nipple	Each	<b>84</b>
11.14.2	For 20 mm dia GI hexagonal nipple	Each	<b>99</b>
11.14.3	For 25 mm dia GI hexagonal nipple	Each	<b>129</b>
11.14.4	For 32 mm dia GI hexagonal nipple	Each	<b>160</b>
11.14.5	For 40 mm dia GI hexagonal nipple	Each	<b>183</b>
11.14.6	For 50 mm dia GI hexagonal nipple	Each	<b>213</b>
11.14.7	For 65 mm dia GI hexagonal nipple	Each	<b>251</b>
11.14.8	For 80 mm dia GI hexagonal nipple	Each	<b>271</b>
11.14.9	For 100 mm dia GI hexagonal nipple	Each	<b>344</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.14.10	For 125 mm dia GI hexagonal nipple	Each	<b>380</b>
11.14.11	For 150 mm dia GI hexagonal nipple	Each	<b>432</b>
11.15	Supply and delivery at site GM (copper alloy) gate valves confirming to Class-I as per IS 778 with latest amendments, 1 No. screwed in bonnet inside screw, rising spring spindle integral seat screwed females ends confirming to IS 554/ 1990 body hydraulically tested 1.5HP seat standard tested 1 HP with IS mark.		
11.15.1	For 15 mm dia GM (Copper alloy) Gate valves	Each	<b>645</b>
11.15.2	For 20 mm dia GM (Copper alloy) Gate valves	Each	<b>888</b>
11.15.3	For 25 mm dia GM (Copper alloy) Gate valves	Each	<b>1169</b>
11.15.4	For 32 mm dia GM (Copper alloy) Gate valves	Each	<b>1338</b>
11.15.5	For 40 mm dia GM (Copper alloy) Gate valves	Each	<b>1500</b>
11.15.6	For 50 mm dia GM (Copper alloy) Gate valves	Each	<b>1688</b>
11.15.7	For 65 mm dia GM (Copper alloy) Gate valves	Each	<b>1869</b>
11.15.8	For 80 mm dia GM (Copper alloy) Gate valves	Each	<b>1902</b>
11.15.9	For 100 mm dia GM (Copper alloy) Gate valves	Each	<b>1962</b>
11.15.10	For 125 mm dia GM (Copper alloy) Gate valves	Each	<b>2130</b>
11.15.11	For 150 mm dia GM (Copper alloy) Gate valves	Each	<b>2622</b>
11.16	Providing GM (copper alloy) reflex valves/ globe valves confirming to Class-I and as per IS 778/1990 with latest amendments, 1 No. and with ISI mark screwed female ends confirming to IS 554/ 1990 horizontal body hydraulically tested for 1.50 HP and seat hydraulically tested 1 HP etc. complete.		
11.16.1	For 15 mm dia GM (Copper alloy) Globe valves	Each	<b>406</b>
11.16.2	For 20 mm dia GM (Copper alloy) Globe valves	Each	<b>481</b>
11.16.3	For 25 mm dia GM (Copper alloy) Globe valves	Each	<b>538</b>
11.16.4	For 32 mm dia GM (Copper alloy) Globe valves	Each	<b>606</b>
11.16.5	For 40 mm dia GM (Copper alloy) Globe valves	Each	<b>719</b>
11.16.6	For 50 mm dia GM (Copper alloy) Globe valves	Each	<b>794</b>
11.16.7	For 65 mm dia GM (Copper alloy) Globe valves	Each	<b>856</b>
11.16.8	For 80 mm dia GM (Copper alloy) Globe valves	Each	<b>894</b>
11.16.9	For 100 mm dia GM (Copper alloy) Gate valves	Each	<b>1038</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.16.10	For 125 mm dia GM (Copper alloy) Globe valves	Each	<b>1122</b>
11.16.11	For 150 mm dia GM (Copper alloy) Gate valves	Each	<b>1290</b>
11.17	Providing GM (copper alloy) wheel valves/ check valve confirming to IS 778/1990 Class-I with latest amendments No. 1 and with ISI mark screwed in bonnet integral seat inside, screw, rising spindle screwed female ends confirming to IS 554/ 1990 body hudsonically tested 1.50 HP seat hydraulically tested 1.00 HP etc. complete.		
11.17.1	For 15 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>569</b>
11.17.2	For 20 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>688</b>
11.17.3	For 25 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>906</b>
11.17.4	For 32 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1038</b>
11.17.5	For 40 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1138</b>
11.17.6	For 50 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1281</b>
11.17.7	For 65 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1438</b>
11.17.8	For 80 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1542</b>
11.17.9	For 100 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1698</b>
11.17.10	For 125 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>1854</b>
11.17.11	For 150 mm dia GM (Copper alloy) wheel valves/ check valve	Each	<b>2016</b>
11.18	Providing GM ferrules as per IS 2692 and with ISI mark roudy body hydraulically tested 2.00 HP of size 8 mm to 50 mm.		
11.18.1	For 15 mm dia GM ferrules	Each	<b>300</b>
11.18.2	For 20 mm dia GM ferrules	Each	<b>431</b>
11.18.3	For 25 mm dia GM ferrules	Each	<b>488</b>
11.19	Providing GM gland cocks tested against hydraulic pressure of 20 Kg/m <sup>2</sup> with ISI mark.		
11.19.1	For 15 mm dia GM gland cocks	Each	<b>294</b>
11.19.2	For 20 mm dia GM gland cocks	Each	<b>419</b>
11.19.3	For 25 mm dia GM gland cocks	Each	<b>513</b>
11.19.4	For 32 mm dia GM gland cocks	Each	<b>594</b>
11.19.5	For 40 mm dia GM gland cocks	Each	<b>719</b>
11.19.6	For 50 mm dia GM gland cocks	Each	<b>788</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
11.20	Lowering, Laying and Jointing GI pipes conforming to IS 1239:1990 with latest amendments complete with GI fittings (excluding the cost of fittings) with cuts and threads wherever necessary, including testing for water tightness, with all lead and commissioning. (contractor will make his own arrangements for procuring water for testing) for etc. complete.		
11.20.1	15mm dia	m	<b>87</b>
11.20.2	20mm dia	m	<b>87</b>
11.20.3	25mm dia	m	<b>101</b>
11.20.4	32mm dia	m	<b>105</b>
11.20.5	40mm dia	m	<b>117</b>
11.20.6	50mm dia	m	<b>145</b>
11.20.7	65mm dia	m	<b>163</b>
11.20.8	80mm dia	m	<b>188</b>
11.20.9	100mm dia	m	<b>216</b>



**Chapter - 12**  
**BOREWELLS AND HAND PUMPS**



Sl. No.	Specification	Unit	Rate ₹
<b>12 BOREWELLS AND HAND PUMPS</b>			
12.1	Sinking of Borewell of 165mm dia clear using super fast hydraulic rig of capacity 300 PSIG & above 1100 CMF & above in all strata including over burdern upto 20 m. Fixing of casing pipes, collars and cap with necessary cutting, threading and welding including transportation of rig and supporting vehicle, crew charges and cost of consumables etc., complete including yield testing at the final depth with a minimum working of compressor for one hour (Excluding cost of casing pipes, collars, cap etc., complete ) (Above 450m of drilling add 10% for every 50m depth)		
12.1.1	Borewell depth of 0 to 50 Mtrs	m	<b>370</b>
12.1.2	Borewell depth of 50 to 100 Mtrs	m	<b>464</b>
12.1.3	Borewell depth of 100 to 150 Mtrs	m	<b>493</b>
12.1.4	Borewell depth of 150 to 200 Mtrs	m	<b>572</b>
12.1.5	Borewell depth of 200 to 250 Mtrs	m	<b>671</b>
12.1.6	Borewell depth of 250 to 300 Mtrs	m	<b>740</b>
12.1.7	Borewell depth of 300 to 350 Mtrs	m	<b>868</b>
12.1.8	Borewell depth of 350 to 400 Mtrs	m	<b>937</b>
12.1.9	Borewell depth of 400 to 450 Mtrs	m	<b>1184</b>
12.2	Sinking borewell of 150mm dia. clear, using super fast hydraulic rig of capacity 250 PSIG & above 900 CMF and above, in all strata of earth, including over burden upto 20M, fixing of casing pipes, collars and cap with necessary cutting, threading and welding including transportation of rig and supporting vehicles, crew charges, cost of consumables, cost of yield test at the final depth with a minimum working of compressor for one hour etc. complete. The cost excludes the cost of casing pipes, collars and caps etc.) for: (Above 300m of drilling add 10% for every 50m depth)		
12.2.1	Borewell depth of 0 to 50 Mtrs	m	<b>309</b>
12.2.2	Borewell depth of 50 to 100 Mtrs	m	<b>387</b>
12.2.3	Borewell depth of 100 to 150 Mtrs	m	<b>412</b>
12.2.4	Borewell depth of 150 to 200 Mtrs	m	<b>478</b>
12.2.5	Borewell depth of 200 to 250 Mtrs	m	<b>560</b>
12.2.6	Borewell depth of 250 to 300 Mtrs	m	<b>593</b>
12.2.7	Borewell depth above 300 Mtrs	m	<b>659</b>

Sl. No.	Specification	Unit	Rate ₹
12.3	Positioning of the rig for retrieval of failed borewells, raising mast and aligning the hammer and drill rods mounted on the rotary head of the rig concentric with borewell of 140-149 mm dia. to be retrieved (wherever further geo-physical investigation has revealed that the existing aquifer / aquifers have not been tapped to the full depth) including selection of the suitable bit for deepening etc. The cost is for the work of Each bore well.	Each	<b>3206</b>
12.4	Geophysical investigation at site for sinking borewells for Providing drinking water to the habitation either through the Hand Pump MWS or P.W.S.S, by vertical electrical sounding by adopting Venner or Schlumbergers's method, including reconnaissance survey of geological formation. Geophysical investigation of existing ground water in the vicinity, its quality, quantity and acceptability of the users, indicating the location of the site, recommended depth of casing pipe required to seal the top unconsolidated formation including an extra depth of 1.0 metre in consolidated formation for proper seating of casing pipe, depth of drilling required to cover full depth of aquifer proposed to be tapped, probable yield and other information required including transportation of instruments and accessories to work site, engaging technical personal and labour required etc. NOTE: 1) Additional rate on item 1&2 is allowed for drilling in over burden and fixing Casing pipes beyond 20 M (for fixing Casing pipes only) a) Above 20 M and upto 30 M - 15%, b) Above 30 M - 30% (Measurement of overburden is restricted to the depth of casing pipe fixed excluding initial depth of 20M and projection above ground level). 2) A sum of Rs. 100/- is to be deducted for Dry Borewell towards yield test. etc. complete.	Each	<b>5288</b>
12.5	Cleaning of borewells including yield testing of borewell either using slow or fast rigs for not more than 2 hours at the final depth with a minimum working of 2 hours continuously with air compressor or suitable pump as per specification, including the cost of transportation charges, crew charges, cost of consumables etc. complete	Each	<b>18962</b>
12.6	Re-drilling of filled-up borewell, including yield test at final depth.	m	<b>444</b>
12.7	Logging / scanning of borewell at any depth continuously with the help of Logger unit including the cost of transportation charges, crew charges, stationery charges and cost of consumables etc.	Each	<b>3674</b>
12.8	Hydrofracturing of 146 to 152 mm dia. borewell by using hydrofracturing unit using single packer with minimum of two fractures including transportation of unit, supporting vehicles, crew charges, cost of consumables and yield testing of borewell one hour at once before fracturing and the other after fracturing. The work to be within a radius of 50 kms and including Providing necessary water for fracturing etc. complete.	Each	<b>26271</b>
12.9	Yield testing of borewells at final depth with a minimum of 10 hours continuously with the help of pump testing unit including the cost of transportation charges, crew charges and cost of consumables.	m <sup>2</sup>	<b>16306</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
12.10	Providing and construction of platform in CC 1:2:4 proportion using hard granite or basalt or trap jelly of 20mm and down size for India Mark-II hand pump as per approved drawing enclosed to the S.R (UNICEF standard), including machine mixing, laying, tamping, curing and smooth finishing of exposed faces in CM 1:3 with necessary moulds, including earth work excavation with all leads of materials etc. complete	Each	<b>4230</b>
12.11	Providing and construction of platform in M15 Cement Concrete using hard granite or basalt or trap jelly of 20mm and down size for India Mark-III (VLOM) hand pump as per approved drawing enclosed to the S.R according to IS 13056 - 1991 (UNICEF standard), including machine mixing, laying, tamping, curing and smooth finishing of exposed faces in CM 1:3 with necessary moulds, including earth work excavation with all leads of materials etc. complete	Each	<b>7919</b>
12.12	Erecting and commissioning of new hand pump including fixing of GI pipes, fixing of hand pump to the borewell and giving satisfactory test etc.complete.	Each	<b>384</b>
12.13	Erecting and commissioning of new hand pump India Mark III (VLOM), including fixing of GI pipes, fixing of hand pump to the borewell and giving satisfactory test etc.complete.	Each	<b>480</b>
12.14	Repair Top Head Assembly of Hand Pumps by removing the top head assembly, replacing the wornout parts such as handle, axle, chain bearings. Reassembling after greasing in position and giving satisfactory test. etc. complete excluding the cost of parts required for replacement etc. complete.	Each	<b>221</b>
12.15	Dismantling India Mark III hand pump from position, releasing plunger rods, valves, piston. Overhauling the components, replace the wornout parts and re-erecting in position etc. with cutting, threading wherever necessary, adjusting the rod and giving satisfactory test etc. The replaced materials to be returned to the departmental store. The cost exclude the cost of parts required for replacement)	Each	<b>222</b>
12.16	Dismantling India Mark III hand pump from position, releasing GI pipes, rods, pump, cylinder and strainer. Overhauling the components, replace the wornout parts and re-erecting in position etc. with cutting, threading wherever necessary, adjusting the rod and giving satisfactory test etc. The replaced materials to be returned to the departmental store. The cost exclude the cost of parts required for replacement)	Each	<b>410</b>
12.17	Providing and greasing the chain of hand pump (both India Mark-II and India Mark-III) by removing the top head cover, cleaning water tank and head assembly, removing all dirt inside and outside the hand pump body and refixing the top head cover by fixing the bolts and nuts including replacing the bolts and nuts with new ones wherever necessary etc. complete (excluding the cost of spares).	Each	<b>55</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
12.18	Labour charges for repairing of existing hand pump (both India Mark II and India Makr III) above the ground level including replacing of worn out parts such as top head, inspection cover, handle, handle axis, handle bearing, chain with coupling water tank and extension or raiser pipe with plunger rod as may be required including re-assembling the pump in position and giving satisfactory water discharge test and returning of released materials to the stores etc. complete excluding the cost of spares.	Each	<b>150</b>
12.19	Labour charges for repairing of existing hand pump (both India Mark II and India Makr III) below the ground level after dismantling the hand pump head assembly, water tank riser assembly, plunger rods, pump cylinder, replacing of worn out parts in the pumpset cylinder, including overhauling of cylinder, cutting the GI pipes and rods and threading the same, re-assembling the pump including greasing and giving satisfactory water discharge test and returning of released materials to the stores etc. complete excluding the cost of spares.	Each	<b>409</b>
12.20	Scraping of old paints, stains etc. and provide painting with anti-corrosive pint over a cost primer etc. with approved brand of paint and primer etc. including the cost of all materials, labour, transportation and numbering etc. as directed by the departmental officials.	Each	<b>170</b>
12.21	Dismantling of hand pump from position, releasing of GI pipes, plunger rods, pump cylinder and strainer and returning the released items to departmental stores.	Each	<b>162</b>
12.22	Dismantling the existing platform of hand pumps of all types and remove the debris as directed.	Each	<b>107</b>
12.23	Fishing out power pump from the borewell including the cost of labour, materials, with all lead and lifts etc. complete.	Each	<b>4488</b>
12.24	Labour charges for Lifting of non functioning submersible pump set along with cable and GI pipes (Each length = 6m ). for 50 mm	Job	<b>229</b>
12.25	Labour charges for Lifting of non functioning submersible pump set along with cable and GI pipes (Each length = 6m ). for 32 mm	Job	<b>187</b>
12.26	Lifting of struck up submersible pump set. Upto 300 ft	Job	<b>6806</b>
12.27	Lifting of struck up submersible pump set. Above 300 ft	Job	<b>13087</b>
12.28	Labour charges for Erection of new / repaired submersible pump set along with GI pipes (32mm / 50mm), cable (New submersible pump set if required will be supplied by the department free of cost and released pump set should be handed over to department) including transportation (Each length = 6 m)	Job	<b>187</b>
12.29	Labour charges for lowering additional GI pipes of dia 32 / 50 mm dia including transportation charges (New GI pipe required will be supplied by the department free of cost & released GI pipes should be handed over to the department (Labour charges only). Upto 3 mtr lengths	Job	<b>2077</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
12.30	Labour charges for lowering additional GI pipes of dia 32 / 50 mm dia including transportation charges (New GI pipe required will be supplied by the department free of cost & released GI pipes should be handed over to the department (Labour charges only). Above 3 mtr lengths	Job	<b>697</b>
12.31	Repair of existing energized Borewell outdoor MS panel board by welding the damaged broken panel board doors body sheet, angle iron, frame door hinges, cement concrete to panel board legs, embossing (letters & RR No.) etc., complete	Job	<b>1812</b>
12.32	Supply of ISI mark 175mm nominal bore, plain and steel casing pipe grade of steel Fe 410 of wall thickness conforming to IS 4270-2001 and latest amendments, electrical resistance welded steel tubes, material and conforming to IS 1387-1993 and manufactured by basic open hearth electric or basic oxygen process in random length of 5-7m both ends. threaded conforming to IS 554-1985 one end fixed with socket conforming to IS 4270-2001 and the other end with screwed pipes all shall be responsibly free from defects. The tubes shall be responsible straight end should be with ISI marking weighing 25.10kg/m. prices include Collar-Medium duty.	m	<b>1933</b>
12.33	Providing and fixing MS casing collars as per IS 1239 (part-II) 1982 with all latest amendments if any for any dia. The thickness of plate used for covering one end shall be 3mm (minimum). The dimensions of caps and colars shall be strictly as per IS 1239 (Part-II) 1982 with all amendments	Each	<b>150</b>
12.34	Providing and laying at site of work MS casing caps as per IS 1239 (part-II) 1982 with all latest amendments if any for any dia. The thickness of plate used for covering one end shall be 3mm (minimum). The dimensions of caps and colars shall be strictly as per IS 1239 (Part-II) 1982 with all amendments including cost of material and labour charges for fixing, if any etc. complete with all lead and lifts and as directed by the Engineer in charge	Each	<b>164</b>



**Chapter - 13**  
**SUBMERSIBLE PUMPSETS AND**  
**REPLACEMENT OF PARTS**



Sl. No.	Specification	Unit	Rate ₹
<b>13 SUBMERSIBLE PUMPSETS AND REPLACEMENT OF PARTS</b>			
13.1	Rewinding of submersible pumpset with copper winding wires of appropriate guage, as per specifications and / or directions of the departmental officials, including all materials, labour, equipment and testing. for all types of submersible pumpsets etc.(with guarantee period not less than 6 months) for		
13.1.1	For all types of submersible pumpsets upto 3.0 H.P.	Each	<b>2710</b>
13.1.2	For all types of submersible pumpsets above 3 HP and upto 5.0 H.P.	Each	<b>2934</b>
13.1.3	For all types of submersible pumpsets above 5.0 HP and upto 5.5H.P.	Each	<b>3116</b>
13.1.4	For all types of submersible pumpsets above 5.5 HP and upto 6.0H.P.	Each	<b>3296</b>
13.1.5	For all types of submersible pumpsets above 6.0 HP and upto 6.5H.P.	Each	<b>3479</b>
13.1.6	For all types of submersible pumpsets above 6.5 HP and upto 7.0H.P.	Each	<b>3659</b>
13.1.7	For all types of submersible pumpsets above 7.0 HP and upto 7.5H.P.	Each	<b>3839</b>
13.1.8	For all types of submersible pumpsets above 7.5 HP and upto 8.0H.P.	Each	<b>4019</b>
13.1.9	For all types of submersible pumpsets above 8.0 HP and upto 8.5H.P.	Each	<b>4201</b>
13.1.10	For all types of submersible pumpsets above 8.5 HP and upto 9.0H.P.	Each	<b>4382</b>
13.1.11	For all types of submersible pumpsets above 9.0 HP and upto 9.5H.P.	Each	<b>4562</b>
13.1.12	For all types of submersible pumpsets above 9.5 HP and upto 10.0H.P.	Each	<b>4744</b>
13.1.13	For all types of submersible pumpsets above 10 HP and upto 11 H.P.	Each	<b>5157</b>
13.1.14	For all types of submersible pumpsets above 11 HP and upto 12 H.P.	Each	<b>5570</b>
13.1.15	For all types of submersible pumpsets above 12 HP and upto 13 H.P.	Each	<b>5983</b>
13.1.16	For all types of submersible pumpsets above 13 HP and upto 14 H.P.	Each	<b>6397</b>
13.1.17	For all types of submersible pumpsets above 14 HP and upto 15 H.P.	Each	<b>6811</b>
13.1.18	For all types of submersible pumpsets 15HP to 20 HP	Each	<b>8930</b>
13.2	Replace the components of submersible pump sets, requiring replacements decided by the departmental officials, with respective make of damaged ones, including all materials, labour, equipments and testing etc.(with gurantee of period not less than 1 year) for:		
13.2.1	The bowls of same type and make	Each	<b>1500</b>
13.2.2	The Intermediate piece (IP) with IP leaded bronze brush.	Each	<b>1050</b>
13.2.3	The Oil Seal.	Each	<b>350</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.2.4	The Oil Seal.and steel bush	Each	<b>250</b>
13.2.5	The Guide Vane	Each	<b>700</b>
13.2.6	The Impeller (Shell moulded with aluminium and bronze.)	Each	<b>1500</b>
13.2.7	The discharge outlet (DO) bearing DO steel brush DO bearing.	Each	<b>2050</b>
13.2.8	The steel bearing bush (DO steel bush)	Each	<b>400</b>
13.2.9	The allen screw	Each	<b>1200</b>
13.2.10	The pump shaft made out of stainless steel counterless ground with key way (upto 8 stages). Extra for Each stage @ Rs.40/-.	Each	<b>1500</b>
13.2.11	The pump key (stainless steel)	Each	<b>650</b>
13.2.12	The pump coupling (stainless steel)	Each	<b>1500</b>
13.2.13	The Non Return Valve (NRV) assembly complete with rubber 'O' ring.	Each	<b>650</b>
13.2.14	The cable guard	Each	<b>350</b>
13.2.15	The strainer	Each	<b>450</b>
13.2.16	The brass filter	Each	<b>1050</b>
13.2.17	The Labour Charges for overhauling of the pump set.	Each	<b>900</b>
13.3	Replace the components of motor parts of submersible pump sets, items requiring replacements decided by the departmental officials, with respective make of damaged ones, including all materials, labour, equipments and testing etc and with guarantee/ warranty for one year for:		
13.3.1	The STATOR of motor upto 3 H.P	Each	<b>1500</b>
13.3.2	The STATOR of motor 3 to 4 H.P	Each	<b>2500</b>
13.3.3	The STATOR of motor 4 to 5 H.P	Each	<b>3500</b>
13.3.4	The ROTOR of motor upto 3.0 H.P	Each	<b>1200</b>
13.3.5	The ROTOR of motor 3 to 4 H.P	Each	<b>1500</b>
13.3.6	The ROTOR motor 4 to 5 H.P	Each	<b>2000</b>
13.3.7	The upper flange	Each	<b>650</b>
13.3.8	The lower flange	Each	<b>650</b>
13.3.9	upper/ lower housing	Each	<b>1200</b>
13.3.10	The Lock Ring	Each	<b>350</b>
13.3.11	The Carbon Housing	Each	<b>2000</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.3.12	The Carbon Housing (Thrust bearing block assembly complete with segment bearing pad.	Each	<b>2200</b>
13.3.13	The Carbon Housing (Top carbond / ferrodo padding)	Each	<b>350</b>
13.3.14	The Stud and Nuts	Each	<b>200</b>
13.3.15	The Gun Metal bearing, centrifugally cast Aluminium Bronze bearing bush	Each	<b>850</b>
13.3.16	The Circlips	Each	<b>200</b>
13.3.17	The Motor base with pin	Each	<b>500</b>
13.3.18	The Transportation of pumping machineries	Each	<b>1200</b>
13.3.19	The Re-errection charges of pumping machineries including overhauling and painting	Each	<b>2000</b>
13.3.20	The lifting of submersible pumpset from well.	Each	<b>1500</b>
13.3.21	The Labour charges only for overhauling	Each	<b>3000</b>
13.3.22	Providing of Thermosetting Plastic i.e., Fibere Glass reinforced polyster sheet moulding compound(SMC) pump house with SMC door & canopy etc...,complete component as directed by the departmental officers.	Each	<b>12000</b>
13.4	Providing, Single Phase Submersible Pump Sets of 100mm dia (4 inch) suitable for bore well confirming to IS 8034-2000 specifications, to work site with testing of as per instructions of engineer incharge of work and latest amendments etc. complete.		
13.4.1	0.50 HP/0.37kW - 5 STG(stage)	Each	<b>10170</b>
13.4.2	0.50 HP/0.37kW - 7 STG(stage)	Each	<b>10855</b>
13.5	For 0.75 HP/0.55KW		
13.5.1	5 STG	Each	<b>12280</b>
13.5.2	6 STG	Each	<b>12630</b>
13.5.3	7 STG	Each	<b>13113</b>
13.5.4	10 STG	Each	<b>13373</b>
13.5.5	13 STG	Each	<b>13918</b>
13.6	1.00 HP/0.75KW		
13.6.1	7 STG	Each	<b>13318</b>
13.6.2	10 STG	Each	<b>13910</b>
13.6.3	12 STG	Each	<b>14516</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.6.4	13 STG	Each	<b>15120</b>
13.6.5	18 STG	Each	<b>15680</b>
13.7	1.50 HP/1.1KW		
13.7.1	7 STG	Each	<b>13910</b>
13.7.2	10 STG	Each	<b>14187</b>
13.7.3	12 STG	Each	<b>15418</b>
13.7.4	14 STG	Each	<b>16119</b>
13.7.5	15 STG	Each	<b>16940</b>
13.7.6	18 STG	Each	<b>17546</b>
13.7.7	20 STG	Each	<b>18218</b>
13.7.8	26 STG	Each	<b>19410</b>
13.8	2.00 HP/1.5KW		
13.8.1	6 STG	Each	<b>16510</b>
13.8.2	10 STG	Each	<b>16993</b>
13.8.3	12 STG	Each	<b>17618</b>
13.8.4	14 STG	Each	<b>17897</b>
13.8.5	15 STG	Each	<b>18218</b>
13.8.6	16 STG	Each	<b>18826</b>
13.8.7	18 STG	Each	<b>19698</b>
13.8.8	20 STG	Each	<b>19864</b>
13.8.9	25 STG	Each	<b>20216</b>
13.8.10	30 STG	Each	<b>20719</b>
13.8.11	35 STG	Each	<b>21813</b>
13.9	3.00 HP/2.2KW		
13.9.1	9 STG	Each	<b>20113</b>
13.9.2	15 STG	Each	<b>21530</b>
13.9.3	20 STG	Each	<b>21996</b>
13.9.4	21 STG	Each	<b>22478</b>
13.9.5	23 STG	Each	<b>23860</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.9.6	30 STG	Each	<b>24530</b>
13.9.7	35 STG	Each	<b>24816</b>
13.9.8	40 STG	Each	<b>25773</b>
13.9.9	50 STG	Each	<b>26775</b>
13.10	5.00 HP/3.7KW		
13.10.1	25 STG	Each	<b>26400</b>
13.10.2	30 STG	Each	<b>27910</b>
13.10.3	35 STG	Each	<b>28315</b>
13.10.4	50 STG	Each	<b>29650</b>
13.11	Providing Submersible Pump Set of 150mm dia suitable for bore well and confirming to IS 8034-2000;3Phase, SS Bowl & Impeller with Low volt Motor as per specifications, to work site as per necessary ammendments and instructions of engineer incharge of work. For 3 HP etc. complete.		
13.11.1	3.00 HP - 300 LPM @ 26 m = 5 STG Outlet Dia - 2.50"	Each	<b>23168</b>
13.11.2	3.00 HP - 155 LPM @ 42 m = 7 STG Outlet Dia - 2.00"	Each	<b>24334</b>
13.11.3	3.00 HP - 135 LPM @ 56 m = 8 STG Outlet Dia - 2.00"	Each	<b>25910</b>
13.11.4	3.00 HP - 120 LPM @ 55 m = 9 STG Outlet Dia - 2.00"	Each	<b>26627</b>
13.11.5	3.00 HP - 90 LPM @ 66 m = 10 STG Outlet Dia - 2.00"	Each	<b>28113</b>
13.12	For 4.00 HP		
13.12.1	4.00 HP - 360 LPM @ 30 m = 6 STG Outlet Dia - 3.00"	Each	<b>22628</b>
13.12.2	4.00 HP - 245 LPM @ 42 m = 8 STG Outlet Dia - 2.50"	Each	<b>23319</b>
13.12.3	4.00 HP - 155 LPM @ 56 m = 9 STG Outlet Dia - 2.00"	Each	<b>24107</b>
13.12.4	4.00 HP - 135 LPM @ 70 m = 5 STG Outlet Dia - 2.00"	Each	<b>24993</b>
13.12.5	4.00 HP - 120 LPM @ 77 m = 11 STG Outlet Dia - 2.00"	Each	<b>25610</b>
13.12.6	4.00 HP - 90 LPM @ 88 m = 12 STG Outlet Dia - 2.00"	Each	<b>26730</b>
13.13	For 5.00 HP		
13.13.1	5.00 HP - 300 LPM @ 39 m = 5 STG Outlet Dia - 2.50"	Each	<b>26310</b>
13.13.2	5.00 HP - 245 LPM @ 56 m = 8 STG Outlet Dia - 2.50"	Each	<b>27010</b>
13.13.3	5.00 HP - 155 LPM @ 70 m = 10 STG Outlet Dia - 2.00"	Each	<b>27600</b>
13.13.4	5.00 HP - 135 LPM @ 84 m = 12 STG Outlet Dia - 2.00"	Each	<b>28837</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.13.5	5.00 HP - 120 LPM @ 88 m = 14 STG Outlet Dia - 2.00"	Each	<b>30819</b>
13.13.6	5.00 HP - 90 LPM @ 110 m = 15 STG Outlet Dia - 2.00"	Each	<b>32137</b>
13.14	For 6.50 HP		
13.14.1	6.50 HP - 360 LPM @ 45 m = 5 STG Outlet Dia - 3.00"	Each	<b>26930</b>
13.14.2	6.50 HP - 300 LPM @ 52 m = 6 STG Outlet Dia - 2.50"	Each	<b>27813</b>
13.14.3	6.50 HP - 245 LPM @ 70 m = 8 STG Outlet Dia - 2.50"	Each	<b>29930</b>
13.14.4	6.50 HP - 155 LPM @ 84 m = 10 STG Outlet Dia - 2.00"	Each	<b>30774</b>
13.14.5	6.50 HP - 135 LPM @ 110 m = 12 STG Outlet Dia - 2.00"	Each	<b>32610</b>
13.14.6	6.50 HP - 120 LPM @ 112 m = 14 STG Outlet Dia - 2.00"	Each	<b>34910</b>
13.14.7	6.50 HP - 90 LPM @ 132 m = 15 STG Outlet Dia - 2.00"	Each	<b>36719</b>
13.15	For 7.50 HP		
13.15.1	7.50 HP - 360 LPM @ 60 m = 5 STG Outlet Dia - 3.00"	Each	<b>28116</b>
13.15.2	7.50 HP - 300 LPM @ 65 m = 6 STG Outlet Dia - 2.50"	Each	<b>30010</b>
13.15.3	7.50 HP - 245 LPM @ 84 m = 8 STG Outlet Dia - 2.50"	Each	<b>32819</b>
13.15.4	7.50 HP - 155 LPM @ 112 m = 10 STG Outlet Dia - 2.00"	Each	<b>34213</b>
13.15.5	7.50 HP - 135 LPM @ 140 m = 12 STG Outlet Dia - 2.00"	Each	<b>36620</b>
13.15.6	7.50 HP - 120 LPM @ 132 m = 14 STG Outlet Dia - 2.00"	Each	<b>38919</b>
13.15.7	7.50 HP - 90 LPM @ 165 m = 16 STG Outlet Dia - 2.00"	Each	<b>40810</b>
13.16	For 10.00 HP		
13.16.1	10.00 HP - 360 LPM @ 75 m = 5 STG Outlet Dia - 3.00"	Each	<b>31618</b>
13.16.2	10.00 HP - 300 LPM @ 91 m = 6 STG Outlet Dia - 2.50"	Each	<b>34110</b>
13.16.3	10.00 HP - 245 LPM @ 112 m = 8 STG Outlet Dia - 2.50"	Each	<b>37750</b>
13.16.4	10.00 HP - 155 LPM @ 140 m = 10 STG Outlet Dia - 2.00"	Each	<b>40460</b>
13.16.5	10.00 HP - 135 LPM @ 168 m = 12 STG Outlet Dia - 2.00"	Each	<b>43930</b>
13.16.6	10.00 HP - 120 LPM @ 176 m = 16 STG Outlet Dia - 2.00"	Each	<b>47633</b>
13.16.7	10.00 HP - 90 LPM @ 220 m = 20 STG Outlet Dia - 2.00"	Each	<b>54612</b>
13.17	For 12.50 HP		
13.17.1	12.50 HP - 360 LPM @ 90 m = 6 STG Outlet Dia - 3.00"	Each	<b>35907</b>
13.17.2	12.50 HP - 300 LPM @ 104 m = 8 STG Outlet Dia - 2.50"	Each	<b>39179</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.17.3	12.50 HP - 245 LPM @ 140 m = 10 STG Outlet Dia - 2.50"	Each	<b>45701</b>
13.17.4	12.50 HP - 155 LPM @ 168 m = 12 STG Outlet Dia - 2.00"	Each	<b>49834</b>
13.17.5	12.50 HP - 135 LPM @ 210 m = 15 STG Outlet Dia - 2.00"	Each	<b>55110</b>
13.17.6	12.50 HP - 120 LPM @ 220 m = 20 STG Outlet Dia - 2.00"	Each	<b>59916</b>
13.17.7	12.50 HP - 90 LPM @ 264 m = 24 STG Outlet Dia - 2.00"	Each	<b>64128</b>
13.18	For 15.00 HP		
13.18.1	15.00 HP - 360 LPM @ 120 m = 8 STG Outlet Dia - 3.00"	Each	<b>45774</b>
13.18.2	15.00 HP - 300 LPM @ 130 m = 10 STG Outlet Dia - 2.50"	Each	<b>50337</b>
13.18.3	15.00 HP - 245 LPM @ 168 m = 12 STG Outlet Dia - 2.50"	Each	<b>55618</b>
13.18.4	15.00 HP - 155 LPM @ 210 m = 15 STG Outlet Dia - 2.00"	Each	<b>61827</b>
13.18.5	15.00 HP - 135 LPM @ 253 m = 19 STG Outlet Dia - 2.00"	Each	<b>66708</b>
13.18.6	15.00 HP - 120 LPM @ 266 m = 23 STG Outlet Dia - 2.00"	Each	<b>69344</b>
13.19	For 17.50 HP		
13.19.1	17.50 HP - 360 LPM @ 135 m = 9 STG Outlet Dia - 3.00"	Each	<b>54713</b>
13.19.2	17.50 HP - 300 LPM @ 156 m = 12 STG Outlet Dia - 2.50"	Each	<b>58434</b>
13.19.3	17.50 HP - 245 LPM @ 196 m = 14 STG Outlet Dia - 2.50"	Each	<b>64619</b>
13.19.4	17.50 HP - 155 LPM @ 252 m = 18 STG Outlet Dia - 2.00"	Each	<b>69445</b>
13.19.5	17.50 HP - 135 LPM @ 286 m = 22 STG Outlet Dia - 2.00"	Each	<b>73664</b>
13.19.6	17.50 HP - 120 LPM @ 308 m = 26 STG Outlet Dia - 2.00"	Each	<b>77963</b>
13.20	For 20.00 HP		
13.20.1	20.00 HP - 360 LPM @ 150 m = 10 STG Outlet Dia - 3.00"	Each	<b>63170</b>
13.20.2	20.00 HP - 300 LPM @ 169 m = 13 STG Outlet Dia - 2.50"	Each	<b>68310</b>
13.20.3	20.00 HP - 245 LPM @ 224 m = 16 STG Outlet Dia - 2.50"	Each	<b>73557</b>
13.20.4	20.00 HP - 155 LPM @ 280 m = 20 STG Outlet Dia - 2.00"	Each	<b>78905</b>
13.20.5	20.00 HP - 135 LPM @ 350 m = 25 STG Outlet Dia - 2.00"	Each	<b>81090</b>
13.21	For 25.00 HP		
13.21.1	25.00 HP - 360 LPM @ 195 m = 13 STG Outlet Dia - 3.00"	Each	<b>58473</b>
13.21.2	25.00 HP - 300 LPM @ 221 m = 17 STG Outlet Dia - 2.50"	Each	<b>64313</b>
13.21.3	25.00 HP - 245 LPM @ 280 m = 20 STG Outlet Dia - 2.50"	Each	<b>69773</b>

Sl. No.	Specification	Unit	Rate ₹
13.21.4	25.00 HP - 155 LPM @ 280 m = 20 STG Outlet Dia - 2.00"	Each	75336
13.21.5	25.00 HP - 135 LPM @ 420 m = 30 STG Outlet Dia - 2.00"	Each	82619
13.22	Supply and delivery at site Brand new best make PVC insulated cable of Flat 3 core (sheathed) of nominal cross sectional area as per IS 694-1990 with ISI Mark and as per its latest amendments.		
13.22.1	1x3x1.5 Sqm	m	65
13.22.2	1x3x2.5 Sqm	m	85
13.22.3	1x3x4 Sqm	m	135
13.22.4	1x3x6 Sqm.	m	185
13.22.5	1x3x10 Sqm	m	280
13.23	Supply and delivery at site of brand new best make pressure gauge bourdon type as per IS 778/1984 with ISI Mark and as per its latest amendments.		
13.23.1	Size 63 mm	Each	416
13.23.2	Size 80 mm	Each	597
13.23.3	Size 100 mm	Each	654
13.24	Supply and delivery at site of brand new best make gate valve as per IS 778/1984 with ISI Mark and as per its latest amendments		
13.24.1	Size 50 mm	Each	1250
13.24.2	Size 65 mm	Each	1450
13.24.3	Size 80 mm	Each	1650
13.25	Supply and delivery at site of brand new best make non-return valve as per IS 778/1984 with ISI Mark and as per its latest amendments		
13.25.1	Size 50 mm	Each	1250
13.25.2	Size 65 mm	Each	1550
13.25.3	Size 80 mm	Each	1750
13.23	Supply, installing, testing and commissioning COMMON control panel consisting of the following INCOMING: 1 No set of Phase indicating lamps with SFU of suitable rating 1 No, Analog Ammeter, 1 No Analog Voltmeter 1ni with Phase selector switch, Isolating switch OUTGOING for Main Electrical Pump: 1 No. MCB 1 No. DOL of S/D Starter suitable for respective HP 1 No. Electrical Protection Like single Phase preventor, under voltage over Volage, under current over current & dry run protection suitable for the pump described above 1 no Indoor type NOTE: 1) DOL- Direct Online Starter 2) S-D- Star Delta Starter etc. complete.		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.23.1	Upto 3 HP pumps	Each	<b>6500</b>
13.23.2	3 to 6 HP pumps	Each	<b>9550</b>
13.23.3	6 to 15 HP pumps	Each	<b>15900</b>
13.24	for outdoor		
13.24.1	Upto 3 HP pumps	Each	<b>7500</b>
13.24.2	3 to 6 HP pumps	Each	<b>10500</b>
13.24.3	6 to 15 HP pumps	Each	<b>17500</b>
13.25	Supply and delivery at site best indigenous brand new power capacitor as per IS 2834/1986 with latest amendments with KPTCL authorities and erection, electrification and commissioning of the same at the location of respective pump sets.	kVAR	<b>550</b>
13.26	Supply and delivery at site delivery of best indigenous brand new MCB (Miniature Circuit Breakers) of required capacity as per IS 88228/1978 and its latest amendments and with ISI Mark of 6/10/16/20/25/40 Amps with scalable box.	per 3 poles	<b>1150</b>
13.27	Supply and delivery of galvanized mild steel tubes of 6mtr standard length heavy duty (C Class) as per IS 1239 (Part-I) 1990 with latest amendments with ISI Mark (one end fitted with Heavy Duty collar and other end fitted with protective cover)		
13.27.1	50 mm	Each	<b>3050</b>
13.27.2	65 mm	Each	<b>3575</b>
13.27.3	80 mm	Each	<b>4158</b>
13.28	Supply and delivery at site 50mm(2") dia heavy duty unplasticized PVC Column pipes with heavy duty collars,rubber profile ring,vibration control profile ring,freezing and turbulence free leak proof EPDM ring with ISI mark with its latest amendments	m	<b>550</b>
13.29	Supply and delivery at site 50mm(2") dia heavy duty CI adopter set complete suitable for uPVC Column pipes for Submersible pumpsets	SET	<b>1550</b>
13.30	Supply and delivery at site Accessories for Single Phase pumpset like SS Groove Nipples,SS Studs & Nuts,Screw Clips &water proof Insulation Tape etc complete with ISI mark	SET	<b>4500</b>
13.31	Supply and delivery at site Stringing of heavy duty Naylone/PP rope with ISI etc complete suitable for Single phase Pumpsets.	m	<b>40</b>

Sl. No.	Specification	Unit	Rate ₹
13.32	Labour charges for Erection, Electrification and commissioning of Pump sets, including aligning and balancing of all items including supply and erection of two pair of supporting clamps, bore well caps, cable clips and water tight gland cable protectors, bolts, nuts, valve and gauges, tools and equipments etc., involved in the job as per specifications, with necessary tests as per specifications, with testing of as per instructions of engineer incharge of work.	Job	6500
13.33	Labour charges for erection of indoor type panel board and meter board units with all necessary materials and labour tools and equipments including cement concrete for foundation/bed etc, complete as per specification, with testing of as per instructions of engineer incharge of work.	Job	1350
13.34	Labour charges for erection of outdoor type panel board and meter board units with all necessary materials and labour, tools and equipments including providing cement concrete foundation bed etc., complete as per specification, with testing of as per instructions of engineer incharge of work.	Job	1450
13.35	Labour charges for providing connection using insulated sheathed steel wire cable as per IS 1554/ 1988 with latest amendments from KPTCL pole to meter board unit, with all necessary materials ,tools and equipments, as per specifications with testing of as per instructions of engineer incharge of work. .		
13.35.1	2 x 10 sqmm	m	80
13.35.2	3½ x 6 sqmm	m	160
13.35.3	3½ x 10 sqmm	m	195
13.35.4	3 x 10 sqmm (suitable for over head mains)	m	165
13.35.5	3½ x 16 sqmm	m	270
13.36	Providing main connection from pole PVC insulated sheathed steel wire cable in new trench as per IS 1554/ 1988 with latest amendments with ISI mark from KPTCL pole to meter board unit.	m	135
13.37	Providing main connection from pole PVC insulated sheathed steel wire cable in GI pipe as per IS 1554/ 1988 with latest amendments with ISI mark from KPTCL pole to meter board unit.	m	85
13.38	Providing and fixing suitable for 1.1 KV class UG cable filled with necessary bitumen/insulating compound complete with terminals, clamps, bolts, nuts and washers etc. with necessary materials and labour tools and equipments as per instructions of engineer incharge of work.		
13.38.1	3½x6 Sqm	Each	375
13.38.2	3½x10 Sqm	Each	450

Sl. No.	Specification	Unit	Rate ₹
13.38.3	3½x25 Sqm	Each	562
13.39	Earthing: Providing and fixing and wiring earth electrode for grounding circuits IC cutouts and other equipments on the meter board in the pit. The pits should be filled up with equal proportion of salt and charcoal 150mm around the pipe to complete depth. The connection from the pipe to the conduits etc. is to established through GI wire of sizes as per clause 7.3.3 of IS 732 using 12mm bolts, nuts, washers and check nuts, the pipe shall have 16 through holes of 12mm dia.	Job	3750
13.40	Supply and delivery of Centrifugal pumpset at site brand new best make and with discharge duty confirming to ISI standards and its latest amendments.	Discuss	
13.40.1	2 HP, Size 65x50 Head 13M, Discharge 462 LPM	Each	15610
13.40.2	2 HP, Size 50x40 Head 22M, Discharge 186 LPM	Each	16993
13.40.3	3 HP, size 50x40 Head 30M, Discharge 198 LPM	Each	18816
13.40.4	5 HP, size 80x65 Head 23.50M, Discharge 600 LPM	Each	22310
13.40.5	5 HP, size 50x40 Head 46M, Discharge 174 LPM	Each	26417
13.40.6	7.5 HP, size 100x100 Head 195M, Discharge 1200 LPM	Each	30520
13.40.7	7.5 HP, size 80x65 Head 195M, Discharge 1200 LPM	Each	33619
13.40.8	7.5 HP, size 65x50 Head 46M, Discharge 360 LPM	Each	35150
13.40.9	10 HP, size 80x65 Head 34.50M, Discharge 840 LPM	Each	37623
13.40.10	12.5 HP, size 100x100 Head 25M, Discharge 1560 LPM	Each	38331
13.40.11	12.5 HP, size 80x65 Head 40M, Discharge 780 LPM.	Each	46710
13.40.12	15 HP, size 80x65 Head 44M, Discharge 900 LPM	Each	53967
13.40.13	20 HP, size 100x80 and 42M, Discharge 1320 LPM	Each	65918
13.41	Supply and delivery at site brand new best make pressure guage suitable for centrifugal pump confirming to latest IS standards.		
13.41.1	pressure guage 80MM	Each	597
13.41.2	pressure guage 100MM	Each	654
13.42	Supply and delivery at site brand new best make level guage suitable for centrifugal pump confirming to latest IS standards.	Each	750
13.43	Supply and delivery at site brand new best make starter/ control panel suitable for following HP centrifugal pump confirming with ISI mark and its latest amendments.		
13.43.1	Upto 7.5 HP centrifugal pump	Each	9500



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.43.2	7.5 to 10 HP centrifugal pump	Each	<b>15550</b>
13.43.3	10 to 12 HP centrifugal pump	Each	<b>35650</b>
13.44	Supply, delivery, erection and commissioning at site lighting distribution board suitable for monoblock centrifugal pump confirming with ISI mark and its latest amendments.	Each	<b>3500</b>
13.45	Supply, delivery, erection and commissioning at site ELCB suitable for monoblock centrifugal pump confirming with ISI mark and its latest amendments.	Each	<b>4117</b>
13.46	Providing and fixing LT cable of size 4 x 25 Sqm suitable for centrifugal pump sets with ISI mark and its latest amendments.	m	<b>562</b>
13.47	Supply and delivery at site brand new best make Foot valve suitable for centrifugal pump upto 10HP confirming with ISI mark and its latest amendments.	Each	<b>1750</b>
13.48	Supply and delivery at site brand new best make Foot valve suitable for centrifugal pump above 12.50HP confirming with ISI mark and its latest amendments.	Each	<b>2200</b>
13.49	Rewinding of monoblock motor with copper insulaton wire suitable gauge as per ISI specification with all necessary materials and labour,tools and equipments with guarantee period of not less than 12 months		
13.49.1	7.5 HP monobloc motor rewinding	Job	<b>4000</b>
13.49.2	10 HP monobloc motor rewinding	Job	<b>6500</b>
13.49.3	12.5 HP monobloc motor rewinding	Job	<b>8000</b>
13.49.4	15 HP monobloc motor rewinding	Job	<b>12000</b>
13.49.5	20 HP monobloc motor rewinding	Job	<b>15000</b>
13.49.6	30 HP monobloc motor rewinding	Job	<b>20000</b>
13.49.7	40 HP monobloc motor rewinding	Job	<b>22000</b>
13.49.8	50 HP monobloc motor rewinding	Job	<b>25000</b>
13.49.9	60 HP monobloc motor rewinding	Job	<b>35000</b>
13.49.10	80 HP monobloc motor rewinding	Job	<b>38000</b>
13.49.11	100HP monobloc motor rewinding	Job	<b>50000</b>
13.49.12	120 HP monobloc motor rewinding	Job	<b>62000</b>
13.49.13	150 HP monobloc motor rewinding	Job	<b>65000</b>
13.49.14	180 HP monobloc motor rewinding	Job	<b>75000</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.49.15	200 HP monobloc motor rewinding	Job	<b>85000</b>
13.50	Providing Ball bearing as per ISI specification with guarantee period of not less than 12 months		
13.50.1	Bearing cost for 7.5 HP	Each	<b>1880</b>
13.50.2	Bearing cost for 10HP	Each	<b>2050</b>
13.50.3	Bearing cost for 12.5 HP	Each	<b>2050</b>
13.50.4	Bearing cost for 15 HP	Each	<b>2550</b>
13.50.5	Bearing cost for 20 HP	Each	<b>3080</b>
13.50.6	Bearing cost for 30HP	Each	<b>4050</b>
13.50.7	Bearing cost for 40 HP	Each	<b>4600</b>
13.50.8	Bearing cost for 50 HP	Each	<b>6250</b>
13.50.9	Bearing cost for 60 HP	Each	<b>6500</b>
13.50.10	Bearing cost for 80 HP	Each	<b>7000</b>
13.50.11	Bearing cost for 100 HP	Each	<b>7500</b>
13.50.12	Bearing cost for 120 HP	Each	<b>9000</b>
13.50.13	Bearing cost for 150 HP	Each	<b>11000</b>
13.50.14	Bearing cost for 180 HP	Each	<b>12500</b>
13.50.15	Bearing cost for 200 HP	Each	<b>13500</b>
13.51	Providing thrust bearing as per ISI specification with guarantee period of not less than 12 months		
13.51.1	Bearing cost for 30 HP	Each	<b>6500</b>
13.51.2	Bearing cost for 40HP	Each	<b>7500</b>
13.51.3	Bearing cost for 50 HP	Each	<b>8500</b>
13.51.4	Bearing cost for 60 HP	Each	<b>11000</b>
13.51.5	Bearing cost for 80 HP	Each	<b>13500</b>
13.51.6	Bearing cost for 100 HP	Each	<b>14000</b>
13.51.7	Bearing cost for 120 HP	Each	<b>16500</b>
13.51.8	Bearing cost for 150 HP	Each	<b>18000</b>
13.51.9	Bearing cost for 180 HP	Each	<b>19500</b>
13.51.10	Bearing cost for 200 HP	Each	<b>21000</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.52	Providing terminal plate as per ISI specification with guarantee period of not less than 12 months		
13.52.1	terminal plate 7.5 to 12.5	Each	<b>450</b>
13.52.2	terminal plate 15 to 30	Each	<b>850</b>
13.52.3	terminal plate 40 to 60	Each	<b>1050</b>
13.52.4	terminal plate 80 to 120	Each	<b>2000</b>
13.52.5	terminal plate 150 to 200	Each	<b>3500</b>
13.53	Repairs to Vertical turbine pumps as per ISI specification with guarantee period of not less than 12 months V- T Pump		
13.53.1	Phosphorous bronze bearing bush for 30 HP to 40 HP	Each	<b>4800</b>
13.53.2	Phosphorous bronze bearing bush for 50 HP to 60 HP	Each	<b>5500</b>
13.53.3	Phosphorous bronze bearing bush for 80 HP to 100 HP	Each	<b>7500</b>
13.53.4	Phosphorous bronze bearing bush for 100 HP to 150 HP	Each	<b>8200</b>
13.53.5	Phosphorous bronze bearing bush for 180 HP to 200 HP	Each	<b>9000</b>
13.54	Repairs to Vertical turbine pumps as per ISI specification with guarantee period of not less than 12 months V-T PUMP STAGE BUSHES		
13.54.1	Phosphorous bronze stage bushes for 30 to 40 HP	Each	<b>4500</b>
13.54.2	Phosphorous bronze stage bushes for 50 to 60 HP	Each	<b>5200</b>
13.54.3	Phosphorous bronze stage bushes for 80 to 100 HP	Each	<b>7500</b>
13.54.4	Phosphorous bronze stage bushes for 100 to 150 HP	Each	<b>8500</b>
13.54.5	Phosphorous bronze stage bushes for 180 to 200 HP	Each	<b>9500</b>
13.55	Repairs to Vertical turbine pumps as per ISI specification with guarantee period of not less than 12 months V-T PUMP IMPELLER AND NECK RING		
13.55.1	IMPELLER AND NECK RING for 30 HP to 40 HP	Each	<b>4800</b>
13.55.2	IMPELLER AND NECK RING for 50 HP to 60 HP	Each	<b>5200</b>
13.55.3	IMPELLER AND NECK RING for 80 HP to 100 HP	Each	<b>9000</b>
13.55.4	IMPELLER AND NECK RING for 100 HP to 150 HP	Each	<b>8000</b>
13.55.5	IMPELLER AND NECK RING for 180 HP to 200 HP	Each	<b>9500</b>
13.56	Repairs to Vertical turbine pumps as per ISI specification with guarantee period of not less than 12 months HORIZONTAL PUMP		
13.56.1	Phosphorous bronze bushes for 7.5 to 15 HP monoblock motor	Each	<b>800</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.56.2	Phosphorous bronze bushes for 20 HP monoblock motor	Each	<b>1800</b>
13.56.3	Phosphorous bronze bushes for 40HP to 80HP monoblock motor	Each	<b>5800</b>
13.56.4	Phosphorous bronze bushes for 100HP to 120HP monoblock motor	Each	<b>6500</b>
13.56.5	Phosphorous bronze bushes for 150HP to 200 HP monoblock motor	Each	<b>8000</b>
13.57	BEARING FOR HORIZONTAL PUMP		
13.57.1	For 20 HP pump bearing	Each	<b>2500</b>
13.57.2	For 30 HP Pump bearing	Each	<b>3500</b>
13.57.3	For 40 to 80 HP pump bearing	Each	<b>4500</b>
13.57.4	For 60 to 80 HP pump bearing	Each	<b>8400</b>
13.57.5	For 100 to 150HP pump bearing	Each	<b>10200</b>
13.57.6	For 180 to 200 HP pump bearing	Each	<b>10800</b>
13.58	ALL TYPES OF JACK WELL V-T PUMP DETAILS as per ISI specification with guarantee period of not less than 12 months -For Pump dismantling and refitting after attending repairs.		
13.58.1	Up to 60 HP	Each	<b>10000</b>
13.58.2	60 HP to 120 HP	Each	<b>12000</b>
13.58.3	120 HP to 200 HP	Each	<b>15000</b>
13.58.4	200 HP to 250 HP	Each	<b>18000</b>
13.59	For Top body bush fitting		
13.59.1	Up to 60 HP	Each	<b>2000</b>
13.59.2	60 HP to 120 HP	Each	<b>2500</b>
13.59.3	120 HP to 200 HP	Each	<b>2800</b>
13.59.4	200 HP to 250 HP	Each	<b>1675</b>
13.60	For Bottom body bush fitting		
13.60.1	Up to 60 HP	Each	<b>1450</b>
13.60.2	60 HP to 120 HP	Each	<b>1850</b>
13.60.3	120 HP to 200 HP	Each	<b>1975</b>
13.60.4	200 HP to 250 HP	Each	<b>2075</b>
13.61	For Pumps stage body bush fitting Each		
13.61.1	Up to 60 HP	Each	<b>850</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.61.2	60 HP to 120 HP	Each	<b>1050</b>
13.61.3	120 HP to 200 HP	Each	<b>1125</b>
13.61.4	200 HP to 250 HP	Each	<b>1250</b>
13.62	For Pump body necking fitting Each		
13.62.1	Up to 60 HP	Each	<b>1200</b>
13.62.2	60 HP to 120 HP	Each	<b>1475</b>
13.62.3	120 HP to 200 HP	Each	<b>1650</b>
13.62.4	200 HP to 250 HP	Each	<b>1850</b>
13.63	For Impeller breezing making		
13.63.1	Up to 60 HP	Each	<b>1050</b>
13.63.2	60 HP to 120 HP	Each	<b>1175</b>
13.63.3	120 HP to 200 HP	Each	<b>1250</b>
13.63.4	200 HP to 250 HP	Each	<b>1280</b>
13.64	For Pump shaft press throwble		
13.64.1	Up to 60 HP	Each	<b>680</b>
13.64.2	60 HP to 120 HP	Each	<b>700</b>
13.64.3	120 HP to 200 HP	Each	<b>750</b>
13.64.4	200 HP to 250 HP	Each	<b>850</b>
13.65	For Pump open & fitting at work shop		
13.65.1	Up to 60 HP	Each	<b>3500</b>
13.65.2	60 HP to 120 HP	Each	<b>4000</b>
13.65.3	120 HP to 200 HP	Each	<b>4500</b>
13.65.4	200 HP to 250 HP	Each	<b>5000</b>
13.66	For Connecting bush G.M new making Each		
13.66.1	Up to 60 HP	Each	<b>1875</b>
13.66.2	60 HP to 120 HP	Each	<b>1975</b>
13.66.3	120 HP to 200 HP	Each	<b>2255</b>
13.66.4	200 HP to 250 HP	Each	<b>2575</b>
13.67	For Line shaft seat welding making Each		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.67.1	Up to 60 HP	Each	<b>450</b>
13.67.2	60 HP to 120 HP	Each	<b>550</b>
13.67.3	120 HP to 200 HP	Each	<b>500</b>
13.67.4	200 HP to 250 HP	Each	<b>600</b>
13.68	For Oil inside new Fitting & threading Each		
13.68.1	Up to 60 HP	Each	<b>1400</b>
13.68.2	60 HP to 120 HP	Each	<b>1600</b>
13.68.3	120 HP to 200 HP	Each	<b>1850</b>
13.68.4	200 HP to 250 HP	Each	<b>1950</b>
13.69	For Balancing spaider rubber guide Each		
13.69.1	Up to 60 HP	Each	<b>1200</b>
13.69.2	60 HP to 120 HP	Each	<b>1300</b>
13.69.3	120 HP to 200 HP	Each	<b>1450</b>
13.69.4	200 HP to 250 HP	Each	<b>1570</b>
13.70	For New T.T nipple making		
13.70.1	Up to 60 HP	Each	<b>3050</b>
13.70.2	60 HP to 120 HP	Each	<b>3250</b>
13.70.3	120 HP to 200 HP	Each	<b>3500</b>
13.70.4	200 HP to 250 HP	Each	<b>3800</b>
13.71	For Pump gear box body radial bearing		
13.71.1	Up to 60 HP	Each	<b>13575</b>
13.71.2	60 HP to 120 HP	Each	<b>16575</b>
13.71.3	120 HP to 200 HP	Each	<b>18075</b>
13.71.4	200 HP to 250 HP	Each	<b>20750</b>
13.72	For Gear box ball bearing		
13.72.1	Up to 60 HP	Each	<b>1500</b>
13.72.2	60 HP to 120 HP	Each	<b>1650</b>
13.72.3	120 HP to 200 HP	Each	<b>1925</b>
13.72.4	200 HP to 250 HP	Each	<b>2075</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.73	For Pumping and clean pipe painting		
13.73.1	Up to 60 HP	Each	<b>1675</b>
13.73.2	60 HP to 120 HP	Each	<b>1875</b>
13.73.3	120 HP to 200 HP	Each	<b>2150</b>
13.73.4	200 HP to 250 HP	Each	<b>2250</b>
13.74	For Transportation charges both side		
13.74.1	Up to 60 HP	Each	<b>2500</b>
13.74.2	60 HP to 120 HP	Each	<b>3500</b>
13.74.3	120 HP to 200 HP	Each	<b>4200</b>
13.74.4	200 HP to 250 HP	Each	<b>4500</b>
13.75	Water Treatment Plants HORIZONTAL PUMP ALL TYPES-For Pump open & refitting after repairs		
13.75.1	Up to 25HP	Each	<b>4900</b>
13.75.2	25 HP to 100 HP	Each	<b>5200</b>
13.75.3	100 HP to 150 HP	Each	<b>5800</b>
13.75.4	150 HP to 250 HP	Each	<b>6200</b>
13.76	For Side gland bush		
13.76.1	Up to 25HP	Each	<b>1500</b>
13.76.2	25 HP to 100 HP	Each	<b>1800</b>
13.76.3	100 HP to 150 HP	Each	<b>2000</b>
13.76.4	150 HP to 250 HP	Each	<b>2100</b>
13.77	For Impeller breezing and making		
13.77.1	Up to 25HP	Each	<b>1100</b>
13.77.2	25 HP to 100 HP	Each	<b>1450</b>
13.77.3	100 HP to 150 HP	Each	<b>1600</b>
13.77.4	150 HP to 250 HP	Each	<b>1700</b>
13.78	For Shaft steel welding and making bearing sheet Each		
13.78.1	Up to 25HP	Each	<b>1100</b>
13.78.2	25 HP to 100 HP	Each	<b>1450</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.78.3	100 HP to 150 HP	Each	<b>1600</b>
13.78.4	150 HP to 250 HP	Each	<b>1850</b>
13.79	For Shaft threading making Each		
13.79.1	Up to 25HP	Each	<b>1250</b>
13.79.2	25 HP to 100 HP	Each	<b>1650</b>
13.79.3	100 HP to 150 HP	Each	<b>1815</b>
13.79.4	150 HP to 250 HP	Each	<b>2015</b>
13.80	For Joint rope of 1kg		
13.80.1	Up to 25HP	Each	<b>700</b>
13.80.2	25 HP to 100 HP	Each	<b>815</b>
13.80.3	100 HP to 150 HP	Each	<b>915</b>
13.80.4	150 HP to 250 HP	Each	<b>1050</b>
13.81	For Pump shaft bend thrown		
13.81.1	Up to 25HP	Each	<b>950</b>
13.81.2	25 HP to 100 HP	Each	<b>1150</b>
13.81.3	100 HP to 150 HP	Each	<b>1350</b>
13.81.4	150 HP to 250 HP	Each	<b>1650</b>
13.82	For Transportation		
13.82.1	Up to 25HP	Each	<b>2715</b>
13.82.2	25 HP to 100 HP	Each	<b>3050</b>
13.82.3	100 HP to 150 HP	Each	<b>3250</b>
13.82.4	150 HP to 250 HP	Each	<b>3650</b>
13.83	For Pump shaft getting check nut Each		
13.83.1	Up to 25HP	Each	<b>1050</b>
13.83.2	25 HP to 100 HP	Each	<b>1050</b>
13.83.3	100 HP to 150 HP	Each	<b>1115</b>
13.83.4	150 HP to 250 HP	Each	<b>1250</b>
13.84	For Both coupling new set		
13.84.1	Up to 25HP	Each	<b>8500</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
13.84.2	25 HP to 100 HP	Each	<b>10200</b>
13.84.3	100 HP to 150 HP	Each	<b>11000</b>
13.84.4	150 HP to 250 HP	Each	<b>12000</b>
13.85	Providing and installing of solar photo voltaic (SPV) water pumping system INDUCTION MOTOR, PUMPSETS AND A SUITABLE INVERTER as per IS specification and instruction of Engineer incharge of work as per IS specification- For 3000 wp/ 3HP submersible with controller		
13.85.1	Total head 30 mtrs and shut off dynamic Head 45 mtr and water out put 96000 ltrs/day.	Each	<b>267000</b>
13.85.2	Total head 50 mtrs and shut off dynamic Head 75 mtr and water out put 57000 ltrs/day.	Each	<b>270000</b>
13.85.3	Total head 70 mtrs and shut off dynamic Head 100 mtr and water out put 39000 ltrs/day	Each	<b>273000</b>
13.86	For 4800 wp/ 5HP submersible with controller		
13.86.1	Total head 50 mtrs and shut off dynamic Head 70 mtr and water out put 91200 ltrs/day.	Each	<b>383000</b>
13.86.2	Total head 70 mtrs and shut off dynamic Head 100 mtr and water out put 62400 ltrs/day.	Each	<b>386000</b>
13.86.3	Total head 100 mtrs and shut off dynamic Head 150 mtr and water out put 40800 ltrs/day.	Each	<b>389000</b>
13.87	For 6750 wp/ 7.5 HP submersible with controller		
13.87.1	Total head 50 mtrs and shut off dynamic Head 70 mtr and water out put 128250 ltrs/day.	Each	<b>565000</b>
13.87.2	Total head 70 mtrs and shut off dynamic Head 100 mtr and water out put 87750 ltrs/day.	Each	<b>568000</b>
13.87.3	Total head 100 mtrs and shut off dynamic Head 150 mtr and water out put 57375 ltrs/day.	Each	<b>571000</b>
13.88	For 9000 wp/ 10HP submersible with controller		
13.88.1	Total head 50 mtrs and shut off dynamic Head 70 mtr and water out put 171000 ltrs/day.	Each	<b>714000</b>
13.88.2	Total head 70 mtrs and shut off dynamic Head 100 mtr and water out put 117000 ltrs/day.	Each	<b>717000</b>
13.88.3	Total head 100 mtrs and shut off dynamic Head 150 mtr and water out put 76500 ltrs/day.	Each	<b>720000</b>

Sl. No.	Specification	Unit	Rate ₹
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Cable Selection chart for 415 volts, 50 Hz, 3 phase motors (considering Ambient Temp. 50degree & 3% Voltage Drop)								
MOTOR RATING		FULL LOAD CURRENT (AMPS)	CABLE SIZE					
			LENGTH OF CABLE IN METERS					
kw	HP		1.5	2.5	4	6	10	16
2.2	3	6.3	87	145	230	-	-	-
3.7	5	9.3	63	100	160	238	-	-
4.5	6	11.8	47	78	125	185	300	-
5.5	7.5	14.5	41	68	107	158	262	-
7.5	10	18	-	51	80	120	200	297
9.3	12.5	22.5	-	-	65	97	160	253
11	15	26	-	-	56	84	137	216
12.9	17.5	32.5	-	-	-	-	110	175
15	20	36.5	-	-	-	-	98	155
18.5	25	39	-	-	-	-	93	150
22	30	45	-	-	-	-	81	130
25.7	35	52	-	-	-	-	70	112

Cable Size Selection for 3 dia 150 mm submersibles				
Motor HP	Starting	Cable size recommended for up to 45 M cable length	Cable size recommended for up to 75 M cable length	Cable size recommended for up to 95 M cable length
35	S/D	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>	2x3x10mm <sup>2</sup>
30	S/D	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>	2x3x10mm <sup>2</sup>
25	S/D	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>	2x3x10mm <sup>2</sup>
20	S/D	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>	2x3x10mm <sup>2</sup>
17.5	S/D	2x3x2.5mm <sup>2</sup>	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>
15	S/D	2x3x2.5mm <sup>2</sup>	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>
12.5	S/D	2x3x2.5mm <sup>2</sup>	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>
10	S/D	2x3x2.5mm <sup>2</sup>	2x3x4mm <sup>2</sup>	2x3x6mm <sup>2</sup>
7.5	DOL	1x3x2.5mm <sup>2</sup>	1x3x4mm <sup>2</sup>	1x3x6mm <sup>2</sup>
6	DOL	1x3x2.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>	1x3x4mm <sup>2</sup>
5	DOL	1x3x1.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>
4	DOL	1x3x1.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>
3	DOL	2x3x1.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>	1x3x2.5mm <sup>2</sup>



**Chapter - 14**  
**BULK FLOW METERS**



**14 BULK FLOW METERS****1. ELECTROMAGNETIC INDUCTION FLOW METERS:**

1. Applications: Raw or potable water with chlorine content.
2. Conductivity : Maximum 500 MS / CM
3. Accuracy: + / - 5% flow reading.
4. Velocity Range : 0.3 m / sec. to 10 m / sec.
5. Power Supply : For the entire diameter pipes (100 mm to 300 mm) 230 Volts AC power supply with surge arrester; inbuilt re-chargeable battery to provide backup for minimum 6 hours in the absence of grid supply.
6. Galvanic Isolation: All circuits of output and power supply to Galvanizically Isolated.
7. Tube Lighting Materials: PTFE Liner.
8. Electrode Material: SS 316 L.
9. Flow meter housing : Fully welded and corrosive resistant painted carbon / sheet steel (Housing single unit.)
10. Electrodes: 2 Measuring electrodes.
11. Display Unit: 2 or 3 line LCD display 16 characters per line with backlight to see the reading during night time. All diagnostics should be visible on the LCD screen. 1st Line - Flow rate in m<sup>3</sup> /hr. 2nd Line - Totalizer in m<sup>3</sup>. 3rd Line - Electrode deposition / tamper status display.
12. Flange Material: CS flange
13. Type of Flange: ANSI / DIN type flange
14. Sensor Protection: IP 68
15. Transmitter Protection: IP 67.
16. Flow meter ambient Temperature: Upto 60 degree C.
17. Exact full model code and data sheet of the flow meter to be provided for each line size.
18. Data Logger: Internal / external with flow meter and data to be transmitted to server automatically for every 1 hour. Flow meter shall send 24 data message per day to remote server. Locally for every 5 minutes of interval in data logger. Per day 288 readings will be logged, per month 8640. Data of previous one year should be logged in to either internet / external data logger.

**2. FLOW SENSORS:**

1. Mounting: In field on pipe line (flow through flow sensor.)
2. Line Size: 100 mm to 300 mm.
3. Material Flow Tube: SS 316 / SS 304.
4. Grounding: Grounding / Earthing is required to protect flow meter from spurious signals. Earthing rings shall be provided at both flange ends. This will provide high degree of protection as compared to earthing electrode.
5. Electrodes: SS 316L.
6. Weather Protection for Flow Tube: IP 68.
7. Employ Pipe Detection (EPD): Integral part of design.
8. The sensors should be as per ISO standard lengths (ISO 13359) as applicable, so that interchangeability can be carried out. The sensors shall also have built in grounding and employ pipe detection facility.

**3. FLOW TRANSMITTER / COMPUTATION**

1. Mounting: Transmitter panel mounted outside the meter chamber in proper location.
2. Type: Microprocessor based - 4 wire.
3. Protection : IP 67
4. Power Supply : For the entire diameter pipes (100 mm to 300 mm) 230 Volts, AC power supply with surge arrester. Inbuilt chargeable battery to provide backup for minimum 6 hours backup in the absence of Grid supply.
5. Out put: 4 - 20 M Amps, digital and pulse outputs, Status Out puts, GPRS (Should support GSM also.) Data logger out put : Through RS 485 / Ethernet.
6. Unit of Display: m<sup>3</sup> Cubic Meter) / hour, MLD, ML (Programmable.)
7. Enclosure Material: Aluminium alloy with polyurethane quoting.
8. Flow Meter Standards: Testing and calliratin - IS / ISO 17025. Meter Standard - ISO 4068.
9. Calibration and Testing: All the flow meters to be calibrated at manufacturer workplace. Calibration/ Test certificates to be provided as per IS / ISO 17025, periodical calibration facility to be provided if required.

**4. PEDESTAL PANEL FOR TRANSMITTER UNIT:**

1. The electronic display unit shall be installed on a removable back board. It should be an anti-corrosive material. Enclosure should be designed for IP 54, separate compartments for energy meter & converter and flow meter display unit and modem. Generated heat inside the flow meter should be dissipated and should not cause any harmful effects inside enclosure, wall or post mounting cabinet enclosure. The enclosure shall be constructed from galvanized steel which is at least 3 mm thick. The enclosure shall have a hinged access door, which shall have a facility for padlocking in the closed position. Batteries shall be easily accessible for periodic changing. For floor mounting enclosures, the enclosure shall be mounted on a concrete plinth, the surface of which shall be at least 120 cm. above the surrounding finished ground level. A cable duct shall pass through the plinth to enable the cable from the flow sensor to enter the enclosure. A table showing details of the Employer's name and the water meter's unique reference number shall be fixed to the external face of the access door. Contractors or equipment manufacturer's details shall not be fixed to the external face of the access door.
2. Transparent toughened glass of size 10 cm x 5 cm to be provided to see reading of BESCO energy meter and flow meter separately. Panel should be provided with lock, master key, fan and filter for cooling / heat dissipation.
3. The enclosure shall be well ventilated, dust proof and vermin proof, and be suitable for robust use in a tropical climate. It shall also be suitable for:
  - a) the housing of the integral data logger and the temporary housing of a battery powered data logger which could periodically be used in conjunction with the water meter.
  - b) the permanent housing of any lightning protection system, the permanent housing of GPRS transmitter and battery pack, and any other items necessary to facilitate communication with the central server.

**NOTES FOR BULK FLOW METERS:**

1. The data rates are valid for only one year period and subject to variations in the market value.
2. The bulk meter totalizer/register shall be started immediately on installation of water meter.
3. Concerned officer shall strictly check testing and calibration certificate to ensure quality.
4. Necessary agreement shall be made by concerned officer for warranty and other conditions.
5. The bulk meter readings shall be synchronized to remote server at Cauvery Bhavan immediately.
6. Civil, mechanical and electrical charges extra to be estimated.

Sl. No.	Specification	Unit	Rate ₹
<b>14 BULK FLOW METERS</b>			
14.1	<p>Supply, Installation, Commissioning and Testing of GPRS + GSM based EMI flow meters on the Bulk water connections ranging from 100 mm to 300mm. The electromagnetic meters should comprise of the specifications given in the notes of this chapter. III) Providing Electromagnetic Induction AMR water meters for 100 mm to 300 mm diameter. Supply, Installation, Commissioning and Testing of GPRS + GSM based EMI flow meters on the Bulk waters connections ranging from 100 mm to 300 mm. The electromagnetic meters should comprise of following specification. Specification: 1. Specification of electromagnetic induction Flow meters Application : Raw or Potable Water with chlorine content Conductivity : Maximum 500 MS/CM Accuracy : +/- 0.5% flow reading. Velocity Range : 0.3 m / sec to 10 m/ sec Power Supply : For the entire diameter pipes (100 mm to 300 mm) 230 Volts AC power supply with surge arrester. Inbuilt rechargeable battery to provide backup for minimum 6 hrs battery backup in the absence of Grid Supply. Galvanic Isolation : All circuits of output and power supply to Galvanizically Isolated. Tube Lining Material : PTFE liner. Electrode material : SS 316L Flow meter Housing : Fully Welded and corrosive resistant Painted Carbon / Sheet Steel. (Housing Single unit) Electrodes : 2 measuring electrodes/4 measuring electrodes Display Unit : 2 or 3 Line LCD display 16 characters per line with backlight to see the reading during night time. All diagEachtics should be visible on the LCD screen 1st line : Flow Rate in m<sup>3</sup> / hr 2nd line : Totaliser m<sup>3</sup> 3rd Line : Electrode deposition / tamper status display Flange material : CS Flange Type of Flange : ANSI/ DIN type Flange Sensor protection : IP 68 Transmitter Protection Flow meter Ambient Temperature : up to 60 ° C Exact full model code and datasheet of the flow meter to be provided for Each line size. Data Logger: Internal / External with flow meter and data to be transmitted to server automatically for every 1 hour. Flow meter shall send 24 data message per day to remote server. Locally for every 5 minutes of interval in data logger. Per day 288 readings will be logged, per month 8640. Data of previous 1 year should be logged in to either internal / external data logger 2. Specification for Flow Sensors : Mounting : In field on pipeline (flow through flow Sensor). Line Sizes : 100 mm to 300 mm. Material of Flow Tube : SS316 / SS304 Grounding : Grounding / Earthing is required to protect flow meter from spurious signal. Earthing rings shall be provided at both flange ends. This will provide high degree of protection as compared to earthing electrode Electrodes : SS316L Weather Protection for Flow Tube : IP68 Empty Pipe Detection (EPD) : Integral part of design with electrode. The sensors should be as per ISO Standard lengths (ISO 13359) as applicable, so that interchangeability can be carried out. The sensors shall also have built in grounding and empty pipe detection facility 3. Specification for Flow Transmitter/Computation: Mounting : Transmitter panel mounted outside the meter Chamber in proper location. Type : Microprocessor based : 4 wire Protection : IP67 Power supply : For the entire diameter</p>		



Sl. No.	Specification	Unit	Rate ₹
	<p>pipes (100 mm to 300 mm) 230 Volts, AC power supply with surge arrester. Inbuilt rechargeable battery to provide backup for minimum 6 hrs battery backup in the absence of Grid supply. Output : 4-20 m Amps, digital and pulse outputs, Status Outputs, GPRS (Should Support GSM also). Data Logger Output : Through RS 485/ Ethernet. Unit of Display : m<sup>3</sup> (Cubic Meter) / hr, MLD, ML (Programmable). Enclosure Material: Aluminum alloy with polyurethane coating. Flow meter Standards : Testing &amp; Calibration : IS / ISO 17025 ,ISO 9140 Meter Standard : ISO 4064 Calibration and Testing: All the flow meters to be calibrated at manufacturer work place. Calibration / Test certificates to be provided as per IS / ISO 17025, periodical calibration facility to be provided if required. Specification for Pedestal Panel for Transmitter Unit : 1) The electronic display unit shall be installed on a removable backboard. It should be an anti corrosive material. Enclosure should be designed for IP54, separate compartment for energy meter &amp; converter and flow meter display unit &amp; modem. Generated heat inside the flow meter should be dissipated and should not cause any harmful effects inside enclosure, wall or post mounting cabinet enclosure. The enclosure shall be constructed from galvanized steel which is at least 3 mm thick. The enclosure shall have a hinged access door, which shall have a facility for padlocking in the closed position. Batteries shall be easily accessible for periodic changing. For floor mounting enclosures, the enclosure shall be mounted on a concrete plinth, the surface of which shall be at least 120 cm above the surrounding finished ground level. A cable duct shall pass through the plinth to enable the cable from the flow sensor to enter the enclosure. A label showing details of the Employer's name and the water meter's unique reference number shall be fixed to the external face of the access door. Contractors or equipment manufacturer's details shall not be fixed to the external face of the access door. 2) Transparent toughened glass of size 10 cm x 5 cm to be provided to see reading of BESCOM energy meter and flow meter separately. Panel should be provided with lock, master key, fan &amp; filter for cooling / heat dissipation. 3) The enclosure shall be well-ventilated, dust-proof and vermin-proof, and be suitable for robust use in a tropical climate. It shall also be suitable for : a) the housing of the integral data logger and the temporary housing of a battery powered data logger which could periodically be used in conjunction with the water meter. b) the permanent housing of any lightning protection system the permanent housing of GPRS transmitter and battery pack, and any other items necessary to facilitate communication with the central server. c) The permanent housing of BESCOM energy meter. The bulk meter totalizer / register shall be started immediately on installation of water meter. Concerned officer shall strictly check testing and calibration certificate to ensure quality. Necessary agreement shall be made by concerned officer for warranty and other conditions. The bulk meter reading shall be synchronized to remote server at Cauvery Bhavan immediately. Civil, Mechanical and Electrical charges extra to be estimated. 1.The bulk meter totalizer /</p>		

Sl. No.	Specification	Unit	Rate ₹
	register shall be started immediately on installation of water meter. 2. Concerned officer shall strictly check testing and calibration certificate to ensure quality. 3. Necessary agreement shall be made by concerned officer for warranty and other conditions. 4.The bulk meter reading shall be synchronized to remote server at Cauvery Bhavan immediately. 5.Civil, Mechanical and Electrical charges extra to be estimated.		
14.1.1	For Bulk Flow Meters, sensors, transmitter, panels etc. for 100mm dia.	Each	<b>110707</b>
14.1.2	For Bulk Flow Meters, sensors, transmitter, panels etc. for 150mm dia.	Each	<b>139994</b>
14.1.3	For Bulk Flow Meters, sensors, transmitter, panels etc. for 200mm dia.	Each	<b>186854</b>
14.1.4	For Bulk Flow Meters, sensors, transmitter, panels etc. for 250mm dia.	Each	<b>257144</b>
14.1.5	For Bulk Flow Meters, sensors, transmitter, panels etc. for 300mm dia.	Each	<b>292875</b>
14.2	Providing Fabrication and fixing of MS saddle (16mm x 160mm x 360mm) to the existing DI pipe, the MS Saddle shall be fabricated out of 16mm thick MS plate with 8 Each of threaded plug of length 6" for fixing of sensors and necessary GI bolts and nuts. The clamps shall have 2 halves. (applicable only if the pipe is DI) for 4 sensors.	SET	<b>12652</b>
14.3	Fabrication, supply and fixing of MS saddle (16mm x 160mm x 360mm) to the existing DI pipe, the MS Saddle shall be fabricated out of 16mm thick MS plate with 8 Each of threaded plug of length 6" for fixing of sensors and necessary GI bolts and nuts. The clamps shall have 2 halves. (applicable only if the pipe is DI) for 8 sensors.	SET	<b>21087</b>
14.4	Dismantle, transport, re-instal and commission the bulk flow meters with the following works: (1). Removing of sensor probes from the existing pipe lines (2). Dismantling of the sensor cables from the sensor probes on feeder main / branch lines. (3). Removing of the pedestal panel along with all its accessories like totalizer unit, batteries, GSM modem and display unit from the existing location and stacking the same into baggage. (4). Transportation of the pedestal panel along with all its accessories to the new location indentified by the concerned engineer. (5). Errection of the sensor probes to the new line identified by the concerned engineer. The hot tapping method should be used while installing the sensor probes and supply, fixing of ball vale to the pipe. (6). Transmission of the data from the flow meter to the central server and integrating it to the software applications.	L.S	<b>36902</b>
14.5	Providing and Laying of multi-core sensor cable from the sensor probes to the transmitter panel.	m	<b>316</b>
14.6	Supply and laying insulated cable on messenger wire using 2 single core wire for a single phase and stringing PVC insulated and PVC sheathed 650 / 1100 V class aluminium conductor of sizes supported by 3.15mm GI messanger wire with two break insulators, one at Each end of the span with suspenders at intervals 0.75m. Each suspender shall be procelain	m	<b>105</b>

Sl. No.	Specification	Unit	Rate ₹
	reel insulator of suitable core through which insulated wire passes and this reel insulator shall be fixed to the messenger wire using 2mm wire suitable bent and twisted. Separate reel insulator shall be provided for Each wire, the messenger wire shall be ded-ended on the clamp provided to the departmentl pole. The work shall also include, supply and fixing short pole, guy set, MS eye bolt and pole support clamp etc. for SINGLE PHASE USING 2 WIRE 10 SQMM.		
14.7	Supply and laying of LG UT cable having aluminium conductor PVC insulated, sheathed, galvanized steel wire / steel tap armored cable with PVC over sheathing.	m	80
14.8	Installation, Commissioning and Testing (for receipt of readings to the Bulk Flow Metering and Monitoring System SCADA Centre ) of HART output ( flow rate and Totalizer) based Electromagnetic Induction Bulk Flow Meters approved make to the feeder mains . The flow meter shall be full bore type shall be installed as per Manufacturer Recommendations. The Electromagnetic Induction Bulk Flow meters shall comply with the specifications mentioned. The maximum allowable measuring error shall be +/- 0.2 % of the volume. The meter transmitter shall convert the HART Output to produce reliable and correct output. The data to the remote server shall be transmitted with HART Protocol Remote Telemetry Device(RTU)..The Remote Telemetry Devices to Monitor the Real Time Water Flow and Totalizer by converting Output from Bulkflow meter (the Output is of HART output). The transmitter or the modem provided shall be of HART ( Highway Addressable Remote Transduser) type, which shall work in the master mode to read the totalizer and flow rate including panel box. The Remote Telemetry Devices shall have atleast the following specification.All data will be read via HART protocol and transmitted to the client Server via FTP Hardware:: Power: 12V DC, Connectivity: Builtin 3G with 2G fall back connectivity, Input HART: Builtin HART Modem in Master Mode to read flow rate and totalizer value, Digital inputs to connect to Door sensor and AC relays, One Relay output to switch on Light inside the enclosure, One MicroUSB port to configure the gateway, Customized sheet metal box, Operating Temperature: -10 to +70 Deg C operating, High Gain GPRS Antennae. Software :: Linux based Operating System, Programmable via C and Node.js, ReAP Framework supporting HTTP and FTP, Option to configure 3 FTP Sites for data transfer, Option to configure 1 HTTP url for data transfer, Automatic Upgradation of Firmware and Configuration Software via Over the Air. The cost includes all materials,accessories,labour complete. Battery Operated		
14.8.1	100mm	Each	159668
14.8.2	150mm	Each	187806
14.8.3	200mm	Each	248746
14.8.4	250mm	Each	248767

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
14.8.5	300 mm	Each	<b>282391</b>
14.8.6	400 mm	Each	<b>385835</b>
14.8.7	450 mm	Each	<b>444762</b>
14.8.8	600 mm	Each	<b>536139</b>
14.8.9	700 mm	Each	<b>913362</b>
14.8.10	800 mm	Each	<b>1118375</b>
14.9	Supply and fixing of Horizontal Mechanical Woltman type hemetically sealed water meters with copper Glass register with IP 68 protection. The meter shall be removable mechanism type manufactured as ISO 4064-1: 1993 with MID certification. The meters shall be capable of transmitting consumption data on daily basis to central server through GSM/GPRS. The meter interface unit shall be fitted to the meter without wire. The consumption data shall be collected , stored and analysed by data logger. The data logger should provide data like flow rate, total flow, consumption analyses, reverse flow, meter tampering, daily flow distribution, leakage detection. The data logger shall also send alarms on blocked meter, flow rate above limit, pressure below or above limits.		
14.9.1	50 mm	Each	<b>60091</b>
14.9.2	80 mm	Each	<b>64777</b>
14.9.3	100 mm	Each	<b>70049</b>
14.9.4	150 mm	Each	<b>84128</b>
14.9.5	200 mm	Each	<b>103480</b>
14.9.6	250 mm	Each	<b>136303</b>
14.9.7	300 mm	Each	<b>291763</b>



**Chapter - 15**  
**MULTI-TRACK BULK FLOW METERS**



## 15 MULTI-TRACK BULK FLOW METERS

### SPECIFICATIONS FOR MULTI TRACK ULTRASONIC BULK FLOW METERS

#### 1. MULTI TRACK ULTRASONIC BULK FLOW METERS:

1. Applications: Raw or potable water with chlorine content.
2. Accuracy: + / - 5% flow reading.
3. Velocity Range: 0.3 m / sec. to 10 m / sec.
4. Power Supply : For the entire diameter pipes (450 mm to 1800 mm) 230 Volts AC power supply with surge arrestor, inbuilt re-chargeable battery to provide backup for minimum 6 hours.
5. Power Consumption: Less than 15W. galvanic Isolation:
6. Battery Life: 5 years.
7. Display Unit: 2 or 3 line LCD display 16 characters per line with backlight to see the reading during night time. All diagnostics should be visible on the LCD screen. 1st Line - Flow rate in m<sup>3</sup> /hr. 2nd Line - Totalizer in m<sup>3</sup>.
8. Sensor Protection: IP 68
9. Transmitter Protection: IP 67.
10. Flow meter ambient Temperature: Upto 60 degree C.
11. Data Logger: Internal / external with flow meter and data to be transmitted to server automatically for every 1 hour. Flow meter shall send 24 data message per day to remote server. Locally for every 5 minutes of interval in data logger. Per day 288 readings will be logged, per month 8640. Data of previous one year should be logged in to either internet / external data logger.

#### 2. FLOW SENSORS:

1. Mounting: In field on pipe line flow through flow sensor.
2. Line Size: 450 mm to 1800 mm.
3. Sensor Material: SS 316 L / SS 316.
4. The sensors should be as per ISO standard lengths (ISO 13359) as applicable, so that interchangeability can be carried out. The sensors shall also have built in grounding and employ pipe detection facility.
5. Weather Protection: IP 68.

#### 3. FLOW TRANSMITTER / COMPUTATION:

1. Mounting: Transmitter panel mounted outside the meter chamber in proper location.
2. Type: Microprocessor based - 4 wire.
3. Protection : IP 67
4. Power Supply : For the entire diameter pipes (450 mm to 1800) 230 Volts AC power supply with surge arrestor. Inbuilt rechargeable battery to provide backup for minimum 6 hours backup in the absence of Grid supply.
5. Out put: 4 - 20 M Amps, digital and pulse outputs, Status Out puts, GPRS (Should support GSM also) Data logger out put : Through RS 485 / Ethernet.
6. Unit of Display: m<sup>3</sup> (Cubic Meter) / hour, MLD, ML (Programmable.)
7. Enclosure Material: Aluminium alloy with polyurethane coating.



8. Flow Meter Standards: Testing and calibration - IS / ISO 17025. Meter Standard - ISO 4064.
9. Calibration and Testing: All the flow meters to be calibrated at manufacturer work place. Calibration/ Test certificates to be provided as per IS / ISO 17025, periodical calibration facility to be provided if required. Sampling size as per IS 2500 of the supplied quantity in each diameter shall be tested and calibrated at FCRIAs per IS and ISO 17025.

#### 4. **PEDESTAL PANEL FOR TRANSMITTER UNIT**

The electronic display unit shall be installed on a removable back board. It should be an anti-corrosive material. Enclosure should be designed for IP 54, separate compartments for energy meter & converter and flow meter display unit and modem. Generated heat inside the flow meter should be dissipated and should not cause any harmful effects inside enclosure, wall or post mounting cabinet enclosure. The enclosure shall be constructed from galvanized steel which is at least 3 mm thick. The enclosure shall have a hinged access door, which shall have a facility for padlocking in the closed position. Batteries shall be easily accessible for periodic changing. For floor mounting enclosures, the enclosure shall be mounted on a concrete plinth, the surface of which shall be at least 120 cm. above the surrounding finished ground level. A cable duct shall pass through the plinth to enable the cable from the flow sensor to enter the enclosure. A table showing details of the Employer's name and the water meter's unique reference number shall be fixed to the external face of the access door. Contractors or equipment manufacturer's details shall not be fixed to the external face of the access door.

a. Transparent toughened glass of size 10 cm x 5 cm to be provided to see reading of BESCO energy meter and flow meter separately. Panel should be provided with lock, master key, fan and filter for cooling / heat dissipation. The enclosure shall be well ventilated, dust proof and vermin proof, and be suitable for robust use in a tropical climate. It shall also be suitable for:

- i) the housing of the integral data logger and the temporary housing of a battery powered data logger which could periodically be used in conjunction with the water meter.
- ii) the permanent housing of any lightning protection system, the permanent housing of GPRS transmitter and battery pack, and any other items necessary to facilitate communication with the central server.
- iii) The permanent housing of BESCO energy meter.

#### **NOTES FOR MULTI TRACK ULTRASONIC BULK FLOW METERS:**

1. The data rates are valid for only one year period and subject to variations in the market rate.
2. The bulk meter totalizer/register shall be started immediately on installation of water meter.
3. Concerned officer shall strictly check testing and calibration certificate to ensure quality.
4. Necessary agreement shall be made by concerned officer for warranty and other conditions.
5. The bulk meter readings shall be synchronized to remote server at Cauvery Bhavan within 3 days.
6. Civil, mechanical and electrical charges extra to be estimated

Sl. No.	Specification	Unit	Rate ₹
<b>15 MULTI - TRACK BULK FLOW METERS</b>			
15.1	Supply, Installation, Commissioning and Testing (for receipt of readings to the Central Server at Cauvery Bhavan) of GPRS + GSM based Multi Track Ultrasonic Bulk Flow Meters to the inlet, outlet, feeder mains and distribution branches ranging from 450mm to 1800mm. The flow meter shall be installed using hot tapping method and existing water supply lines. The data shall be synchronized to existing software. The Ultrasonic Bulk Meters shall comply with the specifications given in the starting of this chapter.		
15.1.1	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 400 / 450mm dia.	Each	<b>384252</b>
15.1.2	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 600mm dia.	Each	<b>430409</b>
15.1.3	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 700mm dia.	Each	<b>462860</b>
15.1.4	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 800mm dia.	Each	<b>513703</b>
15.1.5	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 900mm dia.	Each	<b>517803</b>
15.1.6	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 1000 / 1100mm dia.	Each	<b>523075</b>
15.1.7	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 1200mm dia.	Each	<b>541481</b>
15.1.8	For Multi Track Ultrasonic Bulk Flow Meters, sensors, transmitter, panels etc. for 1800mm dia.	Each	<b>624820</b>
15.2	Testing, calibration of existing Ultrasonic Bulk Flow Meters with portable flow meter; repair / rectification of existing Ultrasonic Bulk Flow Meters etc. with any or all of the following works:		
15.2.1	Supply and laying of sensor cable from flow sensor to transmitter panel.	m	<b>316</b>
15.2.2	Repair or replacement of existing panel for painting, welding, replacement of rubber gaskets, complete re-wiring, cleaning the panel with dust cleaner and providing panel lock.	Each	<b>6326</b>
15.2.3	Repairing the totalizer unit	Each	<b>5272</b>
15.2.4	Re-placement of (if required) GSM modem by GPRS.	Each	<b>15815</b>
15.2.5	Calibration of flow meter sensors and testing for results with portable flow meter and realignment of sensors.	SET	<b>10544</b>
15.2.6	Shifting of transmitter panel with all points accessories from one location to other location as per direction of Engineer in charge.	SET	<b>10544</b>



**Chapter - 16**  
**SANITARY WORKS**



Sl. No.	Specification	Unit	Rate ₹
<b>16 SANITARY WORKS</b>			
16.1	Providing, lowering, laying, jointing, testing and commissioning of Glazed Stone Ware Pipes of following dia, conforming to IS 651:1992, IS 4127 with latest amendments, including conveying to work site, caulking with hemp dipped in tar and jointing with CM 1:1.5 using OPC, perfect linking and curing for 10 days and testing with water etc. with all lead, lifts and as per Technical Specifications. The cost to include the cost of all jointing materials, necessary survey works for laying of sewer lines etc. complete. The contractor will make own arrangements for procuring water for testing.		
16.1.1	100 mm dia. pipes (This is for house service connection only)	m	<b>370</b>
16.1.2	150 mm dia. pipes	m	<b>581</b>
16.1.3	200 mm dia. pipes	m	<b>680</b>
16.1.4	230 mm dia. pipes	m	<b>882</b>
16.1.5	250 mm dia. pipes	m	<b>964</b>
16.1.6	300 mm dia. pipes	m	<b>1093</b>
16.1.7	380 mm dia. pipes	m	<b>1964</b>
16.2	Providing lowering laying, jointing, testing and commissioning of following diameters glazed stone ware pipes, conforming to IS 651:1992, (with 5th revision) in all respects jointing with EPDM rubber rings (seals according to EN 681 & ASPM 425) The rubber seals joints pipe will have groves in interior of socket and exterior of the spigot. The rubber gasket shall be prefixed at the factory by the manufacturer rigidly with approved glue to have leak proof joint including conveying of pipe to work site and rolling and lowering into trenches, laying true to line, level and perfect linking at joints testing and commissioning including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of GSW pipes and specials, with rubber gaskets conforming to EN 681 and ASTM C-425 including cleaning the socket and spigot with soap solution and applying talcum powder for detecting crack, then applying glue and before inserting of rubber gaskets, jacking and fixing in perfect condition including the cost of soap solution, talcum powder and glue etc. and giving necessary hydraulic test to the required pressure of water head with all lead and lifts including costing of jointing materials and all necessary survey works for laying of sewers etc., and disposal of debris as directed etc., complete. (Contractor will make his own arrangements for procuring water for testing) with Rubber ring gasket joints		
16.2.1	100 mm dia. pipes (This is for house service connection only)	m	<b>396</b>
16.2.2	150 mm dia. pipes	m	<b>624</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.2.3	200 mm dia. pipes	m	<b>736</b>
16.2.4	230 mm dia. pipes	m	<b>936</b>
16.2.5	250 mm dia. pipes	m	<b>1019</b>
16.2.6	300 mm dia. pipes	m	<b>1161</b>
16.3	Providing S&S RCC SPUN / VIBRATED CAST PIPES (REINFORCED) pipes NP-3 Class conforming to IS:458-1988 with latest amendments using ordinary portland cement, for sanitary works and conveying to work site, rolling and lowering into trenches, laying true to line and level including loading and unloading at both destinations and jointing of pipes and specials, perfect linking of joints with jack to correct position including cost of jointing materials, i.e, rubber rings conforming to IS: 5382 for S&S RCC pipes, with all leads and lifts as directed and giving necessary hydraulic test as per ISS to the required pressure and commissioning etc. complete. (Contractor will make his own arrangements for procuring water for testing). Before the execution of the work, the contractor shall carry out the survey.		
16.3.1	RCC NP3 Class pipe of 250 mm dia.	m	<b>1102</b>
16.3.2	RCC NP3 Class pipe of 300 mm dia.	m	<b>1332</b>
16.3.3	RCC NP3 Class pipe of 350 mm dia.	m	<b>1761</b>
16.3.4	RCC NP3 Class pipe of 400 mm dia.	m	<b>2036</b>
16.3.5	RCC NP3 Class pipe of 450 mm dia.	m	<b>2353</b>
16.3.6	RCC NP3 Class pipe of 500 mm dia.	m	<b>2593</b>
16.3.7	RCC NP3 Class pipe of 600 mm dia.	m	<b>3140</b>
16.3.8	RCC NP3 Class pipe of 700 mm dia.	m	<b>3623</b>
16.3.9	RCC NP3 Class pipe of 800 mm dia.	m	<b>4317</b>
16.3.10	RCC NP3 Class pipe of 900 mm dia.	m	<b>4854</b>
16.3.11	RCC NP3 Class pipe of 1000 mm dia.	m	<b>5473</b>
16.3.12	RCC NP3 Class pipe of 1100 mm dia.	m	<b>8066</b>
16.3.13	RCC NP3 Class pipe of 1200 mm dia.	m	<b>9345</b>
16.3.14	RCC NP3 Class pipe of 1400 mm dia.	m	<b>10895</b>
16.3.15	RCC NP3 Class pipe of 1600 mm dia.	m	<b>13436</b>
16.3.16	RCC NP3 Class pipe of 1800 mm dia.	m	<b>18333</b>

Sl. No.	Specification	Unit	Rate ₹
16.3.17	RCC NP3 Class pipe of 2000 mm dia.	m	23394
16.3.18	RCC NP3 Class pipe of 2200 mm dia.	m	30084
16.3.19	RCC NP3 Class pipe of 2400 mm dia.	m	46886
16.4	Laying, Lowering and jointing of S&S RCC SPUN / VIBRATED CAST PIPES (REINFORCED) pipes NP-3 Class ,rolling and lowering into trenches, laying true to line and level at both destinations and jointing of pipes and specials, perfect linking of joints with jack to correct position including cost of jointing materials, i.e, rubber rings with all leads and lifts as directed and giving necessary hydraulic test as per ISS to the required pressure and commissioning etc. complete. (Contractor will make his own arrangements for procuring water for testing).		
16.4.1	250 mm dia.	m	209
16.4.2	300 mm dia.	m	250
16.4.3	350 mm dia.	m	269
16.4.4	400 mm dia.	m	310
16.4.5	450 mm dia.	m	333
16.4.6	500 mm dia.	m	358
16.4.7	600 mm dia.	m	389
16.4.8	700 mm dia.	m	399
16.4.9	800 mm dia.	m	577
16.4.10	900 mm dia.	m	641
16.4.11	1000 mm dia.	m	744
16.4.12	1100 mm dia.	m	942
16.4.13	1200 mm dia.	m	1077
16.4.14	1400 mm dia.	m	1146
16.4.15	1600 mm dia.	m	1374
16.4.16	1800 mm dia.	m	1542
16.4.17	2000 mm dia.	m	1873
16.4.18	2200 mm dia.	m	3791
16.4.19	2400 mm dia.	m	4540



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.5	Labour charges for laying and jointing glazed stone ware pipes of 0.6m length and of specified dia., of tested quality conforming to IS 651 of 1965 including caulking with hemp yarn, jointing with CM 1:2 and testing with water etc. complete for: (Rate to include cost of jointing materials and transportation of pipes from store work site )		
16.5.1	Glazed Stone Ware pipe of 150mm dia and 600mm long	m	<b>71</b>
16.5.2	Glazed Stone Ware pipe of 200mm dia and 600mm long	m	<b>97</b>
16.5.3	Glazed Stone Ware pipe of 230mm dia and 600mm long	m	<b>112</b>
16.5.4	Glazed Stone Ware pipe of 300mm dia and 600mm long	m	<b>162</b>
16.5.5	Glazed Stone Ware pipe of 380mm dia and 600mm long	m	<b>197</b>
16.6	Lowering laying, jointing, testing and commissioning of following diameters glazed stone ware pipes, conforming to IS 651:1992, (with 5th revision) in all respects jointing with EPDM rubber rings (seals according to EN 681 & ASPM 425) . The rubber gasket shall be fixed rigidly with approved glue to have leak proof joint including conveying of pipe to work site and rolling and lowering into trenches, laying true to line, level and perfect linking at joints testing and commissioning including loading and unloading at both destinations and cuts of pipes wherever necessary including jointing of GSW pipes and specials, with rubber gaskets conforming to EN 681 and ASTM C-425 including cleaning the socket and spigot with soap solution and applying talcum powder for detecting crack, then applying glue and before inserting of rubber gaskets, jacking and fixing in perfect condition including the cost of soap solution, talcum powder and glue etc. and giving necessary hydraulic test to the required pressure of water head with all lead and lifts including costing of jointing materials etc., complete. (Contractor will make his own arrangements for procuring water for testing) with Rubber ring gasket joints		
16.6.1	100 mm dia. pipes	m	<b>75</b>
16.6.2	150 mm dia. pipes	m	<b>115</b>
16.6.3	200 mm dia. pipes	m	<b>135</b>
16.6.4	230 mm dia. pipes	m	<b>147</b>
16.6.5	250 mm dia. pipes	m	<b>147</b>
16.6.6	300 mm dia. pipes	m	<b>170</b>
16.7	Providing and fixing normal gauge polythene pipes of approved quality with special flange compression type fittings of approved make including trench excavation and refilling etc. for EXTERNAL WORKS with:		
16.7.1	25mm nominal bore pipes	m	<b>54</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.7.2	32mm nominal bore pipes	m	<b>71</b>
16.7.3	40mm nominal bore pipes	m	<b>88</b>
16.7.4	50mm nominal bore pipes	m	<b>139</b>
16.8	Constructing brick masonry chamber of internal dimension 600x450mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>4791</b>
16.9	Constructing brick masonry chamber of internal dimension 600x600mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>5454</b>
16.10	Constructing brick masonry chamber of internal dimension 450x450mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>4236</b>
16.11	Constructing brick masonry chamber of internal dimension 450x300mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>3549</b>
16.12	Constructing brick masonry chamber of internal dimension 300x230mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>2773</b>
16.13	Constructing brick masonry chamber of internal dimension 230x150mm and depth of 600mm (inner dimensions) with modular bricks of CD 75 in cement mortar 1:6, bed concrete 150mm thick with 1:3:6, plastering 12 mm thick with cement mortar 1:4, CC 1:2:4 coping 75mm thk for fixing CI cover & frame etc. excluding the cost of CI frame and cover.	Each	<b>2237</b>
16.14	Conveying the new CI or RCC Machinehole frame and cover of 2 CMTS from divisional stores to the workspot and fixing the same in cement concrete and removing the old frame and cover and conveying back the old ones to stores.	SET	<b>404</b>
16.15	Providing and constructing "WIRE CUT BRICK MACHINEHOLE CHAMBERS" using Portland/Pozzolana cement, conical in shape at top, with CC 1:3:6 foundation using 40mm and down size graded metal of approved quality and with an offset of 0.15M around the chamber.		

Sl. No.	Specification	Unit	Rate ₹
	Construct Brick masonry in CM 1:4, 340 mm thick, with wirecut bricks of approved quality, plaster inside and out side with CM 1:3, 12mm thick, except for the conical surface outside where the plaster thickness shall be 20mm. Slope inside to be 1:6 in the concrete towards central drain and finished smooth. Fixing of pipes in CC 1:2:4 with graded metal of 20mm and down size. Providing and fixing SFRC Machinehole frame and cover (Heavy Duty) conforming to IS:12592 with latest amendment, in CC 1:2:4. Providing and fixing footsteps made of 12mm dia. steel bars (Fe-500) with 3mm thick plastic encapsulation (IS-10910). The footsteps shall be fixed 30cms apart and on CC block embeded to masonry wall. The whole works include watering, curing, barricading, danger lighting, pouring tar over MH frame and cover, cost of tar, shoring, strutting, de-watering, engraving Machinehole number with flow direction on the inner conical surface etc. as per the drawing etc. as per technical specifications and for the following diameters and depth etc. for 1.2mm dia:		
16.15.1	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.0 M depth & SFRC cover & frame	Each	<b>29047</b>
16.15.2	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.1 M depth & SFRC cover & frame	Each	<b>29531</b>
16.15.3	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.2 M depth & SFRC cover & frame	Each	<b>31370</b>
16.15.4	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.3 M depth & SFRC cover & frame	Each	<b>34689</b>
16.15.5	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.4M depth & SFRC cover & frame	Each	<b>36535</b>
16.15.6	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.5M depth & SFRC cover & frame	Each	<b>38381</b>
16.15.7	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.6M depth & SFRC cover & frame	Each	<b>41568</b>
16.15.8	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.7M depth & SFRC cover & frame	Each	<b>43414</b>
16.15.9	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.8M depth & SFRC cover & frame	Each	<b>44888</b>
16.15.10	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. , 1.9M depth & SFRC cover & frame	Each	<b>48447</b>
16.15.11	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. & 2.0 M depth includ. SFRC F&C	Each	<b>60784</b>
16.15.12	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. & 3.0 M depth includ. SFRC F&C	Each	<b>89316</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.15.13	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. & 4.0 M depth includ. SFRC F&C	Each	<b>118714</b>
16.15.14	Constructing Brick Masonry Circular Machinehole 1.2 m internal dia. & 5.0 M depth includ. SFRC F&C	Each	<b>147081</b>
16.16	For Circ. Brk M.H. 1.5m dia:		
16.16.1	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 1.0 M depth includ. SFRC F&C	Each	<b>39641</b>
16.16.2	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 2.0 M depth includ. SFRC F&C	Each	<b>72925</b>
16.16.3	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 3.0 M depth includ. SFRC F&C	Each	<b>105731</b>
16.16.4	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 4.0 M depth includ. SFRC F&C	Each	<b>139368</b>
16.16.5	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 5.0 M depth includ. SFRC F&C	Each	<b>172110</b>
16.16.6	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 6.0 M depth includ. SFRC F&C	Each	<b>205262</b>
16.16.7	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 7.0 M depth includ. SFRC F&C	Each	<b>238024</b>
16.16.8	Constructing Brick Masonry Circular Machinehole 1.5 m internal dia. & 8.0 M depth includ. SFRC F&C	Each	<b>270153</b>
16.17	For Circ. Brk M.H. 1.8m dia:		
16.17.1	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 3.0 M depth includ. SFRC F&C	Each	<b>123095</b>
16.17.2	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 4.0 M depth includ. SFRC F&C	Each	<b>160194</b>
16.17.3	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 5.0 M depth includ. SFRC F&C	Each	<b>199178</b>
16.17.4	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 6.0 M depth includ. SFRC F&C	Each	<b>236270</b>
16.17.5	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 7.0 M depth includ. SFRC F&C	Each	<b>273868</b>
16.17.6	Constructing Brick Masonry Circular Machinehole 1.8 m internal dia. & 8.0 M depth includ. SFRC F&C	Each	<b>311169</b>

Sl. No.	Specification	Unit	Rate ₹
16.18	Construction of RCC Machinehole chambers of 1:1.5:3 proportion or approved type Cast-insitu / Pre-cast RCC Machinehole chambers, constructed using form vibrators of standard type, with barricading, danger lighting and using of sight rails and boning rods wherever necessary, shoring and strutting wherever required using Ordinary Port Land Cement, using 1:1.5:3 proportion RCC with 20 mm and down graded jelly, well graded sand and steel of approved quality, 200 mm thick top concrete slab, having wall thickness and raft thickness as in approved drawings and with an offset in raft around the chamber as in approved drawing, benching concrete with 1:6 slope towards the central drain finished smooth, including fixing and grouting of pipes, including conveying to work spot supply and fixing SFRC Machinehole cover and frame (Heavy duty) conforming to IS:12592 with latest amendments, on a bed of CC 1:2:4 Providing and fixing of minimum 3 mm thick encapsulated plastic footsteps (as per IS 10910) on 12 mm dia. Grade Fe-500 steel bar (as per IS 1786) staggered at 300 mm apart as detailed in Technical specifications, including stone grit bedding wherever required, watering, curing, engraving Machinehole number with flow direction on the inner cylindrical surface etc., complete including cost of reinforcement steel and fabrication charges and also cost and conveyance of all materials, labour with all lead and lifts. The Pre-cast RCC Machinehole are for various diameters and depths as stated below and as per detailed drawings, specifications and direction of the Engineer. For 1.2m dia Machinehole:		
16.18.1	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. , 1.0 M depth & SFRC cover & frame	Each	<b>43822</b>
16.18.2	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. , 1.3 M depth & SFRC cover & frame	Each	<b>49213</b>
16.18.3	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. , 1.6 M depth & SFRC cover & frame	Each	<b>54704</b>
16.18.4	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. , 1.9M depth & SFRC cover & frame	Each	<b>58357</b>
16.18.5	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. , 2.0M depth & SFRC cover & frame	Each	<b>61322</b>
16.18.6	Constructing Pre-cast RCC Machinehole 1.2 m internal dia. ,3.0M depth & SFRC cover & frame	Each	<b>78488</b>
16.19	For 1.5m dia MH:		
16.19.1	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 1.0 M depth & SFRC cover & frame	Each	<b>55041</b>
16.19.2	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 2.0 M depth & SFRC cover & frame	Each	<b>74684</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.19.3	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 3.0 M depth & SFRC cover & frame	Each	<b>94656</b>
16.19.4	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 4.0 M depth & SFRC cover & frame	Each	<b>113491</b>
16.19.5	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 5.0 M depth & SFRC cover & frame	Each	<b>138741</b>
16.19.6	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 6.0 M depth & SFRC cover & frame	Each	<b>158995</b>
16.19.7	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 7.0 M depth & SFRC cover & frame	Each	<b>179788</b>
16.19.8	Constructing Pre-cast RCC Machinehole 1.5 m internal dia. , 8.0 M depth & SFRC cover & frame	Each	<b>198944</b>
16.20	For 1.8mm dia MH:		
16.20.1	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. , 1.0 M depth & SFRC cover & frame	Each	<b>74249</b>
16.20.2	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. , 2.0 M depth & SFRC cover & frame	Each	<b>96478</b>
16.20.3	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. , 3.0 M depth & SFRC cover & frame	Each	<b>116235</b>
16.20.4	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. , 4.0 M depth & SFRC cover & frame	Each	<b>138500</b>
16.20.5	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. ,5.0 M depth & SFRC cover & frame	Each	<b>160391</b>
16.20.6	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. ,6.0 M depth & SFRC cover & frame	Each	<b>182380</b>
16.20.7	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. ,7.0 M depth & SFRC cover & frame	Each	<b>204557</b>
16.20.8	Constructing Pre-cast RCC Machinehole 1.8 m internal dia. ,8.0 M depth & SFRC cover & frame	Each	<b>226546</b>
16.21	For 2.4mm dia MH:		
16.21.1	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 3.0 M depth & SFRC cover & frame	Each	<b>196765</b>
16.21.2	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 4.0 M depth & SFRC cover & frame	Each	<b>236560</b>
16.21.3	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 5.0 M depth & SFRC cover & frame	Each	<b>265906</b>

Sl. No.	Specification	Unit	Rate ₹
16.21.4	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 6.0 M depth & SFRC cover & frame	Each	<b>317724</b>
16.21.5	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 7.0 M depth & SFRC cover & frame	Each	<b>358405</b>
16.21.6	Constructing Pre-cast RCC Machinehole 2.4 m internal dia. , 8.0 M depth & SFRC cover & frame	Each	<b>398898</b>
16.22	For 3.0mm dia MH:		
16.22.1	Constructing Pre-cast RCC Machinehole 3.0 m internal dia. , 4.0 M depth & SFRC cover & frame	Each	<b>301278</b>
16.22.2	Constructing Pre-cast RCC Machinehole 3.0 m internal dia. , 5.0 M depth & SFRC cover & frame	Each	<b>351571</b>
16.22.3	Constructing Pre-cast RCC Machinehole 3.0 m internal dia. , 6.0 M depth & SFRC cover & frame	Each	<b>400033</b>
16.22.4	Constructing Pre-cast RCC Machinehole 3.0 m internal dia. , 7.0 M depth & SFRC cover & frame	Each	<b>449221</b>
16.22.5	Constructing Pre-cast RCC Machinehole 3.0 m internal dia. , 8.0 M depth & SFRC cover & frame	Each	<b>497684</b>
16.23	Providing and fixing SFRC frame and cover conforming to IS 12592 (part-I)-1988 and IS 12592 (part-II)- 1991 with latest amendment, including cutting slabs to the required size for the opening and fixing the cover in C.C. 1:2:4 and C.M. 1:3 plastering 20 mm thick to all exposed faces, curing for 10 days with all lead and lift with appurtenances. complete.		
16.23.1	Medium Duty	SET	<b>1914</b>
16.23.2	Heavy Duty	SET	<b>2564</b>
16.24	Providing, Providing and fixing in position of High density poly ethylene Machinehole of 1200 mm internal diameter for all depths with top opening of 600mm, PE Machinehole chambers shall be on the basis of EN13598-2:9009 shall meet relevant BIS/ASTM standards and specifications. All chambers shall be of a solid single wall 100mm or greater thickness construction made of 100% virgin PE material without recycling or foam content. All chambers shall come with a prefabricated integrated base with appropriate benching with a gradient of 1-2%. The Machinehole shall be seated on M10 cement concrete (1:3:6) of 200mm depth. The inlet pipes to be connected with elastomer seal for a flexible connection of pipes according to EN 681-1. The Machinehole shall have straight channel DN 200 with four extra inlets DN 200/160/110, 45o and 90o right and left and drop arrangement if required and Outlet DN 200/160/110 including steps. The Machinehole shall also be designed to receive house connection at shaft level as per requirement. In case		

Sl. No.	Specification	Unit	Rate ₹
	the system is made of midular parts then triple safety (three sided lip/element) seal according to standard practices to be used to connect the parts. Machinehole shall have corrossion resistance steps vertical step distance 25 cms in order to safe guard against uplift pressure, Machinehole should have solid horizontal re-inforcement ribs of appropriate thickness and width. These ribs should be stratagically placed at regular intervals all along the outside of the shaft of the Machinehole. During installation, special care must be taken to ensure proper compaction of the excavated earth with proctar density of 95%, below and around the Machinehole, suitably anchored over concrete to take traffic load without settlement.		
16.24.1	HDPE Machinehole of 1200mm dia and upto 1.0 m height	Each	23069
16.24.2	HDPE Machinehole of 1200mm dia and 1.0 m to 2.0 m height	Each	32313
16.24.3	HDPE Machinehole of 1200mm dia and 2.0 m to 3.0 m height	Each	49896
16.24.4	HDPE Machinehole of 1200mm dia and 3.0 m to 4.0 m height	Each	74565
16.24.5	HDPE Machinehole of 1200mm dia and 4.0 m to 5.0 m height	Each	89553
16.24.6	HDPE Machinehole of 1200mm dia and 5.0 m to 6.0 m height	Each	103239
16.25	Dismantling the damaged or collapsed Machinehole ,conical in shape, and reconstructing the same for the same dimensions, with machine made wire cut brick in CM 1:4 with ordinary portland cement etc. as per design and specifications. The existing ring, cover and CC beeding to be used. For 1.2M dia:		
16.25..1	For Machinehole of 1.2M dia and 1.0 M depth	Each	15574
16.25..2	For Machinehole of 1.2M dia and 2.0 M depth	Each	32296
16.25..3	For Machinehole of 1.2M dia and 3.0 M depth	Each	43616
16.26	For 1.5M dia:		
16.26.1	For Machinehole of 1.5M dia and 1.0 M depth	Each	16620
16.26.2	For Machinehole of 1.5M dia and 2.0 M depth	Each	32967
16.26.3	For Machinehole of 1.5M dia and 3.0 M depth	Each	48882
16.26.4	For Machinehole of 1.5M dia and 4.0 M depth	Each	64796
16.26.5	For Machinehole of 1.5M dia and 5.0 M depth	Each	80471
16.26.6	For Machinehole of 1.5M dia and 6.0 M depth	Each	96385
16.27	For 1.8M dia:		
16.27.1	For Machinehole of 1.8M dia and 3.0 M depth	Each	56359
16.27.2	For Machinehole of 1.8M dia and 4.0 M depth	Each	74269



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.27.3	For Machinehole of 1.8M dia and 5.0 M depth	Each	<b>92309</b>
16.27.4	For Machinehole of 1.8M dia and 6.0 M depth	Each	<b>110127</b>
16.28	'Repairs to Machinehole for different depths including removal of debris, levelling the brick masonry, construction of brick masonry upto Ground level, providing CC coping alround the MH cover, plastering both inside and outside to the brick masonry and fixing of manhole frame and cover, curing, refilling with appurtenances complete.		
16.28.1	Upto 0.30m depth	Each	<b>8169</b>
16.28.2	Upto 0.60m depth	Each	<b>16362</b>
16.28.3	Upto 0.90m depth	Each	<b>27608</b>
16.29	Providing and fixing DROP ARRANGEMENT with following dia. HDPE grade PE-100 pipes, conforming to PN 6 as per IS 4984-1995 with latest amendments, vertical drop pipe with MS fastenings at 300mm C/C, with suitable expander / reducure HDPE 'T' joint at top with incoming sewer with one end of Tee inside the manhole closed with end cap and 45 degree bend at the bottom with HDPE specials and encasing the pipe outside the machinehole with cement concrete 1:2:4 proportion, 150 / 200mm thick alround the HDPE pipe, including vibrating, compacting, necessary centering and form work, curing, testing etc. including cost and conveyance of all materials, labour with all lead and lifts etc. complete as per specification, drawings and as directed by the Engineer in charge etc. for:		
16.29.1	For 150 to 200 mm dia. incoming sewer pipe.	m	<b>3948</b>
16.29.2	For 250 mm dia. incoming sewer pipe.	m	<b>6174</b>
16.29.3	For 300 mm dia. incoming sewer pipe.	m	<b>9489</b>
16.29.4	For 350 mm to 500mm dia. incoming sewer pipe.	m	<b>14761</b>
16.29.5	For 600 mm to 750mm dia. incoming sewer pipe.	m	<b>29639</b>
16.29.6	For 800 mm to 900mm dia. incoming sewer pipe.	m	<b>45689</b>
16.29.7	For 1000 mm to 1100mm dia. incoming sewer pipe.	m	<b>67947</b>
16.29.8	For 1200 mm to 1400mm dia. incoming sewer pipe.	m	<b>104849</b>
16.29.9	For 1500 mm to 1800mm dia. incoming sewer pipe.	m	<b>156395</b>
16.30	Providing and installing sheet piling for both sides of the trenches for following depths with mild steel sheets of not less than 6.5mm thick, stronger knife edge, recessed spreader sockets, 3 inch single or double wall shields, to be designed by the contractor to withstand all types of soils, maximum depth as per the approved design drawings, including labour charges for installing and removing the sheet piling at various		

Sl. No.	Specification	Unit	Rate ₹
	reaches of sewer line constructions, including loading, unloading, transporting to the suitable location etc. complete with all lead and lifts. (Measurement shall be taken for one side only eventhough it is provided for both sides).		
16.30.1	For depth upto 3.0 m	m <sup>2</sup>	<b>583</b>
16.30.2	For depth 3.0 m to 6m	m <sup>2</sup>	<b>874</b>
16.30.3	For depth beyond 6 M	m <sup>2</sup>	<b>1165</b>
16.31	Conducting Topographical GIS survey for the proposed Water Supply / UGD scheme to the city / town with latest total station survey equipments. The work shall include collection of field data from local body, conducting detailed survey showing the all important land marks, existing water supply lines, sewer lines, all roads, levels, nature of roads, L-section survey for transmission main/ feeders/sub-feeder/ rising main from Jack well to WTP and WTP to OHT's and distribution network including clearing the obstructions, with all survey staff required covering all the developed & newly developed layouts or L-section survey for Sub-Main/Mains/Trunk Sewer/Rising main from wetwell to STP including clearing the obstructions, with all survey staff required covering all the developed & newly developed layouts with submission of Soft copy of drawings along with source file and Hard Copy in 3 sets for the following:		
16.31.1	Water Supply /Sewer work main pipes	m	<b>10</b>
16.32	Conducting block level survey work for the proposed WTP,STP etc., with latest total station survey equipments. The work shall include collection of field data from local body, conducting detailed survey showing the all important land marks, existing water supply lines, sewer lines with submission of Soft copy of drawings along with source file and Hard Copy in 3 sets	Acre	<b>500</b>
16.33	Providing, lowering, laying, fixing, testing and commissioning of SW JUNCTION PIPES, conforming to IS: 651:1992 with latest amendments, of sizes, including conveying to work site and caulking with hemp dipped in tar cement and jointing with CM 1:1.5 with sulphate resistant cement conforming to IS - 12330 with latest revisions and amendments, perfect linking, curing and testing with water, with all lead and lifts, including cost of jointing materials etc. complete for : (Contractor will make own arrangements for procuring water for testing).		
16.33.1	SW junction pipes of 150 mm x 100mm dia.	Each	<b>388</b>
16.33.2	SW junction pipes of 200 mm x 100mm dia.	Each	<b>527</b>
16.33.3	SW junction pipes of 225 mm x 100mm dia.	Each	<b>615</b>

Sl. No.	Specification	Unit	Rate ₹
16.34	Providing and fixing of .....mm or .....inch dia. THERMOPLASTIC SEWER HOSE, constructed of polyester for internal inner core, two braids of synthetic fibre reinforcing materials covered by polyesterurethane, minimum bend radius range - 125mm. Burst pressure shall not be less than 7500 PSI (525 bar), working pressure shall not be less than 3000 PSI (210 bar). Temperature limit 40 to 60 degree centigrade, with manufacturer's test certificate confirming the above parameters with one year guarantee from the date of supply of the hose to the jetting / jetting cum suction machine . For combined jetting / suction machine.		
16.34.1	For 19mm dia or 3/4" dia	m	1289
16.34.2	For 25mm dia or 1" dia	m	1523
16.35	Providing, erecting and removing casurina pole three tier BARRICADING using poles of 7.5 to 10 cms dia. and 1.5M height above ground fixed vertically at intervals of 2.0 to 2.5 M centre to centre and horizontally at 0.5M above ground level, including fixing poles in ground for a maximum depth of 0.3M and tied with coir rope firmly including cost and conveyances of all materials, labour, lead and lifts charges etc. complete. (This item is applicable for pipe works of 600mm dia and above pipes)	m	53
16.36	Clearing and grubbing land including uprooting rank vegetable grass, bushes, shrubs, saplings and trees upto 300mm girth by manual means, in areas of light jungle, removal of stumps, disposal of unserviceable materials, stacking of serviceable materials from road boundary etc. including cost of labour charges, all lead and lifts, etc. complete as directed by the Engineer in charge.	m <sup>2</sup>	18
16.37	Providing and fixing 150mm dia. Cast Iron pipe for ventilating shaft 5 M high with specials and cowl and with suitable grips in CC 1:2:4 pillar using 10mm to 20mm graded hard granite, with 15 cms. thick cement concrete 1:2:4 around upto 1.22 M above the GLR and with a foundation base of 90 x 90 x 90 cms. plastered with 12mm thick CM 1:3 to all exposed faces and linking the shaft to the manholes by means of 150mm dia. GSW pipes and specials, jointing with tar dipped hemp 1:1.5 CM caulking, curing. The cost include all lead and lifts for all materials, earth work excavations and refilling in all strata, disposal of surplus earth etc. complete.	Each	21087
16.38	Making bore in Machinehole without damaging the existing Machinehole, fixing the pipe of any diameter in line and level with CC 1:2:4, plastering the outer and inner surface in CM 1:3 including curing etc. The cost includes the cost of materials, labour charges, lead and lifts etc. complete as per specifications and as directed by the Engineer.	Each	211
16.39	Installation of steel portable barricade with horizontal rail 300mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white strips, 150mm wide at an angle of 45 degree 'A' frame painted with 2 coats of yellow paint, etc. comple. (Cost is derived assuming 7 day usage for one time use and 40 time usage for life time)	m <sup>2</sup>	18

Sl. No.	Specification	Unit	Rate ₹
16.40	Providing and constructing of Machinehole chambers conical in shape at top with CC 1:3:6 foundation using 40mm and down size graded metal of approved quality and with an offset of 0.15m around the chamber and brick masonry in C.M 1:4 plaster with bricks of approved quality and CM plaster 1:3 proportion 12mm thick inside and outside except for the conical surface outside where the thickness of plaster shall be 20 mm thick, with 1 to 6 slope in the concrete towards the central drain, finished smooth and fixing of pipes in CC 1:2:4 with graded metal of 20 mm and down size including Providing and fixing SFRC Machinehole frame and cover conforming to IS 12592(Part-I): 1988 & IS 12592(Part-II) :1991 with latest amendments in CC 1:2:4, Providing and fixing of plastic foot steps staggered at 30cms apart as directed, watering, curing, barricading, danger lighting, pouring tar over M.H. frame and cover, cost of tar, shoring, strutting, dewatering, engraving Machinehole No. on the inner and outer conical surface etc. as per the drawing with all lead and lift for various diameters and depths noted below. With Table Moulded Bricks & Medium Duty cover and frame. For 1.2m dia		
16.40.1	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>24349</b>
16.40.2	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 2.0 m depth & Medium duty SFRC cover & frame	Each	<b>46455</b>
16.40.3	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>71078</b>
16.41	Providing and constructing of Machinehole chambers conical in shape at top with CC 1:3:6 foundation using 40mm and down size graded metal of approved quality and with an offset of 0.15m around the chamber and brick masonry in C.M 1:4 plaster with bricks of approved quality and CM plaster 1:3 proportion 12mm thick inside and outside except for the conical surface outside where the thickness of plaster shall be 20 mm thick, with 1 to 6 slope in the concrete towards the central drain, finished smooth and fixing of pipes in CC 1:2:4 with graded metal of 20 mm and down size including Providing and fixing SFRC Machinehole frame and cover conforming to IS 12592(Part-I): 1988 & IS 12592(Part-II) :1991 with latest amendments in CC 1:2:4, Providing and fixing of plastic foot steps staggered at 30cms apart as directed, watering, curing, barricading, danger lighting, pouring tar over M.H. frame and cover, cost of tar, shoring, strutting, dewatering, engraving Machinehole No. on the inner and outer conical surface etc. as per the drawing with all lead and lift for various diameters and depths noted below. With Laterite Bricks & Medium Duty cover and frame. For 1.2m dia		
16.41.1	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>21218</b>
16.41.2	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 2.0 M depth & Medium duty SFRC cover & frame	Each	<b>39533</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.41.3	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>59339</b>
16.42	With Table Moulded Bricks & Medium Duty cover and frame.For 1.5m dia		
16.42.1	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>29190</b>
16.42.2	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 2.0 m depth & Medium duty SFRC cover & frame	Each	<b>56191</b>
16.42.3	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>84514</b>
16.42.4	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 4.0 M depth & Medium duty SFRC cover & frame	Each	<b>116731</b>
16.42.5	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 5.0 M depth & Medium duty SFRC cover & frame	Each	<b>157214</b>
16.42.6	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 6.0 M depth & Medium duty SFRC cover & frame	Each	<b>191616</b>
16.42.7	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. 7.0 M depth & Medium duty SFRC cover & frame	Each	<b>235207</b>
16.42.8	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. 8.0 M depth & Medium duty SFRC cover & frame	Each	<b>278213</b>
16.43	With Laterite Bricks & Medium Duty cover and frame.For 1.5m dia		
16.43.1	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>25185</b>
16.43.2	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 2.0 m depth & Medium duty SFRC cover & frame	Each	<b>47187</b>
16.43.3	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>69876</b>
16.43.4	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 4.0 M depth & Medium duty SFRC cover & frame	Each	<b>95464</b>
16.43.5	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 5.0 M depth & Medium duty SFRC cover & frame	Each	<b>126971</b>
16.43.6	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 6.0 M depth & Medium duty SFRC cover & frame	Each	<b>153556</b>
16.43.7	Constructing Laterite Bricks Machinehole 1.5 m internal dia. 7.0 M depth & Medium duty SFRC cover & frame	Each	<b>186538</b>
16.43.8	Constructing Laterite Bricks Machinehole 1.5 m internal dia. 8.0 M depth & Medium duty SFRC cover & frame	Each	<b>219604</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.44	With Table Moulded Bricks & Medium Duty cover and frame.For 1.8m dia		
16.44.1	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>31543</b>
16.44.2	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 2.0 m depth & Medium duty SFRC cover & frame	Each	<b>74446</b>
16.44.3	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>95458</b>
16.44.4	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 4.0 M depth & Medium duty SFRC cover & frame	Each	<b>123809</b>
16.44.5	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 5.0 M depth & Medium duty SFRC cover & frame	Each	<b>160306</b>
16.44.6	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 6.0 M depth & Medium duty SFRC cover & frame	Each	<b>199383</b>
16.44.7	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. 7.0 M depth & Medium duty SFRC cover & frame	Each	<b>248687</b>
16.44.8	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. 8.0 M depth & Medium duty SFRC cover & frame	Each	<b>294413</b>
16.45	With Laterite Bricks & Medium Duty cover and frame.For 1.8m dia		
16.45.1	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 1.0 M depth & Medium duty SFRC cover & frame	Each	<b>27538</b>
16.45.2	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 2.0 m depth & Medium duty SFRC cover & frame	Each	<b>56361</b>
16.45.3	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 3.0 M depth & Medium duty SFRC cover & frame	Each	<b>78554</b>
16.45.4	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 4.0 M depth & Medium duty SFRC cover & frame	Each	<b>101381</b>
16.45.5	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 5.0 M depth & Medium duty SFRC cover & frame	Each	<b>130035</b>
16.45.6	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 6.0 M depth & Medium duty SFRC cover & frame	Each	<b>160108</b>
16.45.7	Constructing Laterite Bricks Machinehole 1.8 m internal dia. 7.0 M depth & Medium duty SFRC cover & frame	Each	<b>197645</b>
16.45.8	Constructing Laterite Bricks Machinehole 1.8 m internal dia. 8.0 M depth & Medium duty SFRC cover & frame	Each	<b>231606</b>
16.46	With Table Moulded Bricks & Heavy Duty cover and frame.For 1.2m dia		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.46.1	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>24999</b>
16.46.2	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 2.0 m depth & Heavy duty SFRC cover & frame	Each	<b>47106</b>
16.46.3	Constructing Table Moulded Bricks Machinehole 1.2 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>71728</b>
16.47	With Laterite Bricks & Heavy Duty cover and frame.For 1.2m dia		
16.47.1	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>21869</b>
16.47.2	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 2.0 M depth & Heavy duty SFRC cover & frame	Each	<b>40183</b>
16.47.3	Constructing Laterite Bricks Machinehole 1.2 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>59989</b>
16.48	With Table Moulded Bricks & Heavy Duty cover and frame.For 1.5m dia		
16.48.1	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>29840</b>
16.48.2	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 2.0 m depth & Heavy duty SFRC cover & frame	Each	<b>56841</b>
16.48.3	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>85165</b>
16.48.4	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 4.0 M depth & Heavy duty SFRC cover & frame	Each	<b>117381</b>
16.48.5	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 5.0 M depth & Heavy duty SFRC cover & frame	Each	<b>157865</b>
16.48.6	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. , 6.0 M depth & Heavy duty SFRC cover & frame	Each	<b>192267</b>
16.48.7	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. 7.0 M depth & Heavy duty SFRC cover & frame	Each	<b>235857</b>
16.48.8	Constructing Table Moulded Bricks Machinehole 1.5 m internal dia. 8.0 M depth & Heavy duty SFRC cover & frame	Each	<b>278863</b>
16.49	With Laterite Bricks & Heavy Duty cover and frame.For 1.5m dia		
16.49.1	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>25835</b>
16.49.2	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 2.0 m depth & Heavy duty SFRC cover & frame	Each	<b>47837</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.49.3	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>70526</b>
16.49.4	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 4.0 M depth & Heavy duty SFRC cover & frame	Each	<b>96114</b>
16.49.5	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 5.0 M depth & Heavy duty SFRC cover & frame	Each	<b>127621</b>
16.49.6	Constructing Laterite Bricks Machinehole 1.5 m internal dia. , 6.0 M depth & Heavy duty SFRC cover & frame	Each	<b>154207</b>
16.49.7	Constructing Laterite Bricks Machinehole 1.5 m internal dia. 7.0 M depth & Heavy duty SFRC cover & frame	Each	<b>187188</b>
16.49.8	Constructing Laterite Bricks Machinehole 1.5 m internal dia. 8.0 M depth & Heavy duty SFRC cover & frame	Each	<b>220254</b>
16.50	With Table Moulded Bricks & Heavy Duty cover and frame.For 1.8m dia		
16.50.1	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>32193</b>
16.50.2	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 2.0 m depth & Heavy duty SFRC cover & frame	Each	<b>75096</b>
16.50.3	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>96108</b>
16.50.4	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 4.0 M depth & Heavy duty SFRC cover & frame	Each	<b>124459</b>
16.50.5	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 5.0 M depth & Heavy duty SFRC cover & frame	Each	<b>160956</b>
16.50.6	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. , 6.0 M depth & Heavy duty SFRC cover & frame	Each	<b>200034</b>
16.50.7	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. 7.0 M depth & Heavy duty SFRC cover & frame	Each	<b>249337</b>
16.50.8	Constructing Table Moulded Bricks Machinehole 1.8 m internal dia. 8.0 M depth & Heavy duty SFRC cover & frame	Each	<b>295064</b>
16.51	With Laterite Bricks & Heavy Duty cover and frame.For 1.8m dia		
16.51.1	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 1.0 M depth & Heavy duty SFRC cover & frame	Each	<b>28189</b>
16.51.2	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 2.0 m depth & Heavy duty SFRC cover & frame	Each	<b>57011</b>
16.51.3	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 3.0 M depth & Heavy duty SFRC cover & frame	Each	<b>79204</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
16.51.4	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 4.0 M depth & Heavy duty SFRC cover & frame	Each	<b>102031</b>
16.51.5	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 5.0 M depth & Heavy duty SFRC cover & frame	Each	<b>130685</b>
16.51.6	Constructing Laterite Bricks Machinehole 1.8 m internal dia. , 6.0 M depth & Heavy duty SFRC cover & frame	Each	<b>160758</b>
16.51.7	Constructing Laterite Bricks Machinehole 1.8 m internal dia. 7.0 M depth & Heavy duty SFRC cover & frame	Each	<b>198296</b>
16.51.8	Constructing Laterite Bricks Machinehole 1.8 m internal dia. 8.0 M depth & Heavy duty SFRC cover & frame	Each	<b>232256</b>
16.52	Providing and placing RCC 1:1.5:3 with 20 mm down size granite aggregates for concrete block annular shape having 300 mm width around the machinehole ring, 200 mm thick with Fe-500 grade double reinforcement mat of 10mm dia at 100 mm c/c both ways and both face including shuttering, centreing, compacting, curing, along with cost of material, labour complete.	Each	<b>6808</b>
16.53	Providing pressure machinehole cover and frame in DI (with SS 304 Nut Bolt arrangement with steel inserts) for the machinehole in storm water drain with necessary arrangements and complete in all respects as per drawings and as directed by Engineers.	Each	<b>30408</b>
16.54	Connecting the existing lateral connections to the proposed / existing Sewer Mains, including earth work excavation in all soils, lowering, laying, barricading, dewatering, jointing RCC-NP3 Class pipes refilling with excavated / borrowed earth, carting of excavated earth upto a minimum distance of 25Km away from the site, complete as directed by the Engineer. For sewer of 300mm dia to 400 mm dia of Pipe.	m	<b>3470</b>
16.55	Dewatering the sewage / storm water by using required HP submersible pump for the diversion of storm / sewage during the execution of work. Considering for one Pump.		
16.55.1	5 hp pump	hr	<b>310</b>
16.55.2	10 hp pump	hr	<b>426</b>
16.55.3	20 hp pump	hr	<b>658</b>
16.55.4	40 hp pump	hr	<b>1186</b>
16.56	Providing, filling and laying of sand bags filled with sand / clay for diversion of sewage during execution of work.	Each	<b>64</b>

Sl. No.	Specification	Unit	Rate ₹
16.57	Desilting of sewerlines by mechanical (Jetting,Sucking,Grabber,Scrap per etc.) means ,setting up the over pumping arrangements,rodding and dislodging of accumulative silt from the pipeline ,removal of silt by mechanical means to the ground including barricading, cleaning of sewers and machinhole, disposal of removed silt upto a distance of 20 Kms, necessary all complete as per the instructions of the Engineer-in-charge.		
16.57.1	upto 300mm dia	m	<b>80</b>
16.57.2	above 300mm upto 600mm dia	m	<b>139</b>
16.57.3	above 600mm upto 900mm dia	m	<b>279</b>
16.57.4	above 1000mm dia	m	<b>736</b>
16.58	Evaluating pipe line condition through inline Closed Circuit Television Camera(CCTV) to assess the internal condition and material accumulation,including size of sewer,invert levels and other physical attributes/cross section and identification of all defects,joints and connections.Prepare the survey reports containing the location ,size and blockages and submitting the recorded video's,images and structural conditions as per the instruction of the Engineer-in Charge.	m	<b>436</b>
16.59	Design, Manufacture, supply, delivery on site and install STEEL Reinforced PVC liner by MSWL (Machine Wounded Spiral Liner) Lining System, Reinstatement and making good of Rehabilitated Sewer Main and end sealing of migration gap between the lines and same at the Machinehole without manual entry into sewer line, including all preparatory site work as plugging, diversion of sewer flow, traffic flow by proper barricading and night light arrangement, loosen, desilt and throughly cleaning by mechanical means for removing of all types of debris and investigation / condition assesment of de-silted sewer mains before lining work through robotic CCTV equipment having pan, tilt and zoom facility and also after rehabilitation of the lining work. Shall provide (Hard & Soft) copy of the CCTV images. Mode of measurement will be considered from centre to centre distance of the Machinehole and nothing extra shall be payable.		
16.59.1	600mm dia	m	<b>32250</b>
16.59.2	800mm dia	m	<b>40302</b>
16.59.3	900mm dia	m	<b>43447</b>
16.59.4	1000mm dia	m	<b>48219</b>
16.59.5	1100mm dia	m	<b>51192</b>
16.59.6	1200mm dia	m	<b>68359</b>
16.59.7	1400mm dia	m	<b>78139</b>
16.59.8	1600mm dia	m	<b>89254</b>

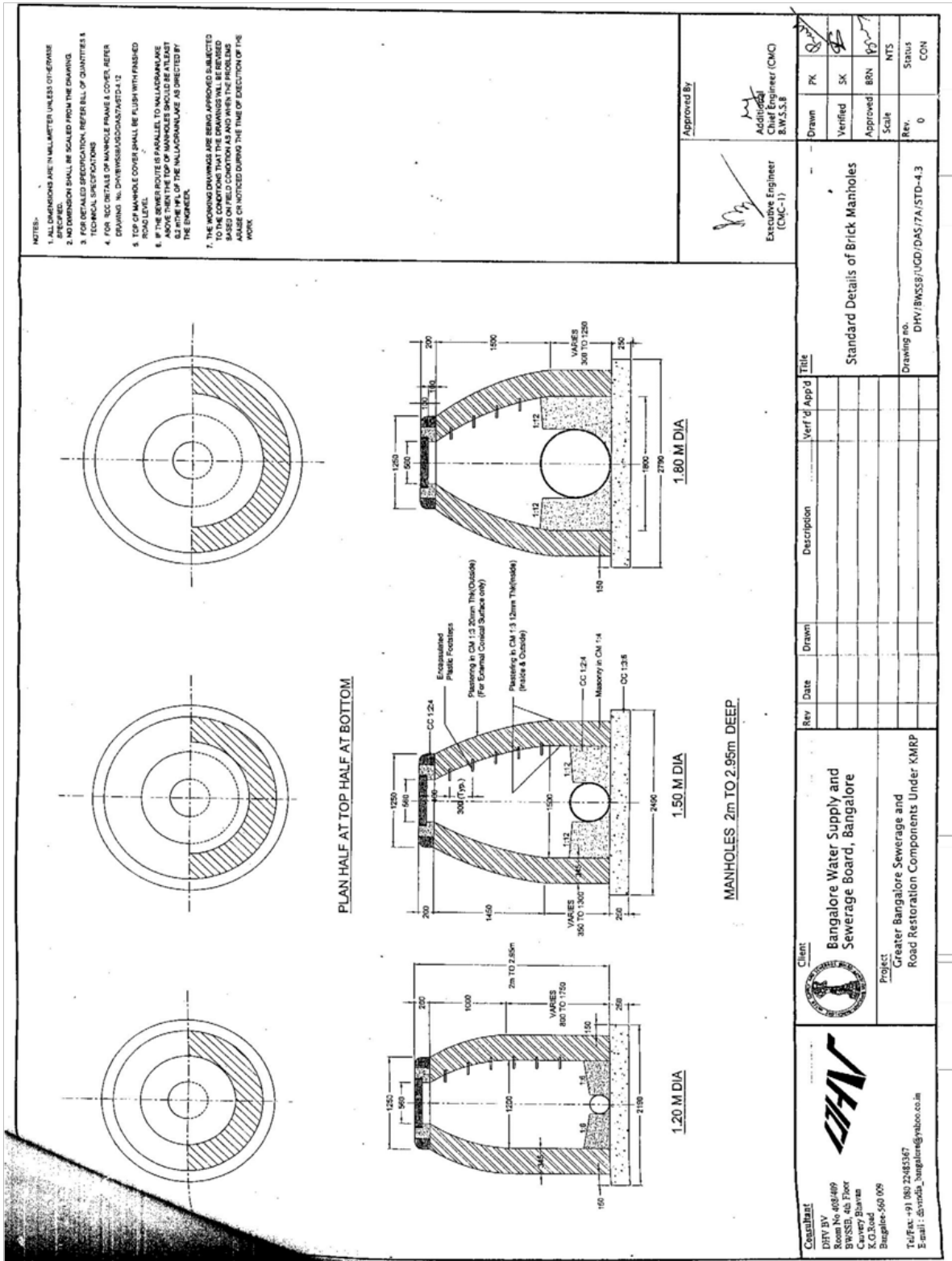
Sl. No.	Specification	Unit	Rate ₹
16.59.9	1800mm dia	m	102506
16.59.10	2000mm dia	m	109591
16.59.11	2200mm dia	m	120439
16.60	Providing PVC-U INDIVIDUAL U.G.D House service connection (which shall be laid from inside the customer property ) which includes: a) Supply of PVC-U pipe (b) providing and fixing of 315 mm dia the PE Inspection chambers with lid consisting of inlet & outlet arrangements with base, riser of min. 0.42 m depth which includes earth work, fixing in CC-1:2:4 with appurtenances., complete. (c) civil works like Earthwork excavation for the pipeline trenches for laying of PVC-U pipes for the house connections in all types of soils , disintegrated rock,soft rock, hard rock, including cutting of any road using , crossing drains, compound, Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, c.c. wood work, steel work, including T & P and scaffolding wherever necessary sorting the dismantled material, disposal of unserviceable and stacking the serviceable material with all lifts and lead , restoring the damaged portions inside or outside the property premises, refilling the portions of trenches that are dug open including linking to existing sewer network with appurtenances. complete.		
16.60.1	110 mm dia	Each	8134
16.61	Supply and fixing of SFRC machinhole cover (Medium Duty) made as per IS to suit existing damaged machinhole cover after removing the debries from inside and outside the existing machinhole etc. with all lead and lifts.		
16.61.1	Medium Duty	Each	908
16.61.2	Heavy Duty	Each	1233
16.62	Providing to work spot rolling, lowering and placing in position RCC perforated rings in the already excavated pit including loading and unloading at both the destinations with all lead and lift with appurtenances., complete.		
16.62.1	900 mmx1100 mm	Each	6157
16.62.2	1200 mmx1250 mm	Each	9544

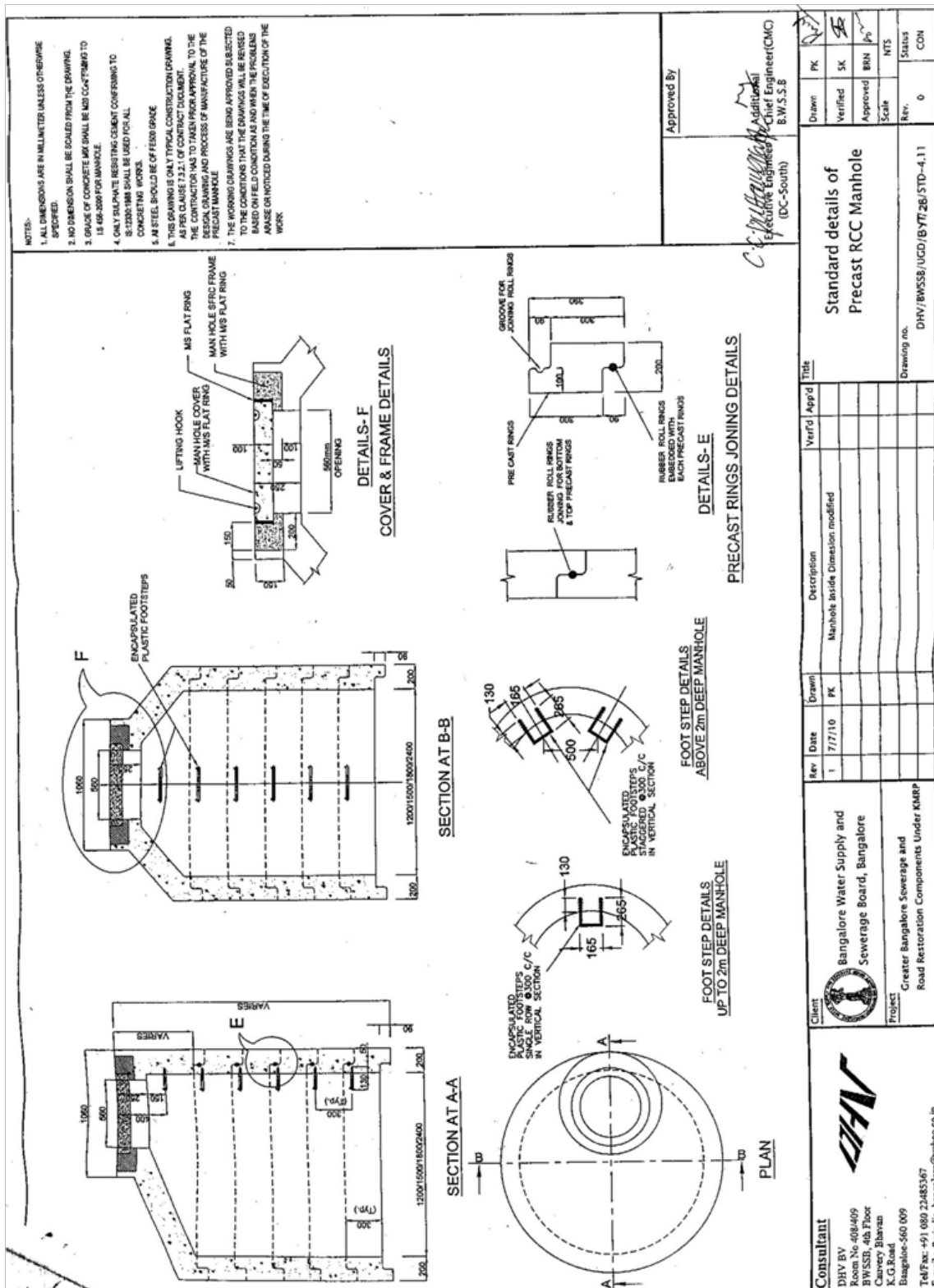
**Note:** The rate of any fractional increase in depth of the machinehole on decimeter basis shall be paid by adding the difference rates between the immediately preceding and succeeding depths of machineholes on linear basis.

For example: to calculate 2.2m depth machinehole rate = X + 0.2\*(X-Y)/1.0

Where X is rate of 2.0m depth machinehole, Y is rate of 3.0m depth machinehole.

While calculating the rates for fractional depths, the rate of SFRC frame and cover to be deducted before calculation and then it should be added to the calculated value.









**Chapter - 17**  
**TRENCHLESS WORKS**





Sl. No.	Specification	Unit	Rate ₹
<b>17 TRENCHLESS WORKS</b>			
17.1	Excavating of ramming/jacking/driving pit and receiving pit of size 5.00m(length) x 3.00m (breadth), up to 6.00 m depth in all soil strata including shoring and strutting including cutting of Asphalt/CC/Macadam road surface and removing the excavated stuff with all lead and lifts. The work includes formation of CC/RCC of 1:3:6 with or without 20mm steel with suitable spacing. The work also to receive the impacts driving pushing operation of encasing pipe. The cost includes driving the horizontal bore by pushing/jacking methods (trenchless technology method) by using construction agencies' cranes, jacks, jacking materials, generator, welding machineries, compressor, jack hammer and other equipments etc., without interfering and causing any hindrance to the movement of traffic or any other vehicles, without any disturbances to the railway/road/canal formation etc., The cost also includes bailing / pumping of water where ever necessary without affecting any installation like water supply and sanitary pipeline/telephone cable, electric cables etc. The work comprises of water for curing, carriage and fixing charges, concrete up to plinth for erecting and conducting the hydraulic pushing arrangements apart from passing through and scooping the earth inside the pipes and pit and depositing and disposing the surplus earth to a designated/ approval place and levelling the site after completion of entire work as directed by Engineer in Charge. The rate is excluding the cost of MS pipes.		
17.1.1	Size up to 5 mts X 3 mts - depth up to 4 mts	Each	<b>173559</b>
17.1.2	For additional 1 SQM - For 4 mts depth of size 5 Mts X 3 Mts.	m <sup>2</sup>	<b>5814</b>
17.1.3	size up to 5 mts X 3 mts - depth up to 5 mts	Each	<b>202318</b>
17.1.4	For additional 1 SQM - For 5 mts depth of size 5 Mts X 3 Mts.	m <sup>2</sup>	<b>6781</b>
17.1.5	size up to 5 mts X 3 mts - depth up to 6 mts	Each	<b>231039</b>
17.1.6	For additional 1 SQM - For 6 mts depth of size 5 Mts X 3 Mts.	m <sup>2</sup>	<b>7738</b>
17.1.7	size up to 5 mts X 5 mts - depth up to 5 mts	Each	<b>337108</b>
17.1.8	For additional 1 SQM - For 5 mts depth of size 5 Mts X 5 Mts.	m <sup>2</sup>	<b>6791</b>
17.1.9	size up to 5 mts X 5 mts - depth up to 6 mts	Each	<b>384985</b>
17.1.10	For additional 1 SQM - For 6 mts depth of size 5 Mts X 5 Mts.	m <sup>2</sup>	<b>7767</b>
17.1.11	size up to 5 mts X 5 mts - depth up to 7 mts	Each	<b>473921</b>
17.1.12	For additional 1 SQM - For 7 mts depth of size 5 Mts X 5 Mts.	m <sup>2</sup>	<b>8497</b>
17.1.13	size up to 5 mts X 5 mts - depth up to 8 mts	Each	<b>527473</b>
17.1.14	For additional 1 SQM - For 8 mts depth of size 5 Mts X 5 Mts.	m <sup>2</sup>	<b>10946</b>

Sl. No.	Specification	Unit	Rate ₹
17.2	Installation of product pipe by manual jacking method - Manufacturing, providing, transporting, rolling, lowering, laying & jointing, testing, commissioning of ERW (Electric Resistance Welded), SAW (Submerged Arc Welded) MS pipe (Fe-410 grade) conforming to IS 3589-2001 with latest ammendments including perfect linking welding of joints to correct position including cost and conveyance of pipes and materials with all lead ,lift, cost of labour, loading and unloading of pipes for the following diameters with specified thickness of plate as noted below including bailing out of water wherever necessary for laying of carrier pipe of suitable dia including inside and outside of casing pipe painted with two coats of Anti corrossive tankmastic paint. Installation of steel pipe by Ramming / Jacking method to cross Railway track / NH /BDA /BBMP/ Other roads/Existing utilities / NALA crossings, filling the gap between casing pipe and carrier pipe with quarry grit using compressor with all necessary equipments, plants etc, complete. Suitable spacers of HDP/ MS or other similar material should be provided in between carrier & casing pipe to prevent carrier pipe forming metallic contact with casing pipe. Note : a. The cost of jacking is inclusive of cost M.S. casing pipe of specified thickness b. The cost of carrying pipe is separate and provision shall be made as per site requirement c. The cost of Jacking includes all leads lifts, cost of consumables, fuel charges, labour. d. The cost of jacking and receving pits shall be proposed seperately as per site requirement.		
17.2.1	Jacking of 600 mm dia & 10mm thick M.S. Casing Pipe.	m	29598
17.2.2	Jacking of 900 mm dia & 10mm thick M.S. Casing Pipe.	m	40005
17.2.3	Jacking of 1000 mm dia & 10mm thick M.S. Casing Pipe.	m	44145
17.2.4	Jacking of 600 mm dia & 12mm thick M.S. Casing Pipe.	m	32575
17.2.5	Jacking of 900 mm dia & 12mm thick M.S. Casing Pipe.	m	44344
17.2.6	Jacking of 1000 mm dia & 12mm thick M.S. Casing Pipe.	m	59056
17.2.7	Jacking of 1200 mm dia & 12mm thick M.S. Casing Pipe.	m	71041
17.2.8	Jacking of 900 mm dia & 16mm thick M.S. Casing Pipe.	m	53195
17.2.9	Jacking of 1000 mm dia & 16mm thick M.S. Casing Pipe.	m	67816
17.2.10	Jacking of 1200 mm dia & 16mm thick M.S. Casing Pipe.	m	81648
17.2.11	Jacking of 1600 mm dia & 16mm thick M.S. Casing Pipe.	m	112456
17.2.12	Jacking of 1800 mm dia & 16mm thick M.S. Casing Pipe.	m	126004
17.2.13	Jacking of 2000 mm dia & 16mm thick M.S. Casing Pipe.	m	151783
17.2.14	Jacking of 2200 mm dia & 16mm thick M.S. Casing Pipe.	m	166137
17.2.15	Jacking of 2400 mm dia & 16mm thick M.S. Casing Pipe.	m	181263

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
17.2.16	Jacking of 2600 mm dia & 16mm thick M.S. Casing Pipe.	m	<b>190375</b>
17.2.17	Jacking of 2800 mm dia & 16mm thick M.S. Casing Pipe.	m	<b>204982</b>
17.2.18	Jacking of 3000 mm dia & 16mm thick M.S. Casing Pipe.	m	<b>219858</b>
17.3	For 20mm thick MS casing pipes of various dia:		
17.3.1	Jacking of 1200 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>90970</b>
17.3.2	Jacking of 1600 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>124971</b>
17.3.3	Jacking of 1800 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>142066</b>
17.3.4	Jacking of 2000 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>166773</b>
17.3.5	Jacking of 2200 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>184376</b>
17.3.6	Jacking of 2400 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>204315</b>
17.3.7	Jacking of 2600 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>215852</b>
17.3.8	Jacking of 2800 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>227365</b>
17.3.9	Jacking of 3000 mm dia & 20mm thick M.S. Casing Pipe.	m	<b>244536</b>
17.4	Installation of steel product pipe by HDD method including preparing and setting up the plant and equipment, preparing new pipe work materials, installing new pipe work and commissioning system or making the system ready for commissioning by HDD operation including all related civil and mechanical works like excavation, shoring / strutting etc. drilling, stringing, ramming and pulling back the new work on the design bore path alignment, proper disposal of drilling fluid and restoration of site after completion etc. for horizontal directional drilling technique suiting Indian conditions in all types of soil including the cost of sleeve / casing pipe etc. in all respects for:		
17.4.1	For pipes of 100mm dia and 6mm thick.	m	<b>5900</b>
17.4.2	For pipes of 150mm dia and 6mm thick.	m	<b>6008</b>
17.4.3	For pipes of 200mm dia and 6mm thick.	m	<b>8603</b>
17.4.4	For pipes of 250mm dia and 6mm thick.	m	<b>8711</b>
17.4.5	For pipes of 300mm dia and 6mm thick.	m	<b>10981</b>
17.4.6	For pipes of 350mm dia and 6mm thick.	m	<b>11089</b>
17.4.7	For pipes of 400mm dia and 6mm thick.	m	<b>15622</b>
17.4.8	For pipes of 450mm dia and 6mm thick.	m	<b>15839</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
17.5	Conducting ground penetrating RADAR SURVEY in a corridor of 4-6 meter width to detect burried utilities like pipes, cables etc. in such corridor. Marking of the detected utilities on the map of corridor with information of locations and depth to the top of various utilities detected. Work to be conducted using 500 Mhz and 300 Mhz antenna for the best possible resolution and penetration etc. for:		
17.5.1	Along the road for 6 meter wide corridor	m	<b>35</b>
17.5.2	Along the road crossings without dividers and upto 30 M width.	Each	<b>31982</b>
17.5.3	Along the road crossings with dividers and upto 50 M width.	Each	<b>65135</b>
17.5.4	Along the road crossings with dividers and upto 60 M width.	Each	<b>82854</b>
17.5.5	Along the road crossings above 60M width for every 1 M and part thereof.	m	<b>2197</b>
17.6	Conducting Seismic Refraction survey to determine stratigraphy along poroposed route i.e, soil, seathered rock, rock interfaces. Detection of faults, fractures, shear zones etc. in the investigated area. Geophone spacing 5M, test to be conducted using 24 channel signal enchancement type sesmograph 5M Geophone Spacing and for projects having a minimum length of 115.	m	<b>404</b>
17.7	Installation of Product pipe by Guided Auger Boring Method including making entry and exit pits, including all related civil works like excavation, shoring / strutting, de-watering, shielded excavation through Auger Boring Process, lowering of pipe segments in the jacking pit, laying and jointing of Product pipeline through jacking process from Jacking pit including the cost of RCC NP3 S&S or as required pipes including dewatering and other works required for commissioning of the works in all types of soil including Rock complete with all lead and lift as per specifications and as directed complete for the following diameter of pipes.		
17.7.1	upto 300mm	m	<b>10907</b>
17.7.2	300mm to 450 mm dia	m	<b>16049</b>
17.7.3	450mm to 600 mm dia	m	<b>27739</b>

**Chapter - 18**  
**MAINTENANCE WORKS**



Sl. No.	Specification	Unit	Rate ₹
<b>18 MAINTENANCE WORKS</b>			
18.1	Painting with synthetic enamel on old pipes, one or more coats, on 75 mm dia. pipes.	m	<b>16</b>
18.2	Painting with synthetic enamel on old pipes, one or more coats, on 100 mm dia. pipes.	m	<b>18</b>
18.3	Providing & fixing 455x610 mm cast iron cover with frame weight to be not less 38kgs (weight of cover 23 kgs and weight of frame 15 kgs) and necessary locking arrangements with M.S flats 32x6 mm etc & painting with two or more coats with black Japan paint etc. complete as directed by the engineer-in-charge.	Each	<b>1962</b>
18.4	Cleaning of Water Storage Tank or Sump by following method: (1) Empty the Tank/ Sump and make it to near dry, (2) Apply bleaching powder uniformly (@ Tank capacity x 0.5 gms/litre) inside the Tank/ Sump and wait for one hour, (3) After one hour, clean/ rinse the Tank/ Sump with fresh water. Repeat the process (2) & (3) for two to three times, all complete, as directed by the Engineer-in-charge.	LTR	<b>1</b>
18.5	Providing & replacing damaged Cast Iron covers of size 300x 300 mm (wt 4.5 kg, for Gully trap) or 455x 610 mm (wt 23 kg, for M/H Cover) or of required size, to fit-in exactly inside the frame etc. complete. (NOTE:- CI Covers are to be replced with RCC Covers in general OR where CI Covers are usually stolen) .	KGS	<b>53</b>
18.6	Providing & replacing damaged/ dilapidated Cast Iron Frame of sizes 300x 300 mm (inside)(wt 2.7 kg for Gully trap) or 455x 610 mm (inside) (wt 15.0 kg, for MH) or of required size, including removing the damaged frame & fixing new frame with CM 1:3 (1 cement: 3 coarse sand) neatly finished etc, all complete.	KGS	<b>67</b>
18.7	Cleaning Seftic Tank of 50 users capacity as per details and instructions. (While cleaning septic tank all safety and precautionary measures to be taken, Standard Operating Procedure to be adopted and PEMSR Act 2013 to be strictly followed).	Each	<b>2109</b>
18.8	Cleaning Seftic Tank of 100 users capacity as per details and instructions. (While cleaning septic tank all safety and precautionary measures to be taken, Standard Operating Procedure to be adopted and PEMSR Act 2013 to be strictly followed).	Each	<b>2636</b>
18.9	Cleaning Seftic Tank of more than 100 users capacity as per details and instructions. (While cleaning septic tank all safety and precautionary measures to be taken, Standard Operating Procedure to be adopted and PEMSR Act 2013 to be strictly followed).	Each	<b>3163</b>



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
18.10	Cleaning of sewer line by Rodding Equipment for upto 150 mm dia. (While cleaning septic tank all safety and precautionary measures to be taken, Standard Operating Procedure to be adopted and PEMS Act 2013 to be strictly followed).	m	43
18.11	Cleaning of sewer line by Rodding Equipment for dia above 150 mm. (While cleaning septic tank all safety and precautionary measures to be taken, Standard Operating Procedure to be adopted and PEMS Act 2013 to be strictly followed).	m	71
18.12	Deduct for cleaning Sewer Line by using bamboo sticks &/or pull-through-rods instead of by the Rodding Equipment.	m	7

**Chapter - 19**  
**ELECTRICAL WORKS**



Sl. No.	Specification	Unit	Rate ₹
<b>19 ELECTRICAL WORKS</b>			
19.1	Work of rewinding of HV side upto 100KVA power transformer as specified below: a. Switch off Power supply of transformer Isolator feeder and discharge with discharge rod. b. Disconnect the input and output cables form 100 Kva transformer. c. Drain old transformer oil from transformers, and flush the winding jet force with good BDV valve transformer oil. d. Manually lead up to crane rEach and load to truck to shift factory. e. After rewinding the burnt out HV windings of transformer and replace the gaskets carbonized bolts and Nuts check the necessary tests. f. Fill the new transformer oil (BWSSB Supply) & replace the silica gel breather. g. Re install transformer after received form factory. h. Switch ON power supply and check the transformer, No load and on load.	Job	<b>75178</b>
19.2	Work of repair and rewinding of LV side upto 100 KVA power transformer as specified below: a. Drain out the contaminated transit oil completely from the reactor; flush the windings of the transformer with jet force of good BDV value transit oil. b. Removing the burnt out windings from all the three phases of the transformer provide new windings of LV side in all three phases. c. Clean the terminal connection with carbon tetra chloride solution. d. Fill the new transit oil (departmental supply) replace the bolts, nuts, washers and provide gasket etc., wherever necessary provide silica gel breather. e. Fix the transformer in the bet and charge the transformer and observe Performance "ON LOAD" and ensure for trueness of the transformer performance.	Job	<b>70641</b>
19.3	Work of servicing, leak arresting and oil filtration upto 400 KVA power transformers as specified below: a. Removing cable connection of transformer after isolating the supply dismantling the cable connection b. Replacing the existing leakage L.V side H.T Busing Gasket, oil seal, bots and nuts etc. of the power transformer. c. Replacing the existing non-functioned damaged Dehydrating Breather by a new breather with new silica gel for the above transformer d. Arresting oil leak from exclusive vent, neutral bushing of valves, flanges, is drying arresting the leakage for L.V and HV side of power transformer and refilling of the transformer oil including cost of labour and necessary repaired materials. e. Repaint the Transformer using light grey epoxy paint of 2 coated as original. f. Filtering of oil in the transformer at the transformer center by hot process using stream line filter such that the dielectric strength of oil in the transformer conforms to ISI specification. g. Painting of entire structure of transformer yard including fencing using silver paint.	Job	<b>69540</b>

Sl. No.	Specification	Unit	Rate ₹
19.4	Work of repairs/servicing and overhauling of on load tap changer (OLTC) of upto 66KV/6.6KV 8MVA transformer as specified below: A). Removing the supply connection of diverter switch draining out the diluted oil of OLTC chamber, removing the diverter switch one by one carefully by using tripped and chain pulley block. Dismantling the moving and fixing contacts and cleaning with good quality cleaning agents to remove the carbon deposit, replacing the worn-out compression spring micro switch tap changing contacts, of worn gear assembly, replacing of worn out bearing oil seals, 'O' rings, gaskets, etc., in order to ensure fiction from operations of tap changing and oil leakage from diverter switch mechanism housing resistance by new one which will be supplied by departmentally, cleaning the diverter switch housing chamber to remove the carbon deposit lowering the serviced diverter switch inside the housing chamber and aligning the centre shaft by using lock nut, bolt and washers tightening of resistor conductors carefully without causing damaged to the nearby the contact refilling the good quality high BDV value insulation oil to the diverter switch housing chamber (oil will be supplied by the department adjusting the micro switch NO NC contacts and lifting liver for its proper function and covering the chamber by fixing the lid on the top and cleaning the oil gauge indicator with soap water, after drying refix the same testing the operation of tap changing system by giving upto 440 Volts supply from tap position 1 to 25 after satisfactory charging over of all 25 taps in forward and reverse direction.	Job	46977
19.5	Work of repairs/servicing and overhauling of on load tap changer (OLTC) of upto 66KV/6.6KV 8MVA transformer as specified below: Painting of transformer including platform CTS etc., with one coat of red oxide to the rusted portion of transformer, 2 coats of M/s grey enamel paint, RYB color paint to CT caps for identification etc., Rates should coat inclusive of cleaning of the transformer of all sizes.	Job	28257
19.6	Work of repairing of diverter switch and replacement of resistance upto 66KV/6.6KV 8MVA Transformer as specified below: Removing the supply connection of diverter switch draining out the diluted oil of OLTC chamber, removing the diverter switch one by one carefully by using tripped and chain pulley block. Dismantling the diverter switch unit, removing the worn-out resistance from the diverter switch Supply and fixing of new resistance of same capacity as original to the diverter switch without disturbing the other running equipment, cleaning the diverter switch housing chamber to remove the carbon deposit, lowering the repaired diverter switch inside the housing chamber and aligning the centre shaft by using link nut, bolt and washers tightening of resistor conductors carefully without causing damaged to the nearby the contact refilling the good quality high BDV value insulation oil to the diverter switch housing chamber (oil will be supplied by the department) adjusting he micro switch NO, NC contacts and lifting liver for its proper function and covering the chamber by fixing the lid on the top. Testing the operation of tap changing system by giving upto 440 Volts supply from tap position 1 to 25 after satisfactory charging over all 25 taps in forward and reverse direction.	Job	75152

Sl. No.	Specification	Unit	Rate ₹
19.7	Works of Supply fixing and wiring of tap position indicator to RTCC panel transformer as detailed: Tap position indicator Aux supply: -110V or 230V AC +15% 50HZ, Resistance: - 1 Kilo ohms per step, Tele-transmitter: - 3Wire connection 1 to 99 position, Display: -2Digit 7 segment LED, Accuracy -Tolerance +2%, Type of mounting: -Panel mounting 90x90x70mm, Dimension: -96mm x 96mm x 70mm, Accuracy: -Class 11	Each	<b>20167</b>
19.8	Works of Supply fixing and wiring of digital kilowatt meter to RTCC panel upto 5MVA transformer as detailed: Aux supply -606KV -110V OR 230V AC, Range - 0 to 9 KW, Burden - 4VA, Display -3.1/2 digital for nominal full seals, Voltage input -110V from P.T, Mountry -Panel type, Cut out size - 90x90mm, Ambient Emp -0.50degree C, Model - DM 3257 ACC.CL:1.0, Accuracy -Class -1.0	Each	<b>17385</b>
19.9	Work of supply, erection and commissioning of indoor upto 250 Amps distribution panel as specified below: Supply, erection and commissioning of Indoor type upto 250 Amps MCCB distribution panel with outgoing copper bus bar, having, accessories like MCCB, incoming and outgoing entry bus bar, ammeter volt meter, ammeter selector switch, LED indication lamp, and with suitable M.S box with required stand unit set. Suitable for Indoor type complete as per latest IS standard specification.	Each	<b>68498</b>
19.10	Work of supply and fixing of 85W, LED high way fitting to top of panel board, soft starter and breaker as specified below: Providing High pressure high way 85W LED fitting die cast aluminum canopy with aluminum housing to control gear, finished stove enamel gray glassy white canopy interior with a pair of anodized aluminum reflectors clear acrylic bowl, gasket lining for dip inseat resistance duly wired with single or multi LEDS.	Each	<b>18560</b>
19.11	Work of supply and fixing of isolator panel and capacitor panel fuses to motor: as specified below: A) Removing the damaged burnt out fuses upto 63Amps 7.2 /11 K.V isolator fuses form isolator panel for motor cleaning the fuse carriers with CTC and apply petroleum jelly for fuse contacts and rectify the faulty in the isolator panel. Supply and fixing new fuses upto 7.2/11 K.V isolator fuses to the fuse carrier and checking its working. B) Removing the damaged burnt out fuses upto 30Amps 7.2/11 K.V capacitor fuses form capacitor panel of motor cleaning the fuse carriers with CTC and apply petroleum jelly for fuse contacts and rectify the faulty in the isolator panel. Supply and fixing new fuses upto 7.2/11 K.V capacitor fuse to the fuse carrier and checking its working	Each	<b>15062</b>
19.12	Work of repairing and servicing of capacitor isolator panel of motors as specified below: A) Dismantling the closing and tripping mechanism, removing the broken, closing lever, cylinder, moving contact tips, and service the entire mechanism, Providing and fixing the new closing lever full set cylinder, moving contact tips, etc., check the electrical circuit,	Job	<b>34231</b>

Sl. No.	Specification	Unit	Rate ₹
	replacement of burnt out LED Indication lamps etc., finally the panel should be tested for its running satisfactorily. B) Draining out contaminated breakdown oil completely from reactors, flushing of windings in the reactors with jet force of good BDV. Value transformer oil, cleaning of windings and flushing of carbon deposition over the windings in all the three phase of reactors, removing the terminals and cleaning the terminal bushings with carbon tetrachloride solution, checking of resistance of the windings of the correct value in all the three phases, filling the new oil with break down voltage value.		
19.13	Work of replacement of faulty control components and modification and rewiring of soft starter panel upto 1250KW/6.6KV motor as specified below: a. Disconnecting the power cables and control cables. b. Removal of faulty control components and cable disconnections. c. Supply and fixing Auxiliary contractors, upto 110Volt DC coil Supply with 2 NO, 2NC. d. Supply and fixing of Electronic Timers, 24 Volt AC Range 0 to 30 seconds. e. Supply and fixing of MCBs, 2 pole, 10A. f. Supply and fixing of suitable color LED indication Bulbs and reset Push Buttons Red in color. g. Supply and fixing of temperature Scanner. Along with RTDs 3.5 Mtr Each. h. The necessary tapping/drilling work has to be done for fixing the above components and rewiring to be done etc., i. Testing the soft starter with above supplied components. j. Commissioning the soft starter and handing over the system to department.	Job	69031
19.14	Work of supply and fixing of 40 amps star delta panel Boards upto 15Hp backwash pump motor as specified below: a. Supply and fixing of new upto 15 Hp star delta starter panel board for back wash motor with the following materials. b. Power connector upto 40 A. c. On delay, off delay automatic timer. d. Over current relay upto 20-60 amps e. Upto 10 amps MCB 3 Pole for control circuit. f. Contactor 2 No+ 2 Nc upto 25 amps g. Single phase preventer. h. On and off push button switch. i. LED indication lamps RYB motor on, off and trip. j. 0 to 600 volts meter upto 96/96 mm. k. Amps meter C.T Ratio upto 100/5A. l. Current Transformer for metering upto 100/5A. m. upto 30mmx10mm Electronic Grad Aluminum bus bar for RYB phases. n. Internal main wiring using upto 95 sq.mm Copper wire. o. Volts and ammeter selector switch.	Job	33727
19.15	Work of overhauling and servicing and repairing of southern switch gear make breakers of motor as specified below: Lowering the breaker from the panel after isolating the supply, draw out the breaker truck from the panel, checking the fixed and moving contacts. Removing the burnt out parts from the breaker. Supply and fixing of new closing assembly, rose contact, copper poker, banana link, lifting awsembly. Checking the mechanical parts such as moving cam, lifting bar assembly, tripping mechanism and closing mechanism of the breaker and servicing the entire breaker. Check the trip and closing coil of the breaker replace the same if required. Replace the oil (Supply by departmentally). The breaker has to be checked in test position after complete servicing for proper operation and satisfaction.	Job	75122

Sl. No.	Specification	Unit	Rate ₹
19.16	Work of repair and servicing of LOCB breakers of motor feeders and spare breakers as specified below: MECHANICAL PORTION: Removing the complete unit breaker mechanism from the breaker without damaging the arc chamber, wiring to be recorded before removing the breaker mechanism. Dismantling the tension spring latching unit etc., inspecting the alignment and rectify the fault in breakers for proper closing and opening cleaning all moving contact finger contact and fixed contact by C.T.C replace the oil by new oil (Oil will be supplied by the departments). ELECTRICAL PORTION: Checking of entire electrical operation of the breaker panel checking ON & OFF circuit, change over scheme replacement of closing coil, tripping coil, closing contactor wiring should be checked as per drawing, damaged wire should be replaced by new one, all the required spare will be supplied by departmentally. The work should be carried out without disturbing other running equipment.	Job	18325
19.17	Work of repair, overhauling & servicing of southern switch gear breakers of capacitor bank as specified below: Lowering the breaker from the panel after isolating the supply, draw out the breaker truck from the panel, checking the fixed and moving contacts and replace with new contacts wherever necessary. Repair the worn out rose contacts and poker tips. Checking the mechanical parts such as moving cam, lifting bar assembly, tripping mechanism and closing mechanism of the breaker and servicing. Check the trip and closing coil of the breaker. The breaker has to be checked in test position after complete servicing for proper operation and satisfaction	Job	33727
19.18	Working of repairing and overhauling of upto 800amps as specified below: Complete dismantling of breaker units of upto 800 amps breaker of filter house taking out the fixed and moving contacts of all the poles, cleaning and putting back with necessary lubrication and checking of complete electrical circuit for proper closing and tripping including necessary replacement of 'V' bar contact, finger contact, contact tips, arcing contact, tripping and closing coil, back housing set, with female contacts, panel fixed contact set including hylem sheet with contacts, gasket and dash pit oil etc., Testing of tripping and closing mechanism in order to ensure easy of operation of the breaker and commissioning of the system as per the standard practice without interruption of power supply.	Job	67859
19.19	Work of repairing and overhauling of upto 400 amps LT breaker bus coupler as specified below: Complete dismantling of breaker units of 400 amps, breaker of compressor room taking out the fixed and moving contacts of al limbs, cleaning and putting back with necessary lubrication and checking of complete electrical circuit for proper closing and tripping including necessary replacement of V bar contact finger contact, contact tips of arcing, contacts of tripping and closing coil, back housing set, gasket and dash pot oil etc.. Testing and tripping and closing mechanism in order to ensure easy operation of the breaker and commissioning of the system as per the standard practice without interruption of power supply.	Job	67859



Sl. No.	Specification	Unit	Rate ₹
19.20	Work of repair and rewinding of reactor provided to isolator of motor as specified below: A) Drain out the contaminated transit oil completely from the reactor; flush the windings of the reactor with jet force of good BDV value transit oil. B) Removing the burnt out from all the three phased of the reactor provide new windings in all three phases. C) Clean the terminal connection with carbon tetra chloride solution. D) Fill the new transit oil (departmental supply) replace the bolts, nuts, washers and provide gasket etc., wherever necessary provide silica jel breather. E) Fix the reactor in the isolator panel and charge the capacitor bank and observe performance "ON LOAD" and ensure for trueness of the reactor performance.	Job	<b>68591</b>
19.21	Work of overhauling and servicing upto 1250KW, 6.6KV, motor as specified below: a. Disconnect the HT/LT, Cable and record motor details take out the motor from bed b. Check alignment and record details c. Check IR values before removing motor. d. De-couple the motor from pump & taken out from removing anchor bolts e. Dismantling motor end shields f. Removing rotor from stator, checking IR values of stator cleaning stator with thinner, and petrol, g. Removing the moisture of stator by using heaters(oven) h. Revarnishing of stator & rotor baking in oven, applying becktol red on windings on both stator & rotor i. Greasing of bearings, j. Assembling of motor k. Checking IR values of motor and recording the same l. Alignment of motors with pump, and commissioning the motor on No-Load and load trial.	Job	<b>68006</b>
19.22	Cutting of the damaged portion of upto 3x150sq.mm XLPE cable Providing one number of indoor termination kit upto 3x150 sq.mm HT XLPE cable and attending the termination work upto 3x150sq.mm HT cable of Neutral side cable by using upto 150sq.mm copper lugs, self adhesive HT tape, crimping tool, heat shrinkable termination kit and required bolts and nuts etc., and Commissioning the motor on load. The work including the cost of materials, labour charges, taxes and the rebate towards the cost of released materials etc.	Job	<b>11574</b>
19.23	Supply and brazing of motor end lead cable by using H.T Copper lugs, brazing materials, gas, soldering past, etc as original for all the three phases for motor.	Job	<b>33727</b>
19.24	Removing the burnt out supporting insulator from motor of main side Supply and fixing of new insulator to same place as original.	Job	<b>17406</b>
19.25	Removing the burnt out copper flats form all the 3 phases of neutral side motor. Providing. copper flats copper flats to neutral side connection. Re connect the motor end cable & cable connection using bolts nuts and washers etc as original	Job	<b>16577</b>
19.26	Removing & refixing the pump after repairing of existing horizontal mounting/ monoblock pump with following spares, etc. including aligning of pump with reference to motor & running the pump on load.		

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
19.26.1	Repairs of Booster Pumps Upto 5HP	Job	<b>3042</b>
19.26.2	Repairs of Booster Pumps 5 HP to 10 HP	Job	<b>3682</b>
19.26.3	Repairs of Booster Pumps 10 HP to 15 HP	Job	<b>5028</b>
19.26.4	Repairs of Booster Pumps 15 HP to 20 HP	Job	<b>15739</b>
19.26.5	Repairs of Booster Pumps 20 HP to 30 HP	Job	<b>20811</b>
19.26.6	Repairs of Booster Pumps 30 HP to 40 HP	Job	<b>25823</b>
19.26.7	Repairs of Booster Pumps 40 HP to 50 HP	Job	<b>33218</b>
19.26.8	Repairs of Booster Pumps 50 HP to 60 HP	Job	<b>38077</b>
19.26.9	Repairs of Booster Pumps 60 HP to 75 HP	Job	<b>48193</b>
19.26.10	Repairs of Booster Pumps 75 HP to 100 HP	Job	<b>62638</b>
19.26.11	Repairs of Booster Pumps 100 HP to 150 HP	Job	<b>71454</b>
19.26.12	Repairs of Booster Pumps 150 HP to 200 HP	Job	<b>85912</b>
19.26.13	Repairs of Booster Pumps 200 HP to 250 HP	Job	<b>99230</b>
19.26.14	Repairs of Booster Pumps 250 HP to 300 HP	Job	<b>112712</b>
19.26.15	Repairs of Booster Pumps 300 HP to 350 HP	Job	<b>126539</b>
19.26.16	Repairs of Booster Pumps 350 HP to 400 HP	Job	<b>137405</b>
19.27	Removing and refixing the 230/415 v 50 hz I phase/III phase suitable capacity suitable speed horizontal foot mounted screen protected drip proof continous rated monoblock/squrrel cage induction motor with F class insulation, class H super enamelled copper wire with as per standards including transportation charges etc.,		
19.27.1	Repairs of Booster Motors Upto 5HP	Job	<b>4949</b>
19.27.2	Repairs of Booster Motors 5 HP to 10 HP	Job	<b>6277</b>
19.27.3	Repairs of Booster Motors 10 HP to 15 HP	Job	<b>9705</b>
19.27.4	Repairs of Booster Motors 15 HP to 20 HP	Job	<b>16836</b>
19.27.5	Repairs of Booster Motors 20 HP to 30 HP	Job	<b>25747</b>
19.27.6	Repairs of Booster Motors 30 HP to 40 HP	Job	<b>30907</b>
19.27.7	Repairs of Booster Motors 40 HP to 50 HP	Job	<b>36915</b>
19.27.8	Repairs of Booster Motors 50 HP to 60 HP	Job	<b>44108</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
19.27.9	Repairs of Booster Motors 60 HP to 75 HP	Job	<b>54262</b>
19.27.10	Repairs of Booster Motors 75 HP to 100 HP	Job	<b>70287</b>
19.27.11	Repairs of Booster Motors 100 HP to 150 HP	Job	<b>96069</b>
19.27.12	Repairs of Booster Motors 150 HP to 200 HP	Job	<b>117231</b>
19.27.13	Repairs of Booster Motors 200 HP to 250 HP	Job	<b>142362</b>
19.27.14	Repairs of Booster Motors 250 HP to 300 HP	Job	<b>164270</b>
19.27.15	Repairs of Booster Motors 300 HP to 350 HP	Job	<b>192293</b>
19.27.16	Repairs of Booster Motors 350 HP to 400 HP	Job	<b>224229</b>

**Chapter - 20**  
**WATER TREATMENT PLANTS**



<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
<b>20 WATER TREATMENT PLANTS</b>			
20.1	Design parameter- Supply installation and commissioning of the water treatment plant capable to treat the water and make it potable at the flow rate of ..... LPH with suspended solids level less than 2000ppm, and PH value and biological impurities beyond permissible limits of potable water parameters. NOTE: Refer the ANNEXURE : A. for separate components of water treatment plant, Detailed Dimension and Rates as per Flow Rate mentioned in annexure		
20.1.1	For WTP 10000 LPH	Each	<b>2655000</b>
20.1.2	For WTP 15000 LPH	Each	<b>2867000</b>
20.1.3	For WTP 20000 LPH	Each	<b>3698000</b>
20.1.4	For WTP 30000 LPH	Each	<b>4009000</b>
20.1.5	For WTP 45000 LPH	Each	<b>4953000</b>
20.1.6	For WTP 55000 LPH	Each	<b>5662000</b>
20.1.7	For WTP 65000 LPH	Each	<b>6742000</b>
20.1.8	For WTP 85000 LPH	Each	<b>7314000</b>
20.2	Design parameter- Supply installation and commissioning of the water treatment plant capable to treat the water and make it potable at the flow rate of ..... LPH with suspended solids level less than 2000ppm, and PH value and biological impurities beyond permissible limits of potable water parameters. NOTE :Refer the ANNEXURE : B. for separate components of water treatment plant, Detailed Dimension and Rates as per Flow Rate mentioned in annexure		
20.2.1	For WTP 110000 LPH	Each	<b>9251000</b>
20.2.2	For WTP 135000 LPH	Each	<b>12157000</b>
20.2.3	For WTP 150000 LPH	Each	<b>12762000</b>
20.2.4	For WTP 185000 LPH	Each	<b>14876000</b>
20.2.5	For WTP 200000 LPH	Each	<b>15547000</b>
20.2.6	For WTP 225000 LPH	Each	<b>16487000</b>
20.2.7	For WTP 250000 LPH	Each	<b>20850000</b>
20.2.8	For WTP 300000 LPH	Each	<b>24193000</b>
20.2.9	For WTP 325000 LPH	Each	<b>25760000</b>
20.2.10	For WTP 350000 LPH	Each	<b>28536000</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
20.2.11	For WTP 375000 LPH	Each	<b>29456000</b>
20.2.12	For WTP 400000 LPH	Each	<b>30632000</b>
20.2.13	For WTP 425000 LPH	Each	<b>30801000</b>
20.2.14	For WTP 450000 LPH	Each	<b>31609000</b>
20.3	Removing and replacement filter media M.G.F. Conforming to standard specification, with all necessary labour, lead and lift materials etc complete. Rejuvenation and replacement of filter media in MGF..... mm dia		
20.3.1	Filter Media as Silica in Pressure Filter-800mm dia :	Kg	<b>24</b>
20.3.2	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-800mm dia	Each	<b>23750</b>
20.3.3	Replacement of all Butterfly valves, bolts and nuts and rubber liner-800mm dia	Each	<b>2850</b>
20.3.4	Pressure gauge-800mm dia	Each	<b>475</b>
20.3.5	Filter Media as Silica and Pressure Filter-1000 mm dia	Kg	<b>24</b>
20.3.6	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-1000 mm dia	Each	<b>23750</b>
20.3.7	Replacement of all Butterfly valves, bolts and nuts and rubber liner-1000 mm dia	Each	<b>2850</b>
20.3.8	Pressure gauge-1000 mm dia	Each	<b>380</b>
20.3.9	Filter Media as Silica and Pressure Filter-1200 mm dia	Kg	<b>24</b>
20.3.10	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-1200 mm dia	Each	<b>28500</b>
20.3.11	Replacement of all Butterfly valves, bolts and nuts and rubber liner-1200 mm dia	Each	<b>3800</b>
20.3.12	Pressure gauge-1200 mm dia	Each	<b>475</b>
20.3.13	Filter Media as Silica and Pressure Filter-1400 mm dia	Kg	<b>24</b>
20.3.14	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-1400 mm dia	Each	<b>28500</b>
20.3.15	Replacement of all Butterfly valves, bolts and nuts and rubber liner-1400 mm dia	Each	<b>3800</b>

<b>Sl. No.</b>	<b>Specification</b>	<b>Unit</b>	<b>Rate ₹</b>
20.3.16	Pressure gauge-1400 mm dia	Each	<b>475</b>
20.3.17	Filter Media as Silica and Pressure Filter-1600mm dia	Kg	<b>24</b>
20.3.18	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-1600mm dia	Each	<b>33250</b>
20.3.19	Replacement of all Butterfly valves, bolts and nuts and rubber liner-1600mm dia	Each	<b>4750</b>
20.3.20	Pressure gauge-1600mm dia	Each	<b>475</b>
20.3.21	Filter Media as Silica and Pressure Filter-1800mm dia	Kg	<b>24</b>
20.3.22	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-1800mm dia	Each	<b>33250</b>
20.3.23	Replacement of all Butterfly valves, bolts and nuts and rubber liner-1800mm dia	Each	<b>4750</b>
20.3.24	Pressure gauge-1800mm dia	Each	<b>475</b>
20.3.25	Filter Media as Silica and Pressure Filter-2000mm dia	Kg	<b>24</b>
20.3.26	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-2000mm dia	Each	<b>38000</b>
20.3.27	Replacement of all Butterfly valves, bolts and nuts and rubber liner-2000mm dia	Each	<b>5700</b>
20.3.28	Pressure gauge-2000mm dia	Each	<b>475</b>
20.3.29	Filter Media as Silica and Pressure Filter-2200mm dia	Kg	<b>24</b>
20.3.30	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-2200mm dia	Each	<b>42750</b>
20.3.31	Replacement of all Butterfly valves, bolts and nuts and rubber liner-2200mm dia	Each	<b>7600</b>
20.3.32	Pressure gauge-2200mm dia	Each	<b>475</b>
20.3.33	Filter Media as Silica and Pressure Filter-2400mm dia	Kg	<b>24</b>
20.3.34	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-2400mm dia	Each	<b>47500</b>
20.3.35	Replacement of all Butterfly valves, bolts and nuts and rubber liner-2400mm dia	Each	<b>7600</b>



Sl. No.	Specification	Unit	Rate ₹
20.3.36	Pressure gauge-2400mm dia	Each	475
20.3.37	Filter Media as Silica and Pressure Filter-2600mm dia	Kg	24
20.3.38	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-2600mm dia	Each	47500
20.3.39	Replacement of all Butterfly valves, bolts and nuts and rubber liner-2600mm dia	Each	7600
20.3.40	Pressure gauge-2600mm dia	Each	475
20.3.41	Filter Media as Silica and Pressure Filter-2800mm dia	Kg	24
20.3.42	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-2800mm dia	Each	57000
20.3.43	Replacement of all Butterfly valves, bolts and nuts and rubber liner-2800mm dia	Each	9500
20.3.44	Pressure gauge-2800mm dia	Each	475
20.3.45	Filter Media as Silica and Pressure Filter-3000mm dia	Kg	24
20.3.46	Scrubbing and painting Epoxi primer and two coats of paint inside the vessel and UV stabilised one coat primer with two coats of enamel paint outside-3000mm dia	Each	57000
20.3.47	Replacement of all Butterfly valves, bolts and nuts and rubber liner-3000mm dia	Each	9500
20.3.48	Pressure gauge-3000mm dia	Each	475
20.4	Design parameter-Design , Build , Supply , Errect and commissioning of Mini water treatment Plants with Tube flocculator, multi grade filter, with electrochlorinator to treet surface water.		
20.5	I Specifications Coagulant Dosing System Quantity 1Each Tank 200Liters MOC HDPE/Eqvt II Tube Flocculation chamber staticmixer 1No. Tube Flocculater 1No. MOC of Static Mixer SS 304 MOC of Tube flocculator MSEP Flow 5m <sup>3</sup> /h Area of Tube flocculator 23Sq.m III Lamella MOC MSEP Overall size 1220 X 2000 X 1500 Size of Plate 1220 x 1030 - 15Each Clarified water storage 1 MOC MSEP Volume of tank 5 Providing, Providing & Installation of Three Phase openwell submersible pump set (1+1 ) of approved make as filter feed pump with required accessories etc. complete: fuses and fuse box, starter and panel board, ELCB, MCB, electrical cables from board to motor, piping for suction and delivery and for connection to the filter unit and rubber sheet support for pump and confirming to the following specifications: Head 20 m Flow rate 5000 lph Stater and Panel Board 1 Set ELCB, MCB 1 set Pipesize for inlet and outlet 50 mm MOC of Impeller Cast Iron	Each	1352000

Sl. No.	Specification	Unit	Rate ₹
	MOC of Delivery Casing Cast Iron MOC of Motor body Cast Iron MOC of Motor shaft Stainless Steel IV The pressure filter unit is designed for the following specification: Working pressure 1.5 Kg / cm <sup>2</sup> to 3.5 Kg / cm <sup>2</sup> Filter vessel dia 600 mm HOS 1875 mm Frontal pipeline 50 mm Valves Butterfly valves Shell thickness 5 mm Dish end thickness 5 mm Filter media Silex Silica and Anthracite Pressure relief valve 1 no 20 mm Pressure gauge 2 Each 150 mm dial MOC of vessel MS IS 2062 with Epoxy food grade inside V Electrochlorinator Generation capacity 50 grams / Batch (8 hours) Nacl storage chamber 1 litres MOC of Naocl storage Fiber glass Length of Electrode 130 mm mesh Electrical cable 10 sq copper Dosing system Mechanically actuated diaphragm type to dose sodium hypochlorite mounted on storage tank		
20.6	Specifications I Coagulant Dosing System Type of dosing pump Differential dosing system Capacity of vessels 300 liters Stirrer with motor 1 No MOC of stitter and shaft SS 304 MS Stand 1 no (To mount the dosing system) II Tube Flocculater staticmixer 1No. Tube Flocculater 1No. MOC of Static Mixer SS 304 MOC of Tube flocculator MSEP Flow 10m <sup>3</sup> /h Area of Tube flocculator 34Sq.m III Lamella MOC MSEP Overall size 2220 x 2000 x 1500mm Size of Plate 1220 x 1030mm Clarified water storage 1no MOC MSEP Volume of clarified storage 10Cum Providing, Providing & Installation of Three Phase openwell submersible pump set (1+1) of approved make as filter feed pump with required accessories etc. complete: fuses and fuse box, starter and panel board, ELCB, MCB, electrical cables from board to motor, piping for suction and delivery and for connection to the filter unit and rubber sheet support for pump and confirming to the following specifications: Head 20 m Flow rate 10000 lph Stater and Panel Board 1 Set ELCB, MCB 1 set Pipesize for inlet and outlet 50 mm IV The pressure filter unit is designed for the following specification: Working pressure 1.5 Kg / cm <sup>2</sup> to 3.5 Kg / cm <sup>2</sup> Filter vessel dia 800 mm HOS 1875 mm Frontal pipeline 50 mm Valves Butterfly valves Shell thickness 5 mm Dish end thickness 5 mm Filter media Silex Silica sand Pressure relief valve 1 no 20 mm Pressure gauge 2 Each MOC of vessel MS IS 2062 with Epoxy food grade inside V Electrochlorinator Generation capacity 80 grams / Batch (8 hours) Nacl storage chamber 1 litres MOC of Naocl storage Fiber glass Length of Electrode 130 mm mesh Electrical cable 10 sq copper Dosing system Mechanically actuated diaphragm type to dose sodium hypochlorite mounted on storage tank	Each	<b>2113000</b>
20.7	Specifications I Coagulant Dosing System Type of dosing pump Differential dosing system Capacity of vessels 300 liters Stirrer with motor 1 No MOC of stitter and shaft SS 304 MS Stand 1 no (To mount the dosing system) II Tube Flocculation chamber staticmixer 1No. Tube Flocculater 1No. MOC of Static Mixer SS 304 MOC of Tube flocculator MSEP Flow 20m <sup>3</sup> /h Area of Tube flocculator 45Sq.m III Lamella MOC MSEP Overall size 2640 x 2000 x 1500 mm Size of Plate 1220 x 1030 - 60Each Clarified water storage 1no MOC MSEP Volume of Clarified	Each	<b>3291000</b>

Sl. No.	Specification	Unit	Rate ₹
	storage 20 cum Providing, Providing & Installation of Three Phase openwell submersible pump set (1+1 ) of approved make as filter feed pump with required accessories etc. complete: fuses and fuse box, starter and panel board, ELCB, MCB, electrical cables from board to motor; piping for suction and delivery and for connection to the filter unit and rubber sheet support for pump and confirming to the following specifications: Head 20 m Flow rate 20000 lph Stater and Panel Board 1 Set ELCB, MCB 1 set Pipesize for inlet and outlet 50 mm MOC of Impeller Cast Iron MOC of Delivery Casing Cast Iron MOC of Motor body Cast Iron MOC of Motor shaft Stainless Steel IV The pressure filter unit is designed for the following specification: Working pressure 1.5 Kg / cm <sup>2</sup> to 3.5 Kg / cm <sup>2</sup> Filter vessel dia 1000 mm HOS 1875 mm Frontal pipeline 50 mm Valves Butterfly valves Shell thickness 5 mm Dish end thickness 5 mm Filter media Silex Silica sand Pressure relief valve 1 no 20 mm Pressure gauge 2 Each 150 mm dial MOC of vessel MS IS 2062 with Epoxy food grade inside V Electrochlorinator Generation capacity 100 grams / Batch (8 hours) Nacl storage chamber 1 litres MOC of Naocl storage Fiber glass Length of Electrode 130 mm mesh Electrical cable 10 sq copper Dosing system Mechanically actuated diaphragm type to dose sodium hypochlorite mounted on storage tank		
20.8	Automatic Online Hydraulically Operated Self Cleaning Multi grade Pressure Filter for the flow rate of ..... LPH (..... M.L.D) with 16 hour pumping NOTE : For Detailed Specification of Automatic hydraulic self cleaning screen filter(400 Microns), FILTRATION & Filter Media For Pressure Filter, Anthracite, Carbon . Detailed Specification and Rates fot Separate components ( i.e., Online Sensore, Filtration & Filder media) of 10000 LPH to 225000 LPH Refer Annexure-C		
20.8.1	For 10000 & 15000 LPH (0.16 &0.24 M.L.D)	SET	<b>883000</b>
20.8.2	For 20000 LPH (0.32 M.L.D)	SET	<b>1020000</b>
20.8.3	For 30000 LPH (0.48 M.L.D)	SET	<b>1269000</b>
20.8.4	For 45000 LPH (0.472 M.L.D)	SET	<b>1458000</b>
20.8.5	For 55000 LPH (0.88 M.L.D)	SET	<b>1654000</b>
20.8.6	For 65000 LPH (1.04 M.L.D)	SET	<b>1972000</b>
20.8.7	For 85000 LPH (1.36 M.L.D)	SET	<b>2294000</b>
20.8.8	For 110000 LPH (1.76 M.L.D)	SET	<b>3018000</b>
20.8.9	For 135000 LPH (2.16 M.L.D)	SET	<b>3189000</b>
20.8.10	For 150000 LPH (2.4 M.L.D)	SET	<b>3332000</b>
20.8.11	For 185000 LPH (2.96 M.L.D)	SET	<b>4155000</b>
20.8.12	For 200000 LPH (3.2 M.L.D)	SET	<b>4615000</b>

Sl. No.	Specification	Unit	Rate ₹
20.8.13	For 225000 LPH (3.6 M.L.D)	SET	<b>4641000</b>
20.9	Providing, Providing & Installation of Storage System (Ground Level Storage Reservoir) using GLASS FUSED STEEL TANKS made of as per in compliance with AWWA D 103. GFS Tanks ( with sealant) for intermediate balancing tank (filter feed tank) and confirming to the following specifications as per ANNEXURE : D		
20.9.1	Tank of capacity 20 to 50 KL	L	<b>21</b>
20.9.2	Tank of capacity 50 to 70 KL	L	<b>20</b>
20.9.3	Tank of capacity 71 to 150 KL	L	<b>19</b>
20.9.4	Tank of capacity 151 to 200 KL	L	<b>19</b>
20.9.5	Tank of capacity 201 to 300 KL	L	<b>17</b>
20.9.6	Tank of capacity 300 to 400 KL	L	<b>15</b>
20.9.7	Tank of capacity 500 KL	L	<b>15</b>
20.9.8	Tank of capacity 1000KL	L	<b>13</b>
20.9.9	Tank of capacity 2000KL	L	<b>12</b>
20.9.10	Tank of capacity 3000KL	L	<b>11</b>
20.9.11	Tank of capacity 4000KL	L	<b>10</b>
20.9.12	Tank of capacity 5000KL	L	<b>10</b>
20.10	Providing, Providing & Installation of Continuous Sand Filter with Accessories / Filtering Media		
20.11	Inlet Water Quality: Parameter Unit Value TSS ppm 150max Free Oil & Grease ppm < 5 Treated Water Quality: Parameter Unit Value TSS ppm < 10 Free Oil & Grease ppm < 1 1 Flow Indicator - By Pass type & NRV- Wafer Check type at inlet of CSF Unit 2 Continuous Sand Filter with Accessories/Filtering Media (Model DS 30), Technical Data as under: Type of Filter - Continuous Backwash Filter (1920 mm Dia) Normal flow - 30 m <sup>3</sup> /h MOC of Sand Washer - SS MOC - MS EP Internal Protection - Epoxy Painting External Protection - Red Oxide Primer and enamel Filter media - Sand 3 Inter Connecting piping for a. Inlet to CSF unit - 1 meter b. CSF Backwash - 65 NB -6 Mtrs c. CSF Outlet - 100 NB-8 mtrs d. 1/2" Air Compressor piping - 30 Ft (10 mtrs) e.Fittings(as per point d) which consists of 1.Connection Nozzels 2.Rotameter - 1 No. 4 Air Compressor technical data as under Capacity - 100-125 LPM Pressure - 3.5 Kg/cm <sup>2</sup> Normal Air Consumption - 100 N.ltr/min Maximum - 125 N.ltr/min	Each	<b>4550000</b>

Sl. No.	Specification	Unit	Rate ₹
20.12	<p>Inlet Water Quality: Parameter Unit Value TSS ppm 150max Free Oil &amp; Grease ppm &lt; 5 Treated Water Quality: Parameter Unit Value TSS ppm &lt; 10 Free Oil &amp; Grease ppm &lt; 1 1 Flow Indicator - By Pass type &amp; NRV- Wafer Check type at inlet of CSF Unit 2 Continuous Sand Filter with Accessories/Filtering Media (Model DS 50), Technical Data as under: Type of Filter - Continuous Backwash Filter (2550 mm dia) No. of filters - 1 W Normal flow - 50 m<sup>3</sup>/h MOC - MS EP Internal Protection - Epoxy Painting External Protection - Red Oxide Primer and enamel Filter media - Sand 3 Inter Connecting piping for a. Inlet to CSF unit - 200 NB 1 meter b. CSF Backwash- 65 NB - 6 mtrs c. CSF Outlet - 200 NB 8 mtrs d. 1/2" Air Compressor piping - 30 Ft (10 mtrs) e. Fittings (as per point d) which consists of 1. Connection Nozzels 2. Rotameter - 1 No. 4 Air Compressor technical data as under Capacity - 140-180 LPM Pressure - 3.5 Kg/cm<sup>2</sup> Normal Air Consumption - 140 N.ltr/min Maximum - 180 N.ltr/min</p>	Each	<b>550000</b>
20.13	<p>Supply, installation and commissioning of Chlorine Di Oxide Generator and confirming the specification as per below. Application of ClO<sub>2</sub> Generator: 1) For disinfection ClO<sub>2</sub> dosage required between 0.2-0.3ppm or mg/litre and for disinfection chemical has to dilute at site using RO water or DM water. 2) For removal of dissolved alga and green color from the raw water 0.68-1ppm or mg/litre dosage is required. For the capacity from 10000lph to 450000lph The Requirement of Chemicals Refer ANNEXURE-E</p>		
20.14	<p>ClO<sub>2</sub> generator Capacity 200-1000 gm/hr Input power 230 V a/c, 50Hz Water pressure Inlet 2.5±0.5 Kg/cm<sup>2</sup> Outlet 2.5±0.5 Kg/cm<sup>2</sup> Pressure drop ~ 0.5 Kg/cm<sup>2</sup> Operating Temperature Minimum 25 Deg C Maximum 40 Deg C Dosing Pump for 1496 0 to 10 lph Dosing Pump for HCL 0 to 10 lph Electrical Control Panel 1 no Drive water pump Capacity 200-1000 litre/hr Head 25 m MOC CI</p>	SET	<b>585000</b>
20.15	<p>Providing, Providing &amp; Installation of Storage System (Ground Level Storage Reservoir) using Prefabricated Corrosion resistant Zincalume steel structures made of as per IS- 15961 for intermediate balancing tank (filter feed tank) and confirming to the following capacity . The Material of construction of walls, liner and Doom roof to be Zincalume steel, Heavy Duty PVC Food grade and Zincalume sheets in knockdown form respectively to be assembled at site as per the drawings. Heavy duty hot dipped galvanized external ladder (1 no) to be provided along with heavy duty hot dipped galvanized access hatch. The rate is inclusive of the cost of installation of tank on sand bed with bold down clamps &amp; 4 Each of Nozzles made of Galvanized steel to be provided for Inlet, Outlet, Drain and overflow. MOC of Storage System Zincalume steel (IS 15961) MOC of wall panels Zincalume alloy coated steel MOC of Liner Heavy Duty PVC Food grade MOC of Doom roof Zincalume alloy coated High tensile steel External ladder Heavy duty hot dipped galvanized (1 no) Access hatch Heavy duty hot dipped galvanized (1 no) Bolts Galvanized flanged head High tensile steel bolts Nozzles Galvanized steel ( 4 Each) Butterfly valves 2 Each</p>		

Sl. No.	Specification	Unit	Rate ₹
20.15.1	Tank of capacity 201 to 300KL	L	11
20.15.2	Tank of capacity 151 to 200KL	L	12
20.15.3	Tank of capacity 71 to 150 KL	L	14
20.15.4	Tank of capacity 50 to 70KL	L	16
20.15.5	Tank of capacity 20 to 50KL	L	19
20.15.6	Tank of capacity 10 to 20KL	L	22
20.16	Providing insulation & commisioning of Mini Electrochlorinator which required accesories for connecting the unit system to the rising main.		
20.16.1	MINI Chlorinator 80gms/Batch Production capacity : 10gms/hr Total time per Batch : 8Hrs. Total volume of chlorine generation : 80 gms/batch. Salt Required per hr : 400 gms/batch. Electrical power required : 230V, 1phase AC 50Hz. DC power supply unit with Input 230 V AC :1 NO FRP Brain water tank :15litrs PP/PVC Chlorine storage tank :15 Liters Dosing pump Type of Dosing : Automatic Dosing Dosing flow rate :1to 30 lph Min actuating pressure :0.3kg/cm <sup>2</sup> Max working pressure :5kg/cm <sup>2</sup> Inle/Outlet connections :¾" B.S.P Max Temoerature :50°C Dosing externally adjustable :0.5-2% Chlorine test kit : 1 set	Each	71500
20.16.2	Chlorinator 200gms/Batch Production capacity : 25 gms/hr Total time per Batch : 8Hrs. Total volume of chlorine generation : 200gms/batch. Salt Required per hr : 800gms/batch. Electrical power required : 230V, 1phase AC 50Hz. DC power supply unit with Input 230 V AC :1 NO FRP Brain water tank :35litrs PP/PVC Chlorine storage tank :35 Liters Dosing pump Type of Dosing : Automatic Proportionate Dosing Dosing flow rate :1to 30 lph Min actuating pressure :0.3kg/cm <sup>2</sup> Max working pressure :5kg/cm <sup>2</sup> Inle/Outlet connections :¾" B.S.P Max Temoerature :50°C Dosing externally adjustable :0.5-2% Chlorine test kit : 1 set	Each	135000
20.17	Providing of Online sensors with Digital Display of water quality for Continuous monitoring Turbidity , pH and Free Clorine.		
20.17.1	pH Indicator and Transmitter - 2 No Microprocessor Based Design Range 0 to 14.00 pH Mounting Filed Mounted Enclosure Weather proof Supply 230 VAC Max Temp 0 to 45°C Operating Pressure 0 to 6 Bar Chlorine Sensor -and Transmitter ( Free Chlorine ) -1 no Application Free Chlorine, Inorganic Chlorine. Range 0 to 5 ppm Operating Pressure Up to 1 Bar Operating Temp 0 to 45°C Turbidity Indicator and Transmitter -2 No Scale 0 - 1500 NTU Power Supply 24V dc Operating Temp 0 to 45°C Max . Pressure up to 1 Bar Body PVC Cable 10 meter Mounting Immersed in the Tank	SET	1724000

**NOTE FOR WATER TREATMENT PLANTS (LAMELLA CLARIFIER & OTHER COMPONENTS)**

1. The selection of proper category of pressure filters shall be based on raw water quality, treatment process required, usage pattern, power supply duration etc.,
2. Regular flushing, backwashing and cleaning of installation to be carried out as per requirement.
3. The discharge quantity of output water shall be monitored & recorded on daily basis.
4. If discharge is drastically reduced, cause for low performance shall be ascertained and rectified.
5. Manufacturer certificates shall be provided for the components used. Necessary tests shall be carried out and witnessed by the Engineer incharge of work before installation at site. and after installation.
6. All the items Equipments / Instruments shall be conforming to the BIS Standards. The items in contact with treated water shall be conforming to water quality standards as per BIS /Food grade Standards.
7. The filtered water should be conforming to (desirable) drinking water standard as per BIS code.
8. The piping and accessories used after high pressure pump i.e., from high pressure pump to product water tank shall be SS /UPVC 316 grade
9. Indian make membranes duly certifies by national agency may be used.
10. Mounting Skid of RO system to be SS 304 grade, 32/40mm
11. Anti scalant use Only NSF 60 Approved Chemicals.
12. The piping and accessories used upto RO Membrane shall be CPVC.
13. Piping from Output of Pure Water to Coin Vending Machine and smart card shall be in Stainless Steel SS 304.
14. All required electrical components shall be of relevant BIS code and IS standard.
15. Design of RO system must be done keeping in mind pollution norms of reject management and accordingly RO recoveries must be optimized
16. All the components and fixtures used should be foodgrade and drinking water compatible.
17. All the components materials of works should conform to IS relevent codes/drinking water BIS standards.

**Chapter - 21**  
**WATER PURIFICATION PLANTS**





Sl. No.	Specification	Unit	Rate ₹
<b>21 WATER PURIFICATION PLANTS</b>			
21.1	Water purification plants: Providing, Installation and Commissioning of automatic Water purification plant (RO+UF) with all accessories piping, product water tank on single phase power supply as per the enclosed detailed Technical Specifications including cost of material, loading and unloading and as directed by the Engineer in charge. (Ref- detailed specification enclosed separately). Note:- 1.The above rates mentioned are only for the preparation of estimate purpose. 2. All items are to be of BSI /NFS standards,with BSI / NFS mark . 3. Tenders to be invited for procurement. 4. No direct payment should be made under any situation or condition or on any account. 5. After commissioning of plant necessary testing to be done for the satisfactory of Engineer Incharge. Note : Refer the ANNEXURE : F for Detailed Specification of Each components		
21.1.1	For 25 LPH : Cabin Type	Each	<b>25000</b>
21.1.2	For 50 LPH : Cabin Type	Each	<b>44000</b>
21.1.3	100 LPH : Cabin Type	Each	<b>94000</b>
21.1.4	For 125 LPH : Cabin Type	Each	<b>109000</b>
21.1.5	For 150 LPH : Cabin Type	Each	<b>132000</b>
21.1.6	For 250 LPH : Cabin Type	Each	<b>250000</b>
21.1.7	For 500 LPH SS : Skid Type	Each	<b>327000</b>
21.1.8	For 500 LPH FRP : Skid Type	Each	<b>307000</b>
21.1.9	For 1000 LPH SS : Skid Type	Each	<b>441000</b>
21.1.10	For 1000 LPH FRP : Skid Type	Each	<b>416000</b>
21.1.11	For 2000 LPH FRP : Skid Type	Each	<b>616000</b>
21.1.12	For 3000 LPH FRP : Skid Type	Each	<b>819000</b>

**NOTE FOR WATER PURIFICATION PLANT:**

- For Antiscalant use only NSF 60 approved chemicals.
- Low level sensor indicator to be provided for the antiscalant tank that will shut down the plant during the low level of the antiscalant.
- Piping from output of Pure water Tank to coin vending machine/smart card shall be in stainless steel 304.
- RO-UF system must be fully automatic or compatible for remote monitoring, control and data transmission.
- The high pressure pump shall be fully stainless steel including impeller.
- For detailed specifications of civil and electrical items of works refer PWD SOR.
- All component materials of works should be food grade & conform to relevant codes of drinking water standards national / international.

Sl. No.	Specification	Unit	Rate ₹
8.	The system shall be designed based on water quality and rating of items shall be compatible to each other.		
9.	The system shall have integrated pretreatment modules for removal of suspended solids along with pressure gauge.		
10.	The system shall have inbuilt protection to high pressure pump by way of low/high pressure switch.		
11.	Online rotameter shall be provided for measuring flow. Blending cartridge shall be provided to adjust taste/ TDS and followed by UV disinfection for total safety. System should have automatic backwashing of filters.		
12.	The system shall be capable of working by using the semi treated water provided through Bore well / Municipalwater supply.		
13.	Recovery of water (i.e. component of treated water) shall be in range of 40%-60%. If desired, the waste/ rejectedwater may be separately stored by using suitable pump. This water may be used for cleaning, gardening or toilet purpose.		

#### In case of Stainless Steel plants

14. The sand filter and carbon filter housing with SS-304 shall with stand requisite pressure & shell thickness shall be notless than 1.5mm.
15. RO membrane housing shell thickness shall not be less than 2.00mm.
16. Pure water storage tank shell thickness shall not be less than 0.80mm.
17. Maintenance of Reverse Osmosis (RO) Plant : Besides periodical cleaning of RO membrane, the maintenance andservicing of the Reverse Osmosis (RO) Plant shall consisting of following:
  - a. Micron Filter element cleaning/replacement during every servicing.
  - b. Cleaning of Sand filter & Activated carbon filter.
  - c. Anti scaling dosing chemical (As per requirement) replenishing.
  - d. Raw water pump Checking/servicing, (if required) for optimizing power & flow.
  - e. R.O. Membrane Checking/ Replacement,(if required)
  - f. High pressure pump Checking/servicing, (if required) to optimize power & flow.
  - g. Checking of flow rate of membrane & TDS on site
  - h. Cleaning of raw water and product water tanks regularly.(Record for above process to be maintained at the plant).

**Chapter - 22**  
**SEWAGE TREATMENT PLANTS**



Sl. No.	Specification	Unit	Rate ₹
<b>22 SEWAGE TREATMENT PLANTS</b>			
22.1	<p><b>Waste Water Treatment by Prefabricated anaerobic Bio Septic tank : (For 100 Souls/10KLD)</b>            Providing, installation and commissioning of an anaerobic Bio Septic tank with all necessary accessories such as pre-filter, pipes, prefabricated RCC Tank (including internal matrix for enhanced growth of Bacteria), Anaerobic microbial Inoculum developed by DRDO and baffle wall to control the flow of water and to increase the retention time in the RCC Tank (Note: Refer to technical specification attached as Annexure-1) including cost of material, loading and unloading and as directed by the Engineer in charge etc., complete, including annual maintenance of the system for 5 years.</p> <p><b>Note :-</b>            1. Above rates mentioned are for the purpose of preparation of estimate only.            2. All items are of ISI standards.            3. After commissioning of plant necessary testing to be done for the satisfaction of the engineer in charge.            4. Design drawing of the system suitable for erection is given in figures.</p>	Each	900000
22.2	<p><b>Waste water Treatment by Bio Sewage Treatment Plant (Bio STP) onsite construction [25 KLD and 50 KLD ]:</b>            Providing, installation and commissioning of anaerobic Bio Sewage Treatment Plant (Bio STP) for black water with all necessary accessories such as pre- filter; pipes for the onsite constructed ABD tank as per the prescribed specification, according to the capacity, with a baffle wall to control the flow of water and to increase the retention time in the RCC ABD Tank. It includes an internal matrix for enhanced growth of bacteria, rising and falling pipes. For grey water, pre - filter, oil skimmer is provided along with an aerator. Post filter such as sand and carbon filter are also included as per the enclosed detailed technical specification attached as Annexure-2, including cost of material, loading and unloading and as directed by the engineer in charge etc., complete, including annual maintenance of the system for 5 years.</p> <p><b>Note:</b>            1. Above rates mentioned are for the preparation of estimate purpose only. All items are of ISI standards.            2. After commissioning of plant necessary testing to be done for the            3. Satisfaction of the Engineer in charge.            4. Design drawing of the system suitable for erection 50 KLD is given in figure for reference.</p>		
22.2.1	25 KLD	Each	1295000
22.2.2	50 KLD	Each	2545000

Sl. No.	Specification	Unit	Rate ₹
22.3	Construction of a <b>single toilet unit with two circular pit</b> as per CPHEEO standards & guidelines, consists of European type WC pan or Indian type WC as per requirement with seat & lid 10 ltr low level white pvc flushing cistern including flush pipe with manually controlled device confirming to IS: 7231 with all fittings & fixtures. The clear dimension of a single toilet room is 0.75x0.9m & the dimension of the pit varies with respect to the users as per CPHEEO standard drawing in figure 1.1 construction work carried out by excavating earth to standard dimensions as per soil conditions, providing & laying 1:3:6 bed concrete, SSM/BBM/RCC walls/slabs as per standard specification. The circular pit shall be constructed by brickwork in CM 1:6 with honeycombing in alternate brick courses upto invert level covered with RCC 1:2:4 slab Fe 500 steel bar. The finishing works of toilet such as plastering 12mm thick with CM 1:4, flooring by ceramic tiles with CM 1:6 with proper slope, two coats of wall painting with acrylic emulsion paint of approved brand & necessary waterproofing works shall be carried out. Also the toilet unit is provided with necessary water supply arrangements consisting of pipe line connections, plumbing works with required tap connection & 300ml high density polythelene water storage tank to be installed as per IS 12701:1996 with jointing of pipes & fittings including all lead & lift cost of all materials of quality confirming to the requirements of relevant IS codes & standars, labour, usage charges of machinary curing & all incidental charges complete as per the direction of Engineer incharge of work.		
22.3.1	Toilet unit with circular pit dimension 900mmx650mmx50mm for 5 users	Each	<b>36000</b>
22.3.2	Toilet unit with circular pit dimension 1000mmx1050mmx50mm for 10 users	Each	<b>37500</b>
22.3.3	Toilet unit with circular pit dimension 1200mmx1100mmx60mm for 15 users.	Each	<b>40000</b>
22.4	Construction of a <b>toilet unit with septic tank</b> as per CPHEEO standards & guidelines, consists of European type WC pan or Indian type WC as per requirement with seat & lid 10 ltr low level white pvc flushing cistern including flush pipe with manually controlled device confirming to IS: 7231 with all fittings & fixtures. The clear dimension of a single toilet room is 0.75x0.9m & the dimension of the septic tank varies with respect to the users and the liquid depth considered for 2 years interval as per CPHEEO standard drawing in figure 1.2 & 1.3 The sizes of septic tank are based on certain assumption as estimated in IS 2470(PART-1) with a provision of 300mm freeboard. The conventional septic tank is a combined sedimentation & digestion tank where the sewage is held for one to two days accompanied by anaerobic digestion of settled solids & liquids. Toilet construction work carried out by excavating earth to standard dimensions as per soil conditions, providing & laying 1:3:6 bed concrete, SSM/BBM/RCC walls/slabs with Fe 500 steel bar		

Sl. No.	Specification	Unit	Rate ₹
	as per standard specification. The septic tank shall be constructed by brickwork in CM 1:6 of wall thickness 230mm the bottom of tank provided with benching concrete with 1:6 slope from outlet end to inlet end, the top of the chamber covered by precast RCC slab & all necessary inlet, outlet, air cowl & other PVC pipes are provided necessary waterproofing works as per drawings & specifications. Also the toilet unit is provided with necessary water supply arrangements consisting of pipe line connections, plumbing works with required tap connection & high density polythelene water storage tank to be installed as per IS 12701:1996 with jointing of pipes & fittings including all lead & lift cost of all materials of quality confirming to the requirements of relevant IS codes & standars, labour, usage charges of machinary curing & all incidental charges complete as per the direction of Engineer incharge of work.		
22.4.1	1 Nos. toilet unit with septic tank dimension L=1.5m B= 0.75m D= 1.0m for <b>5 users</b> with 500ml water tank	Each	<b>64000</b>
22.4.2	1 Nos. toilet unit with septic tank dimension L=2.0m B= 0.90m D= 1.0m for <b>10 users</b> with 500ml water tank	Each	<b>72000</b>
22.4.3	1 Nos. toilet unit with septic tank dimension L=2.0m B= 0.90m D= 1.3m for <b>15 users</b> with 500ml water tank	Each	<b>79000</b>
22.4.4	2 Nos. toilet unit with septic tank dimension L=2.3m B= 0.90m D= 1.3m for <b>20 users</b> with 500ml water tank	Each	<b>116000</b>
22.4.5	3 Nos. toilet unit with septic tank dimension L=5.0m B= 2.00m D= 1.0m for <b>50 users</b> with 1000ml water tank	Each	<b>211000</b>
22.4.6	6 Nos. Toilet unit with septic tank dimension L=7.5m B= 2.65m D= 1.0m for <b>100 users</b> with 200ml water tank	Each	<b>374000</b>





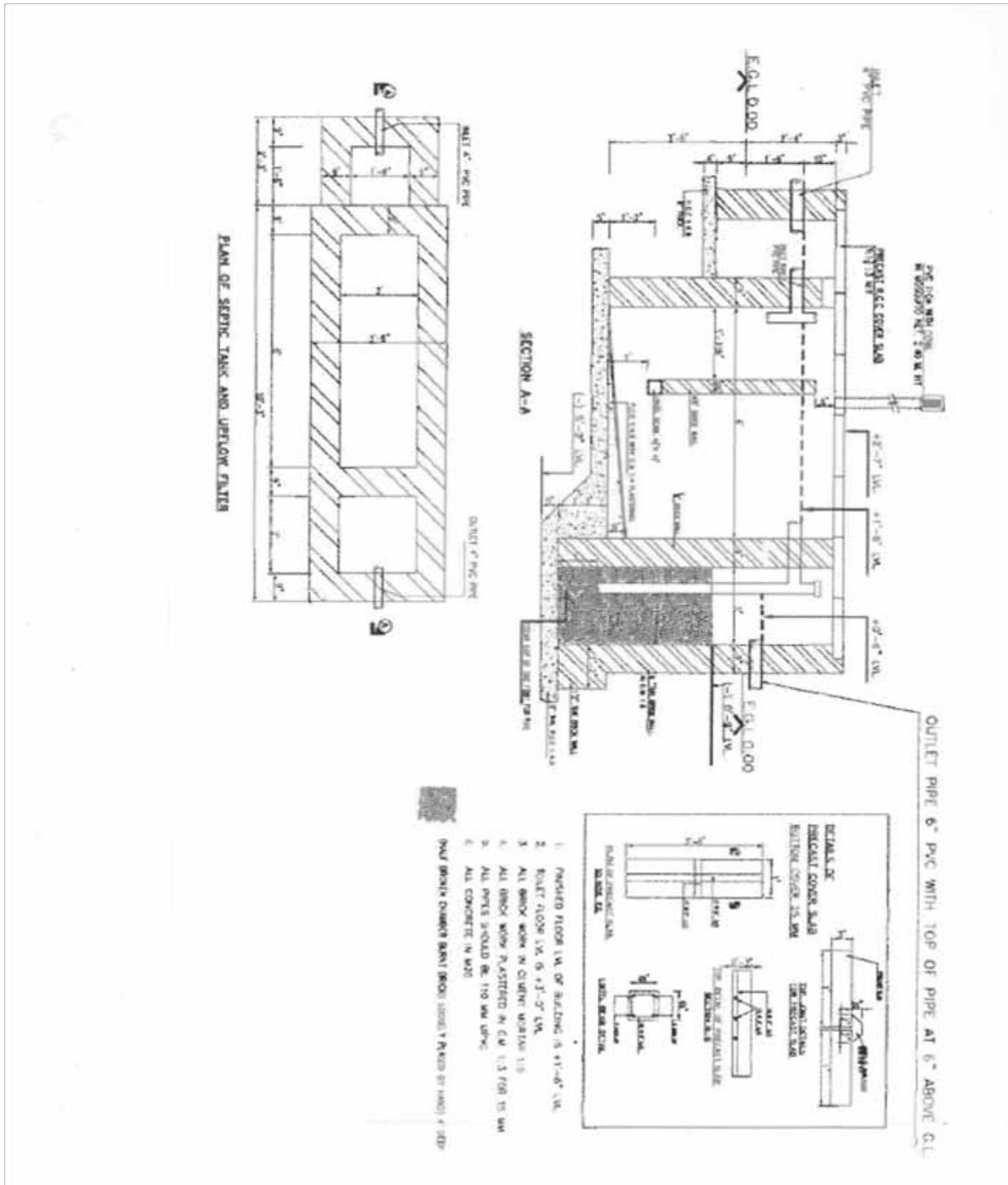


FIGURE 1.2: Typical sketch of septic tank up flow filter for ten persons

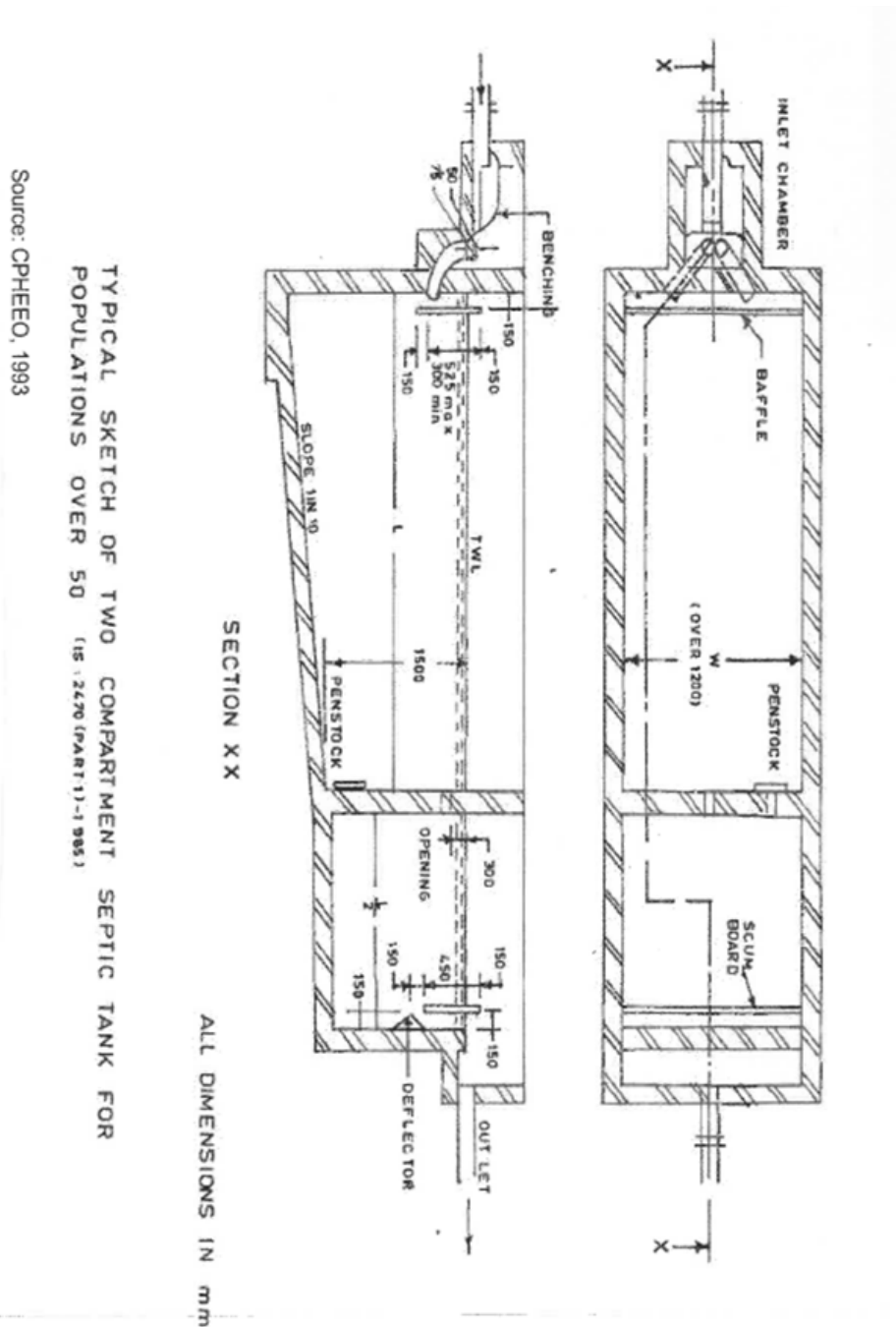


FIGURE 1.3 : Typical sketch of two compartment septic tank for population over 50 & 100 (IS 2470(PART-1)-1985)

## ANNEXURE 1

### 22.1: Waste Water Treatment by Prefabricated anaerobic Bio Septic tank: (For 100 Souls/10KLD):

The Specifications for Prefabricated Anaerobic Bio Digester (ABD) tank for 100 users i.e., 10 KLD, includes the following:

1. Pre-filter of PVC material with a height of 500mm and 300 mm dia with 10 mm perforated holes and bifurcated with SS sheets (3mm thickness) of 8mm holes , MS handle and base.
2. Prefabricated ABD tank is circular in shape (RCC) of NP 2 class having 2100 mm (OD) X 2500 mm (L) X 85 mm (thick  $\pm$  5 mm). The internal space of the tank is divided into 3 compartments with 2 no's of RCC Internal partition slab with 50 mm thick, 2 no's of RCC end slab with 60 mm thick, with a total weight of about 4.5 Tons.
3. For 100 user i.e., 10 KLD, internal accessories include:
  - I. Prefabricated ABD tank, have internal plumbing works of PVC pipe of 110 mm dia of PN-6 with endcap on both inlet and outlet.
  - II. 90 mm dia PN-6 PVC pipes are used for baffle walls to the internal riser pipe setup from water level to the bottom of each partition wall. First partition wall with a length of 830mm, second partition wall with a length of 780 mm. The outlet riser pipe with a length of 730mm.
  - III. 75 mm dia PN-6 PVC pipe air vent has been setup above the middle chamber with endcap at top of the tank.
  - IV. The RCC tank is equipped with an internal matrix (12 mm thick) . It is placed on each side of the internal wall of the tank as follows: Chamber one: 3.7 m sq area 12mm thick matrix , 4 nos , each on 4 side of the first chamber, Chamber Two: 3.5 m sq area 12mm thick matrix , 3 nos, each on 3 walls of the second chamber, Chamber three: 3.3 m sq area 12mm thick matrix , 2 nos, each on 2 walls of the third chamber, meeting the ratio as per the DRDO. The matrix supporting system with nut and bolt - SS 304, 2 nos per feet, drilled to fix the matrix to the wall with washer and water proof concealer and SS strip rod - 304 for supporting the matrix with a length per ft of the matrix sheet.
  - V. The RCC tank is filled with AMI (Anaerobic Microbial Inoculum developed by DRDO). The properties of Aerobic Microbial Inoculum (AMI) are pH - 6.5-8.0, Biogas - >25% of available Inoculum value, Percentage Methane - 40%, MPN for methanogens - > 10<sup>3</sup>/ml, Total Solids - 3-4%.
  - VI. The outlet water can be used for irrigation purpose.
4. Transportation cost involves transiting of prefabricated RCC tank ( about 4.5 tons), 40% of Inoculum (around 3200 liters ). Requires Specialized tankers with other material like pipes matrix, equipment
5. Labors cost includes skilled manpower with a technical supervisor for unloading the tank, and its installation with crane.

### FEATURES OF ANAEROBIC BIO SEPTIC TANK FOR 100 USER/ 10 KLD:

1. This system can be used for treating the black water and grey water generated from households/ hostels/offices/ commercials etc, using DRDO developed anaerobic microbial Inoculum.
2. The AMI will degrade human fecal water into simpler compounds using 21 colonies of bacteria and enzymes.
3. The reaction involved includes Hydrolysis, Acidogenesis, Acetogenesis and methanogenesis. The products formed are methane gas, Carbon Dioxide and good water.
4. The bio STP has the salient features like no bad odour from the toilet tanks, fecal matter not visible in the tank, reduction of pathogens by 99% and organic matter by 90%, maintenance free, no solids settling down, no electricity required for operations (if gravity is there). No sludge removal is required. It requires only a minimum space less than the conventional septic tank.
5. No addition of external chemical required
6. No need for recharge of bacteria often if maintained well it will be for a life time.

## ANNEXURE 2

### 22.2: Waste water Treatment by Bio Sewage Treatment Plant (Bio STP) onsite construction [25 KLD and 50 KLD]:

The Specifications for Anaerobic Bio Sewage Treatment Plant (STP) for 25 KLD - 50 KLD include the following:

1. Pre-filter of PVC material with a height of 500mm and 300 mm dia with 10 mm perforated holes and bifurcated with SS sheets (3mm thickness) of 8mm holes and handle and base for black water which is connected to ABD tank. Grey water is connected to oil skimmer with 1 hp motor, capacity tank of 1200mm x 1200mm x 2200mm.
2. Onsite construction ABD tank for treating black water: RCC of wall thickness of 150mm with the dimensions as per the capacity. For 50 KLD the tank dimension is as per fig 2, length of 5100mm x width of 3000mm x depth of 2000mm. The internal space is divided into 3 compartments with 2 no's of RCC internal partition slab with 100 mm thick as per the design drawing.
3. Onsite construction of tank for aerator for treating grey water with a dimension of length of 7000mm x width of 3000 mm x depth of 2000 mm, with RCC wall thickness of 150mm.
4. Onsite construction of collection tank with a dimension of length of 3500mm x width of 3000 mm x depth 2000 mm, with RCC wall thickness of 150mm.
5. Onsite construction of filter feed tank for sand and carbon filter with a dimension of length of 3500mm x width of 3000 mm x depth of 2000 mm, with RCC wall thickness of 150mm.
6. The ABD tank have the internal accessories which include:
  - I. Plumbing works of PVC pipe inlet and outlet of 110 mm dia PN-6 PVC setup on both side,
  - II. 90 mm dia PN-6 PVC internal riser pipe setup from water level to the bottom of each partition wall. First partition wall with a length of 1350mm, second partition wall with a length of 1310 mm. The outlet riser pipe with a length of 1130mm.
  - III. 75 mm dia PN-6 PVC air vents pipe setup with endcap at top of the tank.
  - IV. The ABD RCC tank is equipped with an internal matrix (12 mm thick) fixed. Placed on each wall of the tank as follows, Chamber one: 4.3m sq area 12mm thick matrix, 4 nos, each on 4 side of the first chamber, Chamber Two: 4.1 m sq area 12mm thick matrix , 3 nos, each on 3 walls of the second chambe, Chamber three: 3.9 m sq area 12mm thick matrix , 2 nos, each on 2 walls of the third chamber , meeting the ratio as per the DRDO. The matrix supporting system with nut and bolt - SS 304, 2 no's per feet, drilled to fix the matrix to the wall with washer and water proof concealer and SS strip rod - 304 for supporting the matrix with a length per ft of the matrix sheet.
  - V. The ABD RCC tank is filled with AMI (Anaerobic microbial Inoculum developed by DRDO). The properties of anaerobic Microbial Inoculum (AMI) are pH - 6.5-8.0, Biogas - >25% of available Inoculum value, Percentage Methane - 40%, MPN for methanogens - > 10<sup>3</sup>/ml, Total Solids - 3-4%.
7. Aerator and Post Filters are included with suitable electrical points as follows:
  - I. Air blower with motor 2 HP and aeration tank diffuser and PVC pipeline is provided for aeration tank.
  - II. Pressure Sand Filter, Normal Flow- 3500 LPH, Filtering Media Graded Pebbles/Sand, M.O.C- MS, Height - 1625 mm, Diameter of 450 mm, Minimum Pressure 2.0Kg/cm<sup>2</sup>, Maximum Pressure 3.5Kg/cm<sup>2</sup>, Bursting Pressure 10Kg/cm<sup>2</sup>, Valve Butterfly valves, vertical type.
  - III. Activated Carbon Filter the normal Flow is 3500 LPH, Filtering Media Activated Carbon, M.O.C -MS, Height of 1625 mm, Diameter of 450 mm, Minimum Pressure 2.0Kg/cm<sup>2</sup>, Maximum Pressure 3.5 Kg / c m<sup>2</sup>, Bursting, Pressure-10Kg/cm<sup>2</sup>, Valve Butterfly valves of vertical type.

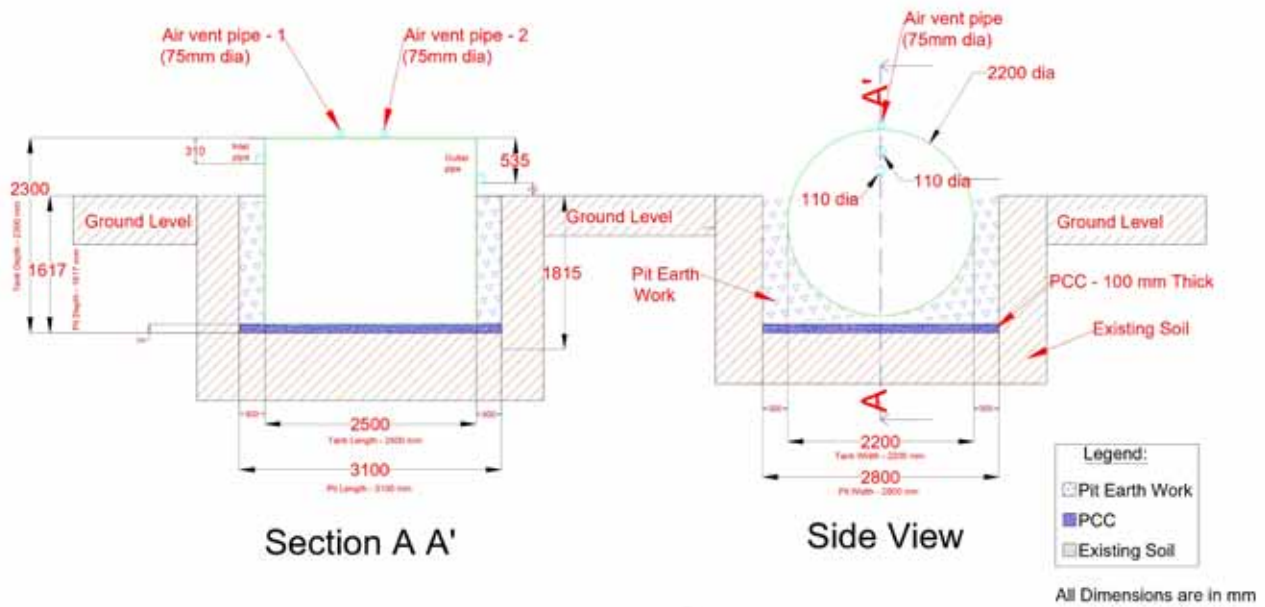
The outlet water can be used for irrigation purpose.

8. Transportation cost involves transiting of 40% of inoculum in a specialized tankers with other material like pipes, matrix, equipment
9. Labors cost includes skilled manpower with a technical supervisor for unloading, and its installation with a crane.

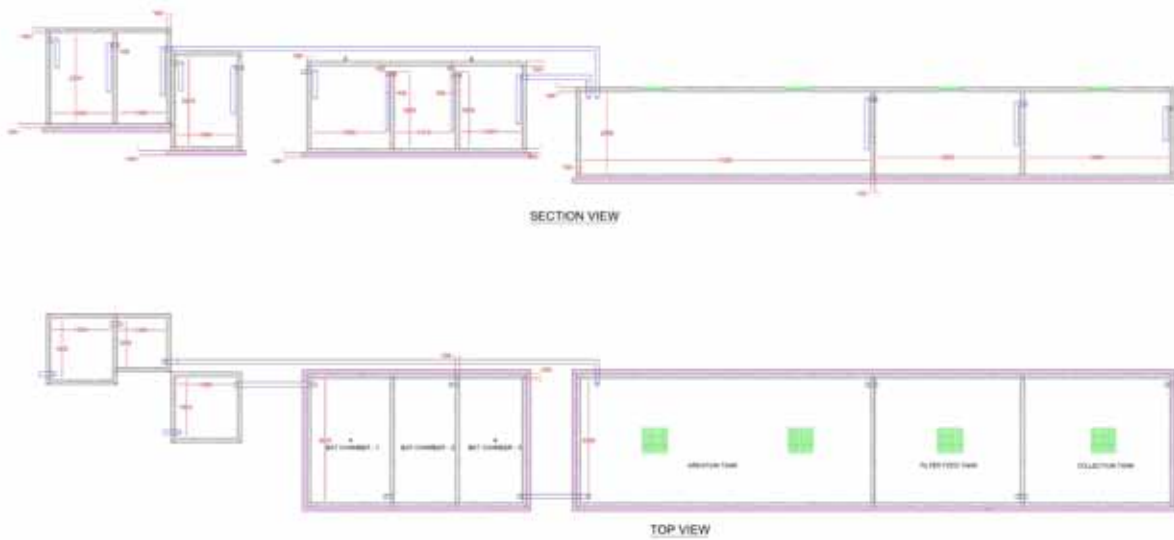
**Note:** The specification will vary proportionally above 50 KLD capacity.

**FEATURES OF ANAEROBIC BIO SEWAGE TREATMENT PLANT FOR 25 KLD AND ABOVE:**

1. This system can be used for treating the black water and grey water generated from households/ hostels/offices/ commercials etc., using DRDO developed anaerobic microbial Inoculum.
2. The black water is directed to AMD tank and grey water is directed to the aeration tank for the treatment.
3. The AMI will degrade human fecal water into simpler compounds using 21 colonies of bacteria and enzymes.
4. The reaction involved includes Hydrolysis, Acidogenesis, Acetogenesis and methanogenesis. The products formed are methane gas, Carbon Dioxide and good water.
5. The bio STP has the salient features like no bad odour from the toilet tanks, fecal matter not visible in the tank, reduction of pathogens by 99% and organic matter by 90%, maintenance free, no solids settling down, no electricity required for operations (if gravity is there). No sludge removal is required. It requires only a minimum space less than a conventional sewage treatment plant.
6. In aeration tank oxidation will happen which is collected, sediment, filtered through sand and carbon filters.
7. No addition of external chemicals required.
8. No need for recharge of bacteria often if maintained well it will be for a life time.



**Fig. 1 : Design Drawing of 100 User / 10 KLD Prefabricated ABD RCC Tank (2500 x 2200 x 2200)**



**Fig. 2 : Design Drawing for Bio Sewage Treatment Plant (Bio STP) for 50 KLD**

**RATE ANALYSIS****22.1: Waste Water Treatment by Prefabricated anaerobic Bio Septic tank :**

SL NO	ITEM	DESCRIPTION	RATE	QTY	UNIT	TOTAL
1	Pre-filter	Pre-filter of PVC material with a height of 500mm and 300 mm dia with 10 mm perforated holes and bifurcated with SS sheets (3mm thickness) of 8mm holes , MS handle and base.	5,500.00	1	NOS	55,000.00
2	Prefabricated ABD tank	Prefabricated ABD tank is circular in shape (RCC) of NP 2 class having 2100 mm (OD) X 2500 mm (L) X 85 mm (thick $\pm$ 5 mm). The internal space of the tank is divided into 3 compartments with 2 no's of RCC Internal partition slab with 50 mm thick, 2 no's of RCC end slab with 60 mm thick, with a total weight of about 4.5 Tons.	96,000.00	1	NOS	96,000.00
3	Internal Plumbing works and matrix system	<p>For 100 user i.e., 10 KLD, internal accessories include</p> <p>I.Prefabricated ABD tank, have internal plumbing works of PVC pipe of 110 mm dia of PN-6 with endcap on both inlet and outlet.</p> <p>II.90 mm dia PN-6 PVC pipes are used for baffle walls to the internal riser pipe setup from water level to the bottom of each partition wall. First partition wall with a length of 830mm, second partition wall with a length of 780 mm. The outlet riser pipe with a length of 730mm.</p> <p>III.75 mm dia PN-6 PVC pipe air vent has been setup above the middle chamber with endcap at top of the tank.</p> <p>The RCC tank is equipped with an internal matrix (12 mm thick). It is placed on each side of the internal wall of the tank as follows: Chamber one: 3.7 m sq area 12mm thick matrix, 4 nos , each on 4 side of the first chamber, Chamber Two: 3.5 m sq area 12mm thick matrix , 3 nos, each on 3 walls of the second chamber, Chamber three: 3.3 m sq area 12mm thick matrix , 2 nos, each on 2 walls of the third chamber , meeting the ratio as per the DRDO. The matrix supporting system with nut and bolt - SS 304, 2 nos per feet, drilled to fix the matrix to the wall with washer and water proof concealer and SS strip rod - 304 for supporting the matrix with a length per ft of the matrix sheet.</p>	65,000.00	-	-	65,000.00



SL NO	ITEM	DESCRIPTION	RATE	QTY	UNIT	TOTAL
4	AMI (Anaerobic Microbial Inoculum developed by DRDO)	tank is filled with AMI (Anaerobic Microbial Inoculum developed by DRDO). The properties of Aerobic Microbial Inoculum (AMI) are pH - 6.5-8.0, Biogas - >25% of available Inoculum value, Percentage Methane - 40%, MPN for methanogens - > 10 <sup>3</sup> /ml, Total Solids - 3-4%.	4,59,000.00	-	-	4,59,000.00
5	Instalation Charges	Design Drawing for Pit detail for Readymade Tank according to the site condition, Including Supervision and assistance and site visits.	60,000.00	-	-	60,000.00
6	Labour charges	Fitting charges including Plumbing work, inlet&outlet, labours, skilled manpower with a technical supervisor for unloading the tank, and its installation with crane.	80,000.00	-	-	80,000.00
7	Transportation	cost involves transiting of prefabricated RCC tank ( about 4.5 tons), and AMI 40% (3200 liters) to be filled	85,000.00	-	-	85,000.00
	<b>Total cost</b>					<b>9,00,000.00</b>

**22.2: Waste water Treatment by Bio Sewage Treatment Plant (Bio STP) onsite construction  
[25 KLD and above ]:**

SL NO	ITEM	DESCRIPTION	RATE/KLD	25KLD	50 KLD
1	Pre-filter	Pre-filter of PVC material with a height of 500mm and 300 mm dia with 10 mm perforated holes and bifurcated with SS sheets (3mm thickness) of 8mm holes , MS handle and base.	Rs 750/KLD	18,750.00	37,500.00
2	Oil skimmer	Grey water is connected to oil skimmer with 1 hp motor, capacity tank of 1200mm x 1200mm x 2200mm.	Rs 1250/KLD	31,250.00	62,500.00
3	Internal Plumbing works and matrix system	I. Plumbing works of PVC pipe inlet and outlet of 110 mm dia PN-6 PVC setup on both side, II. 90 mm dia PN-6 PVC internal riser pipe setup from water level to the bottom of each partition wall. First partition wall with a length of 1350mm, second partition wall with a length of 1310 mm. The outlet riser pipe with a length of 1130mm. III. 75 mm dia PN-6 PVC air vent pipe setup with endcap at top of the tank. IV. The ABD RCC tank is equipped with an internal matrix (12 mm thick) fixed. Placed on each wall of the tank as follows, Chamber one: 4.3m sq area 12mm thick matrix , 4 nos , each on 4 side of the first chamber, Chamber Two: 4.1 m sq area 12mm thick matrix , 3 nos, each on 3 walls of the second chambe, Chamber three: 3.9 m sq area 12mm thick matrix , 2 nos, each on 2 walls of the third chamber , meeting the ratio as per the DRDO. The matrix supporting system with nut and bolt - SS 304, 2 nos per feet, drilled to fix the matrix to the wall with washer and water proof concealer and SS strip rod - 304 for supporting the matrix with a length per ft of the matrix sheet.	Rs.10,000/ KLD	2,50,000.00	5,00,000.00
4	AMI (Anaerobic Microbial Inoculum developed by DRDO)	tank is filled with AMI (Anaerobic Microbial Inoculum developed by DRDO). The properties of Aerobic Microbial Inoculum (AMI) are pH - 6.5-8.0, Biogas - >25% of available Inoculum value, Percentage Methane - 40%, MPN for methanogens - > 10 <sup>3</sup> /ml, Total Solids - 3-4%.	Rs.24,000/ KLD	6,00,000.00	12,00,000.00

SL NO	ITEM	DESCRIPTION	RATE/KLD	25KLD	50 KLD
5	Aerator	Air blower with motor 2 HP and aeration tank diffuser and pvc pipeline is provided for aeration tank.		60,000.00	75,000.00
6	Post filter Sand and Carbon Filter.	II. Pressure Sand Filter, Normal Flow- 3500 LPH, Filtering Media Graded Pebbles/Sand, M.O.C- MS, Height - 1625 mm, Diameter of 450 mm, Minimum Pressure 2.0Kg/cm <sup>2</sup> , Maximum Pressure 3.5Kg/cm <sup>2</sup> , Bursting Pressure 10Kg/cm <sup>2</sup> , Valve Butterfly valves, vertical type. III. Activated Carbon Filter the normal Flow is 3500 LPH, Filtering Media Activated Carbon, M.O.C -MS, Height of 1625 mm, Diameter of 450 mm, Minimum Pressure 2.0Kg/cm <sup>2</sup> , Maximum Pressure 3.5Kg/cm <sup>2</sup> , Bursting, Pressure-10Kg/cm <sup>2</sup> , Valve Butterfly valves of vertical type.	Rs. 2,400/ KLD	60,000.00	1,20,000.00
7	Installation Charges	Design Drawing for RCC ABD tank, Aeration Tank, filter feed tank and collection tank according to the site condition, Including Supervision and assistance and site visits.	Rs. 2000/KLD	50,000.00	1,00,000.00
8	Labour charges	Fitting charges including Plumbing work, inlet & outlet, labours, skilled manpower with a technical supervisor for unloading, and its installation with crane.	Rs. 4000/KLD	1,00,000.00	2,00,000.00
9	Transportation	Transportation cost involves transiting of 40% of inoculum in a specialized tankers with other material like pipes, matrix, equipment	Rs5000/KLD	1,25,000.00	2,50,000.00
	<b>Total cost</b>		<b>49,400.00</b>	<b>12,95,000.00</b>	<b>25,45,000.00</b>

## Gallery - BWSSB



**Kaveri Water Supply 5<sup>th</sup> Stage - Water Treatment Plant and Pumping Station at T K Halli under construction**



**Construction of 48 ML Ground Level Reservoir at Doddakanahalli under progress**

## Gallery - RDW & SD



**Functional Household Tap Connection (JJM), Hariharpura, Hassan**



**181.45 MLD Capacity WTP at Shivapura, Pavagada MVS (Under construction)**

## Gallery - KUWS & DB



**Head Works under 2<sup>nd</sup> Stage WSS to Shorapur Town & 3 Enroute Villages with Krishna River as Source**



**13MLD Capacity WTP under 2<sup>nd</sup> Stage WSS  
to Shorapur & 3 Enroute Villages with Krishna River as Source**

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**Jayashankara**

Chief Engineer (Design & QA)

BWSSB

Chairman, CSR Committee for Volume 5



1896	ಹೆಸರಫಟ್ಟ	36 MLD
1933	ತಿಪ್ಪಗೊಂದನಹಳ್ಳ	135 MLD
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## ಬೆಂಗಳೂರು ಜಲಮಂಡಳಿಯ ಭಗೀರಥ ಪ್ರಯತ್ನ



ಸಮುದ್ರ ಮಟ್ಟಕ್ಕಿಂತ 920 ಮೀಟರ್‌ಗಳ ಎತ್ತರದಲ್ಲರುವ ಬೆಂಗಳೂರಿಗೆ 100 ಕಿ.ಮೀ ದೂರದಿಂದ ಮೇಲ್ಬಿಟ್ಟವಾಗಿ ನೀರು ಪೂರೈಕೆಯಾಗುತ್ತಿದೆ.