

No. 3-3-05/SSW-PWD/Vol-I/2019-20/ 262
Government of Goa,
Office of the Principal Chief Engineer,
Public Works Department,
Altinho, Panaji -Goa.

Dated:- 18th June 2019.

CIRCULAR
Sub: Goa Schedule of Rates – 2019 for PHE Works

The Goa Schedule of Rates for PHE Works was last revised as on 14th November, 2017 and is in operation till date. Consequent upon the implementation of GST from 1st July 2017 and variation in prices of basic materials for PHE Works such as pipes, valves, transportation cost, labour and machinery charges etc. it became necessary to revise the schedule of rates to match with the prevailing rates.

Accordingly the new Goa Schedule of Rates – 2019 for PHE Works has been prepared on the similar lines of earlier Schedule of Rates by obtaining quotations from the manufacturers or authorized dealers from the local market excluding GST.

This new Goa Schedule of Rates – 2019 for PHE Works will be effective immediately from this date i.e 24th June 2019, superseding all earlier Schedule of Rates for PHE Works and any other circulars issued in this regard.

This Goa Schedule of Rates – 2019 for PHE Works shall be followed for preparation of new estimates and for working out of the Reasonable Amounts prior to opening of tender in accordance with the stipulations under para 20.4.3 of CPWD Works Manual 2014 for acceptance of the tenders of the works for which the tenders are already invited/ being invited based on earlier Schedule of rates.

Sd/-
(U.P. Parsekar)
Principal Chief Engineer
P.W.D.

Authorized for Issue



(Antony Mathew)
Suptdg. Surveyor of Works

Copy to:

1. The Principal Chief Engineer, PWD, Altinho, Panaji- Goa.
2. The Chief Engineer I & II, NH-(R&B), PWD, Altinho, Panaji- Goa.
3. The Suptdg. Surveyor of Works, PWD, Altinho, Panaji – Goa.
4. The Suptdg. Engineer, C.O. I, II, III, IV, V, VI, VII, VIII, IX, PWD, Goa
5. The Suptdg. Engineer (Mon. & Eva.), PWD, Altinho, Panaji – Goa.
6. The Executive Engineer, Works Div, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XV, XVI, XVII, XVIII, IXX, XX, XXI, XXII, XXIII, XXIV & XXV, PWD, Goa.
7. The Jt. Director of Accounts, PWD, Altinho, Panaji – Goa.

Copy with compliments to:

1. The Chief Secretary, PWD, Govt. of Goa, Secretariat, Porvorim – Goa.
2. The OSD to Hon'ble Minister of PWD, Secretariat, Porvorim – Goa.



**GOVERNMENT OF GOA
PUBLIC WORKS DEPARTMENT
GOA SCHEDULE OF RATES
WATER SUPPLY & SEWERAGE WORKS
VOLUME V – 2019**

GENERAL NOTES

The rates for water supply and sewerage works are based on latest CPWD specifications. Wherever there is a variation in the notes given in present GSR and CPWD specifications, CPWD specifications shall be followed. Wherever there is a variation between CPWD and IS specifications, IS specifications shall take preference. However in all such cases the matter shall be referred to the Chief Engineer concerned whose decision in this regards shall be final and binding.

Wherever required, the rates which are not available in this GSR, shall be taken from Schedule of Rates for Buildings/Roads and specific mention of this shall be made in the estimate/ NIT. The rates include for the provisions as outlined in notes for respective sections. However, wherever, the carriage of materials is to be done by head load due to site condition restriction like restricted working hours and or by for such specific contingency shall be noted in the estimate and a 10% increase for head load for distance over 200m, from nearest accessible position, irrespective of elevation, and also 10% increase for ferry crossing and for the works to be executed in tidal conditions can be made in the estimate. In all such cases the estimate shall be duly supported with a site plan showing the nearest accessible point and a certificate to the correctness of the distance from the Executive engineer. This provision is for only estimating purpose and not for contractor payments.

The theoretical consumption of cement for items of works shall be as per Delhi schedule of rates 2007 with amendments issued from time to time.

The Goa Schedule of Rates (PHE) 2019 is prepared for the use of PWD. However, this may be used by other Govt. departments, PSUs, private bodies & individuals also at their own discretion. PWD shall not be responsible for any ambiguity, discrepancy, dispute or financial loss, arising directly or indirectly by using or following items of Goa Schedule of Rates (PHE) 2019 by such Govt. / Private bodies or individuals.

Foot Note: Acknowledging that 'TO ERR IS HUMAN', any ambiguities/mistakes/if any noticed in the Basic Rates of Materials, Hire charges for Plants &Machinery for Water Supply & Sewerage Works, GSR items, Specification of items and Rate Analysis, by any Technical Staff or even Contractors at any stage (either before execution, during execution or after execution of the work),may be promptly brought to the notice of the Office of the Superintending Surveyor of Works ,PWD, Altinho, Panaji,Goa, so that the same may be rectified immediately in future.

Dated: 15 November, 2017.

CIRCULAR

Sub: Adoption of Percentage Increase in rates for various working conditions in the State

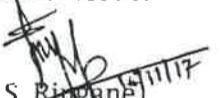
The sanction of Government for adoption of percentage increase in rates for various working condition is hereby conveyed on all the prevailing GSR's as follows:

Summary of Details of Percentage Increase in rates for various working conditions in the State of Goa		
Sr. No.	Description/ Location	% increase on
1	2	3
1.a	Works in hilly inaccessible areas where head load exceeds 200 mtrs.	10%
B	Defence area / MPT/ Airport/ high security areas	
C	Sewerage works in Towns/ Corporation / Municipal Areas for working under unhygienic conditions	
D	Works to be taken up by Ferry Crossing and for ferry Ramps	
2.a.	Prison/ Jail area/ Mental Hospitals premises & Raj Bhavan	15%
B	For works to be executed in tidal conditions like jetties, sluice-gates, Bandharas, Wiers, Bunds & Beacons	
3	Works in Corporation area/ Municipal area where heavy traffic Restrictions is notified	5 %
4	Add extra for labours component for difficult working conditions. Restricted working place/ andwhere head load exceeds 200 mtrs.	50 % on Labour component only

This circular supercedes the earlier all circulars in this regard.

Sd/-
(U.P. Parsekar)
 Principal Chief Engineer
 P.W.D.

Authorized for Issue:


 (Anil S. Bingle)
 Suptdg. Surveyor of Works
 P.W.D.

Copy to:

1. The Principal Chief Engineer, PWD, Altinho, Panaji- Goa.
2. The Chief Engineer I & II, NH-(R&B), PWD, Altinho, Panaji- Goa.
3. The Suptdg. Surveyor of Works, PWD, Altinho, Panaji – Goa.
4. The Suptdg. Engineer, C.O. I, II, III, IV, V, VI, VII, VIII, IX, PWD, Goa
5. The Suptdg. Engineer (Mon. & Eva.), PWD, Altinho, Panaji – Goa.
6. The Executive Engineer, Works Div, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XV, XVI, XVII, XVIII, IXX, XX, XXI, XXII, XXIII, XXIV & XXV, PWD, Goa.
7. The Jt. Director of Accounts, PWD, Altinho, Panaji – Goa.

Copy with compliments to:

1. The Secretary, PWD, Govt. of Goa, Secretariat, Porvorim – Goa.
2. The OSD to Hon'ble Minister of PWD, Secretariat, Porvorim – Goa.

GOA SCHEDULE OF RATES
2019
WATER SUPPLY & SEWERAGE

Item Identification Index

Sr. No.	Chapter	Contents	Item Identification	Page Nos.
1	I	BASIC RATES OF MATERIALS	1-46	1-2
2	II	BASIC RATES OF LABOURS	A-T	3-5
3	III	HIRE CHARGES OF MACHINERIES	1-20	6
4	IV	EARTHWORK	4005-4012, 4035-4037	7-10
5	V	SUPPLY OF MATERIALS	15001-15164	11-156
6	VI	LAYING OF PIPES AND ACCESSORIES	15201-15259(A)	157-191
7	VII	RESERVOIRS	15301-15342	192-207
8	VIII	SEWERAGE WORKS	4005A-4010, 15401-15452	208-226
9	IX	MISCELLANEOUS	15501-15524	227-232

CHAPTER - I			
BASIC RATES OF MATERIALS			
Sr. No.	Description	Unit	Rate
1	Aggregate Granite/Basalt		
a)	10mm	Cu.m.	1300.00
b)	12.5mm	Cu.m.	1300.00
c)	20mm	Cu.m.	1300.00
d)	32mm	Cu.m.	1200.00
e)	40mm	Cu.m.	1200.00
f)	50mm	Cu.m.	1150.00
2	Cement - Portland	Tonne	5313.00
3	Cement - White	Tonne	16410.00
4	Sand coarse	Cu.m.	1300.00
5	Sand fine	Cu.m.	1300.00
6	Jungle wood planks - upto 3m length	Cu.m.	26486.00
7	Jungle wood planks more than 3m length	Cum	26486.00
8	Water proofing compound	Kg.	30.00
9	Ballies -100 mm diameter 3.66 mts long	Each	192.00
10	Ballies -125 mm diameter 3.66 mtrs long	Each	252.00
11	Bamboo -4m long 75mm diameter	Each	180.00
12	Rafters	cum	56000.00
13	Coir rope	Metre	7.00
14	Nails	Kg.	70.70
15	Kerosene	Litre	60.00
16	Diesel	Litre	54.00
17	Engine oil	Litre	186.00
18	Bricks class designation - 40 kgs/cm ²	1000 numbers	6500.00
19	Bricks class designation - 75 kgs/cm ² (wire cut bricks)	1000 numbers	9500.00
20	Bricks class designation - 100 kgs/cm ² (wire cut bricks)	1000 numbers	11000.00
21	Mild steel reinforcement(SAIL,TATA,VIZAG,JSW Steel Ltd.)	Tonne	45000.00
22	HYSD steel reinforcement bar(TMT steel reinforcement from secondary producers)	Tonne	43000.00
23	CRS steel-50 reinforcement (SAIL,TATA,VIZAG,JSW,Steel Ltd.)	Tonne	51000.00
24	TMT steel reinforcement(SAIL,TATA,VIZAG,JSW,Steel Ltd.)	Tonne	49000.00
25	MS steel structurals	Tonne	43000.00
26	Flats upto 10mm thickness	Tonne	43000.00
27	MS plates 10mm thickness	Tonne	47000.00

28	MS plates 25 mm thickness	Tonne	47000.00
29	Welding electric	Cms.	15.00
30	Welding gas	Cms.	35.00
31	Spun yarn	Kg.	145.00
32	White zinc	Kg.	175.00
33	Whie lead	Kg.	190.00
34	C.I. surface box - 100x160x160 - Weight 15 kgs.	Each	1212.06
35	C.I. surface box - 200x300x300 - Weight 32kgs.	Each	2585.74
36	C.I. Grating - 100x100	Each	20.92
37	C.I. Grating - 150x100	Each	46.48
38	C.I. cleaning eye with lid	Each	58.10
39	Sand C.I. bend plain - 100mm	Each	325.34
40	C.I. Tee	Each	367.18
41	C.I. cover with frame heavy duty		
a	500 mm diameter weighing 230 kgs.	Each	16348.00
b	600mm dia with weight not less than 290 kg	Each	20696.00
c	C.I. cover & Frame 300x300 (weighing10Kgs)	Each	952.00
d	C.I. cover & Frame1200x900 weighing 970 kgs.	Each	88476.00
e	C.I. cover & Frame 600x600 weighing 250 kgs.	Each	17724.00
42	D.I. rectangular cover & Frame 450x600 with hingies as per EN-124 weighing 100 kgs.	Each	11732.00
42 a	SFRC cover 540mm size heavy duty frame & cover weighing 100 kgs.	Each	6884.92
b	SFRC cover 500mm size heavy duty frame & cover weighing 100 kgs.	Each	6362.04
43	C.I. steps weighing 5.4 kgs.	Each	464.00
44	Orange colour MS safety foot rest encapsituated with plastic	Each	220.00
45	SW Gully trap - 100x100	Each	371.82
46	SW Gully trap - 100x150	Each	317.60
NOTE:	Above rates are basic rates exclusive of contractor's profits and overheads, and carriage GST		

CHAPTER II			
BASIC RATES OF LABOURS			
Sr. No	Description	Unit	Rate
	Labours		
A	1) (Semi-skilled) Bandhani, Mazdoor	Per day	386.00
	2) (Unskilled) Chowkidar, Hedge cutter, Mali,	Per day	325.00
	3) Mate Coolie (ord.) ,Bhisti, Sweeper, Helper,	Per day	325.00
	4) Hardrock rock or stone cutting	Per day	441.00
	5) Stone cutter 1 st class (skilled)	Per day	386.00
	6) Stone cutter 2 nd class (semi-skilled),Chiseller, Hole Driller, breaker, Excavator	Per day	325.00
B	Driver		
	1) For road rollers and heavy machinery	Per day	441.00
	2) For truck	Per day	441.00
	3) For light vehicles, jeep etc.	Per day	441.00
C	Cleaner: For truck, road roller etc.	Per day	325.00
D	Operator		
	1) Pneumatic drill hammer	Per day	483.00
	2) Concrete mixer, Asphalt boiler	Per day	441.00
	3) Pump attendant, Bitumen sprayer	Per day	386.00
	4) Laboratory attendant, specialised machine	Per day	386.00
E	Marines		
	1) Driver	Per day	441.00
	2) Oarsman, Tandel, Sarang	Per day	386.00
F	Mason		
	1) Stone Ornamental work (highly skilled)	Per day	483.00
	2) 1 st class (skilled)	Per day	441.00
	3) 2 nd class brick layer, stone layer for plaster of paris work	Per day	386.00
	4) Assistant	Per day	325.00
G	Carpenter		
	1) Furniture (highly skilled)	Per day	483.00
	2) 1 st class (skilled)	Per day	441.00
	3) 2 nd class (semi-skilled)	Per day	386.00

	4) Assistant	Per day	325.00
H	Blacksmith:		
	1) 1 st class (skilled)	Per day	441.00
	2) 2 nd class (semi-skilled)	Per day	386.00
	3) Assistant	Per day	325.00
I	Fitter		
	1) 1 st class (skilled)	Per day	441.00
	2) 2 nd class (semi-skilled)	Per day	386.00
	3) Assistant	Per day	325.00
J	Welder (Highly skilled)	Per day	483.00
K	Mechanic		
	1) 1 st class	Per day	441.00
	2) 2 nd class	Per day	386.00
	3) Assistant	Per day	325.00
L	Painter		
	1) Artist painter (Highly skilled)	Per day	483.00
	2) Painter (skilled)	Per day	441.00
	3) 2 nd class (semi-skilled)	Per day	386.00
	4) White washer	Per day	386.00
M	Plumber, Electrician		
	1) Highly skilled	Per day	483.00
	2) 1 st class (skilled)	Per day	441.00
	3) 2 nd class	Per day	386.00
N	Meter reader, gauge reader	Per day	441.00
O	1) Supervisor	Per day	483.00
	2) Mistri	Per day	483.00
	3) Typist	Per day	441.00
	4) Works assistant, draughtsman	Per day	441.00
	5) Head Surveyor	Per day	386.00
P	Dozer operator / dumper/poclain operator/ motor grader / crane operator	Per day	441.00
Q	Compressor operator	Per day	441.00
R	Tin smith		
	1) 1 st class	Per day	441.00
	2) 2 nd class	Per day	386.00
	3) Assistant	Per day	325.00

S	Auto Electrician		
	1) 1 st class (skilled)	Per day	441.00
	2) 2 nd class (semi-skilled)	Per day	386.00
	3) Assistant	Per day	325.00
T	Rig Operator		
	1) 1 st class (skilled)	Per day	441.00
	2) 2 nd class (semi-skilled)	Per day	386.00
	3) Assistant	Per day	325.00
NOTE:	<p>1).These rates are exclusive of contractor's profit and overheads and are inclusive of the wages for weekly day of rest.</p> <p>2).The wages of labour are as per notification no.24/21/2009-LAB-II(14)dated 23/05/2016 and as per the Order No. CLE/PA/MWA-VDA/(10)/2016/3507 dated 04/09/2018 issued by Labour Commissioner.</p>		

CHAPTER - III			
HIRE CHARGES OF MACHINERIES			
Sr. No.	Machine	Rate per Hour	Rate per shift of 8 hours
1	Hydraulic excavator of one cum bucket capacity	1800.00	14400.00
2	Front end loader one cum bucket capacity	800.00	6400.00
3	Tipper - 5cum / 7cum	600.00	4800.00
4	Air compressor 170 cfm	500.00	4000.00
5	Concrete pump of 45 & 30 cum capacity	250.00	2000.00
6	Cranes - 15 to 20 MT capacity	1985.00	15880.00
7	Cranes - 103MT capacity	1655.00	13240.00
8	Cranes - 5 MT capacity	1103.00	8824.00
9	Generator 250 KVA	738.00	5904.00
10	Generator 100 KVA	585.00	4680.00
11	Generator 33 KVA	315.00	2520.00
12	Water tanker - 10cum	750.00	6000.00
13	Needle vibrator	75.00	600.00
14	Concrete mixer 0.40/0.28 cum	221.00	1768.00
15	JCB Excavator	1655.00	13240.00
16	JCB with breaker of laterite rock	2206.00	17648.00
17	Reciprocating pump	150.00	1200.00
18	Elevator for lifting materials in overhead reservoir construction	-	465.00
19	Pump for pumping water continuously from trenches	-	400.00
20	Welding Generator	1655.00	13240.00

CHAPTER-IV
EARTH WORK

The work shall be measured as per latest CPWD Specification (1996).The work shall be classified judiciously based on the trial pits bore hole date available,while estimating. All excavation shall be measured in successive stages of 1.5 meter depth or as otherwise specified starting from the datum level.

The rates for excavation in laterite rock is for all types of such and for by any means as per site conditions and as directed by engineer in charge. No extra shall be considered for any change in mode of excavation for any type of laterite rock.

The hard rock means rock of granite or basalt type and all other rocks except laterite and the rate is for excavation of this type of rock by any means as warranted by site conditions or as directed by the engineer in charge. No extra rate shall be considered for any change in mode of excavation or for any type of rock in the estimate.

The rates for respective estimate items generally for:

- a) Excavation either straight or curved in plan.
- b) Excavation and depositing earth as specified
- c) Setting our works and all profiles, cross heads, boring rods, etc. as well as for all tools and plants.
- d) Site clearance.
- e) Forming (or leaving) Deadman or tell in borrow pits and their removal after measurements.
- f) Protection and supporting of existing services met within the course of excavation.
- g) Forming steps, in sides, of deep excavation and their removal or covering up.
- h) Protection and supporting of existing services met within course of excavation.
- i) Unless otherwise specified, removing steps or rails in excavation.
- j) All materials and labour required for barricading and protecting against risk of accidents and for providing gang ways with hand rails across open trenches wherever necessary during the progress of work.
- k) Leads and lifts will be as specified in respective items.
- l) Royalties/rentals payable to Government of private parties.

EARTHWORK			
Item No.	Description	Unit	Rate
4005	Earthwork in excavation by mechanical means (hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10sq.m on plan) including disposal of excavated earth lead upto 50 m and lift upto 1.5m disposed earth to be leveled and neatly dressed including providing barricading, danger lighting guarding as directed		
a	All kinds of soil	Cu.m.	259.00
b	All types of Ordinary rock including all types of laterite rock, blasting prohibited	Cu.m.	644.00
c	Hard rock where blasting prohibited	Cu.m.	1103.00
4006	Earthwork in excavation by mechanical means (hydraulic excavator) in foundation pipeline trenches drain (not exceeding 1.5m in width or 10 sq. m. on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed within a lead of 50m.		
a	All kinds of soil	Cu.m.	263.00
b	All types of Ordinary rock including all types of laterite rock, blasting prohibited	Cu.m.	672.00
c	Hard rock where blasting prohibited	Cu.m.	1123.00
4007	Earthwork in excavation in over areas in saturated soil upto a depth of 0.6m including pumping and bailing out water and disposing of excavated soil lead upto 20 m and lift upto 1.5 m. Disposed soil to be neatly dressed and levelled.	Cu.m.	614.00
4008	Earthwork in excavation in foundation pipeline trenches, drain in saturated soil upto a depth of 0.6m lift upto 1.5 m including shoring strutting, pumping/bailing out water ,stacking the excavated soil not more than 5m clear from the edge of the excavation and returning the stacked soil in 0.15 m layers when required into plinth sides of foundation,etc. consolidating each deposited layer by ramming and watering and disposing of all surplus excavated soil within a lead upto 20 m.	Cu.m.	671.00

4009	Extra for earthwork in excavation in saturated soil for every 0.3m or part thereof over .60 m depth including pumping or bailing out water.	Cu.m.	103.00
<hr/>			
4010	Extra for additional depth of 1.5 m or part thereof in		
a	All types of soil	Cu.m.	31.00
b	Saturated soil	Cu.m.	51.00
c	All types of laterite rocks and hard rocks	Cu.m.	41.00
<hr/>			
4012	Refilling the pipeline/foundation trenches plinth sides, foundation etc. with available excavated earth in layers not exceeding 20 cm depth consolidating each layer ramming and watering lead upto 50 m and all lifts and disposal of surplus earth as directed by Engineer in Charge.	Cu.m.	182.00
<hr/>			
4035	Cutting the bituminous road for laying the pipeline in trenches for a width of 0.6m including labour , tools etc, and disposing the excavated excess material from the trench to a distance of 1000 metres, including making level the trench surface by utilising the servicable material to the level of the top surface of road, by compacting, watering ramming with rolling with road roller after completion of laying of pipe and refilling the trenches etc. complete as per the direction of engineer incharge.		
a	By Manual Means :		
1	Rural Roads	Sq.m	442.00
2	District Road, State highways, National highway and roads of similar standards	Sq.m	545.00
b	By Mechanical Means:		
1	Rural Roads	Sq.m	417.00
2	District Road, State highway, National highway	Sq.m	515.00
<hr/>			
4036	Repairs and reinstatement to the road for trenches made by laying water supply pipeline, by removing the refilled material in the trench for the total depth of 0.40m and making good the road surface by providing laying rolling by road roller compacting for laterite soling 30cm thick, two layer of full grout of 50mm thick each as per specifications mentioned in item no 14086 of road GSR, complete as per the direction of the engineer incharge.		

a	Rural road.	Sq.m	1263.00
4037	Repairs and reinstatement to the road for trenches made by laying water supply pipeline, by removing the refilled material in the trench for the total depth of 0.42m and making good the road surface by providing laying rolling by road roller compacting for laterite soling 30cm thick, two layer of full grout of 50mm thick each, tack coat and open graded premix carpet of 20mm thickness as per specifications mentioned in item nos 14086, 14093, 14051 & 14068 of road GSR respectively, complete as per the direction of the engineer incharge.		
a	District Road, State highway, National highway and roads of similar standards	Sq.m	1484.00

CHAPTER V	
SUPPLY OF MATERIALS	
NOTES:-	
1	The rate shown against items is inclusive of freight, loading ,unloading, handling and packing charges, freight, overheads and cost profits.
2	Test certificate for all materials wherever applicable shall be submitted.
3	The diameter mentioned in the schedule refers to the
3.1	Internal diameter for G.I /A.C/ C.I/D.I. Pipes.
3.2	Outside diameter for PVC, HDPE pipes.
4	All supplies under this section include the freight loading and unloading of materials either to the departmental store or to the site of works as per the direction of the department.
4.1	<u>SLUICE VALVES:-</u>
4.1.1.	Rate is exclusive of one pair of tail piece which shall be provided as specials and paid accordingly.
4.1.2.	Add extra 10% for spur gear arrangement for diameter more than 250 mm.
4.1.3.	Add extra 5% for bypass arrangement and 5% for indicator arrangement,
4.1.4.	For 600, 700 and 750 mm diameter valves, extra 10% for brass lined carpet C.I. channel and LGM shoe to be added.
4.1.5.	Add 5% for thrust bearing arrangements for 600-75 mm when provided.
	Wherever BST is mentioned, it shall be deemed to refer to corresponding IS specifications.
4.1.6.	All flanges of valves shall be machined and drilled as per IS 1538-1976.
4.2.	Rate for R.C.C. pressure and non pressure pipes are as per rate contract with GHSSIDC.
4.3.	Sluice valve size should be equivalent to pipe diameter up to 300 mm of pipe. Beyond 300 mm diameter sluice valve size shall be 2/3 of pipe diameter.
4.4.	Standard fittings having two and more flanges shall be considered under flanged fittings and less than two under socket/spigot fittings.
5	<u>SCOUR VALVES:-</u>
5.1.	Scour valve Tee shall be used for connecting scour valve to the main line.
5.2.	Pipe line from the Scour valve to the nearest drain shall be laid to drain the water during scouring of the pipeline.
5.3.	Scour valve size in millimetres should be $(d/2 + 25)$ where 'd' is Nominal diameter of pipe in millimetre.

Table-2

Diameter of distribution	Type of Air valve	Size of Air valve
80mm	Single orifice air valve	20mm
100 mm		40mm
More than 125mm to 200mm	Double orifice type air valve	50 mm
250mm to 300mm	Double orifice type kinetic air valve	80 mm
More than 400 mm to 500mm	Double orifice type kinetic air valve	100 mm
More than 600 mm to 900 mm	Double orifice type kinetic air valve	150 mm

SUPPLY OF PIPES, SPECIALS, VALVES AND ACCESSORIES			
AC PIPES			
Item No.	Description	Unit	Rate
15001	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., A. C. pressure pipes conforming to IS: 1592 - 1980 with up to date amendments in standard lengths Class10.		
	Nominal Dia in mm		
a	80	Metre	637.00
b	100	Metre	840.00
c	150	Metre	1573.00
d	200	Metre	2683.00
e	250	Metre	3397.00
f	300	Metre	4778.00
g	350	Metre	5999.00
h	400	Metre	7794.00
I	450	Metre	9184.00
j	500	Metre	11408.00
k	600	Metre	16118.00
15003	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., A. C. pressure pipes conforming to IS: 1592 - 1980 with up to date amendments in standard lengths Class 15.		
	Nominal Dia in mm		
a	80	Metre	666.00
b	100	Metre	925.00
c	150	Metre	1641.00
d	200	Metre	2230.00
e	250	Metre	3513.00
f	300	Metre	4906.00
g	350	Metre	6206.00
h	400	Metre	8232.00
I	450	Metre	10048.00
j	500	Metre	12702.00
k	600	Metre	14960.00

15005	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc. A. C. pressure pipes conforming to IS: 1592 - 1980 with up to date amendments in standard lengths Class 20.		
	Nominal Dia in mm		
a	80	Metre	705.00
b	100	Metre	1062.00
c	150	Metre	1958.00
d	200	Metre	3417.00
e	250	Metre	4392.00
f	300	Metre	6158.00
g	350	Metre	7789.00
h	400	Metre	10158.00
i	450	Metre	12152.00
15007	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., cast iron detachable joints conforming to IS: 8794-1978 suitable for AC pressure pipes including cost of rubber rings, nuts, bolts etc. Class 10.		
	Nominal Dia in mm		
a	80	Set	276.00
b	100	Set	341.00
c	125	Set	432.00
d	150	Set	545.00
e	200	Set	819.00
f	250	Set	1071.00
g	300	Set	1325.00
h	350	Set	2135.00
i	400	Set	2522.00
15008	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., cast iron detachable joints conforming to IS: 8794-1978 suitable for PVC pipes including cost of rubber rings, nuts, bolts etc. Class 6.		
	Dia in mm		
a	63	Set	202.00
b	75	Set	225.00
c	90	Set	249.00

d	110	Set	315.00
e	140	Set	423.00
f	160	Set	505.00
g	180	Set	614.00
h	200	Set	824.00
i	250	Set	1080.00
j	280	Set	1128.00
k	315	Set	1314.00
l	355	Set	1591.00
15009	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., cast iron detachable joints conforming to IS: 8794-1978 suitable for AC pressure pipes including cost of rubber rings, nuts, bolts etc. Class 15.		
	Nominal Dia in mm		
a	80	Set	276.00
b	100	Set	341.00
c	125	Set	432.00
d	150	Set	559.00
f	200	Set	819.00
g	250	Set	1092.00
h	300	Set	1362.00
i	350	Set	2284.00
j	400	Set	2632.00
15010	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking, transit insurance etc., cast iron detachable joints conforming to IS: 8794-1978 suitable for AC pressure pipes including cost of rubber rings, nuts, bolts etc. Class 20.		
	Nominal Dia in mm		
a	80	Set	276.00
b	100	Set	341.00
c	125	Set	432.00
d	150	Set	559.00
f	200	Set	819.00
g	250	Set	1092.00
h	300	Set	1362.00
i	350	Set	2284.00

j	400	Set	2632.00
15011	Supplying hydrotite coupling conforming to BIS specifications suitable for AC pressure pipes with rubber rings supply at the site of work including testing etc. complete. Class 10/15.		
	Nominal Dia in mm		
a	80	Each	376.00
b	100	Each	486.00
c	150	Each	627.00
d	200	Each	849.00
e	250	Each	1199.00
f	300	Each	1395.00
g	350	Each	1766.00
h	400	Each	1795.00
I	450	Each	3226.00
j	500	Each	3899.00
k	600	Each	5511.00
15012	Supplying hydrotite coupling conforming to BIS specification suitable for AC pressure pipes with rubber rings supply at the site of work including testing etc. complete. Class 20.		
	Nominal Dia in mm		
a	80	Each	386.00
b	100	Each	521.00
c	150	Each	679.00
d	200	Each	907.00
e	250	Each	1324.00
f	300	Each	1385.00
g	350	Each	2253.00
h	400	Each	3046.00
I	450	Each	4430.00
j	500	Each	5163.00
k	600	Each	6182.00
PVC PIPES			
15013	Supplying at store or site of work including loading, unloading and stacking at site PVC (RING FIT) pipes conforming to IS : 4985-2000 with elastomeric sealing ring (one per pipe) and with rubber ring socket conforming to ISO 4411 (latest edition) Class 4kg/sq.cm.		

	Outer Dia in mm		
a	63	Metre	67.00
b	90	Metre	129.00
c	110	Metre	186.00
d	140	Metre	302.00
e	160	Metre	395.00
f	180	Metre	506.00
g	200	Metre	619.00
h	225	Metre	808.00
i	250	Metre	985.00
j	280	Metre	1244.00
k	315	Metre	1586.00
l	400	Metre	2580.00
15015	Supplying at store or site of work including loading, unloading and stacking at site PVC (RING FIT) pipes with elastomeric sealing ring (one per pipe) and with rubber ring socket, conforming to IS:4985-2000, and bearing ISI mark Class 6kg/sq.cm.		
	Outer Dia in mm		
a	63	Metre	92.00
b	75	Metre	129.00
c	90	Metre	185.00
d	110	Metre	266.00
e	125	Metre	361.00
f	140	Metre	440.00
g	160	Metre	564.00
h	180	Metre	727.00
i	200	Metre	897.00
j	225	Metre	1164.00
k	250	Metre	1449.00
l	280	Metre	1814.00
m	315	Metre	2307.00
n	355	Metre	2942.00
o	400	Metre	3772.00
15017	Supplying at store or site of work including loading, unloading and stacking at site PVC (RING FIT) pipes with elastomeric sealing ring (one per pipe) and with rubber ring socket, conforming to IS:4985-2000, and bearing ISI mark Class 10 kg/sq.cm.		
	Outer Dia in mm		
a	90	Metre	286.00

b	110	Metre	429.00
c	140	Metre	686.00
d	160	Metre	892.00
e	200	Metre	1409.00
f	225	Metre	1839.00
g	250	Metre	2278.00
h	280	Metre	2853.00
i	315	Metre	3617.00
15019	Supplying at store or site of work Rigid PVC (SEL FIT) pipes for public water supply including Railway freight, carting, loading and unloading, stacking, transit insurance etc. complete. Conforming to IS: 4985-2000, and bearing ISI mark Class 4 kg/cm ² .		
	Outer Dia in mm		
a	63	Metre	62.00
b	75	Metre	87.00
c	90	Metre	122.00
d	110	Metre	177.00
e	140	Metre	289.00
f	160	Metre	378.00
g	180	Metre	490.00
h	200	Metre	595.00
i	225	Metre	773.00
j	250	Metre	948.00
k	280	Metre	1202.00
l	315	Metre	1533.00
m	355	Metre	1943.00
n	400	Metre	2472.00
15021	Supplying at store or site of work Rigid PVC (SEL FIT) pipes for public water supply including Railway freight, carting, loading and unloading, stacking, transit insurance etc. complete, Conforming to IS: 4985-2000, and bearing ISI mark, Class 6 kg/cm ² .		
	Outer Dia in mm		
a	63	Metre	89.00
b	75	Metre	123.00
c	90	Metre	179.00
d	110	Metre	257.00
e	125	Metre	340.00
f	140	Metre	422.00
g	160	Metre	546.00
h	180	Metre	702.00

i	200	Metre	861.00
j	225	Metre	1124.00
k	250	Metre	1406.00
l	280	Metre	1761.00
m	315	Metre	2244.00
n	355	Metre	2846.00
o	400	Metre	3640.00
15023	Supplying at store or site of work Rigid PVC (SEL FIT) pipes for public water supply including Railway freight, carting, loading and unloading, stacking, transit insurance etc. complete, Conforming to IS: 4985-2000, and bearing ISI mark, Class 10 kg/cm ² .		
	Outer Dia in mm		
a	63	Metre	137.00
b	75	Metre	195.00
c	90	Metre	276.00
d	110	Metre	415.00
e	140	Metre	667.00
f	160	Metre	868.00
h	200	Metre	1368.00
i	250	Metre	2225.00
j	280	Metre	2787.00
k	315	Metre	3536.00
l	400	Metre	6545.00
	O-PVC PIPES		
15024 (a)	Supplying at store or site of work including freight, loading, unloading and stacking at site Oriented PVC (PVC-O) ring fit type pipes having orientation class 500, conforming to ISO 16422-2014, and IS 16647-2017, with integral homogeneous spigot having elastomeric sealing ring made of EPDM rubber (one per pipe) . PN 16		
	Size in mm -OD		
a	110	Metre	842.00
b	160	Metre	1173.00
c	200	Metre	1577.00
d	250	Metre	2175.00
e	315	Metre	2926.00
f	400	Metre	4177.00

15024 (c)	Supplying at store or site of work including freight, loading, unloading and stacking at site Oriented PVC (PVC-O) ring fit type pipes having orientation class 500, conforming to ISO 16422-2014, and IS 16647-2017, with integral homogeneous spigot having elastomeric sealing ring made of EPDM rubber (one per pipe). PN 25		
	Size in mm -OD		
a	110	Metre	869.00
b	160	Metre	1285.00
c	200	Metre	1745.00
d	250	Metre	2333.00
e	315	Metre	3079.00
f	400	Metre	4601.00

RIGID PVC FITTINGS

15025	Supply of rigid PVC fittings conforming to IS: 7834-1975 designed for precision and accuracy so as to join PVC pipes and other specials including railway freight, carting, loading and unloading and stacking etc. complete.		
I	Elbow		
	Outer Dia in mm		
	PN 10 (10kg/cm ²)		
a	20	Each	4.00
b	25	Each	6.00
c	32	Each	9.00
	PN 6 (6 kg/cm ²)		
d	40	Each	14.00
e	50	Each	23.00
f	63	Each	36.00
g	75	Each	53.00
h	90	Each	79.00
I	110	Each	122.00
j	140	Each	258.00
k	160	Each	393.00
	PN 10 (10kg/cm ²)		
a	63	Each	57.00
b	75	Each	79.00
c	90	Each	134.00
d	110	Each	209.00
II	END CAP (Plain)		
	Dia in mm		

	PN 10 (10kg/cm2)		
a	20	Each	2.00
b	25	Each	3.00
c	32	Each	4.00
	PN 6 (6 kg/cm2)		
d	40	Each	7.00
e	50	Each	10.00
f	63	Each	14.00
g	75	Each	21.00
h	90	Each	32.00
I	110	Each	49.00
j	140	Each	197.00
k	160	Each	227.00
l	180	Each	368.00
m	200	Each	492.00
III	Threaded End Cap		
	Outer Dia in mm		
a	40	Each	12.00
b	50	Each	17.00
c	63	Each	20.00
d	75	Each	24.00
e	90	Each	33.00
f	110	Each	47.00
IV	Tee		
	Dia in mm		
	PN 10 (10kg/cm2)		
a	20	Each	6.00
b	25	Each	9.00
c	32	Each	12.00
	PN 6 (6 kg/cm2)		
d	40	Each	19.00
e	50	Each	30.00
f	63	Each	39.00
g	75	Each	64.00
h	90	Each	102.00
I	110	Each	169.00
j	140	Each	355.00
k	160	Each	551.00
	PN 10 (10kg/cm2)		
a	63	Each	76.00

b	75	Each	107.00
c	90	Each	169.00
d	110	Each	274.00
V	Tail Piece		
	Outer Dia in mm		
a	63	Each	21.00
b	75	Each	27.00
c	90	Each	39.00
d	110	Each	57.00
e	140	Each	169.00
f	160	Each	250.00
g	200	Each	432.00
VI	Coupler (moulded)		
	Outer Dia in mm		
a	20	Each	7.00
b	25	Each	7.00
c	32	Each	10.00
d	40	Each	14.00
e	50	Each	20.00
f	63	Each	27.00
g	75	Each	41.00
h	90	Each	65.00
i	110	Each	116.00
j	160	Each	374.00
k	200	Each	568.00
VI A	Coupler (Plain)		
	Dia in mm		
	PN 10 (10kg/cm ²)		
a	20	Each	3.00
b	25	Each	4.00
c	32	Each	6.00
	PN 6 (6 kg/cm ²)		
d	40	Each	8.00
e	50	Each	12.00
f	63	Each	19.00
g	75	Each	29.00
h	90	Each	44.00

i	110	Each	72.00
J	160	Each	234.00
VII	Female Threaded Adaptor		
	Outer Dia in mm		
a	20	Each	3.00
b	25	Each	4.00
c	32	Each	6.00
d	40	Each	9.00
e	50	Each	14.00
f	63	Each	24.00
g	75	Each	35.00
h	90	Each	53.00
I	110	Each	77.00
VIII	Male Threaded Adaptor		
	Outer Dia in mm		
a	20	Each	3.00
b	25	Each	4.00
c	32	Each	7.00
d	40	Each	8.00
e	50	Each	14.00
f	63	Each	22.00
g	75	Each	31.00
h	90	Each	44.00
I	110	Each	76.00
IX	Service Saddle		
	Dia in mm		
a	63x20	Each	66.00
b	63x25	Each	66.00
c	63x32	Each	66.00
d	75x20	Each	77.00
e	75x25	Each	77.00
f	75x32	Each	77.00
g	90x20	Each	88.00
h	90x25	Each	88.00
i	90x32	Each	88.00
j	110x20	Each	106.00
k	110x25	Each	106.00
l	110x32	Each	106.00

m	160x20	Each	263.00
n	160x25	Each	263.00
o	160x32	Each	263.00
X	Reducer (Multi Stage)		
	Outer Dia in mm		
a	25x20	Each	5.00
b	32x20	Each	5.00
c	40x20	Each	9.00
d	50x40	Each	11.00
e	63x40	Each	19.00
f	63x50	Each	18.00
g	75x63	Each	24.00
h	90x63	Each	35.00
i	90x75	Each	36.00
j	110x75	Each	54.00
k	110x90	Each	58.00
l	160x110	Each	162.00
m	160x140	Each	318.00
XI	Long Bend 90 degree 6kg/cm2		
	Outer Dia in mm		
a	63	Each	91.00
b	75	Each	135.00
c	90	Each	212.00
d	110	Each	365.00
e	160	Each	1254.00
f	200	Each	2378.00
15026	Supply of PVC cement solvent suitable for jointing of PVC pipes	Litre	340.00

UNPLASTICIZED PVC PIPES

15027	Supplying of ASTM UPVC pipe conforming to ASTM 1785 with ISO 14001 etc. complete.		
I	SCH-40 (blue)/(white)		
	Outer Dia in mm		
a	20	Metre	56.00
b	25	Metre	83.00
c	32	Metre	113.00
d	40	Metre	134.00
e	50	Metre	178.00

f	63	Metre	323.00
g	75	Metre	417.00
h	90	Metre	552.00
i	110	Metre	658.00
II	SCH-80(Blue)/(white)		
	Outer Dia in mm		
a	20	Metre	72.00
b	25	Metre	105.00
c	32	Metre	147.00
d	40	Metre	179.00
e	50	Metre	246.00
f	63	Metre	413.00
g	75	Metre	559.00
h	90	Metre	836.00
i	110	Metre	948.00

UNPLASTICIZED PVC FITTINGS

15028	Supplying at store or site of work of ASTM UPVC white fittings conforming to ASTM 2467 with ISO 14001 etc. Complete .		
I	Coupler		
	Outer Dia in mm		
a	20	Each	10.00
b	25	Each	14.00
c	32	Each	20.00
d	40	Each	26.00
e	50	Each	38.00
f	63	Each	71.00
g	75	Each	132.00
h	90	Each	189.00
i	110	Each	304.00
II	Elbow 90 Degree		
	Outer Dia in mm		
a	20	Each	12.00
b	25	Each	21.00
c	32	Each	33.00
d	40	Each	44.00
e	50	Each	67.00
f	63	Each	115.00
g	75	Each	226.00

h	90	Each	335.00
i	110	Each	561.00
III	Elbow 45 Degree		
	Outer Dia in mm		
a	20	Each	12.00
b	25	Each	18.00
c	32	Each	27.00
d	40	Each	36.00
e	50	Each	57.00
f	63	Each	101.00
g	75	Each	182.00
h	90	Each	263.00
i	110	Each	453.00
IV	Tee		
	Outer Dia in mm		
a	20	Each	17.00
b	25	Each	28.00
c	32	Each	45.00
d	40	Each	62.00
e	50	Each	94.00
f	63	Each	162.00
g	75	Each	291.00
h	90	Each	425.00
i	110	Each	750.00
V	Cross Tee		
	Outer Dia in mm		
a	20	Each	26.00
b	25	Each	53.00
c	32	Each	60.00
VI	End cap		
	Outer Dia in mm		
a	20	Each	6.00
b	25	Each	9.00
c	32	Each	17.00
d	40	Each	21.00
e	50	Each	31.00
f	63	Each	57.00

VII	Male Threaded Adapter		
	Outer Dia in mm		
a	20	Each	7.00
b	25	Each	11.00
c	32	Each	17.00
d	40	Each	23.00
e	50	Each	34.00
f	63	Each	57.00
VIII	Female Threaded Adapter		
	Outer Dia in mm		
a	20	Each	9.00
b	25	Each	14.00
c	32	Each	20.00
d	40	Each	26.00
e	50	Each	39.00
f	63	Each	162.00
g	75	Each	291.00
h	90	Each	425.00
i	110	Each	750.00
IX	Reducer Bush		
	Sizes in inches		
a	25x20	Each	7.00
b	32x20	Each	11.00
c	32x25	Each	11.00
d	40x20	Each	19.00
e	40x25	Each	17.00
f	40x32	Each	11.00
g	50x20	Each	31.00
h	50x25	Each	29.00
i	50x32	Each	33.00
j	50x40	Each	24.00
k	63x20	Each	28.00
X	Reducer		
	Sizes in inches		
a	25x20	Each	15.00
b	32x20	Each	21.00
c	32x25	Each	23.00
d	40x20	Each	26.00
e	40x25	Each	28.00

f	40x32	Each	28.00
g	50x20	Each	37.00
h	50x25	Each	39.00
i	50x32	Each	51.00
j	50x40	Each	45.00
k	63x20	Each	60.00
l	63x25	Each	60.00
m	63x32	Each	70.00
n	63x40	Each	72.00
o	63x50	Each	72.00
15029	Supplying at store or site of work of "O" Rubber Rings suitable for C.I.D. joints conforming to IS: 5382/1985,SBR type etc. complete.		
	Sizes in mm		
a	80	Each	71.00
b	100	Each	84.00
c	150	Each	116.00
d	200	Each	147.00
e	250	Each	178.00
f	300	Each	211.00
g	350	Each	323.00
h	400	Each	366.00
i	450	Each	517.00
j	500	Each	709.00
k	600	Each	846.00
15029(A)	Supplying at store or site of work of "O" Rubber Rings suitable for C. I.D. joints.		
	EPDM confirming to IS:5382/1985		
	Sizes in mm		
a	80	Each	69.00
b	100	Each	84.00
c	150	Each	112.00
d	200	Each	142.00
e	250	Each	170.00
f	300	Each	200.00
g	350	Each	311.00
h	400	Each	350.00
i	450	Each	496.00
j	500	Each	681.00
k	600	Each	813.00

15030	Supplying at store or site of work of "Square" Rubber Rings suitable for C.I.D. joints conforming to IS: 5382/1985 etc. complete.		
	Sizes in mm		
a	80	Each	68.00
b	100	Each	87.00
c	150	Each	168.00
d	200	Each	195.00
e	250	Each	290.00
15031	Supplying at store or site of work of heavy duty adhesive cement for joining of UPVC white fittings.	Litre	719.00

HDPE PIPES

15032	Supplying, of HDPE pipes at store or site of work including loading unloading, stacking, transit insurance etc. complete bearing ISI mark & conforming to IS: 4984-1995 & made from PE 100 resin Class IV (6 kg/cm ²).		
	Outer dia. in mm		
a	50	Metre	109.00
b	63	Metre	143.00
c	75	Metre	179.00
d	90	Metre	251.00
e	110	Metre	369.00
f	125	Metre	479.00
g	140	Metre	602.00
h	160	Metre	783.00
I	180	Metre	988.00
j	200	Metre	1217.00
k	225	Metre	1546.00
l	250	Metre	1898.00
m	280	Metre	2380.00
n	315	Metre	3014.00
o	355	Metre	4506.00
p	400	Metre	5732.00
q	450	Metre	7266.00
r	500	Metre	10713.00
s	560	Metre	13328.00
t	630	Metre	16846.00
u	710	Metre	21474.00

v	800	Metre	27397.00
15034	Supplying, of HDPE pipes at store or site of work including loading unloading, stacking, transit insurance etc. complete bearing ISI mark & conforming to IS: 4984-1995 & made from PE 100 resin Class IV (10 kg/cm ²).		
	Outer dia. in mm		
a	50	Metre	161.00
b	63	Metre	192.00
c	75	Metre	273.00
d	90	Metre	390.00
e	110	Metre	578.00
f	125	Metre	745.00
g	140	Metre	932.00
h	160	Metre	1216.00
I	180	Metre	1542.00
j	200	Metre	1903.00
k	225	Metre	2401.00
l	250	Metre	2957.00
m	280	Metre	3704.00
n	315	Metre	4694.00
o	355	Metre	6815.00
p	400	Metre	8682.00
q	450	Metre	10950.00
r	500	Metre	16044.00
s	560	Metre	19993.00
t	630	Metre	25299.00
u	710	Metre	32272.00
v	800	Metre	40972.00
15036	Supplying, of HDPE pipes at store or site of work including loading & unloading stacking, transit insurance etc. Complete conforming to IS: 4984 - 1995 and made from PE 100 resin Class IV (16kg/cm ²).		
	Outer dia. in mm		
a	63	Metre	278.00
b	75	Metre	394.00
c	90	Metre	567.00
d	110	Metre	840.00
e	125	Metre	1085.00
f	140	Metre	1358.00
g	160	Metre	1779.00

h	180	Metre	2243.00
I	200	Metre	2770.00
j	225	Metre	3503.00
k	250	Metre	4322.00
l	280	Metre	5418.00
m	315	Metre	6848.00
n	355	Metre	9873.00
o	400	Metre	12529.00
p	450	Metre	15831.00
q	500	Metre	23078.00
r	560	Metre	29125.00
15036(A)	Supplying, of fabricated /moulded HDPE pipe fittings/specials as per required Pressure class of HDPE Pipes, conforming to IS:8360 (Part I & III) and IS:8008(Part I to IX).The HDPE pipe fittings/specials shall be manufactured from virgin resin PE100 .		
	HDPE Pipe fittings/specials (fabricated/moulded)		
I	Fabricated Equal Tee of HDPE PE 100 for Butt jointing.		
	Outer diameter in mm		
a	140	Each	1603.00
b	160	Each	2321.00
c	180	Each	3557.00
d	200	Each	4452.00
e	225	Each	5192.00
f	250	Each	7019.00
g	280	Each	10802.00
h	315	Each	13624.00
II	Fabricated 90 deg.bend of HDPE PE 100 for Butt jointing.		
	Outer diameter in mm		
a	140	Each	1365.00
b	160	Each	1618.00
c	180	Each	2817.00
d	200	Each	3587.00
e	225	Each	3961.00
f	250	Each	5926.00
g	280	Each	8870.00
h	315	Each	11375.00

III	Moulded Stub End ,Long Neck Pipe end (LNPE) OF HDPE PE 100 for Butt joining.		
	Outer diameter in mm		
a	140	Each	1603.00
b	160	Each	2294.00
c	180	Each	3093.00
d	200	Each	3635.00
e	225	Each	4361.00
f	250	Each	5010.00
g	280	Each	5608.00
h	315	Each	7288.00
IV	Moulded End Cap of HDPE PE 100 for Butt jointing.		
	Outer diameter in mm		
a	140	Each	542.00
b	160	Each	822.00
c	180	Each	1332.00
d	200	Each	1461.00
e	225	Each	1497.00
f	250	Each	2116.00
g	280	Each	2294.00
h	315	Each	3172.00
V	Moulded Reducers of HDPE PE 100 for Butt jointing.		
	Outer diameter in mm		
a	140x110	Each	1049.00
b	140x125	Each	1162.00
c	160x110	Each	1303.00
d	160x125	Each	1401.00
e	160x140	Each	1455.00
f	180x160	Each	1936.00
g	200x160	Each	2742.00
h	200x180	Each	2904.00
i	225x180	Each	3356.00
j	225x200	Each	3452.00
k	250x160	Each	3704.00
l	250x200	Each	3807.00
m	250x225	Each	3953.00
n	280x225	Each	5808.00
o	280x250	Each	6130.00
p	315x250	Each	8640.00

q	315x280	Each	9014.00
CAST IRON PIPES			
15038	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. centrifugally cast, (spun) iron pressure pipes with plain spigot and socket joints, conforming to IS:1536-1976 with up to date amendments in standard lengths suitable for jointing with lead and rubber gasket known as TYTON joints Class LA .		
Nominal Dia in mm			
a	80	Metre	1036.00
b	100	Metre	1283.00
c	125	Metre	1742.00
d	150	Metre	2083.00
e	200	Metre	3047.00
f	250	Metre	4106.00
g	300	Metre	5294.00
h	350	Metre	6669.00
I	400	Metre	8117.00
j	450	Metre	9786.00
k	500	Metre	11456.00
l	600	Metre	15267.00
m	700	Metre	19700.00
n	750	Metre	22064.00
o	800	Metre	24699.00
p	900	Metre	30085.00
q	1000	Metre	36142.00
15039	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. centrifugally cast, (spun) iron pressure pipes with plain spigot and socket joints, conforming to IS : 1536 with up to date amendments in standard lengths suitable for jointing with lead and rubber gasket known as TYTON joints Class A .		
Nominal Dia in mm			
a	80	Metre	1125.00
b	100	Metre	1412.00
c	125	Metre	1905.00
d	150	Metre	2281.00
e	200	Metre	3306.00
f	250	Metre	4469.00

g	300	Metre	5787.00
h	350	Metre	7234.00
I	400	Metre	8869.00
j	450	Metre	10750.00
k	500	Metre	12479.00
l	600	Metre	16666.00
m	700	Metre	21523.00
n	750	Metre	24122.00
o	800	Metre	26911.00
p	900	Metre	32825.00
q	1000	Metre	39482.00
15040	Supplying at store or site of work including railway freight, carting, loading and unloading stacking etc. centrifugally cast (spun) iron pressure pipes with plain spigot and socket joints, conforming to IS: 1536-1979 with up to date amendments in standard lengths suitable for jointing with lead and rubber gasket known as TYTON joints Class B.		
	Nominal Dia in mm		
a	80	Metre	1207.00
b	100	Metre	1506.00
c	125	Metre	2050.00
d	150	Metre	2459.00
e	200	Metre	3575.00
f	250	Metre	4834.00
g	300	Metre	6270.00
h	350	Metre	7845.00
I	400	Metre	9574.00
j	450	Metre	11596.00
k	500	Metre	13502.00
l	600	Metre	18053.00
m	700	Metre	23252.00
n	750	Metre	26170.00
o	800	Metre	29110.00
p	900	Metre	35566.00
q	1000	Metre	42670.00
15044	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. C. I. double flanged pipes-PN10 horizontally cast conforming to IS: 7181-1986 bearing ISI mark as per the length mentioned below .		

I	Barrel Length of 0.50 metres		
	Nominal Dia in mm		
a	100	Each	925.00
b	150	Each	1438.00
c	200	Each	1880.00
d	250	Each	2375.00
e	300	Each	2870.00
f	350	Each	3494.00
g	400	Each	4008.00
h	450	Each	4633.00
I	500	Each	5160.00
j	600	Each	6213.00
k	700	Each	7353.00
l	800	Each	8419.00
m	900	Each	9485.00
n	1000	Each	10550.00
II	Barrel Length of 1.0 metres		
	Nominal Dia in mm		
a	100	Each	1850.00
b	150	Each	2878.00
c	200	Each	3760.00
d	250	Each	4750.00
e	300	Each	5739.00
f	350	Each	6988.00
g	400	Each	8016.00
h	450	Each	9267.00
I	500	Each	10319.00
j	600	Each	12425.00
k	700	Each	14707.00
l	800	Each	16838.00
m	900	Each	18969.00
n	1000	Each	21101.00
III	Barrel Length of 1.5 metres		
a	100	Each	2775.00
b	150	Each	4316.00
c	200	Each	5640.00
d	250	Each	7125.00
e	300	Each	8609.00
f	350	Each	10482.00
g	400	Each	12023.00

h	450	Each	13899.00
I	500	Each	15479.00
j	600	Each	18638.00
k	700	Each	22060.00
l	800	Each	25257.00
m	900	Each	28454.00
n	1000	Each	31651.00
IV	Barrel Length of 2.0 metres		
a	100	Each	3562.00
b	150	Each	5329.00
c	200	Each	7231.00
d	250	Each	9135.00
e	300	Each	11037.00
f	350	Each	13458.00
g	400	Each	15437.00
h	450	Each	17863.00
I	500	Each	19892.00
j	600	Each	23953.00
k	700	Each	28363.00
l	800	Each	32473.00
m	900	Each	36583.00
n	1000	Each	40694.00
V	Barrel Length of 2.75 metres		
	Dia in mm		
a	100	Each	4899.00
b	150	Each	7327.00
c	200	Each	9944.00
d	250	Each	12560.00
e	300	Each	15177.00
f	350	Each	18505.00
g	400	Each	21226.00
h	450	Each	24562.00
I	500	Each	27353.00
j	600	Each	34170.00
k	700	Each	38999.00
l	800	Each	44650.00
m	900	Each	50302.00
n	1000	Each	55954.00
VI	Barrel Length of 3.0 metres		

	Dia in mm		
a	100	Each	5344.00
b	150	Each	8313.00
c	200	Each	10847.00
d	250	Each	13702.00
e	300	Each	16556.00
f	350	Each	20187.00
g	400	Each	23156.00
h	450	Each	26794.00
I	500	Each	29839.00
j	600	Each	37276.00
k	700	Each	42544.00
l	800	Each	48709.00
m	900	Each	54875.00
n	1000	Each	61040.00
VII	Barrel Length of 3.5 metres		
	Dia in mm		
a	100	Each	6234.00
b	150	Each	9697.00
c	200	Each	13161.00
d	250	Each	16625.00
e	300	Each	20088.00
f	350	Each	24457.00
g	400	Each	28054.00
h	450	Each	32433.00
I	500	Each	34812.00
j	600	Each	42441.00
k	700	Each	49634.00
l	800	Each	56827.00
m	900	Each	64021.00
n	1000	Each	71214.00
VIII	Barrel Length of 4.0 metres		
	Dia in mm		
a	100	Each	7125.00
b	150	Each	11083.00
c	200	Each	15041.00
d	250	Each	19000.00
e	300	Each	22958.00
f	350	Each	27951.00
g	400	Each	32062.00

h	450	Each	37065.00
I	500	Each	39785.00
j	600	Each	48504.00
k	700	Each	56724.00
l	800	Each	64946.00
m	900	Each	73167.00
n	1000	Each	81387.00
IX	Barrel Length of 4.5metres		
	Dia in mm		
a	100	Each	8016.00
b	150	Each	12469.00
c	200	Each	16922.00
d	250	Each	21374.00
e	300	Each	25827.00
f	350	Each	31445.00
g	400	Each	36070.00
h	450	Each	41698.00
I	500	Each	44759.00
j	600	Each	54566.00
k	700	Each	63815.00
l	800	Each	73064.00
m	900	Each	82312.00
n	1000	Each	91561.00
X	Barrel Length of 5.0metres		
	Dia in mm		
a	100	Each	8906.00
b	150	Each	13854.00
c	200	Each	18801.00
d	250	Each	23749.00
e	300	Each	28697.00
f	350	Each	34939.00
g	400	Each	40078.00
h	450	Each	46332.00
I	500	Each	49732.00
j	600	Each	60630.00
k	700	Each	70906.00
l	800	Each	81182.00
m	900	Each	91458.00
n	1000	Each	101735.00

CAST IRON FITTINGS				
15046	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. cast iron standard flanged socket/plain ended fittings for pressure pipes conforming to IS:1538-1976 suitable for conventional lead joints/ rubber gasket joints. HEAVY Class.	Kg		81
15047	Supplying cast iron saddle pieces of the following sizes including bolts, nuts, rubber packing suitable for giving service connection for AC / PVC pipeline of various classes.			
	Dia in mm			
a	50	Each		168.00
b	80	Each		181.00
c	100	Each		224.00
d	125	Each		315.00
e	150	Each		349.00
f	200	Each		777.00
g	250	Each		908.00
h	300	Each		1146.00
15048	Supplying at store or at site of work cast iron specials for mechanical and push on flexible joints as per IS:13382 - 1992 including Sealing rubber gaskets (NR), CI compression glands and coated MS Nuts bolts.			
I	Double socket 90 degree Bends.			
	Nominal Dia in mm			
a	80	Each		2741.00
b	100	Each		3415.00
c	125	Each		4576.00
d	150	Each		5854.00
e	200	Each		8537.00
f	250	Each		12010.00
g	300	Each		17562.00
h	350	Each		23294.00
I	400	Each		29758.00
j	450	Each		37593.00
k	500	Each		50902.00
l	600	Each		79172.00
m	700	Each		179061.00
n	750	Each		203509.00
o	800	Each		250631.00

p	900	Each	312316.00
q	1000	Each	445465.00
II	Double socket 45 degree Bends.		
	Nominal Dia in mm		
a	80	Each	2584.00
b	100	Each	3194.00
c	125	Each	4147.00
d	150	Each	5244.00
e	200	Each	7439.00
f	250	Each	10122.00
g	300	Each	14817.00
h	350	Each	19025.00
I	400	Each	24026.00
j	450	Each	32698.00
k	500	Each	41630.00
l	600	Each	58130.00
m	700	Each	110346.00
n	750	Each	148627.00
o	800	Each	162182.00
p	900	Each	192140.00
q	1000	Each	309108.00
III	Double socket 22.5 degree Bends.		
	Nominal Dia in mm		
a	80	Each	2474.00
b	100	Each	3084.00
c	125	Each	3949.00
d	150	Each	4936.00
e	200	Each	6772.00
f	250	Each	9147.00
g	300	Each	13232.00
h	350	Each	16830.00
I	400	Each	20611.00
j	450	Each	31184.00
k	500	Each	35423.00
l	600	Each	50334.00
m	700	Each	93775.00
n	750	Each	106610.00
o	800	Each	118330.00
p	900	Each	150125.00

IV	Double socket 11.25 degree Bends.		
	Nominal Dia in mm		
a	80	Each	2462.00
b	100	Each	3014.00
c	125	Each	3816.00
d	150	Each	4756.00
e	200	Each	6464.00
f	250	Each	8659.00
g	300	Each	12498.00
h	350	Each	15611.00
I	400	Each	19147.00
j	450	Each	29670.00
k	500	Each	32395.00
l	600	Each	46335.00
m	700	Each	74041.00
n	750	Each	84380.00
o	800	Each	102015.00
p	900	Each	124425.00
V	All Socket Tee		
	Nominal Dia in mm		
a	80x80x80	Each	3296.00
b	100x100x80	Each	3807.00
c	100x100x100	Each	4088.00
d	150x150x80	Each	5558.00
e	150x150x100	Each	5877.00
f	150x150x150	Each	6963.00
g	200x200x80	Each	6772.00
h	200x200x100	Each	7155.00
I	200x200x150	Each	8305.00
j	200x200x200	Each	9135.00
k	250x250x80	Each	10093.00
l	250x250x100	Each	8880.00
m	250x250x150	Each	10732.00
n	250x250x200	Each	11179.00
o	250x250x250	Each	12393.00
p	300x300x80	Each	13543.00
q	300x300x100	Each	12777.00
r	300x300x150	Each	14885.00
s	300x300x200	Each	15460.00
t	300x300x250	Each	17695.00
u	300x300x300	Each	19293.00

v	350x350x80	Each	22810.00
w	350x350x100	Each	23193.00
x	350x350x150	Each	25227.00
y	350x350x200	Each	29398.00
z	350x350x250	Each	34587.00
a1	350x350x300	Each	37180.00
b1	350x350x350	Each	38567.00
c1	400x400x80	Each	28229.00
d1	400x400x100	Each	29065.00
e1	400x400x150	Each	30882.00
f1	400x400x200	Each	32698.00
g1	400x400x250	Each	38451.00
h1	400x400x300	Each	42084.00
i1	400x400x400	Each	44848.00
j1	450x450x100	Each	33798.00
k1	450x450x150	Each	34969.00
l1	450x450x200	Each	36028.00
m1	450x450x250	Each	44808.00
n1	450x450x300	Each	47231.00
o1	450x450x400	Each	49759.00
p1	450x450x450	Each	51028.00
q1	500x500x100	Each	46794.00
r1	500x500x150	Each	47912.00
s1	500x500x200	Each	48669.00
t1	500x500x250	Each	51923.00
u1	500x500x300	Each	63247.00
v1	500x500x400	Each	64791.00
w1	500x500x450	Each	67591.00
x1	500x500x500	Each	71890.00
y1	600x600x150	Each	71463.00
z1	600x600x200	Each	74025.00
a2	600x600x250	Each	77507.00
b2	600x600x300	Each	81140.00
c2	600x600x400	Each	84440.00
d2	600x600x450	Each	89163.00
e2	600x600x500	Each	92645.00
f2	600x600x600	Each	101122.00
VI	Double Socket Branch Flange Tee		
	Nominal Dia in mm		
a	80x80x80	Each	2900.00

b	100x100x80	Each	3411.00
c	100x100x100	Each	3641.00
d	150x150x80	Each	5187.00
e	150x150x100	Each	5494.00
f	150x150x150	Each	6197.00
g	200x200x80	Each	6452.00
h	200x200x100	Each	6772.00
I	200x200x150	Each	7602.00
j	200x200x200	Each	8560.00
k	250x250x80	Each	8177.00
l	250x250x100	Each	8177.00
m	250x250x150	Each	9838.00
n	250x250x200	Each	10349.00
o	250x250x250	Each	11690.00
p	300x300x80	Each	13543.00
q	300x300x100	Each	12202.00
r	300x300x150	Each	14003.00
s	300x300x200	Each	14501.00
t	300x300x250	Each	17376.00
u	300x300x300	Each	17504.00
v	350x350x80	Each	22219.00
w	350x350x100	Each	22234.00
x	350x350x150	Each	24584.00
y	350x350x200	Each	28308.00
a1	350x350x300	Each	36028.00
b1	350x350x350	Each	36634.00
VII	Double Socket Branch Flanged Tee		
	Nominal Dia in mm		
a	400x400x80	Each	26643.00
b	400x400x100	Each	27551.00
c	400x400x150	Each	28989.00
d	400x400x200	Each	29973.00
e	400x400x250	Each	35953.00
f	400x400x300	Each	38753.00
g	400x400x400	Each	41554.00
h	450x450x100	Each	30882.00
I	450x450x150	Each	33379.00
j	450x450x200	Each	30957.00
k	450x450x250	Each	41024.00
l	450x450x300	Each	42992.00
m	450x450x350	Each	43673.00

n	450x450x400	Each	44354.00
o	450x450x450	Each	47685.00
p	500x500x100	Each	42916.00
q	500x500x150	Each	44248.00
r	500x500x250	Each	47231.00
s	500x500x300	Each	58433.00
t	500x500x400	Each	59916.00
u	500x500x450	Each	62369.00
v	500x500x500	Each	66910.00
w	600x600x100	Each	62474.00
x	600x600x300	Each	75084.00
y	600x600x400	Each	77507.00
a1	600x600x450	Each	80837.00
b1	600x600x500	Each	87498.00
c1	600x600x600	Each	94370.00
d1	700x700x100	Each	81792.00
e1	700x700x200	Each	95459.00
f1	700x700x350	Each	116262.00
g1	700x700x400	Each	125236.00
h1	750x750x150	Each	99675.00
i1	750x750x250	Each	114770.00
J1	750x750x750	Each	223072.00
VIII	Double Socket Reducer		
	Nominal Dia in mm		
a	100x80	Each	2805.00
b	150x80	Each	4083.00
c	150x100	Each	4269.00
d	200x100	Each	5670.00
e	200x150	Each	6098.00
f	250x150	Each	7927.00
g	250x200	Each	8049.00
h	300x150	Each	10854.00
I	300x200	Each	10915.00
j	300x250	Each	11034.00
k	350x200	Each	19225.00
l	350x250	Each	19302.00
m	350x300	Each	20141.00
n	400x150	Each	25280.00
o	400x200	Each	24372.00
p	400x250	Each	22495.00
q	400x300	Each	22798.00

r	400x350	Each	26111.00
s	450x200	Each	26946.00
t	450x250	Each	25356.00
u	450x300	Each	24372.00
v	450x350	Each	32615.00
w	450x400	Each	24725.00
x	500x250	Each	34212.00
y	500x300	Each	33001.00
a1	500x350	Each	39511.00
b1	500x400	Each	31714.00
c1	500x450	Each	31298.00
d1	600x200	Each	47231.00
e1	600x250	Each	46474.00
f1	600x300	Each	45051.00
g1	600x400	Each	44127.00
h1	600x450	Each	43068.00
i1	600x500	Each	42326.00
j1	700x500	Each	79316.00
k1	700x600	Each	70912.00
l1	750x600	Each	84800.00
m1	750x700	Each	77941.00
n1	800x450	Each	118287.00
o1	800x700	Each	99925.00
15049	Supplying cast iron fittings as per IS : 1538 -1993 including sealing rubber gasket (NR) CI Compression glands and coated MS Nuts bolts.		
I	Mechanical Compression Collar Coupling		
	Nominal Dia in mm		
a	80	Each	1254.00
b	100	Each	1324.00
c	125	Each	1673.00
d	150	Each	1951.00
e	200	Each	3066.00
f	250	Each	4460.00
g	300	Each	5854.00
h	350	Each	9478.00
I	400	Each	12823.00
j	450	Each	15071.00
k	500	Each	21339.00
l	600	Each	28700.00
m	700	Each	37758.00

n	750	Each	43911.00
o	800	Each	56113.00
p	900	Each	66829.00
q	1000	Each	81297.00
II	Flanged Socket Tail piece (Flanged Adaptors)		
	Nominal Dia in mm		
a	80	Each	1376.00
b	100	Each	1394.00
c	125	Each	1742.00
d	150	Each	2323.00
e	200	Each	3485.00
f	250	Each	4936.00
g	300	Each	6969.00
h	350	Each	10454.00
I	400	Each	13793.00
j	450	Each	18264.00
k	500	Each	22266.00
l	600	Each	30712.00
m	700	Each	41217.00
n	750	Each	51156.00
o	900	Each	92930.00
p	1000	Each	121177.00
III	Transition Collar Coupling		
	Nominal Dia in mm		
a	80	Each	1707.00
b	100	Each	1832.00
c	125	Each	2464.00
d	150	Each	3080.00
e	200	Each	3727.00
f	250	Each	5584.00
g	300	Each	7413.00
h	350	Each	11259.00
I	400	Each	13876.00
j	450	Each	16578.00
k	500	Each	23474.00
l	600	Each	31571.00
m	700	Each	41536.00
n	750	Each	48301.00
o	800	Each	61725.00
p	900	Each	73512.00

q	1000	Each	89324.00
IV	Long Sleeve Collar Coupling (Cut & Repair Coupling)		
	Nominal Dia in mm		
a	80	Each	2939.00
b	100	Each	3109.00
c	125	Each	4219.00
d	150	Each	5142.00
e	200	Each	6215.00
f	250	Each	9471.00
g	300	Each	12085.00
h	350	Each	19097.00
I	400	Each	28148.00
j	450	Each	31433.00
k	500	Each	37154.00
l	600	Each	48260.00
m	700	Each	58178.00
n	750	Each	68026.00
o	900	Each	91110.00
q	1000	Each	89324.00
V	Split Collar Coupling		
	Nominal Dia in mm		
a	80	Each	5578.00
b	100	Each	6020.00
d	150	Each	8498.00
e	200	Each	10517.00
f	250	Each	13446.00
g	300	Each	15733.00
h	350	Each	27630.00
I	400	Each	33807.00
j	450	Each	42423.00
k	500	Each	50400.00
l	600	Each	55801.00
m	700	Each	74370.00
n	750	Each	83855.00
VI	Dismantling Joint		
	Nominal Dia in mm		
a	80	Each	3968.00
b	100	Each	4565.00
c	125	Each	5691.00

d	150	Each	7874.00
e	200	Each	10834.00
f	250	Each	15784.00
g	300	Each	22022.00
h	350	Each	28888.00
I	400	Each	35361.00
j	450	Each	39884.00
k	500	Each	50662.00
l	600	Each	65452.00
m	700	Each	88753.00
n	750	Each	102074.00
VII	Leak Repair Clamp		
	Nominal Dia in mm		
a	80	Each	1881.00
b	100	Each	2010.00
d	150	Each	3562.00
e	200	Each	4204.00
f	250	Each	5658.00
g	300	Each	7099.00
h	350	Each	8452.00
I	400	Each	9939.00
j	450	Each	11233.00
k	500	Each	14100.00
l	600	Each	18507.00
m	700	Each	23084.00
n	750	Each	30251.00
o	800	Each	31927.00
p	900	Each	35273.00
q	1000	Each	43373.00
VI	Joint End Cap		
	Nominal Dia in mm		
a	80	Each	2025.00
b	100	Each	2279.00
c	125	Each	2955.00
d	150	Each	3908.00
e	200	Each	5526.00
f	250	Each	7912.00
g	300	Each	10400.00
h	350	Each	15666.00
I	400	Each	20974.00

j	450	Each	25796.00
k	500	Each	30629.00
l	600	Each	43041.00
m	700	Each	58965.00
n	750	Each	67821.00
o	800	Each	81406.00
p	900	Each	102770.00

DUCTILE IRON PIPES

15051	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. Centrifugally cast, (spun) ductile iron pressure pipes (with socket/spigot ends) conforming to IS : 8329-2000 with cement mortar lining inside the pipe and outside zinc coat as per IS : 8329-2000 with up to date amendments suitable for jointing with rubber gasket known as TYTON joints. Class K-9 .		
		Nominal Diameter in mm	
a	100	Metre	1160.00
b	150	Metre	1684.00
c	200	Metre	2273.00
d	250	Metre	3022.00
e	300	Metre	3740.00
f	350	Metre	4745.00
g	400	Metre	5532.00
h	450	Metre	6737.00
I	500	Metre	7715.00
j	600	Metre	10282.00
k	700	Metre	13068.00
l	750	Metre	15208.00
m	800	Metre	16649.00
n	900	Metre	20330.00
o	1000	Metre	24297.00
p	1100	Metre	29478.00
q	1200	Metre	33851.00
15053	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. welded Ductile Iron double flanged pipes - PN16 horizontally cast conforming to IS: 1537-1960 in Class K-9.		
I	Barrel Length of 0.5 metres		
	Nominal Diameter in mm		

a	100	Each	3321.00
b	150	Each	4591.00
c	200	Each	6076.00
d	250	Each	8234.00
e	300	Each	11110.00
f	350	Each	17030.00
g	400	Each	21804.00
h	450	Each	29360.00
I	500	Each	36536.00
j	600	Each	48833.00
k	700	Each	57588.00
l	800	Each	68560.00
m	900	Each	81446.00
n	1000	Each	102770.00
II	Barrel Length of 1.0 metres		
	Nominal Diameter in mm		
a	100	Each	3870.00
b	150	Each	5366.00
c	200	Each	7141.00
d	250	Each	9600.00
e	300	Each	12836.00
f	350	Each	19671.00
g	400	Each	24963.00
h	450	Each	33114.00
I	500	Each	40893.00
j	600	Each	54616.00
k	700	Each	65473.00
l	800	Each	79623.00
m	900	Each	96152.00
n	1000	Each	120248.00
III	Barrel Length of 2.0 metres		
	Nominal Diameter in mm		
a	100	Each	4975.00
b	150	Each	6914.00
c	200	Each	9273.00
d	250	Each	12334.00
e	300	Each	16288.00
f	350	Each	24961.00
g	400	Each	31282.00
h	450	Each	40627.00

I	500	Each	49611.00
j	600	Each	66193.00
k	700	Each	81232.00
l	800	Each	101732.00
m	900	Each	125578.00
n	1000	Each	155223.00
IV	Barrel Length of 2.5 metres		
	Nominal Diameter in mm		
a	100	Each	5525.00
b	150	Each	7689.00
c	200	Each	10339.00
d	250	Each	13699.00
e	300	Each	18011.00
f	350	Each	27602.00
g	400	Each	34443.00
h	450	Each	44384.00
I	500	Each	53974.00
j	600	Each	71980.00
k	700	Each	89114.00
l	800	Each	107889.00
m	900	Each	134180.00
n	1000	Each	165200.00
V	Barrel Length of 3.0 metres		
	Nominal Diameter in mm		
a	100	Each	6075.00
b	150	Each	8463.00
c	200	Each	11405.00
d	250	Each	15158.00
e	300	Each	19732.00
f	350	Each	30245.00
g	400	Each	37601.00
h	450	Each	48140.00
I	500	Each	58335.00
j	600	Each	77761.00
k	700	Each	96995.00
l	800	Each	118459.00
m	900	Each	148246.00
n	1000	Each	181919.00
VI	Barrel Length of 3.5 metres		

	Nominal Diameter in mm		
a	100	Each	6630.00
b	150	Each	9237.00
c	200	Each	12470.00
d	250	Each	16700.00
e	300	Each	21678.00
f	350	Each	32888.00
g	400	Each	40762.00
h	450	Each	51898.00
I	500	Each	62694.00
j	600	Each	83551.00
k	700	Each	104873.00
l	800	Each	129041.00
m	900	Each	162323.00
n	1000	Each	198636.00
VII	Barrel Length of 4.0 metres		
	Nominal Diameter in mm		
a	100	Each	7180.00
b	150	Each	10012.00
c	200	Each	13536.00
d	250	Each	18244.00
e	300	Each	23627.00
f	350	Each	35530.00
g	400	Each	43919.00
h	450	Each	55650.00
I	500	Each	67055.00
j	600	Each	89338.00
k	700	Each	112758.00
l	800	Each	139623.00
m	900	Each	176388.00
n	1000	Each	215370.00
VIII	Barrel Length of 4.5 metres		
	Nominal Diameter in mm		
a	100	Each	8808.00
b	150	Each	12793.00
c	200	Each	17014.00
d	250	Each	23107.00
e	300	Each	29765.00
f	350	Each	39728.00
g	400	Each	48835.00

h	450	Each	61037.00
I	500	Each	73486.00
j	600	Each	98128.00
k	700	Each	114496.00
l	800	Each	145430.00
m	900	Each	182745.00
n	1000	Each	224835.00
IX	Barrel Length of 5.0 metres		
	Nominal Diameter in mm		
a	100	Each	9541.00
b	150	Each	13863.00
c	200	Each	18445.00
d	250	Each	25018.00
e	300	Each	32179.00
f	350	Each	42719.00
g	400	Each	52413.00
h	450	Each	65289.00
I	500	Each	78423.00
j	600	Each	104722.00
k	700	Each	122688.00
l	800	Each	155618.00
m	900	Each	196311.00
n	1000	Each	240959.00
15053(A)	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. Centrifugally cast, (spun) ductile iron pressure pipes (with socket/spigot ends) conforming to IS : 8329-2000 with cement mortar lining inside the pipe and outside zinc coat as per IS : 8329-2000 with up to date amendments suitable for jointing with rubber gasket known as TYTON joints. Class K-7.		
	Nominal Diameter in mm		
a	100	Metre	991.00
b	150	Metre	1434.00
c	200	Metre	1779.00
d	250	Metre	2421.00
e	300	Metre	3007.00
f	350	Metre	3947.00
g	400	Metre	4540.00
h	450	Metre	5491.00
I	500	Metre	6409.00

j	600	Metre	8365.00
k	700	Metre	11426.00
l	750	Metre	13073.00
m	800	Metre	14471.00
n	900	Metre	17734.00
o	1000	Metre	21966.00
p	1100	Metre	28035.00
q	1200	Metre	31443.00
15054	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. rubber gasket conforming to IS : 5382 -1985 for TYTON joints. SBR type rubber gasket .		
	Nominal Diameter in mm		
a	80	Each	58.00
b	100	Each	58.00
c	125	Each	75.00
d	150	Each	93.00
e	200	Each	139.00
f	250	Each	197.00
g	300	Each	255.00
h	350	Each	313.00
I	400	Each	383.00
j	450	Each	441.00
k	500	Each	557.00
l	600	Each	789.00
m	700	Each	1183.00
n	750	Each	1311.00
o	800	Each	1392.00
p	900	Each	1659.00
q	1000	Each	2355.00
15055	Supplying at store or site of work including railway freight, carting, loading and unloading, stacking etc. rubber gasket conforming to IS : 5382 -1985 for TYTON joints. EPDM type rubber gasket .		
	Nominal Diameter in mm		
a	80	Each	58.00
b	100	Each	70.00
c	125	Each	93.00
d	150	Each	116.00
e	200	Each	174.00
f	250	Each	244.00

g	300	Each	302.00
h	350	Each	406.00
I	400	Each	487.00
j	450	Each	557.00
k	500	Each	719.00
l	600	Each	998.00
m	700	Each	1485.00
n	750	Each	1659.00
o	800	Each	1740.00
p	900	Each	2088.00
q	1000	Each	2958.00

DUCTILE IRON PIPE SPECIALS

15056	Supply at store or site of work including railway freight, carting, loading, unloading, stacking etc. Ductile Iron pipe specials including rubber ring fitting push on joints conforming to IS : 9523 with inside cement mortar lining & externally coated with zinc with finishing layer of bituminous paint complete.		
	All Socket Tee		
	Nominal Diameter in mm		
a	80x80	Each	1636.00
b	100x80	Each	1937.00
c	100x100	Each	2076.00
d	150x80	Each	2819.00
e	150x100	Each	2958.00
f	150x150	Each	3410.00
g	200x80	Each	3851.00
h	200x100	Each	4141.00
I	200x150	Each	4733.00
j	200X200	Each	5777.00
k	250x80	Each	5243.00
l	250x100	Each	5533.00
m	250x150	Each	5986.00
n	250x200	Each	7192.00
o	250x250	Each	8074.00
p	300x80	Each	6577.00
q	300x100	Each	6740.00
r	300x150	Each	8074.00
s	300x200	Each	8978.00
t	300x250	Each	10185.00
u	300x300	Each	11066.00

v	350x80	Each	9141.00
w	350x100	Each	9222.00
x	350x150	Each	10614.00
y	350x200	Each	11577.00
z	350x250	Each	14094.00
a1	350x300	Each	15753.00
b1	350x350	Each	16530.00
c1	400x80	Each	12099.00
d1	400x100	Each	11925.00
e1	400x150	Each	14883.00
f1	400x200	Each	15231.00
g1	400x250	Each	16530.00
h1	400x300	Each	18189.00
i1	400X350	Each	21495.00
j1	400x400	Each	21495.00
k1	450x80	Each	14709.00
l1	450x100	Each	14883.00
m1	450x150	Each	17400.00
n1	450x200	Each	18189.00
o1	450x250	Each	18537.00
p1	450x300	Each	20706.00
q1	450X350	Each	25671.00
r1	450x400	Each	25671.00
s1	450x450	Each	26448.00
t1	500x80	Each	18096.00
u1	500x100	Each	18270.00
v1	500x150	Each	22098.00
w1	500x200	Each	22620.00
x1	500x250	Each	26970.00
y1	500x300	Each	27840.00
z1	500x350	Each	29580.00
a2	500x400	Each	32190.00
b2	500X450	Each	35670.00
c2	500x500	Each	35670.00
d2	600x80	Each	28884.00
e2	600x100	Each	29232.00
f2	600x150	Each	29580.00
g2	600x200	Each	29928.00
h2	600X250	Each	38280.00
i2	600x300	Each	38280.00
j2	600X350	Each	41760.00
k2	600x400	Each	41760.00

l2	600X450	Each	50460.00
m2	600x500	Each	50460.00
n2	600x600	Each	52200.00
o2	700x100	Each	42456.00
p2	700x150	Each	44544.00
q2	700x200	Each	47676.00
r2	700X250	Each	55854.00
s2	700x300	Each	55854.00
t2	700x400	Each	66294.00
u2	700X450	Each	87000.00
v2	700x500	Each	87000.00
w2	700x600	Each	97266.00
x2	700x700	Each	103530.00
y2	750x100	Each	65250.00
z2	750x150	Each	68382.00
a3	750x200	Each	74472.00
b3	750x300	Each	80736.00
c3	750x400	Each	89088.00
d3	750X450	Each	99354.00
e3	750x500	Each	99354.00
f3	750x600	Each	107706.00
g3	750x700	Each	117972.00
h3	750x750	Each	122148.00
i3	800x100	Each	55158.00
j3	800x150	Each	59508.00
k3	800x200	Each	63684.00
l3	800x300	Each	78474.00
m3	800x400	Each	89088.00
n3	800X450	Each	104052.00
o3	800x500	Each	104052.00
p3	800x600	Each	112578.00
q3	800x700	Each	116754.00
r3	800x800	Each	129456.00
s3	900x100	Each	81780.00
t3	900x150	Each	81780.00
u3	900x200	Each	88392.00
v3	900x400	Each	110490.00
w3	900x500	Each	145812.00
x3	900x600	Each	145812.00
y3	900X700	Each	154686.00
z3	900x800	Each	154686.00
a4	900x900	Each	165822.00

b4	1000x150	Each	98832.00
c4	1000x200	Each	103182.00
d4	1000x400	Each	123540.00
e4	1000x600	Each	202014.00
f4	1000X700	Each	211062.00
g4	1000x800	Each	211062.00
h4	1000X900	Each	224460.00
i4	1000x1000	Each	224460.00
II	Double Socket Reducer		
	Nominal Diameter in mm		
a	100x80	Each	1183.00
b	150x80	Each	1775.00
c	150x100	Each	1937.00
d	200x80	Each	2819.00
e	200x100	Each	2819.00
f	200x150	Each	3120.00
g	250x80	Each	4037.00
h	250x100	Each	4037.00
I	250x150	Each	4037.00
j	250x200	Each	3898.00
k	300x100	Each	5533.00
l	300x150	Each	5533.00
m	300x200	Each	5394.00
n	300x250	Each	5081.00
o	350x150	Each	7923.00
p	350x200	Each	7923.00
q	350x250	Each	7749.00
r	350x300	Each	7575.00
s	400x200	Each	11229.00
t	400x250	Each	9918.00
u	400x300	Each	9744.00
v	400x350	Each	8271.00
w	450x200	Each	11925.00
x	450x250	Each	11925.00
y	450x300	Each	12273.00
z	450x350	Each	11229.00
a1	450x400	Each	10266.00
b1	500x200	Each	16356.00
c1	500x250	Each	16356.00
d1	500x300	Each	16356.00
e1	500x350	Each	15660.00

f1	500x400	Each	15312.00
g1	500x450	Each	14790.00
h1	600x200	Each	24012.00
i1	600x250	Each	24012.00
j1	600x300	Each	24012.00
k1	600x350	Each	24012.00
l1	600x400	Each	23490.00
m1	600x450	Each	23664.00
n1	600x500	Each	21576.00
o1	700x250	Each	38106.00
p1	700x300	Each	38106.00
q1	700x400	Each	38106.00
r1	700x450	Each	38976.00
s1	700x500	Each	39672.00
t1	700x600	Each	35670.00
u1	750x300	Each	43500.00
v1	750x400	Each	43500.00
w1	750x450	Each	43500.00
x1	750x500	Each	44544.00
y1	750x600	Each	41412.00
z1	750x700	Each	38280.00
a2	800x300	Each	52200.00
b2	800x400	Each	52200.00
c2	800x450	Each	52200.00
d2	800x500	Each	52722.00
e2	800x600	Each	52026.00
f2	800x700	Each	47502.00
g2	900x400	Each	68904.00
h2	900x500	Each	68904.00
i2	900x600	Each	69600.00
j2	900x700	Each	69774.00
k2	900x800	Each	63684.00
l2	1000x400	Each	85260.00
m2	1000x600	Each	85260.00
n2	1000x700	Each	86478.00
o2	1000x800	Each	87522.00
p2	1000x900	Each	80736.00
III	Double Socket Tee with Branch Flange		
	Nominal Diameter in mm		
a	80x80	Each	1972.00
b	100x80	Each	2285.00

c	100x100	Each	2424.00
d	150x80	Each	3194.00
e	150x100	Each	3329.00
f	150x150	Each	4095.00
g	200x80	Each	4246.00
h	200x100	Each	4547.00
I	200x150	Each	5452.00
j	200X200	Each	6357.00
k	250x80	Each	5522.00
l	250x100	Each	5812.00
m	250x150	Each	6740.00
n	250x200	Each	7969.00
o	250x250	Each	9187.00
p	300x80	Each	7343.00
q	300x100	Each	7656.00
r	300x150	Each	8584.00
s	300x200	Each	9640.00
t	300x250	Each	11333.00
u	300x300	Each	12250.00
v	350x80	Each	9663.00
w	350x100	Each	9837.00
x	350x150	Each	11658.00
y	350x200	Each	12528.00
z	350x250	Each	15057.00
a1	350x300	Each	16704.00
b1	350x350	Each	18363.00
c1	400x80	Each	11658.00
d1	400x100	Each	11832.00
e1	400x150	Each	13398.00
f1	400x200	Each	15405.00
g1	400x250	Each	17226.00
h1	400x300	Each	19059.00
i1	400x350	Each	24186.00
j1	400x400	Each	24186.00
k1	450x80	Each	14361.00
l1	450x100	Each	14709.00
m1	450x150	Each	15834.00
n1	450x200	Each	18015.00
o1	450x250	Each	20010.00
p1	450x300	Each	22365.00
q1	450x350	Each	26541.00
r1	450x400	Each	26541.00

s1	450x450	Each	28884.00
t1	500x80	Each	18270.00
u1	500x100	Each	18444.00
v1	500x150	Each	22017.00
w1	500x200	Each	22620.00
x1	500x250	Each	26889.00
y1	500x300	Each	27585.00
z1	500x350	Each	30798.00
a2	500x400	Each	32457.00
b2	500x450	Each	38199.00
c2	500x500	Each	38257.00
d2	600x80	Each	27063.00
e2	600x100	Each	27759.00
f2	600x150	Each	28710.00
g2	600x200	Each	30624.00
h2	600x250	Each	39417.00
i2	600x300	Each	39417.00
j2	600x350	Each	42978.00
k2	600x400	Each	42978.00
l2	600x450	Each	51945.00
m2	600x500	Each	51945.00
n2	600x600	Each	57339.00
o2	700x100	Each	44196.00
p2	700x150	Each	46458.00
q2	700x200	Each	48546.00
r2	700x250	Each	57420.00
s2	700x300	Each	59682.00
t2	700x400	Each	66294.00
u2	700x450	Each	81780.00
v2	700x500	Each	81780.00
w2	700x600	Each	90654.00
x2	700x700	Each	97266.00
y2	750x100	Each	53070.00
z2	750x150	Each	56376.00
a3	750x200	Each	59682.00
b3	750x300	Each	67338.00
c3	750x400	Each	75168.00
d3	750x450	Each	84390.00
e3	750x500	Each	84390.00
f3	750x600	Each	93264.00
g3	750x700	Each	102834.00
h3	750x750	Each	108228.00

i3	800x100	Each	58812.00
j3	800x150	Each	63336.00
k3	800x200	Each	67860.00
l3	800x300	Each	79170.00
m3	800x400	Each	85956.00
n3	800x450	Each	113100.00
o3	800x500	Each	113100.00
p3	800x600	Each	118842.00
q3	800x700	Each	124410.00
r3	800x800	Each	131196.00
s3	900x100	Each	79170.00
t3	900x150	Each	79170.00
u3	900x200	Each	84042.00
v3	900x400	Each	108054.00
w3	900x500	Each	164430.00
x3	900x600	Each	156078.00
y3	900x700	Each	172956.00
z3	900x800	Each	172956.00
a4	900x900	Each	182526.00
b4	1000x150	Each	105444.00
c4	1000x200	Each	110490.00
d4	1000x400	Each	137460.00
e4	1000x600	Each	217152.00
f4	1000x700	Each	230550.00
g4	1000x800	Each	230550.00
h4	1000x900	Each	241686.00
i4	1000x1000	Each	241686.00
IV	Flanged Socket		
	Nominal Diameter in mm		
a	80	Each	1218.00
b	100	Each	1357.00
c	150	Each	2123.00
d	200	Each	3028.00
e	250	Each	3990.00
f	300	Each	5208.00
g	350	Each	7749.00
h	400	Each	9489.00
I	450	Each	10533.00
j	500	Each	13398.00
k	600	Each	19581.00
l	700	Each	33234.00

m	750	Each	40368.00
n	800	Each	45936.00
o	900	Each	60900.00
p	1000	Each	79692.00
V	M.J.Collar		
	Nominal Diameter in mm		
a	80	Each	2285.00
b	100	Each	2738.00
c	150	Each	4246.00
d	200	Each	5452.00
e	250	Each	7204.00
f	300	Each	9350.00
g	350	Each	14094.00
h	400	Each	18444.00
I	450	Each	20706.00
j	500	Each	26622.00
k	600	Each	32979.00
l	700	Each	58812.00
m	750	Each	62988.00
n	800	Each	79518.00
o	900	Each	103356.00
p	1000	Each	129456.00
VI	Double socket branch flange Invert tee (Scour valve)		
	Nominal Diameter in mm		
a	80x80	Each	2571.00
b	100x80	Each	3026.00
c	100x100	Each	3187.00
d	150x80	Each	4149.00
e	150x100	Each	4470.00
f	150x150	Each	5409.00
g	200x80	Each	5142.00
h	200x100	Each	5397.00
I	200x150	Each	6233.00
j	200X200	Each	7339.00
k	250x80	Each	6428.00
l	250x100	Each	6792.00
m	250x150	Each	8208.00
n	250x200	Each	9206.00
o	250x250	Each	10623.00

p	300x80	Each	7970.00
q	300x100	Each	8363.00
r	300x150	Each	9439.00
s	300x200	Each	10768.00
t	300x250	Each	12348.00
u	300x300	Each	13284.00
v	350x80	Each	11258.00
w	350x100	Each	11187.00
x	350x150	Each	13212.00
y	350x200	Each	14274.00
z	350x250	Each	17009.00
a1	350x300	Each	20754.00
b1	350x350	Each	21513.00
c1	400x80	Each	13212.00
d1	400x100	Each	13292.00
e1	400x150	Each	14580.00
f1	400x200	Each	16789.00
g1	400x250	Each	18802.00
h1	400x300	Each	20864.00
i1	400x350	Each	26362.00
j1	400x400	Each	26362.00
k1	450x80	Each	15906.00
l1	450x100	Each	15598.00
m1	450x150	Each	17412.00
n1	450x200	Each	19077.00
o1	450x250	Each	21218.00
p1	450x300	Each	23787.00
q1	450x350	Each	28115.00
r1	450x400	Each	28115.00
s1	450x450	Each	30542.00
t1	500x80	Each	18268.00
u1	500x100	Each	18175.00
v1	500x150	Each	21745.00
w1	500x200	Each	22310.00
x1	500x250	Each	26546.00
y1	500x300	Each	27252.00
z1	500x350	Each	30359.00
a2	500x400	Each	31912.00
b2	500x450	Each	37560.00
c2	500x500	Each	37560.00
d2	600x80	Each	26688.00
e2	600x100	Each	23465.00

f2	600x150	Each	30651.00
g2	600x200	Each	31842.00
h2	600x250	Each	37199.00
i2	600x300	Each	37199.00
j2	600x350	Each	43298.00
k2	600x400	Each	43298.00
l2	600x450	Each	54012.00
m2	600x500	Each	54012.00
n2	600x600	Each	59517.00
o2	700x100	Each	43646.00
p2	700x150	Each	42330.00
q2	700x200	Each	48400.00
r2	700x250	Each	57118.00
s2	700x300	Each	57118.00
t2	700x400	Each	63932.00
u2	700x450	Each	76959.00
v2	700x500	Each	76959.00
w2	700x600	Each	84676.00
x2	700x700	Each	93394.00
y2	750x100	Each	52809.00
z2	750x150	Each	47808.00
a3	750x200	Each	50420.00
b3	750x300	Each	56882.00
c3	750x400	Each	63429.00
d3	750x450	Each	71336.00
e3	750x500	Each	71336.00
f3	750x600	Each	78819.00
g3	750x700	Each	86725.00
h3	750x750	Each	91487.00
i3	800x100	Each	47104.00
j3	800x150	Each	53120.00
k3	800x200	Each	57938.00
l3	800x300	Each	67333.00
m3	800x400	Each	74333.00
n3	800x450	Each	101966.00
o3	800x500	Each	101966.00
p3	800x600	Each	109058.00
q3	800x700	Each	112190.00
r3	800x800	Each	118270.00
s3	900x100	Each	67886.00
t3	900x150	Each	70546.00
u3	900x200	Each	75196.00

v3	900x400	Each	96640.00
w3	900x500	Each	147027.00
x3	900x600	Each	147027.00
y3	900x700	Each	152508.00
z3	900x800	Each	152508.00
a4	900x900	Each	162028.00
b4	1000x150	Each	93177.00
c4	1000x200	Each	91568.00
d4	1000x400	Each	113508.00
e4	1000x600	Each	179361.00
f4	1000x700	Each	190532.00
g4	1000x800	Each	190532.00
h4	1000x900	Each	199630.00
i4	1000x1000	Each	199630.00
VII	Double Socket Bend 90 Degree		
	Nominal Diameter in mm		
a	80	Each	1183.00
b	100	Each	1485.00
c	150	Each	2668.00
d	200	Each	4304.00
e	250	Each	6577.00
f	300	Each	8978.00
g	350	Each	14094.00
h	400	Each	18189.00
I	450	Each	24453.00
j	500	Each	31320.00
k	600	Each	48720.00
l	700	Each	86652.00
m	750	Each	102660.00
n	800	Each	122496.00
o	900	Each	166692.00
p	1000	Each	230550.00
VIII	Double Socket Bend 45 Degree		
	Nominal Diameter in mm		
a	80	Each	1183.00
b	100	Each	1346.00
c	150	Each	2076.00
d	200	Each	3550.00
e	250	Each	4942.00
f	300	Each	7030.00

g	350	Each	10092.00
h	400	Each	13224.00
I	450	Each	17226.00
j	500	Each	22272.00
k	600	Each	34452.00
l	700	Each	56898.00
m	750	Each	69426.00
n	800	Each	79866.00
o	900	Each	107706.00
p	1000	Each	145812.00
IX	Double Socket Bend 22.5 Degree		
	Nominal Diameter in mm		
a	80	Each	1044.00
b	100	Each	1346.00
c	150	Each	1937.00
d	200	Each	2958.00
e	250	Each	4199.00
f	300	Each	5986.00
g	350	Each	8271.00
h	400	Each	10266.00
I	450	Each	13224.00
j	500	Each	17748.00
k	600	Each	26100.00
l	700	Each	43152.00
m	750	Each	53766.00
n	800	Each	61422.00
o	900	Each	78648.00
p	1000	Each	102660.00
X	Double Socket Bend 11.25 Degree		
	Nominal Diameter in mm		
a	80	Each	1044.00
b	100	Each	1183.00
c	150	Each	1775.00
d	200	Each	2819.00
e	250	Each	3898.00
f	300	Each	5243.00
g	350	Each	6612.00
h	400	Each	8967.00
I	450	Each	12273.00
j	500	Each	15312.00

k	600	Each	22620.00
l	700	Each	35844.00
m	750	Each	42108.00
n	800	Each	50460.00
o	900	Each	65076.00
p	1000	Each	82128.00
XI	All Socket Cross		
a	80	Each	2428.00
b	100	Each	3032.00
c	150	Each	5157.00
d	200	Each	7875.00
e	250	Each	11661.00
f	300	Each	15947.00
g	350	Each	22742.00
h	400	Each	28747.00
I	450	Each	37458.00
j	500	Each	48783.00
k	600	Each	71781.00
l	700	Each	120564.00
m	750	Each	143910.00
n	800	Each	172134.00
o	900	Each	240431.00
p	1000	Each	314476.00
XII	Collar Tyton		
a	80	Each	1347.00
b	100	Each	1638.00
c	150	Each	2532.00
d	200	Each	3264.00
e	250	Each	4344.00
f	300	Each	5703.00
g	350	Each	8281.00
h	400	Each	10895.00
I	450	Each	11940.00
j	500	Each	15680.00
k	600	Each	20036.00
l	700	Each	36239.00
m	750	Each	37981.00
n	800	Each	47563.00
o	900	Each	60630.00
p	1000	Each	74220.00

XIII	Branch Flange		
a	80	Each	685.00
b	100	Each	860.00
c	150	Each	1359.00
d	200	Each	1870.00
e	250	Each	2927.00
f	300	Each	4147.00
g	350	Each	6621.00
h	400	Each	8189.00
I	450	Each	11243.00
j	500	Each	13508.00
k	600	Each	19513.00
l	700	Each	33625.00
m	750	Each	42337.00
n	800	Each	48957.00
o	900	Each	64986.00
p	1000	Each	86764.00
XIV	Caps		
a	80	Each	592.00
b	100	Each	755.00
c	150	Each	1347.00
d	200	Each	2369.00
e	250	Each	2846.00
f	300	Each	4495.00
g	350	Each	7585.00
h	400	Each	9931.00
I	450	Each	12544.00
j	500	Each	15854.00
k	600	Each	22127.00
l	700	Each	36239.00
m	750	Each	41814.00
n	800	Each	48260.00
o	900	Each	65334.00
p	1000	Each	85196.00
XV	Plug		
a	80	Each	453.00
b	100	Each	755.00
c	150	Each	1347.00
d	200	Each	2079.00

e	250	Each	2846.00
f	300	Each	4495.00
g	350	Each	7317.00
h	400	Each	8630.00
I	450	Each	10895.00
j	500	Each	14286.00
k	600	Each	20907.00
l	700	Each	37284.00
m	750	Each	45647.00
n	800	Each	51048.00
o	900	Each	68645.00
p	1000	Each	87635.00
XVI	All Flange Tee		
	Nominal Diameter in mm		
1	80x80	Each	2648.00
2	100x80	Each	2985.00
3	100x100	Each	3159.00
4	150x80	Each	4634.00
5	150x100	Each	4809.00
6	150x150	Each	5296.00
7	200x80	Each	6795.00
8	200x100	Each	6957.00
9	200x150	Each	7457.00
10	200X200	Each	8119.00
11	250x80	Each	10825.00
12	250x100	Each	10999.00
13	250x150	Each	11661.00
14	250x200	Each	12010.00
15	250x250	Each	13020.00
16	300x80	Each	14031.00
17	300x100	Each	14379.00
18	300x150	Each	15216.00
19	300x200	Each	16064.00
20	300x250	Each	17411.00
21	300x300	Each	18596.00
22	350x80	Each	20733.00
23	350x100	Each	21255.00
24	350x150	Each	21871.00
25	350x200	Each	22475.00
26	350x250	Each	25704.00
27	350x300	Each	26482.00

28	350x350	Each	27098.00
29	400x80	Each	26134.00
30	400x100	Each	27098.00
31	400x150	Each	28840.00
32	400x200	Each	28050.00
33	400x250	Each	29363.00
34	400x300	Each	30582.00
35	400x350	Each	32847.00
36	400x400	Each	32847.00
37	450x80	Each	30931.00
38	450x100	Each	32150.00
39	450x150	Each	32499.00
40	450x200	Each	32847.00
41	450x250	Each	34241.00
42	450x300	Each	35542.00
43	450x350	Each	37900.00
44	450x400	Each	37900.00
45	450x450	Each	38852.00
46	500x80	Each	41291.00
47	500x100	Each	41733.00
48	500x150	Each	42337.00
49	500x200	Each	42685.00
50	500x250	Each	43730.00
51	500x300	Each	45647.00
52	500x350	Each	47656.00
53	500x400	Each	49654.00
54	500x450	Each	53661.00
55	500x500	Each	53661.00
56	600x80	Each	57587.00
57	600x100	Each	58017.00
58	600x150	Each	58633.00
59	600x200	Each	59585.00
60	600X250	Each	62547.00
61	600x300	Each	62547.00
62	600X350	Each	65509.00
63	600x400	Each	65509.00
64	600X450	Each	69516.00
65	600x500	Each	69516.00
66	600x600	Each	73523.00
67	700x100	Each	57146.00
68	700x150	Each	61850.00
69	700x200	Each	65334.00

70	700X250	Each	73523.00
71	700x300	Each	73523.00
72	700x400	Each	81712.00
73	700X450	Each	94604.00
74	700x500	Each	94604.00
75	700x600	Each	110981.00
76	700x700	Each	117950.00
77	750x100	Each	63069.00
78	750x150	Each	65334.00
79	750x200	Each	67077.00
80	750x300	Each	81537.00
81	750x400	Each	83802.00
82	750X450	Each	113246.00
83	750x500	Each	113246.00
84	750x600	Each	116731.00
85	750x700	Each	120215.00
86	750x750	Each	122654.00
87	800x100	Each	84848.00
88	800x150	Each	85893.00
89	800x200	Each	87113.00
90	800x300	Each	100005.00
91	800x400	Each	106626.00
92	800X450	Each	132237.00
93	800x500	Each	132237.00
94	800x600	Each	147743.00
95	800x700	Each	159590.00
96	800x800	Each	159764.00
97	900x100	Each	97914.00
98	900x150	Each	97914.00
99	900x200	Each	100354.00
100	900x400	Each	127881.00
101	900x500	Each	183110.00
102	900x600	Each	183110.00
103	900X700	Each	208199.00
104	900x800	Each	208199.00
105	900x900	Each	210812.00
106	1000x150	Each	126662.00
107	1000x200	Each	127881.00
108	1000x400	Each	168127.00
109	1000x600	Each	243392.00
110	1000X700	Each	263428.00
111	1000x800	Each	263428.00

112	1000X900	Each	275972.00
113	1000x1000	Each	275972.00
XVII	Double Flange Reducer		
	Nominal Diameter in mm		
1	100x80	Each	1498.00
2	150x80	Each	2497.00
3	150x100	Each	2648.00
4	200x80	Each	3310.00
5	200x100	Each	3310.00
6	200x150	Each	3647.00
7	250x80	Each	5076.00
8	250x100	Each	5076.00
9	250x150	Each	5076.00
10	250x200	Each	5250.00
11	300x100	Each	6086.00
12	300x150	Each	6086.00
13	300x200	Each	6086.00
14	300x250	Each	6760.00
15	350x150	Each	9327.00
16	350x200	Each	9327.00
17	350x250	Each	9327.00
18	350x300	Each	9675.00
19	400x200	Each	11069.00
20	400x250	Each	11592.00
21	400x300	Each	12022.00
22	400x350	Each	12986.00
23	450x200	Each	13160.00
24	450x250	Each	13160.00
25	450x300	Each	13508.00
26	450x350	Each	13938.00
27	450x400	Each	14554.00
28	500x200	Each	21697.00
29	500x250	Each	21697.00
30	500x300	Each	21697.00
31	500x350	Each	21871.00
32	500x400	Each	22475.00
33	500x450	Each	22998.00
34	600x200	Each	28840.00
35	600x250	Each	28840.00
36	600x300	Each	28840.00
37	600x350	Each	28840.00

38	600x400	Each	29363.00
39	600x450	Each	29792.00
40	600x500	Each	30582.00
41	700x300	Each	43905.00
42	700x400	Each	43905.00
43	700x450	Each	44427.00
44	700x500	Each	45299.00
45	700x600	Each	47563.00
46	750x450	Each	49654.00
47	750x500	Each	50177.00
48	750x600	Each	51396.00
49	750x700	Each	54707.00
50	800x300	Each	61501.00
51	800x400	Each	61501.00
52	800x450	Each	61501.00
53	800x500	Each	62024.00
54	800x600	Each	62895.00
55	800x700	Each	63766.00
56	900x500	Each	77704.00
57	900x600	Each	79098.00
58	900x700	Each	80318.00
59	900x800	Each	81537.00
60	1000x600	Each	95301.00
61	1000x700	Each	96521.00
62	1000x800	Each	97914.00
63	1000x900	Each	98611.00
15057	Supply of flanged flat Rubber gasket moulded out of SBR rubber confirming to IS 5382/1985 The gasket should have dual thickness 3/6 mm with a 6mm thickness at the sealing cross section. (Rubber insertions 3mm thick conforming to IS:6638-1995)		
	Nominal Diameter in mm		
a	50	Each	70.00
b	65	Each	91.00
c	80	Each	91.00
d	100	Each	122.00
e	125	Each	145.00
f	150	Each	195.00
g	200	Each	242.00
h	250	Each	332.00
I	300	Each	364.00

j	350	Each	442.00
k	400	Each	547.00
l	450	Each	559.00
m	500	Each	700.00
n	600	Each	941.00
o	700	Each	1032.00
p	750	Each	1291.96
q	800	Each	1617.41
r	900	Each	2216.00
s	1000	Each	2306.00
15057(A)	Supply of flanged flat Rubber gasket moulded out of EPDM rubber confirming to IS 5382/1985 The gasket should have dual thickness 3/6 mm with a 6mm thickness at the sealing cross section. (Rubber insertions 3mm thick conforming to IS:6638-1995).		
	Nominal Diameter in mm		
a	50	Each	107.00
b	65	Each	137.00
c	80	Each	142.00
d	100	Each	180.00
e	125	Each	210.00
f	150	Each	292.00
g	200	Each	360.00
h	250	Each	496.00
I	300	Each	545.00
j	350	Each	650.00
k	400	Each	813.00
l	450	Each	826.00
m	500	Each	1030.00
n	600	Each	1395.00
o	700	Each	1527.00
p	900	Each	2155.00
q	1000	Each	2388.00

MILD STEEL PIPES			
15058	Manufacturing and supplying at the site of work spirally submerged arch welded MS pipes including procurement of plates, gas cutting to required size, rolling, tack welding, assembling in suitable length to form pipe, welding on automatic machine and forming 'v' edge on both ends of pipes, including hydraulic pressure test conforming to IS : 3589-2001 grade Fe 410 in double random length of 10 to 12.2 metres in bevelled ends including freight, Loading and unloading by mechanical crane and stacking at site etc. complete.		
	Size in (OD) in MM for 10 mm thickness		
a	457	Metre	7087.00
b	508	Metre	7944.00
c	610	Metre	9570.00
d	711	Metre	11090.00
e	813	Metre	12760.00
f	914	Metre	14506.00
g	1016	Metre	16491.00
h	1067	Metre	17258.00
I	1118	Metre	18026.00
j	1219	Metre	19546.00
k	1422	Metre	23052.00
l	1626	Metre	27024.00
m	1829	Metre	32787.00
n	2032	Metre	35842.00
o	2235	Metre	38896.00
p	2540	Metre	43465.00
	Size in (OD) in MM for 12 mm thickness		
q	457	Metre	8397.00
r	508	Metre	9307.00
s	610	Metre	11340.00
t	711	Metre	13163.00
u	813	Metre	15140.00
v	914	Metre	17190.00
w	1016	Metre	19482.00
x	1067	Metre	20404.00
y	1118	Metre	21325.00
z	1219	Metre	23148.00
a1	1422	Metre	27265.00
b1	1626	Metre	31851.00
c1	1829	Metre	38226.00
d1	2032	Metre	41891.00

e1	2235	Metre	45556.00
f1	2540	Metre	51034.00
15060	Manufacturing and supplying at the site of work ER welded MS pipes including procurement of plates, gas cutting to required size, rolling, tack welding, assembling in suitable length to form pipe, welding on automatic machine and forming v edge on both ends of pipes, including hydraulic pressure test conforming to IS : 3589- 2001 grade Fe 410 in double random length of 10 to 12.2 metres in bevelled ends including ,freight loading & unloading mechanical crane & stacking at site etc. complete.		
	Size in (OD) in MM for 10mm thickness		
a	219.1	Metre	4022.00
b	273	Metre	4833.00
c	323.9	Metre	5815.00
d	355.6	Metre	6297.00
e	406.4	Metre	7261.00
	Size in (OD) in MM for 12mm thickness		
a	219.1	Metre	4615.00
b	273	Metre	5589.00
c	323.9	Metre	6724.00
d	355.6	Metre	7301.00
e	406.4	Metre	8418.00
15062 (A)	Manufacturing and supplying at site of work welded MS pipes of finished ID of suitable lengths made out of fabricating, welding forming 'V' edge to both ends of the pipes sides including providing and fixing welding etc. of suitable MS hinges conforming to relevant IS codes, stresses induced due to trench conditions, backfilling class 'A' traffic loading, handling temperature variation etc. testing the pipeline to a field test pressure of 25 kg /cm ² as directed by Engineer-in-charge. (the finished internal dia. is to be considered without cement mortar lining /Epoxy painting).		
A	10 mm thick (plate welded)		
	Dia in mm		
a	400	Metre	11338.00
b	500	Metre	13999.00
c	600	Metre	16776.00
d	700	Metre	19443.00
e	800	Metre	22220.00

f	900	Metre	24998.00
g	1000	Metre	27381.00
h	1100	Metre	30441.00
I	1200	Metre	32775.00
j	1300	Metre	35885.00
k	1400	Metre	38663.00
B	12 mm thick (plate welded)		
	Dia in mm		
a	400	Metre	13564.00
b	500	Metre	16887.00
c	600	Metre	20109.00
d	700	Metre	23442.00
e	800	Metre	26775.00
f	900	Metre	30138.00
g	1000	Metre	33330.00
h	1100	Metre	36552.00
I	1200	Metre	36885.00
j	1300	Metre	37219.00
k	1400	Metre	46440.00

MILD STEEL SPECIALS

15063	Supplying stacking at site and conveying hoisting, laying in position to correct line and level and linking joints of MS specials. fabricated from MS plate including cutting, bending, welding, procurement of plates, gas cutting to required size, rolling, tack welding, assembling in suitable length to form special, welding on automatic machine and forming V edge on both ends of special as required, hydraulic pressure test at factory to the required test pressure conforming to IS : 3589-1991 including freight etc. complete		
	I With 10 mm -12 mm thick plate		
a	Tees, bends, reducers,	Kg	111.00
b	M.S.spigot tail piece suitable for connectiong M.S pipeline with C.I./D.I pipeline	Kg	222.00
c	M.S.socketed tail piece suitable for connectiong M.S pipeline with C.I./D.I pipeline	Kg	141.00
II	With 25 mm thick Plate		
a	Flanges	Kg	222.00

15064	Welding joint in all position with minimum 3 Nos. of runs for MS pipes and specials and flanges, internally and externally including gauging wherever necessary, fixing appurtenances and other accessories, cost of water pumping arrangement and hydraulic testing etc. complete for 12mm/10mm thick M.S.plate.		
	Dia in mm		
a	300	Each	2273.00
b	400	Each	2808.00
c	450	Each	3232.00
d	500	Each	3575.00
e	600	Each	4040.00
f	700	Each	4626.00
g	800	Each	5252.00
h	900	Each	5858.00
I	1000	Each	6161.00
j	1100	Each	6868.00
k	1200	Each	6959.00
l	1300	Each	7474.00
m	1400	Each	7979.00
15065	Providing and applying primer coat or of fibres, coal tar and solvent based rubber modified bituminous primer of density 0.92 gm/cu. cm. and viscosity of 1000-2000 cps @ 150 gms/Sqm followed by seven layers (4 mm thick) of polythene polymerised bitumen ester of local 7 layers pipe coat 4 mm should conform to requirement of IS :10221 and AWWA C-203 for prefabricated tapes including Cost of material for coating and wrapping handling charges preparation of pipe surface all labour machinery etc. complete.	Sq. m.	525.00
15066	Providing and applying with mechanical arrangement 50 mm thick gunniting of CM 1 : 3.5 (1 cement : 3.5 fine sand) on the external surface under 2.1 to 2.8 kg. per sq. cms. on the MS pipeline including curing, handling and preparation of pipe surface, cleaning by compressed air and providing and fixing BRC fabric No.14 as reinforcement, labour, machinery including cost of water and pumping arrangement etc. complete.		
a	At site of work	Sq. m.	556.00

15067	Providing and applying 12 mm cement mortar 1:1 (1cement : 1 fine sand) on the internal surface of the MS pipeline including curing, handling and preparation of pipe surface, labour, machinery including cost of water and pumping arrangement etc. complete at factory stacking at site as per direction of Engineer -In-charge	Sq. m.	758.00
15068	Providing and laying three coat of anticorrosive and anti-toxic surface coating for MS pipeline. The paint shall be applied after removing the scales and rust over the pipe by wire brush. Paint shall be applied uniformly to achieve uniform coating of average DFT of 60 microns per coat with the brush. 2nd coat shall be applied over the 1st coat after 8 hrs. the process shall be repeated for the 3rd coat. DFT for the final coat shall be 35 microns . Final surface shall be uniform and shall have total thickness of about 150 microns . The rate is inclusive of material ,transportation up to the site of work including ,labour, machinery as required etc. complete . All three coats shall be of distinctive colour as approved be Engineer-in-charge.	Sq. m.	495.00
MILD STEEL CONTINUOUS GALVANIZED WELDED TUBES			
15069	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. galvanized mild steel continuous weld tubes conforming to IS:1239 (part-I) 1975, with latest amendments, screwed at both the ends as per IS : 554 - pipe threads, one end fitted with socket, other end with plastic protection ring at random lengths 4-7 meters.		
Class A			
Dia in mm			
a	15	Metre	198.00
b	20	Metre	267.00
c	25	Metre	349.00
d	32	Metre	366.00
e	40	Metre	572.00
f	50	Metre	744.00
g	65	Metre	991.00
h	80	Metre	1180.00
I	100	Metre	1655.00

15070	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. galvanized mild steel continuous weld tubes conforming to IS:1239 (part II) 1975 , with latest amendments, screwed at both the ends as per IS : 554-pipe threads, one end fitted with socket other end with plastic protection ring at random length 4-7 metres.		
	Class B		
	Nominal Diameter in mm		
a	15	Metre	228.00
b	20	Metre	289.00
c	25	Metre	416.00
d	32	Metre	525.00
e	40	Metre	616.00
f	50	Metre	739.00
g	65	Metre	1090.00
h	80	Metre	1390.00
I	100	Metre	2099.00
j	125	Metre	2834.00
k	150	Metre	3348.00
15071	Supplying at store/ site of work including railway freight, carting, loading, unloading, stacking etc. galvanized mild steel continuous weld tubes conforming to IS 1239 (part I) 1975, with latest amendments screwed at both the ends as per IS : 554 - pipe threads, one and fitted with socket other end with plastic protection ring at random lengths 4 - 7 meters		
	Class C		
	Nominal Diameter in mm		
a	15	Metre	236.00
b	20	Metre	337.00
c	25	Metre	470.00
d	32	Metre	614.00
e	40	Metre	734.00
f	50	Metre	955.00
g	65	Metre	1274.00
h	80	Metre	1626.00
I	100	Metre	1838.00
j	125	Metre	2390.00
k	150	Metre	3578.00

MDPE PIPES & FITTINGS				
15072	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc Blue MDPE pipes confirming to ISO 4427:1996 manufactured from Virgin Resin PE 80 food grade compounded raw material having Blue colour only with quality assurance certificate from quality agencies like WRC /CIPET (India)/ DVGM/ KIWA/ SPGN etc.			
I	PN10 (SDR 13.60)			
	Outer Diameter in mm			
a	63	Metre	174.00	
b	75	Metre	246.00	
c	90	Metre	354.00	
d	110	Metre	523.00	
e	125	Metre	673.00	
f	140	Metre	844.00	
g	160	Metre	1105.00	
h	180	Metre	1400.00	
I	200	Metre	1723.00	
j	225	Metre	2228.00	
k	250	Metre	2740.00	
l	280	Metre	3442.00	
m	315	Metre	4358.00	
II	PN12.5 (SDR 11)			
	Outer Diameter in mm			
a	25	Metre	52.00	
b	32	Metre	87.00	
c	40	Metre	105.00	
d	50	Metre	151.00	
e	63	Metre	203.00	
f	75	Metre	285.00	
g	90	Metre	412.00	
h	110	Metre	611.00	
I	125	Metre	794.00	
j	140	Metre	992.00	
k	160	Metre	1299.00	
l	180	Metre	1671.00	
m	200	Metre	2063.00	
n	225	Metre	2611.00	
o	250	Metre	3217.00	
p	280	Metre	4032.00	

q	315	Metre	5111.00
III	PN16 (SDR 9)		
	Outer Diameter in mm		
a	20	Metre	41.00
b	25	Metre	55.00
c	32	Metre	89.00
d	40	Metre	113.00
e	50	Metre	172.00
f	63	Metre	258.00
g	75	Metre	343.00
h	90	Metre	495.00
I	110	Metre	735.00
j	125	Metre	949.00
k	140	Metre	1193.00
l	160	Metre	1581.00
m	180	Metre	2000.00
n	200	Metre	2473.00
o	225	Metre	3133.00
p	250	Metre	3854.00
q	280	Metre	4842.00
r	315	Metre	6129.00
IV	PN 8 (SDR 17)		
	Outer Diameter in mm		
a	75	Metre	199.00
b	90	Metre	287.00
c	110	Metre	426.00
d	125	Metre	546.00
e	140	Metre	684.00
f	160	Metre	896.00
g	180	Metre	1135.00
h	200	Metre	1397.00
I	225	Metre	1775.00
j	250	Metre	2178.00
k	280	Metre	2786.00
l	315	Metre	3530.00
V	PN6 (SDR 21)		
a	90	Metre	221.00
b	110	Metre	330.00
c	125	Metre	425.00

d	140	Metre	534.00
e	160	Metre	699.00
f	180	Metre	878.00
g	200	Metre	1091.00
h	225	Metre	1381.00
I	250	Metre	1686.00
j	280	Metre	2133.00
k	315	Metre	2682.00
15073	Supply at store or site of work including railway freight, carting, loading, unloading, stacking etc. compression fittings Pn 16 rated in confirmation to ISO 14236-2000 and shall be tested as per ISO 3459, ISO -3501 and ISO 3503.		
I	Male Adapter		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"	Each	221.00
b	25x3/4"	Each	285.00
c	32x1"	Each	377.00
d	40x11/4"	Each	1034.00
e	50x11/2"	Each	1336.00
f	63x2"	Each	2509.00
II	Female Adapter		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"	Each	221.00
b	25x3/4"- 64x20	Each	285.00
c	32x1" - 81x25	Each	377.00
d	40x11/4"-102x32	Each	1034.00
e	50x11/2"-127x40	Each	1336.00
f	63x2" - 160x50	Each	2509.00
III	Coupling		
a	Outer Diameter in mm		
b	20x20	Each	187.00
c	25x25	Each	216.00
d	32x32	Each	285.00
e	40x40	Each	453.00
f	50x50	Each	494.00

g	63x63	Each	607.00
IV	Reducing Coupling		
	Outer Diameter in mm		
a	25x20	Each	192.00
b	32x20	Each	244.00
c	32x25	Each	250.00
d	40x25	Each	377.00
e	40x32	Each	389.00
f	50x32	Each	495.00
g	50x40	Each	510.00
h	63x50	Each	789.00
V	Elbow 90 Degree		
	Outer Diameter in mm		
a	20	Each	197.00
b	25	Each	221.00
c	32	Each	261.00
d	40	Each	401.00
e	50	Each	569.00
f	63	Each	762.00
VI	90 Degree Elbow -Male threaded offtake		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"- 50x12	Each	131.00
b	25x3/4"-64x20	Each	159.00
c	32x1" -81x25	Each	210.00
d	40x11/4"-102x32	Each	330.00
e	50x11/2"-127x40	Each	452.00
f	63x2" -160x50	Each	627.00
VII	90 Degree Elbow -Female threaded offtake		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"- 50x12	Each	150.00
b	25x3/4"-64x20	Each	185.00
c	32x1" -81x25	Each	222.00
d	40x11/4"-102x32	Each	432.00
e	50x11/2"-127x40	Each	578.00
f	63x2" -160x50	Each	782.00

VIII	90 Degree Elbow threaded male/Female offtake in metal		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"- 50x12	Each	244.00
b	25x3/4"-64x20	Each	331.00
c	32x1" -81x25	Each	436.00
d	40x11/4"-102x32	Each	1336.00
e	50x11/2"-127x40	Each	2091.00
f	63x2" -160x50	Each	3426.00
IX	Equal Tee		
	Sizes in mm		
a	20x20x20	Each	250.00
b	25x25x25	Each	319.00
c	32x32x32	Each	413.00
d	40x40x40	Each	674.00
e	50x50x50	Each	918.00
f	63x63x63	Each	1394.00
X	End cap		
	Sizes in mm		
a	20	Each	110.00
b	25	Each	145.00
c	32	Each	180.00
d	40	Each	308.00
e	50	Each	452.00
f	63	Each	598.00
	Valve with quick joint		
15074	Supply at store or site of work including railway freight, carting, loading, unloading, stacking etc.PVC ball valves in PN 16 rating with one end compression using Blue colour compression nut in polypropylene material 7 other end with female threads confirming to ISO:4422-4 .		
	Diameter -Main pipe outer diameter in mm & tapping size in inches		
a	20x1/2"	Each	221.00
b	25x3/4"	Each	285.00
c	32x1"	Each	337.00
d	40x11/4	Each	685.00
e	50x1/2	Each	918.00
f	63x2"	Each	1452.00

RCC PIPES				
15075	Providing at store or site work non-pressure RCC pipes of with collar joints conforming to IS:458-2003 revised as per amendment No.11 , including freight, carting, loading, unloading, stacking etc. complete.			
I	NP2 Class			
	Dia in mm			
a	80	Metre	809.00	
b	100	Metre	869.00	
c	150	Metre	1015.00	
d	200	Metre	1168.00	
e	225	Metre	1246.00	
f	250	Metre	1327.00	
g	300	Metre	1591.00	
h	350	Metre	2379.00	
I	400	Metre	2563.00	
j	450	Metre	2904.00	
k	500	Metre	3125.00	
l	600	Metre	3832.00	
m	700	Metre	5908.00	
n	800	Metre	6552.00	
o	900	Metre	7379.00	
p	1000	Metre	10371.00	
q	1100	Metre	11291.00	
r	1200	Metre	12323.00	
s	1400	Metre	14196.00	
t	1600	Metre	16119.00	
u	1800	Metre	18743.00	
II	NP3 Class			
	Dia in mm			
a	80	Metre	809.00	
b	100	Metre	871.00	
c	150	Metre	1032.00	
d	200	Metre	1262.00	
e	225	Metre	1356.00	
f	250	Metre	1447.00	
g	300	Metre	1830.00	
h	350	Metre	3406.00	
I	400	Metre	3675.00	
j	450	Metre	3956.00	
k	500	Metre	4299.00	
l	600	Metre	5296.00	

m	700	Metre	7552.00
n	800	Metre	8796.00
o	900	Metre	10020.00
p	1000	Metre	13775.00
q	1100	Metre	15026.00
r	1200	Metre	16589.00
s	1400	Metre	19955.00
t	1600	Metre	23516.00
u	1800	Metre	28231.00

STONE WARE PIPES

15076	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. salt glazed stone ware pipes conforming to IS : 651 with up to date amendments in standard length of 60 cms bearing ISI certifications mark. Grade A		
	Nominal Diameter in mm		
a	100	Each	51.00
b	150	Each	92.00
c	200	Each	149.00
d	230	Each	190.00
e	250	Each	267.00
f	300	Each	445.00
15077	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. short bend conforming to BIS specifications suitable for salt glazed stoneware pipes including testing etc. complete.		
	Nominal Diameter in mm		
a	100	Each	66.00
b	150	Each	112.00
c	200	Each	158.00
d	230	Each	215.00
15078	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. single junction Tee 60cm long conforming to BIS specifications for salt glaze stoneware pipes including testing etc. complete		
	Nominal Diameter in mm		
a	100	Each	102.00

b	150	Each	163.00
c	200	Each	225.00
d	230	Each	306.00
15079	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. double junction Tee long conforming to BIS specifications for salt glaze stoneware pipes including testing etc. complete		
	Nominal Diameter in mm		
a	100	Each	158.00
b	150	Each	255.00
c	200	Each	352.00
15080	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. unplasticised non-pressure PVC pipes for using underground drainage and sewerage system confirming to IS : 15328 - 2003 stiffness class SN-4 (4 KN/m ² , SDR - 41)		
	Dia in mm		
a	125	Metre	293.00
b	160	Metre	459.00
c	200	Metre	723.00
15081	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. unplasticised non-pressure PVC pipes for using underground drainage and sewerage system confirming to IS : 15328 - 2003 stiffness class SN-8 (8 KN/m ² , SDR - 34)		
	Dia in mm		
a	110	Metre	253.00
b	125	Metre	329.00
c	160	Metre	548.00
d	200	Metre	857.00
15082	Supply of UPVC SWR Cut piece /Accessories		
I	Class -A Double Socket) 6 feet length		
a	Dia in mm	Each	179.00
b	75	Each	336.00
c	110		
II	Class -B (Double Socket) 6 feet length		

	Dia in mm		
a	75	Each	322.00
b	110	Each	493.00
c	160	Each	851.00
III	Class -A (Single Socket) 6 feet length		
	Dia in mm		
a	75	Each	176.00
b	110	Each	308.00
IV	Class -B (Single Socket) 6 feet length		
	Dia in mm		
a	75	Each	304.00
b	110	Each	473.00

VALVES

CAST IRON SLUICE VALVES				
15083	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. Sluice valve conforming to IS : 14846-2000 and bearing ISI mark double flanged with cap. TYPE P.N. 1.0 (Class B)			
	Nominal Diameter in mm			
a	50	Each	6541.00	
b	80	Each	7644.00	
c	100	Each	10190.00	
d	150	Each	15281.00	
e	200	Each	27644.00	
f	250	Each	39891.00	
g	300	Each	52876.00	
h	350	Each	81948.00	
I	400	Each	103626.00	
j	450	Each	139069.00	
k	500	Each	164705.00	
l	600	Each	257532.00	
m	700	Each	437817.00	
n	750	Each	634051.00	
o	800	Each	748090.00	
p	900	Each	896340.00	
q	1000	Each	1324667.00	
r	1200	Each	1826435.00	

15084	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast iron double flanged manually operated Sluice Valve generally conforming to IS : 14846 - 2000 having body, door, dome, gland in graded cast iron to IS:210 Gr. FG 200, four faces and spindle nut of leaded tin bronze to IS:318 Gr. LTB 2, inside screw of non-rising stainless steel AISI 410, spindle, Flanges drilled to IS:1538 Table 4 & 6. Valves tested by closed end method only (350mm and above will be fitted with BTB and Spur gear box. and back seat bush) TYPE P.N. 1.0 (Class A)		
	Nominal Diameter in mm		
a	50	Each	7654.00
b	65	Each	9235.00
c	80	Each	10466.00
d	100	Each	14631.00
e	125	Each	18046.00
f	150	Each	21575.00
g	200	Each	38014.00
h	250	Each	49539.00
I	300	Each	71308.00
j	350	Each	106556.00
k	400	Each	132655.00
l	450	Each	160343.00
m	500	Each	206532.00
n	600	Each	391006.00
o	700	Each	722414.00
p	750	Each	768300.00
q	800	Each	931919.00
r	900	Each	1147370.00
S	1000	Each	1419597.00
t	1100	Each	1855056.00
u	1200	Each	1913646.00

15084 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Ductile iron sewage double flanged manually operated Sluice Valve generally conforming to IS : 14846 - 2000 having body, door, dome, gland in graded ductile iron to IS:1865 Gr. FG 400/15 or 500/7, four faces and spindle nut of leaded gun metal of IS:318 Gr. LTB 2/Al-bronze , inside screw of non-rising stainless steel AISI 410, spindle, Flanges drilled to IS:1538 Table 4 & 6. Valves tested by closed end method only (400mm and above will be fitted with BTB and gear box. and air plug) TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	50	Each	19065.00
b	80	Each	25109.00
c	100	Each	35999.00
d	150	Each	47112.00
e	200	Each	77248.00
f	250	Each	106104.00
g	300	Each	132284.00
h	350	Each	244168.00
i	400	Each	318673.00
j	450	Each	399640.00
k	500	Each	460860.00
l	600	Each	653153.00
m	700	Each	1086034.00
n	750	Each	1279051.00
o	800	Each	1329102.00
p	900	Each	1803929.00
q	1000	Each	2286109.00
r	1100	Each	2684566.00
s	1200	Each	3083050.00
15084 (b)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Ductile iron Sewage double flanged manually operated Sluice Valve generally conforming to IS : 14846 - 2000 having body, door, dome, gland in graded cast iron to IS:210 Gr. FG 260, four faces and spindle nut of leaded tin bronze to IS:318 Gr. LTB 2, inside screw of non-rising stainless steel AISI 410 IS 6603 GR 12 CR 12 spindle, Flanges drilled to IS:1538 Table 4 & 6. Valves tested by closed end method only (350mm and above will be fitted with BTB and gear box. and back seat bush.) TYPE P.N. 1.6 (Class A)		

	Dia in mm		
a	50	Each	20959.00
b	80	Each	27616.00
c	100	Each	39620.00
d	150	Each	51820.00
e	200	Each	84991.00
f	250	Each	116716.00
g	300	Each	145515.00
h	350	Each	268594.00
i	400	Each	350536.00
j	450	Each	439608.00
k	500	Each	506956.00
l	600	Each	718466.00
m	700	Each	1194630.00
n	750	Each	1407032.00
o	800	Each	1462013.00
p	900	Each	1762800.00
q	1000	Each	2235340.00
r	1100	Each	2910698.00
s	1200	Each	3135623.00
15085	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. Sluice valve conforming to IS:14846-2000 and bearing ISI mark double flanged/plain ended with cap. TYPE P.N. 1.6 (Class B)		
	Dia in mm		
a	50	Each	7846.00
b	65	Each	8679.00
c	80	Each	9180.00
d	100	Each	12228.00
e	150	Each	18341.00
f	200	Each	33158.00
g	250	Each	47868.00
h	300	Each	63560.00
i	350	Each	98335.00
j	400	Each	123590.00
k	450	Each	166895.00
l	500	Each	197652.00
m	600	Each	309038.00

15086	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast iron double flanged manually operated Sluice Valve, generally conforming to IS:14846 - 2000, having body, door, dome, wedge in graded cast iron to IS:210 Gr. FG 200, four faces and spindle nut of leaded tin bronze to IS:318 Gr. LTB 2, inside screw of non-rising stainless steel AISI 410 ,spindle, flanges drilled to IS:1538 Table 4 & 6. Valves tested by closed end method only (350mm and above will be fitted with BTB and Spur gear box and back seat bush.) etc complete TYPE P.N. 1.6 (Class A)		
	Dia in mm		
	a 50	Each	7781.00
	b 65	Each	1204.00
	c 80	Each	1431.00
	d 100	Each	1998.00
	e 125	Each	2412.00
	f 150	Each	3007.00
	g 200	Each	5103.00
	h 250	Each	6981.00
	i 300	Each	9595.00
	j 350	Each	14727.00
	k 400	Each	17732.00
	l 450	Each	22225.00
	m 500	Each	31115.00
	n 600	Each	55928.00
	o 700	Each	112256.00
	p 750	Each	118384.00
	q 800	Each	137459.00
	r 900	Each	164688.00
	s 1000	Each	224250.00
	t 1100	Each	291193.00
	u 1200	Each	312393.00
BUTTERFLY VALVES			
15088	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. Butterfly (tight shut off) valve with cast iron body conforming IS:210 FIG. 260 and disc shafts seal rings, clamping ring, nitrite rubber seal leaded bronze bearings manually operated complete conforming to BS:5155/IS:13095 etc complete. TYPE P.N. 1.0 (Class B)		
	Dia in mm		

a	80	Each	5135.00
b	100	Each	6563.00
c	150	Each	16993.00
d	200	Each	23335.00
e	250	Each	29444.00
f	300	Each	41907.00
g	350	Each	46890.00
h	400	Each	66589.00
I	450	Each	83802.00
j	500	Each	94000.00
k	600	Each	122306.00
l	700	Each	158998.00
m	750	Each	200452.00
n	800	Each	219024.00
o	900	Each	276321.00
p	1000	Each	342004.00
q	1200	Each	486600.00
r	1400	Each	741938.00
s	1600	Each	921892.00
15089	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Wafer type centric design C.I. Butterfly (tight Shut off) valve with cast iron body confirming IS : 210 FIG. 260 and disc IN SG IRON IS 1865, shafts IS SS AISI 410 BODY seat ring in SS304/ASTM A 351 CF8, MS, clamping ring, nitrite rubber seal ON BODY leaded bronze bearings manually operated complete confirming to BS: 5155/IS:13095.TYPE P.N. 1.0 GEAR OPERATED FOR SIZE 150 MM AND ABOVE. (Class A)		
	Dia in mm		
a	100	Each	4562.00
b	150	Each	6567.00
c	200	Each	11524.00
d	250	Each	17601.00
e	300	Each	20748.00
f	350	Each	38067.00
g	400	Each	48961.00
h	450	Each	68846.00
i	500	Each	82340.00
j	600	Each	145312.00

15089	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Wafer type centric design C.I.Butterfly (tight Shut off) valve with cast iron body confirming IS : 210 FIG. 260 and disc IN SG IRON IS 1865, shafts IS SS AISI 410 BODY seat ring in SS304/ASTM A 351 CF8, MS, clamping ring, nitrite rubber seal ON BODY leaded bronze bearings manually operated complete confirming to BS: 5155/IS:13095.TYPE P.N. 1.6 GEAR OPERATED FOR SIZE 150 MM AND ABOVE (Class A).		
	Dia in mm		
a	100	Each	4790.00
b	150	Each	6895.00
c	200	Each	12990.00
d	250	Each	18315.00
e	300	Each	22746.00
f	350	Each	41436.00
g	400	Each	51721.00
h	450	Each	72633.00
i	500	Each	87739.00
j	600	Each	152188.00
15090	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. generally conforming to BS EN 593, cone sphere eccentric design, double flanged butterfly valve having body, disc and end cover in graded cast iron to IS:210 Gr. FG 260, synthetic rubber face ring secured on disc by a SS retaining ring with stainless steel screws, the rubber ring seating on a corresponding integral Model 60 / SS 316 seat in body, stub shaft of AISI 431 riding in Teflon bearings, flanges drilled to IS:1538 Table 4 & 6. TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	80	Each	13112.00
b	100	Each	15340.00
c	150	Each	19124.00
d	200	Each	26759.00
e	250	Each	31450.00
f	300	Each	41931.00
g	350	Each	50122.00
h	400	Each	61997.00
I	450	Each	74174.00
j	500	Each	94774.00

k	600	Each	149246.00
l	700	Each	196938.00
m	750	Each	247964.00
n	800	Each	311193.00
o	900	Each	338934.00
p	1000	Each	505807.00
q	1100	Each	577247.00
r	1200	Each	697034.00
15091	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. Butterfly (tight shut off) valve with cast iron body conforming to IS:210 FIG. 260 and disc shafts seal rings, clamping ring, nitrite rubber seal leaded bronze bearings manually operated complete conforming to BS:5155/ IS:13095. TYPE P.N. 1.6 (Class B)		
	Dia in mm		
a	80	Each	5905.00
b	100	Each	7547.00
c	150	Each	11125.00
d	200	Each	14828.00
e	250	Each	18531.00
f	300	Each	29320.00
g	350	Each	59634.00
h	400	Each	64063.00
I	450	Each	74014.00
j	500	Each	81268.00
k	600	Each	100358.00
l	700	Each	162422.00
m	750	Each	201610.00
n	800	Each	221818.00
o	900	Each	306356.00
p	1000	Each	396355.00
q	1200	Each	608251.00
r	1400	Each	927422.00
s	1600	Each	1152366.00

	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. generally conforming to BS EN 593, cone sphere eccentric design, double flanged butterfly valve having body, disc and end cover in graded cast iron to IS:210 Gr. FG 260, synthetic rubber face ring secured on disc by a SS retaining ring with stainless steel screws, the rubber ring seating on a corresponding integral Model 60 / SS316 seat in body, stub shaft of AISI 431 riding in Teflon bearings, flanges drilled to IS:1538 Table 4 & 6. TYPE P.N. 1.6 (Class A)		
	Dia in mm		
a	80	Each	13768.00
b	100	Each	16107.00
c	150	Each	22039.00
d	200	Each	27965.00
e	250	Each	33718.00
f	300	Each	44922.00
g	350	Each	54117.00
h	400	Each	65299.00
I	450	Each	76521.00
j	500	Each	96837.00
k	600	Each	193764.00
l	700	Each	230148.00
m	750	Each	294090.00
n	800	Each	376455.00
o	900	Each	421437.00
p	1000	Each	563316.00
q	1100	Each	683434.00
r	1200	Each	827957.00
15093	Supplying at store or site of work including railway freight, carting,loading, unloading,stacking etc.IVC/Kirloskar/Fouress brand generally conforming to BS EN 593,Cone sphere eccentric design,double flanged butterfly valve having body,disc and end cover in graded ductile iron to I.S :1865 gr. 400/15 or 500/7 ,synthetic rubber face ring secured on disc by a SS retaining ring with stainless steel screws,the rubber ring seating on a corresponding integral Monel 60 seat in body,stub shaft of AISI 431 RIDING IN TEFLON BEARINGS,FLANGES DRILLED TO IS:1538 Table 4&6.TYPE P.N.1.0 (Class A).		
	DUCTILE IRON CONSTRUCTION		

	Dia in mm		
a	200	Each	44131.00
b	250	Each	62814.00
c	300	Each	67062.00
d	350	Each	91281.00
e	400	Each	111998.00
f	450	Each	142317.00
g	500	Each	144975.00
h	600	Each	227720.00
i	700	Each	322888.00
j	750	Each	383326.00
k	800	Each	471467.00
l	900	Each	549119.00
m	1000	Each	647266.00
n	1100	Each	831338.00
o	1200	Each	893729.00
15093(a)	Supplying at store or site of work including railway freight, carting,loading, unloading,stacking etc.IVC/Kirloskar/Fouress brand generally conforming to BS EN 593,Cone sphere eccentric design,double flanged butterfly valve having body,disc and end cover in graded ductile iron to I.S :1865 gr. 400/15 or 500/7 ,synthetic rubber face ring secured on disc by a SS retaining ring with stainless steel screws,the rubber ring seating on a corresponding integral Monel 60 seat in body,stub shaft of AISI 431 RIDING IN TEFLON BEARINGS,FLANGES DRILLED TO IS:1538 Table 4&6.TYPES P.N.1.6 (Class A).		
	DUCTILE IRON CONSTRUCTION		
	Dia in mm		
a	200	Each	45842.00
b	250	Each	64263.00
c	300	Each	75196.00
d	350	Each	93395.00
e	400	Each	118561.00
f	450	Each	145600.00
g	500	Each	166860.00
h	600	Each	239780.00
i	700	Each	330336.00
j	750	Each	392164.00
k	800	Each	513886.00
l	900	Each	570520.00
m	1000	Each	693852.00

n	1100	Each	882173.00
o	1200	Each	962462.00
AIR VALVES			
15094	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. single large orifice air valve similar to Glen field fig H4 or similar with steel ferrule at inlet screwed suitable to working pressure of 10kg/sq.cm. (Class B)		
	Dia in mm		
a	25	Each	1276.00
b	40	Each	1682.00
c	50	Each	3480.00
15094 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. single large orifice air valve similar to Glen field fig H4 or similar with steel ferrule at inlet screwed suitable to working pressure of 16kg/sq.cm. (Class B)		
	Dia in mm		
a	25	Each	1336.00
b	40	Each	1765.00
c	50	Each	3572.00
15095	Supplying cast iron single orifice type Air Valve with gunmetal ferrule at inlet screwed bspt male, valves suitable for a maximum working pressure of 10 Kg/cm ² generally conforming to IS: 14845 standard rated. TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	25	Each	4795.00
b	40	Each	8698.00
15096 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I. Double orifice type air valve similar to glenfield fig. H 7, or IS14845/2000 screwed on isolating valve small orifice, elastic ball resting on a bronze orifice nipple, large orifice vulcanite ball resting on a moulded seating, inlet faced and drilled BST "D" suitable to working pressure of 10 kg /cm ² TYPE P.N. 1.0 (Class B)		
	Dia in mm		

a	40	Each	8634.00
b	50	Each	9343.00
d	80	Each	12512.00
e	100	Each	18654.00
f	150	Each	44743.00
g	200	Each	73555.00
15096 (b)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C. I.. Double orifice type air valve similar to glenfield fig. H 7, or IS14845/2000 screwed on isolating valve small orifice, elastic ball resting on a bronze orifice nipple, large orifice vulcanite ball resting on a moulded seating, inlet faced and drilled BST "D" suitable to working pressure of 10 kg /cm ² TYPE P.N. 1.6 (Class B)		
	Dia in mm		
a	40	Each	9497.00
b	50	Each	9123.00
c	80	Each	12218.00
d	100	Each	18216.00
e	150	Each	43692.00
f	200	Each	71827.00
15097	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron Air valve kinetic double orifice type combined with screw - down isolating valve, small orifice elastic ball resting on a gunmetal orifice nipple, large orifice vulcanite ball seating on moulded seat ring, inlet faced and drilled to IS:14845 Table 4 & 6 . Valves suitable for a maximum working pressure of 10kg/cm ² generally conforming to G & K, Fig H - 40. TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	50	Each	10686.00
b	80	Each	14867.00
c	100	Each	20152.00
d	150	Each	28178.00
e	200	Each	31779.00

15098	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron Air valve Kinetic double orifice type confirming to IS: 14845 combined with screw - down isolating valve, small orifice elastic ball resting on a gunmetal orifice nipple, large orifice vulcanite ball seating on moulded seat ring, inlet faced and drilled to IS:1538 Table 4 & 6 . Valves suitable for a maximum working pressure of 10kg/cm ² generally conforming to G & K, Fig H - 40. TYPE P.N. 1.6 (Class A)			
	Dia in mm			
	a 50	Each	10744.00	
	b 80	Each	14983.00	
	c 100	Each	20210.00	
	d 150	Each	28224.00	
15100	e 200	Each	31825.00	
	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron kinetic double orifice air release valve, generally conforming to IS:14845/2000, having small orifice elastic ball resting on a gunmetal orifice nipple and large orifice vulcanite ball seating in a moulded seat ring, with built in kinetic features, isolating sluice valve confirming to IS:14846 mounted in a horizontal position and operated by meter wheel gearing, inlet faced and drilled to IS:1538 Table 4 & 6 . TYPE P.N. 1.0 (Class A)			
	Dia in mm			
a 50	Each	16267.00		
	Each	19794.00		
	Each	30049.00		
	Each	64065.00		
	Each	103147.00		

15100 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron kinetic double orifice air release valve, generally conforming to IS:14845/2000, having small orifice elastic ball resting on a gunmetal orifice nipple and large orifice vulcanite ball seating in a moulded seat ring, with built in kinetic features, isolating sluice valve confirming to IS:14846 mounted in a horizontal position and operated by meter wheel gearing, inlet faced and drilled to IS:1538 Table 4 & 6 . TYPE P.N. 1.6 (Class A)		
	Dia in mm		
a	50	Each	17895.00
b	80	Each	21773.00
c	100	Each	33054.00
d	150	Each	70472.00
e	200	Each	113463.00
15101	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Tamper proof double acting air valve conforming to AWWA C-512, with tamper proof air vents and SS:304 floats with isolating sluice valve confirming to IS:14846 flanges drilled as per IS:1538, PN 1.0.(Class A)		
	Dia in mm		
a	50	Each	29394.00
b	80	Each	42198.00
c	100	Each	56271.00
d	150	Each	86389.00
e	200	Each	123413.00
f	250	Each	211785.00
15101(a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Tamper proof double acting air valve conforming to AWWA C-512, with tamper proof air vents and SS:304 floats with isolating sluice valve confirming to IS:14846 flanges drilled as per IS:1538,PN 1.6,(Class A)		
	Dia in mm		
a	50	Each	30941.00
b	80	Each	44419.00
c	100	Each	59232.00
d	150	Each	90936.00
e	200	Each	129909.00

f	250	Each	211785.00
15102	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C.I. Kinetic type air release valve , generally confirming to IS: 14845 having small orifice elastic ball resting on gunmetal orifice nipple and large orifice vulcanite ball seating on moulded seat ring, with built in Kinetic features of isolating sluice valve mounted in horizontal position operated by meter wheel gearing, inlet faced and drilled to IS: 1538 Table 4&6. TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	80	Each	28156.00
b	100	Each	37557.00
c	150	Each	68420.00
d	200	Each	112159.00
15103	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron kinetic double orifice air release valve, generally conforming to IS:14845, having small orifice elastic ball resting on a gunmetal orifice nipple and large orifice vulcanite ball seating in a moulded seat ring, with built in kinetic features, isolating sluice valve mounted in a horizontal position and operated by meter wheel gearing, inlet faced and drilled to IS:1538 Table 4 & 6 . TYPE P.N. 1.6 (Class A)		
	Dia in mm		
a	80	Each	29637.00
b	100	Each	39534.00
c	150	Each	72022.00
d	200	Each	118062.00
15104	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron total Tamper Proof Kinetic Air release valve, generally confirming to: 14845. WITH TAMPER PROOF DESIGN OF COWL, TAMPER PROOF BOLTING, TAMPER PROOF HIGH PREESSURE ORIFICE COVER AND NIPPLE. TYPE P.N. 1.0 (Class A)		
	Dia in mm		
a	50	Each	25507.00
b	80	Each	29734.00
c	100	Each	41158.00
d	150	Each	75393.00

e	200	Each	104082.00
15105	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc cast iron Tamper Proof Kinetic Air release valve, generally conforming to IS:14845, with TAMPER PROOF DESIGN OF COWL, TAMPER PROOF BOLTING, TAMPER PROOF HIGH PRESSURE ORIFICE COVER AND NIPPLE. TYPE P.N. 1.6 (Class A)		
	Dia in mm		
a	50	Each	27833.00
b	80	Each	31838.00
c	100	Each	44080.00
d	150	Each	79598.00
e	200	Each	111771.00

REFLUX VALVES

15106	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C.I. Reflux valve conforming to IS:5312 part-I. Valve double flanged ends without bypass arrangements and drilled to IS:1538 part IV & VI bearing ISI Certificate mark TYPE P.N. 1.0 (Class B)		
	Dia in mm		
a	50	Each	5119.00
b	80	Each	7102.00
c	100	Each	9523.00
d	150	Each	15128.00
e	200	Each	31071.00
f	250	Each	50477.00
g	300	Each	75238.00
h	350	Each	130968.00
i	400	Each	146803.00
j	450	Each	229868.00
k	500	Each	269799.00
l	600	Each	393594.00

15107	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Iron double flanged single door swing non-return valve generally conforming to IS:5312 part-I, having body, door, cover in graded cast iron to IS:210 Gr. FG 260 and door in CS ASTM A216Gr. WCB for 350mm & above body Ring in leaded tin bronze IS 318 GR LTB2 and door ring in natural rubber & bearing block of leaded tin bronze to IS:318 Gr. LTB 2 (350 mm & above), hinge pin of stainless steel AISI 410, Flanges drilled to IS:1538 Table 4 & 6 TYPE P.N. 1.0 (Class A)		
	Dia in mm		
	a 50	Each	4559.00
	b 65	Each	5194.00
	c 80	Each	6071.00
	d 100	Each	9056.00
	e 125	Each	13987.00
	f 150	Each	15292.00
	g 200	Each	26026.00
	h 250	Each	41394.00
	i 300	Each	56140.00
	j 350	Each	98764.00
	k 400	Each	127038.00
	l 450	Each	191824.00
	m 500	Each	250941.00
	n 600	Each	353275.00
15108	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. C.I. Reflux valve conforming to IS:5312 part-I. Valve double flanged ends without bypass arrangements and drilled to IS:1538 part IV & VI bearing ISI Certificate mark TYPE P.N. 1.6 (Class B)		
	Dia in mm		
	a 50	Each	5526.00
	b 80	Each	7672.00
	c 100	Each	10290.00
	d 150	Each	16340.00
	e 200	Each	34181.00
	f 250	Each	55529.00
	g 300	Each	84243.00
	h 350	Each	146683.00
	I 400	Each	164398.00
	j 450	Each	264351.00

	k	500	Each	310267.00
	l	600	Each	452630.00
15109		Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Iron double flanged single door swing non-return valve generally conforming to IS:5312 part-I, having body, door, cover in graded cast iron to IS:210 Gr. FG 200, body Ring in leaded tin bronze IS 318 GR LTB2 and door ring in natural rubber & bearing block of leaded tin bronze to IS:318 Gr. LTB 2 (350 mm & above), hinge pin of stainless steel AISI 410, Flanges drilled to IS:1538 Table 4 & 6 TYPE P.N. 1.6 (Class A)		
		Dia in mm		
	a	50	Each	4787.00
	b	65	Each	5451.00
	c	80	Each	6372.00
	d	100	Each	9501.00
	e	125	Each	14680.00
	f	150	Each	16684.00
	g	200	Each	28399.00
	h	250	Each	45184.00
	i	300	Each	61282.00
	j	350	Each	103573.00
	k	400	Each	133219.00
	l	450	Each	201195.00
	m	500	Each	263213.00
	n	600	Each	370331.00
15110		Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron double flanged multi door swing check valve generally conforming to IS:5312 Part II, having body comprising of inlet & outlet shell in SG Iron to IS:1865 Gr. 500/7 diaphragm fitted with gunmetal faces, diaphragm & door of graded SG Iron to IS: 1865 Gr. 500/7, satinless steel AISI 410 stub pins, Flanges drilled to IS:1538 Table 4 & 6 . TYPE P.N. 1.6 (Class B)		
		Dia in mm		
	a	600	Each	672629.00
	b	700	Each	822949.00
	c	750	Each	889464.00
	d	800	Each	1013890.00
	e	900	Each	1330204.00
	f	1000	Each	1523595.00

g	1100	Each	1802549.00
h	1200	Each	2070011.00

CAST STEEL REFLUX VALVES

15111	Supplying Cast Steel Reflux valves conforming IS:5312 part-I. Valves double flanged ends without bypass arrangement bearing ISI Certificate mark Class-150 (20/30 kg/cm ²) (Class B)		
	Dia in mm		
a	50	Each	11806.00
b	80	Each	14113.00
c	100	Each	21614.00
d	150	Each	36613.00
e	200	Each	69614.00
f	250	Each	88920.00
g	300	Each	130987.00
15112	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Steel Reflux valves conforming IS:5312 part-I. Valves double flanged ends without bypass arrangement bearing ISI Certificate mark Class - 300 (52/78 kg/cm ²) (Class B)		
	Dia in mm		
a	50	Each	13576.00
b	80	Each	16244.00
c	100	Each	24855.00
d	150	Each	46900.00
e	200	Each	77652.00
f	250	Each	104661.00
g	300	Each	150627.00
15112 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Steel Reflux valves conforming IS:5312 part-I. Valves double flanged ends without bypass arrangement bearing ISI Certificate mark Class - 150 (20/30 kg/cm ²) (Class A)		
	Dia in mm		
a	50	Each	14109.00
b	80	Each	21164.00
c	100	Each	29024.00
d	150	Each	39908.00

e	200	Each	60466.00
f	250	Each	97149.00
g	300	Each	120933.00
15113	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Steel Reflux valves conforming IS:5312 part-I. Valves double flanged ends without bypass arrangement bearing ISI Certificate mark Class - 300 (52/78 kg/cm ²) (Class A)		
	Dia in mm		
a	50	Each	28218.00
b	80	Each	42325.00
c	100	Each	56434.00
d	150	Each	79814.00
e	200	Each	145118.00
f	250	Each	241863.00
g	300	Each	302329.00
15114	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged dual plate check valve having body, plate in cast carbon steel ASTM A-216 Gr. WCB, hinge pin & stub pin in stainless AISI 304, Spring in stainless steel AISI 304, body & seat ring in AISI 304. Valve conform to API 594. Class 150 (Class B)		
	Size in mm		
a	100	Each	8121.00
b	150	Each	14736.00
c	200	Each	25418.00
d	250	Each	43048.00
e	300	Each	58060.00
f	350	Each	91766.00
g	400	Each	117602.00
h	450	Each	132112.00
I	500	Each	138331.00
j	600	Each	191917.00
k	700	Each	289161.00
l	750	Each	301326.00
m	800	Each	331839.00
n	900	Each	421285.00
o	1000	Each	540753.00
p	1200	Each	1304306.00

15115	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged dual plate check valve having body, plate in cast carbon steel ASTM A-216 Gr. WCB, hinge pin & stub pin in stainless AISI 304, Spring in stainless steel AISI 304, body & seat ring in AISI 304. Valve conform to API 594. Class 150 (Class A)		
	Size in mm		
a	100	Each	12285.00
b	150	Each	20102.00
c	200	Each	27361.00
d	250	Each	36295.00
e	300	Each	72032.00
g	400	Each	134013.00
h	450	Each	206603.00
I	500	Each	234522.00
j	600	Each	268026.00
k	700	Each	742656.00
l	750	Each	809662.00
m	800	Each	893420.00
n	900	Each	1340130.00
o	1000	Each	2373148.00
p	1200	Each	3406165.00
15116	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged dual plate check valve having body, plate in cast carbon steel ASTM A-216 Gr. WCB, hinge pin & stub pin in stainless AISI 304, Spring in stainless steel AISI 304, body & seat ring in AISI 304. Valve conform to API 594. Class 300 (Class B)		
	Size in mm		
a	100	Each	10303.00
b	150	Each	19161.00
c	200	Each	33962.00
d	250	Each	62752.00
e	300	Each	86892.00
f	350	Each	112560.00
g	400	Each	160483.00
h	450	Each	189603.00
I	500	Each	212878.00
j	600	Each	248050.00

15117	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Steel single door swing check type Reflux (non return) valve havinG body bonnet in HINGE IN GRADED CCast steel i.e. ASTM A 216 Gr WCB faced with 13% cr steel. Spindle, gland sleeve SG iron, body stunds. ASTM A 193 Gr. B7, body bolts ASTM A 194 Gr 2H, Gasket in metallic spiral wound AISI 304 with graphite in the construction and testing of the valves will be as per BS 1868 & BS 6755 part I respectively. Flanged ends without bypass arrangements flanges drilled to IS 1538 table 4&6 or ANSI B 16.50 as per the requirement. Class 150 (Class A)		
	Dia in mm		
a	50	Each	9645.00
b	80	Each	14154.00
c	100	Each	24670.00
d	150	Each	35994.00
e	200	Each	57830.00
f	250	Each	89779.00
g	300	Each	147609.00
h	350	Each	200185.00
i	400	Each	214339.00
j	450	Each	272976.00
k	500	Each	404411.00
l	600	Each	832987.00
15118	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast Steel single door swing check type Reflux (non return) valve havin body bonnet in graded cast steel i.e ASTM A 216 Gr WCB faced with 13% cr steel. Hinge pin in stainless steel ASTM A 479 type 410, cover stud in alloy steel ASTMA 193 Gr B 7, Gasket in metallic spiral wound AISI 304 with graphite in the construction and testing of the valves will be as per BS 1868 & BS 6755 part I respectively. Flanged ends without bypass arrangements flanges drilled to IS 1538 table 4&6 or ANSI B 16.50 as per the requirement. Class 300 (Class A)		
	Dia in mm		
a	50	Each	10961.00
b	80	Each	24670.00
c	100	Each	31544.00
d	150	Each	53383.00

e	200	Each	80073.00
f	250	Each	118897.00
g	300	Each	177941.00
h	350	Each	281469.00
i	400	Each	335662.00
j	450	Each	477874.00
k	500	Each	576516.00
l	600	Each	1225254.00

CAST STEEL AIR VALVES

15119	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel Kinetic double acting Air Valves having body, small & large orifice cover as per ASTM A- 216 Gr. WCB. Valve conforming to IS :14845/2000. Isolating sluice valve as per IS : 14846. Low pressure chamber (Large orifice) contains vulcanite covered aluminum ball seats on moulded synthetic rubber ring, high pressure chamber with rubber covered aluminium ball seats on small orifice plug of H.T. Brass. Flanges drilled to IS : 1538 PART 4 & 6. Valves are to be tested in different test pressure rating: Body : 30 Kg/cm ² , Seat :20 Kg/cm ² , Class 150 (class B)		
	Size in mm		
a	50	Each	36600.00
b	80	Each	44536.00
c	100	Each	67611.00
d	150	Each	144147.00
e	200	Each	232081.00
15119 (a)	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel Kinetic double acting Air Valves having body, small & large orifice cover as per ASTM A- 216 Gr. WCB. Valve conforming to IS :14845/2000. Isolating sluice valve as per IS : 14846. Low pressure chamber (Large orifice) contains vulcanite covered aluminum ball seats on moulded synthetic rubber ring, high pressure chamber with rubber covered aluminium ball seats on small orifice plug of H.T. Brass. Flanges drilled to IS : 1538 PART 4 & 6. Valves are to be tested in different test pressure rating: Body : 70 Kg/cm ² , Seat :52 Kg/cm ² , Class300 (class B)		
	Size in mm		
a	50	Each	43920.00
b	80	Each	53443.00

c	100	Each	81133.00
d	150	Each	172976.00
e	200	Each	278498.00

CAST STEEL SLUICE VALVES

15120	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged manually operated sluice valves having body, door, bonnet stuffing box, hand wheel etc. in graded cast iron i.e. ASTM A-216 Gr WCB. inside screw non rising type stainless steel AISI 410 spindle. Spindle Nut and four faces of gun metal as IS:318 Gr. 2 LTB. Valve conform to IS:14846 - 2000 and flanges faced and drilled to IS:1538 part 4 & 6. Valve sizes 400 mm and above will be provided with ball thrust bearing and gear box. Valves are to be tested in different test pressure rating: Class 150 (Class A)		
	Size in mm		
a	50	Each	15721.00
b	80	Each	23582.00
c	100	Each	31442.00
d	150	Each	47164.00
e	200	Each	76957.00
f	250	Each	107226.00
g	300	Each	135445.00
h	350	Each	180590.00
i	400	Each	366826.00
j	450	Each	411168.00
k	500	Each	483726.00
l	600	Each	552255.00
15121	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged manually operated sluice valve/gate valve haing body, bonnet in cast steel ASTM A 216 Gr WCB, wedge and steel ring in cast steel ASTM A-216 Gr. WCB with 13% Cr cteel, inside screw rising stem in stainless AISI 410 spindle, bonnet brush and gland brush in stainless steel ASTM A 479 Gr 410, bonnet stud in aiioy steel ASTM A 193 Gr B 7, and gasket of metallic spiral wound inAISI 304 with graphite filled in. The construction and testing of valve will be as per applicable requirements of API 600 & 589 respectively. Flanges drilled to IS 1568, table 4&6 or ANSI 16.50 as per requirements. Class		

	150 (Class A)		
	Dia in mm		
a	50	Each	9581.00
b	80	Each	11759.00
c	100	Each	21051.00
d	150	Each	33970.00
e	200	Each	54440.00
f	250	Each	81442.00
g	300	Each	119768.00
h	350	Each	176385.00
i	400	Each	213405.00
j	450	Each	256956.00
k	500	Each	322284.00
l	600	Each	500847.00
15122	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged manually operated sluice valves having body, door, bonnet stuffing box, hand wheel etc. in graded cast iron i.e. ASTM A- 216 Gr WCB. inside screw non rising type stainless steel AISI 410 spindle. Spindle Nut and four faces of gun metal as IS:318 Gr. 2 LTB. Valve conform to IS:14846-2000 and flanges faced and drilled to IS:1538 part 4 & 6. Valve sizes 400 mm and above will be provided with ball thrust bearing and gear box. Valves are to be tested in different test pressure rating : Class 300 (Class A)		
	Size in mm		
a	50	Each	31442.00
b	80	Each	47164.00
c	100	Each	62884.00
d	150	Each	94326.00
e	200	Each	170312.00
f	250	Each	268064.00
g	300	Each	338609.00
h	350	Each	451477.00
i	400	Each	833695.00
j	450	Each	916149.00
k	500	Each	1099378.00
l	600	Each	1253292.00

15123	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. Cast steel double flanged manually operated sluice valve/gate valve having body, bonnet in cast steel ASTM A 216 Gr WCB, wedge and steel ring in cast steel ASTM A-216 Gr. WCB with 13% Cr steel, inside screw rising stem in stainless AISI 410 spindle, bonnet brush and gland brush in stainless steel ASTM A 479 Gr 410, bonnet stud in alloy steel ASTM A 193 Gr B 7, and gasket of metallic spiral wound in AISI 304 with graphite filled in. The construction and testing of valve will be as per applicable requirements of API 600 & 589 respectively. Flanges drilled to IS 1568, table 4&6 or ANSI 16.50 as per requirements. Class 300 (Class A)		
	Dia in mm		
	a 50	Each	13066.00
	b 80	Each	17421.00
	c 100	Each	26131.00
	d 150	Each	65327.00
	e 200	Each	101476.00
	f 250	Each	144157.00
	g 300	Each	202517.00
	h 350	Each	309219.00
	i 400	Each	409388.00
	j 450	Each	529268.00
	k 500	Each	626055.00
	l 600	Each	1093375.00
MISCELLANEOUS VALVES			
15124	Supplying C.I. Equilibrium float valve including lever arm and copper float to close against a working pressure of 7 kg/sq.cm and test pressure of 14kg/sq.cm (Class B)		
	Dia in mm		
	a 50	Each	33705.00
	b 80	Each	41128.00
	c 100	Each	48424.00
	d 150	Each	74384.00
	e 200	Each	125170.00

15125	Supplying C.I. Foot valve with metal valve and seat full bore type having total area through strainer perforations three times that of pipe size suitable for working pressure of 2 kg/sq. cm. as per IS:4038 (lift type) (Class B)		
	Dia in mm		
a	50	Each	1703.00
b	80	Each	2529.00
c	100	Each	3351.00
d	150	Each	5663.00
e	200	Each	15975.00
f	250	Each	20385.00
g	300	Each	35711.00
h	350	Each	47189.00
i	400	Each	56674.00
j	450	Each	68431.00
15126	Providing and laying C.I. Right angled type spring loaded single seat pressure relief valve similar to Glenfield H 19 having valve and seat gun metal bushes in cover stay rods of forged mild steel spring of best quality square section cast iron bend, wheel for adjustment with necessary pointer and index. (Class B)		
	Dia in mm		
a	50	Each	13717.00
b	80	Each	14976.00
c	100	Each	20957.00
d	150	Each	37958.00
e	200	Each	61912.00
f	300	Each	93070.00
15127	Supplying at store or site of work including railway freight, carting, loading, unloading, stacking etc. cast iron spring loaded right angle type pressure relief valve having body, cover & crosshead of cast iron, valve & seat of gunmetal, spindle of brass working in gunmetal bushes in cover, stay rods of mild steel with spring of best quality spring steel, cast iron hand wheel for adjustment with necessary pointer and index, flanges drilled to IS:1538 Table 4 & 6. Valves suitable for a maximum blow off pressure of 10 kg/cm ² at the site of work. TYPE P.N. 1.0 (Class A)		
	Dia in mm		

a	50	Each	19378.00
b	65	Each	27408.00
c	80	Each	28664.00
d	100	Each	35082.00
e	150	Each	50431.00
f	200	Each	88524.00

G. I. FITTINGS / SPECIALS

15128	Supply of malleable G.I fittings conforming to IS:1879-1987 with amendments no.1 to 7 galvanized with 610 gm/m ² as per IS:4759-1996 with latest amendments.		
I	Elbow		
	Nominal Diameter in mm		
a	15	Each	18.00
b	20	Each	27.00
c	25	Each	46.00
d	32	Each	73.00
e	40	Each	105.00
f	50	Each	147.00
g	65	Each	283.00
II	Reducing Elbow		
	Nominal Diameter in mm		
a	20x15	Each	28.00
b	25x15	Each	51.00
c	25x20	Each	76.00
d	32x15	Each	79.00
e	32x20	Each	81.00
f	32x25	Each	91.00
III	Tees		
	Nominal Diameter in mm		
a	15	Each	27.00
b	20	Each	40.00
c	25	Each	72.00
d	32	Each	94.00
e	40	Each	124.00
f	50	Each	194.00
g	65	Each	411.00
IV	Reducing Tees		

	Nominal Diameter in mm		
a	20x15x20	Each	43.00
b	25x15x25	Each	76.00
c	25x20x25	Each	81.00
V	Socket		
	Nominal Diameter in mm		
a	15	Each	25.00
b	20	Each	28.00
c	25	Each	35.00
d	32	Each	60.00
e	40	Each	76.00
f	50	Each	121.00
g	65	Each	177.00
VI	Reducing Socket		
	Nominal Diameter in mm		
a	20x15	Each	29.00
b	25x15	Each	35.00
c	25x20	Each	37.00
d	32x15	Each	60.00
e	32x20	Each	63.00
f	32x25	Each	66.00
g	50x32	Each	124.00
h	65x50	Each	177.00
i	100x80	Each	500.00
VII	Hexagonal Nipples		
	Nominal Diameter in mm		
a	15	Each	19.00
b	20	Each	32.00
c	25	Each	49.00
d	32	Each	86.00
e	40	Each	109.00
f	50	Each	174.00
g	65	Each	280.00
VIII	Plugs		
	Nominal Diameter in mm		
a	15	Each	5.00
b	20	Each	7.00
c	25	Each	11.00

d	32	Each	19.00
e	40	Each	22.00
f	50	Each	30.00
IX	Union		
	Nominal Diameter in mm		
a	15	Each	47.00
b	20	Each	73.00
c	25	Each	98.00
d	32	Each	162.00
e	40	Each	189.00
f	50	Each	278.00
g	65	Each	545.00

M A N H O L E C O V E R S

15129	Supply of low density solid manhole cover and frame at domestic places or other places where they are subjected to traffic loads as per IS:1726 part-VII-1994 having size -			
	a 450mm x 450mm with weight not less than 50kg	Each	3634.00	
	b 450mm x 600mm with weight not less than 75kg	Each	5262.00	
	c 610mm x 455mm with weight not less than 38kg	Each	2748.00	
	d 450mm dia with weight not less than 50kg	Each	3634.00	
	e 450mm x 450mm with weight not less than 60kg	Each	4385.00	
	f 480mm dia with weight not less than 75kg	Each	5262.00	
	g 450mm dia with weight not less than 70kg	Each	5093.00	
15130	Supplying of medium duty solid type manhole cover and frame where light traffic conditions such as footpath and cycle tracks as per IS:1726 Part V-1974 having size -			
	a	500mm dia with weight not less than 128kg	Each	12051.00
	b	600mm x 450mm with weight not less than 144kg	Each	13526.00
	c	500mm dia with weight not less than 160kg	Each	15065.00
15131	Supplying of heavy duty solid type circular type manhole cover and frame for use under heavy traffic conditions as per IS:1726 Part V-1974 having size -			
	a	500mm dia with weight not less than 230 kg	Each	18988.00
	b	560mm with weight not less than 250kg	Each	23439.00
	c	600mm dia with weight not less than 250kg	Each	23439.00
	d	600mm dia with weight not less than 290kg	Each	24038.00

e	560mm dia with weight not less than 208kg	Each	19612.00
15132	Supply of heavy duty solid type manhole cover and frame for use under heavy traffic conditions per IS:1726 Part V-1974 having size-		
a	560mm x 560mm with weight not less than 225kg	Each	18617.00
b	560mm x 560mm with weight not less than 260 kg	Each	21502.00
c	600mm x 600mm with weight not less than 250kg	Each	20586.00
d	600mm x 900mm with weight not less than 250kg	Each	20591.00
e	600mm x 900mm with weight not less than 375kg	Each	30933.00
f	1200mm x 900mm with weight not less than 970kg	Each	102765.00
g	1200mm x 900mm with weight not less than 1128kg	Each	119504.00
15133	Supply of D.I manhole cover and frame as per EN-124 standards at the site of work.		
I	SQUARE COVER WITH FRAME (HINGED)		
a	Size - 450mm x 450mm		
	Class B -125		
	Grade - MD		
	Weight - 45Kg	Each	6133.00
b	Size - 600mm x 600mm		
	Class C - 250		
	Grade - HD		
	Weight - 90Kg	Each	12265.00
II	RECTANGULAR COVER WITH FRAME (HINGED)		
a	Size - 450mm x 600mm		
	Class B - 125		
	Grade - MD		
	Weight - 70Kg	Each	9542.00
b	Size - 450mm x 600mm		
	Class C - 250		
	Grade - HD		
	Weight (Kg) - 100	Each	13630.00
c	Size - 450mm x 900mm		
	Class A -15		

	Grade - LD		
	Weight - 50Kg	Each	6818.00
d	Size - 450mm x 900mm		
	Class B -125		
	Grade - MD		
	Weight - 75Kg	Each	10227.00
e	Size - 600mm x 900mm		
	Class B - 125		
	Grade - MD		
	Weight - 105Kg	Each	14310.00
III	CIRCULAR COVER WITH SQUARE FRAME (HINGED)		
a	Size - 500mm		
	Class B - 125		
	Grade - MD		
	Weight - 45Kg	Each	6133.00
b	Size - 500mm		
	Class C - 250		
	Grade - HD		
	Weight - 65Kg	Each	8868.00
c	Size - 525mm		
	Class B -125		
	Grade - MD		
	Weight - 50Kg	Each	6818.00
d	Size - 525mm		
	Class C - 250		
	Grade - HD		
	Weight - 75Kg	Each	10227.00
IV	GRATING WITH FRAME (HINGED)		
a	Size - 450mm x 450mm		
	Class A-15		
	Grade - LD		
	Weight - 32Kg	Each	4367.00
b	Size - 450mm x 600mm		

	Class A - 15		
	Grade - LD		
	Weight - 38Kg	Each	5180.00
c	Size - 600mm x 600mm		
	Class B -125		
	Grade - MD		
	Weight - 70Kg	Each	9542.00
d	Size - 600mm x 600mm		
	Class C - 250		
	Grade - HD		
	Weight - 90Kg	Each	12265.00
15133 A	Composite Manhole Covers / Inspection Chambers with Frame		
a	Supplying 600 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight-5 T		
	Size - 600 x 900 mm Rectangle	Each	9379.00
b	Supplying 600 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Medium Duty Confirming to relevant grade designation : B125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600 x 900 mm Rectangle	Each	12391.00
c	Supplying 600 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600 x 900 mm Rectangle	Each	18477.00

d	Supplying 600 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 600 x 900 mm Rectangle	Each	22684.00
e	Supplying 450 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 x 900 mm Rectangle	Each	7312.00
f	Supplying 450 x 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 x 900 mm Rectangle	Each	9879.00
g	Supplying 450 X 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 450 X 900 mm Rectangle	Each	11220.00
h	Supplying 450 X 900 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 450 X 900 mm Rectangle	Each	17391.00

i	Supplying 450 x 600 mm Rectangle Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 X 600 mm Rectangle	Each	6537.00
j	Supplying 450 x 600 mm Rectangle Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 X 600 mm Rectangle	Each	8837.00
k	Supplying 450 X 600 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 450 X 600 mm Rectangle	Each	9049.00
l	Supplying 450 X 600 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 450 X 600 mm Rectangle	Each	13721.00
m	Supplying 900 x 1200 mm Rectangle Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 900 X 1200 mm Rectangle	Each	37743.00

n	Supplying 900 x 1200 mm Rectangle Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 900 X 1200 mm Rectangle	Each	44787.00
o	Supplying 900 x 1200 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 900 X 1200 mm Rectangle	Each	48051.00
p	Supplying 900 x 1200 mm Rectangle Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 900 X 1200 mm Rectangle	Each	59207.00
q	Supplying 450 x 450 mm Square Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 x 450 mm Square	Each	4634.00
r	Supplying 450 x 450 mm Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 x 450 mm Square	Each	8574.00

s	Supplying 450 X 450 mm Square Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 450 x 450 mm Square	Each	9318.00
t	Supplying 450 X 450 mm Square Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	weight - 40 T		
	Size - 450 x 450 mm Square	Each	10769.00
u	Supplying 600 x 600 mm Square Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 600 x 600 mm Square	Each	6946.00
v	Supplying 600 x 600 mm Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600 x 600 mm Square	Each	10293.00
w	Supplying 600 x 600 mm Square Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600 x 600 mm Square	Each	12001.00

x	Supplying 600 x 600 mm Square Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 600 x 600 mm Square	Each	16331.00
y	Supplying 900 x 900 mm Square Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 900 x 900 mm Square	Each	21343.00
z	Supplying 900 x 900 mm Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 900 x 900 mm Square	Each	24635.00
a1	Supplying 900 x 900 mm Square Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 900 x 900 mm Square	Each	27318.00
b1	Supplying 900 x 900 mm Square Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 900 x 900 mm Square	Each	40002.00

c1	Supplying 1200 x 1200 mm Square Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 1200 x 1200 mm Square	Each	37197.00
d1	Supplying 1200 x 1200 mm Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 1200 x 1200 mm Square	Each	48893.00
e1	Supplying 1200 x 1200 mm Square Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 1200 x 1200 mm Square	Each	54930.00
f1	Supplying 1200 x 1200 mm Square Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 1200 x 1200 mm Square	Each	79272.00
g1	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 530mm Circular	Each	5198.00

h1	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 530mm Circular	Each	7596.00
i1	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 530mm Circular	Each	9594.00
j1	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 530mm Circular	Each	11284.00
k1	Supplying 560mm Circular Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 560mm Circular	Each	6621.00
l1	Supplying 560mm Circular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 560mm Circular	Each	8537.00

m1	Supplying 560mm Circular Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 560mm Circular	Each	10117.00
n1	Supplying 560mm Circular Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 560mm Circular	Each	12416.00
o1	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 600mm Circular	Each	6830.00
p1	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600mm Circular	Each	8781.00
q1	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600mm Circular	Each	10623.00

r1	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 600mm Circular	Each	14147.00
s1	Supplying 450mm Circular Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450mm Circular	Each	4936.00
t1	Supplying 450mm Circular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450mm Circular	Each	7213.00
u1	Supplying 450mm Circular Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 450mm Circular	Each	9114.00
v1	Supplying 450mm Circular Composite Resin Manhole Cover of Approved Brand , Extra Heavy Duty Confirming to relevant grade designation : D 400 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 40 T		
	Size - 450mm Circular	Each	10721.00
15133 B	CIRCULAR COVERS WITH SQUARE FRAME (HINGED)		

a	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600mm Circular	Each	9757.00
b	Supplying 600mm Circular Composite Resin Manhole Cover of Approved Brand Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600mm Circular	Each	11342.00
c	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand , Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 530mm Circular	Each	7596.00
d	Supplying 530mm Circular Composite Resin Manhole Cover of Approved Brand , Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 530mm Circular	Each	9594.00
	SQUARE COVER WITH FRAME (HINGED)		
e	Supplying 450 X 450 Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 X 450 mm Square	Each	8574.00

f	Supplying 600 X 600 mm Square Composite Resin Manhole Cover of Approved Brand Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600 X 600 mm Square	Each	12001.00
	RECTANGULAR COVER WITH FRAME (HINGED)		
g	Supplying 450 X 600 Rectangular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 X 600 mm Rectangular	Each	8837.00
h	Supplying 450 X 600 mm Rectangular Composite Resin Manhole Cover of Approved Brand Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 450 X 600 mm Rectangular	Each	9049.00
i	Supplying 450 X 900 mm rectangle Composite Resin Manhole Cover of Approved Brand Heavy Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 X 900 mm Rectangle	Each	7312.00
j	Supplying 450 X 900 mm Rectangular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 450 X 900 mm Rectangular	Each	9879.00

k	Supplying 600 X 900 mm Rectangular Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600 X 900 mm Rectangular	Each	12391.00
	GRATING WITH FRAME (HINGED)		
l	Supplying 450 X 450 mm Square Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 X 450 mm Square	Each	5086.00
m	Supplying 450 X 600 mm Rectangular Composite Resin Manhole Cover of Approved Brand Light Duty Confirming to relevant grade designation : A 15 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 5 T		
	Size - 450 X 600 mm Rectangular	Each	7201.00
n	Supplying 600 X 600 mm Square Composite Resin Manhole Cover of Approved Brand Medium Duty Confirming to relevant grade designation : B 125 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 12.5 T		
	Size - 600 X 600 mm Square	Each	10775.00
o	Supplying 600 X 600 mm Square Composite Resin Manhole Cover of Approved Brand Heavy Duty Confirming to relevant grade designation : C 250 as per En – 124 : 1994 Complete. (Inspection Shall be done as per guidelines of EN -124 : 1994)		
	Weight - 25 T		
	Size - 600 X 600 mm Square	Each	13171.00

15134	Supplying and fixing at the site of work of Steel Fibre Reinforced Concrete (SFRC) manhole covers with frames made as per IS :12592 (part I and II)- 1991 in concrete M45grade. The covers and lapped in 2mm thick. steel plate and this plate & lifting hooks are duly painted in corrosion resistant epoxy paint etc. complete.		
I	Light Duty (2.50 Metric Tonne Capacity)		
	Size in mm		
a	300x300	Each	521.00
b	450x450	Each	1149.00
c	450x600	Each	1314.00
d	450x900	Each	1460.00
II	Medium Duty (10.00 Metric Tonne Capacity)		
	Size in mm		
a	450x450	Each	1500.00
b	450x600	Each	1606.00
c	450x900	Each	2225.00
d	600x600	Each	2025.00
e	600x900	Each	2629.00
f	500 mm Diameter	Each	1947.00
III	Supply of HEAVY DUTY composite cast iron & SFRC manhole cover with frame as per IS:12952 Part I &Part II, the cover of outer ring C.I. of 12mm thickness with 4 prizing slots, internal portion SFRC, frame of inner ring C.I. 12mm thick encased in SFRC with clear opening as mentioned below.		
a	500 mm diameter	Each	7575.00
b	540 mm diameter	Each	8080.00
c	600 mm diameter	Each	9218.00
15135	Supply of C.I. Surface box with chain and lid complete		
a	175mm dia at bottom and 100mm dia at top with 300mm height weight 15kg	Each	971.00
b	100mm top dia 160mm bottom dia with 160mm hight weight 15kg	Each	1508.00
c	200mm dia top 300mm dia bottom with 300mm height weight 32kg	Each	3218.00
15136	Supplying of C. I.. Foot rests for manhole conforming to IS:5455-1969 weighing 5.4 kgs	Each	539.00

WATER METERS				
Mechanical Type Meters				
Domestic Meters.				
15137	Supply of Domestic Water Meter, horizontal inferential, Single Jet type with magnetic drive and dry dial suitable for ambient 50 degree C temperature duly sealed against tampering complete with couplings at both ends and conforming to Class A as per IS 779/1994 (Reaffirmed:2004) with amendments 1 to5 with ISI mark along with manufacturer's test certificate and guarantee certificate, including cost of all materials and labours with ISI mark.			
	Dia in mm			
a	15	Each	755.00	
15138	Supply of Domestic Water Meter, horizontal inferential, Single Jet type with magnetic drive and dry dial suitable for ambient 50 degree C temperature duly sealed against tampering complete with couplings at both ends and conforming to Class B as per IS 779/1994 (Reaffirmed:2004) with amendments 1 to5 with ISI mark along with manufacturer's test certificate and guarantee certificate, including cost of all materials and labours with ISI mark.			
	Dia in mm			
a	15	Each	784.00	
b	20	Each	1394.00	
15139	Supply of Domestic Water Meter, horizontal inferential, Multi Jet type with magnetic drive and dry dial suitable for ambient 50 degree C temperature duly sealed against tampering complete with couplings at both ends and conforming to Class B as per IS 779/1994,(Reaffirmed:2004)with amendments 1 to 5 with ISI mark along with manufacturer's test certificate and guarantee certificate, including cost of all materials and labours with ISI mark with Plastic Cover & Brass Body.			
	Dia in mm			
a	15	Each	1365.00	
b	20	Each	2323.00	
c	25	Each	4206.00	

15140	Supply of inferential, dry dial, type Domestic Water Meter,suitable for horizontal installation, duly, sealed against tampering with couplings at both ends having pulse output facility compatable for automatic reading system ,conforming to IS:779-1974 and ISO 4064-2005 standards and bearing EEC/MID/OIML mark,(with latest Amendments) along with test certificate from FCRI/NABL as desired by the department		
A	Class B-single Jet Water meters		
	Dia in mm		
a	15	Each	2688.00
b	20	Each	3200.00
15141	Supply of inferential, dry dial, type Domestic Water Meter,suitable for horizontal installation, duly, sealed against tampering with couplings at both ends having pulse output facility compatable for automatic reading system ,conforming to IS:779-1974 and ISO 4064-2005 standards and bearing EEC/MID/OIML mark, (with latest Amendments)along with test certificate from FCRI/NABL as desired by the department.		
A	Class B-Multi Jet Water meters		
	Dia in mm		
a	15	Each	3970.00
b	20	Each	4809.00
c	25	Each	8455.00
d	32	Each	11966.00
e	40	Each	15097.00
f	50	Each	33773.00
15142	Supply of AMR ready bulk water meter of class B Cast Iron Body confirming to IS 2373 dry dial hermetically sealed conforming to ISO 4064-2005 standards, marked to read in metric system bearing EEC/ MID/OIML mark (with latest Amendments) along with test certificate from FCRI/NABL as desired by the department		
I	Removable mechanism type (EEC/MID/OIML mark)		
	Dia in mm		
a	50	Each	40258.00
b	65	Each	45287.00
c	80	Each	50323.00
d	100	Each	81076.00
e	150	Each	95614.00
f	200	Each	151528.00
g	250	Each	184721.00

h	300	Each	299514.00
i	400	Each	411695.00
j	500	Each	682895.00

STRAINERS (FILTERS OR DIRT BOX)

15143	Providing and fixing C.I. Strainers for Water Meters including cost of all materials and labour.		
I	C.I. Strainer 'Y' type with screwed ends.		
	Sizes in mm		
a	15	Each	600.00
b	20	Each	825.00
c	25	Each	1353.00
d	40	Each	2403.00
15144	C.I. Stainer 'T' (Basket) type with flanged ends and with stainless steel or Brass mesh with opeing of 2.5mm to 3mm and suitable for operating pressure of 16 kg/cm ² and test pressure of 24 kg/cm ²		
II	C.I. Stainer 'T' (Basket) type with flanged ends		
	Sizes in mm		
a	50	Each	4366.00
b	80	Each	6148.00
c	100	Each	8421.00
d	150	Each	17577.00
e	200	Each	33312.00
f	250	Each	43579.00
g	300	Each	64463.00
h	400	Each	113130.00
i	500	Each	226957.00
15145	Supply of Strainer/Dirt Box with m.s. body and SS mesh suitable for flanged connections in installation of Bulk water meters		
	Sizes in mm		
a	50	Each	9269.00
b	80	Each	13926.00
c	100	Each	18874.00
d	150	Each	37772.00
e	200	Each	57703.00
f	250	Each	100493.00
g	300	Each	145768.00
h	400	Each	168882.00

i	500	Each	343107.00
ULTRASONIC FLOW METERS			
15146	Ultrasonic Clamp-on portable type Flow Meter (Single Channel)		
	Providing, installing and giving satisfactory test & trial of ultrasonic clamp on portable type flow meter confirming to ISO standard working on following conditions & specifications, calibration, inspection, testing, training along with accredited flow ring certificate of compliance with guarantee period of 12 months, suitable for maximum working pressure of 16 kg /sq.cm.		
a)	Mandatory Accessories :		
	1) Integrated single converted transmitter enclosed in anticorrosive ABS die cast aluminium case confirming to IP-67 or better - 1 No.		
	2) Pair of transducers (Sensors) confirming to IP-67 or better - 1 No.		
	3) Stainless straps for mounting transducers - 1 pair		
	4) Grease/sonic couplant, 100 ml - 1 Bottle		
	5) Coaxial signal & power cables for each transducer - 5 mtrs.length/each		
	6) Built in Portable battery backup for 12 hours continuous operation and separate battery charger working on 230 V AC, 50 Hz, A.C. power supply for charging battery -01 No.		
	7) Data storage capacity with built in or separate for date, time, actual flow rate, totaliser & error messages if any with storage capacity of 120 days at 5 minutes interval data logging - 1 No.		
	8) Dot matrix printer of EPSON, WIPRO or Hewlett Packard make printer interface unit for printing of stored data - 1 No.		
	9) Suitable surge suppressor (arrestor) for protection from lighting or incoming signal cable from transducer and power supply cable of meter - 1 set.		
	10) Measuring steel tape 5 meters in length - 1 No.		
	11) Ultrasonic thickness gauge - 1 No.		
	12) suitable carrying case - 1 No.		

	13) Velocity range 0.50 m/sec to 12m/sec		
b)	Working condition & Specifications :		
	a) Water Temp. : 10 Deg. to 50 Deg.		
	b) Water Quality : Raw water, turbid in nature, potable chlorinated water. Homogenous liquid not containing heavy suspended particles.		
	c) Operating pressure : 10-16 kg/cm ²		
	d) Pipeline MOC : CI, DI, MS with/without mortar lined, Non metallic pipes		
	e) Pipe diameter : > 50mm - 4000 mm		
	f) Flow - Up to 300 MLD		
	g) Pipe condition : Pipe shall be running full.		
	h) Ultrasonic flow meters shall be designed, manufactured to international standard with accuracy of +/-2% of actual flow. The supplier should have full ISO-9000 series. The supplier should have flow calibration laboratory accredited to ISO 17025		
	i) Functional details : Freely programmable		
	j) Measurement - Volumetric flow rate, totalized flow		
	k) Flow Direction - Forward & Reverse.		
	l) Display - Graphic 128 x 64 / 16 x 2 LCD display with suitable lines, digits, segments, markers, for identification of current output. The digit shall be clear, bold and can be read from 1 mtrs. distance		
	m) Out put - RS232/ RS485		
	n) Meter shall be suitable for remote facility.		
	o) Power supply - 85 - 260 V AC (45-65 Hz)/16-62V DC		
	p) Galvanic isolation - Input & output Galvanically isolated from power supply from the sensor and from each other	Each	346127.00
15147	Providing, installing and giving satisfactory test & trial of ultrasonic clamp on, fixed type flow meter confirming to ISO standard working on following conditions & specifications, calibration, inspection, testing, training with accredited flow ring certificate of compliance along with guarantee period of 12 months, suitable for maximum working pressure of 16 kg /sq.cm.,		
a)	Mandatory Accessories :		

	1) Integrated single converted transmitter enclosed in Anticorrosive ABS die cast aluminium case confirming to IP-67 or better - 1 No.		
	2) Pair of transducers (Sensors) confirming to IP-67 or better - 1 No. for Single Channel		
	Pair of transducers (Sensors) confirming to IP-67 or better - 2 Nos. for Dual Channel		
	3) Stainless straps for mounting transducers - 1 Pair		
	4) Grease couplant, 100 ml - 1 Bottle		
	5) Coaxial signal & power cables for each transducer - 15 mtrs. length/each		
	6) UPS working on 230 V AC,50 Hz power supply suitable for 12 hrs continuous operation-1No.		
	7) Data storage capacity with built in or separate for date,time,actual flow rate,Totaliser & error messages if any with storage capacity of 120 days at 5 minutes interval data logging - 1 No.		
	8) Dot matrix printer of EPSON, WIPRO or Hewlett Packard make with printer interface unit for printing of stored data - 1 No.		
	9) Suitable surge suppressor (arrestor) for protection from lighting or incoming signal cable from transducer and power supply cable of meter - 1 set.		
b)	Working Condition & Specifications :		
	a) Water Temp. : 10 Deg. to 50 Deg.		
	b) Water Quality : Raw water, turbid in natrue, potable chlorinated water		
	c) Operating pressure : 10-16 kg/cm ²		
	d) Pipeline MOC : CI, DI, MS with/without morter lined, Non metallic pipes		
	e) Pipe diameter : >80mm - 4000 mm		
	f) Flow - Up to 300 MLD		
	g) Pipe condition : Pipe shall be running full.		
	h) Ultrasonic flow meters shall be designed, manufactured to international standard with accuracy of +/-2% of actual flow. The supplier should have full ISO-9000 series.The supplier should have flow calibration laboratory accredited to ISO-17025		
	i) Functional details : Freely programmable		

	j) Measurement - Volumetric flow rate, totalised flow		
	k) Flow Direction - Forward & Reverse.		
	l) Display - Graphic 128 x 64 / 16 x 2 LCD display with suitable lines, digits, segments, markers, for identification of current output. The digit shall be clear, bold and can be read from 1 mtrs. distance		
	m) Out put - for current - 4mA - 20 mA hart for measuring flow in pipeline. Frequency output shall be 1 Khz, Open collector, passive.		
	n) Meter shall be suitable for remote facility.		
	o) Power supply - 85 - 260 V AC (45-65 Hz)/16-62V DC		
	p) Galvanic isolation - Input & output Galvanically isolated from power supply from the senor and from each other		
I	Ultrasonic Clamp-on, Fixed type Flow Meter (Single Channel/Path)	Each	319413.00
II	Ultrasonic Clamp-on, Fixed type Flow Meter (Dual Channel/Path)	Each	795628.00
15148	Ultrasonic insertion type Flow Meter (Single Channel)		
	Providing, installing and giving satisfactory test & trial of Single channel insertion type Ultrasonic Flow meter confirming to ISO working on 85-260 V AC, 50 Hz/24V DC electric power supply of following type working on time of flight principles suitable for satisfactory continuous operation in all seasons & with following accessories, working conditions specifications with accredited flow ring certificate of compliance along with guarantee period of 12 months, suitable for maximum working pressure of 16 kg /sq.cm.		
a)	Mandatory Accessories :		
	1) Integrated single converted transmitter enclosed in Anticorrosive ABS die cast aluminium confirming to IP-67 or better - 1 No.		
	2) Pair of transducers (Sensors) confirming to IP-67 or better - 1 No.		
	3) Coaxial signal & power cables for each transducer - 30 mtrs. length/each		
	4) UPS working on 230 V AC,50 Hz power supply suitable for 12 hrs continuous operation-1No.		

	5) Data storage capacity with built in or separate for date, time, actual flow rate, Totaliser & error messages if any with storage capacity of 120 days at 5 minutes interval data logging - 1 No.		
	6) Dot matrix printer of EPSON, WIPRO or Hewlett Packard make with printer interface unit for printing of stored data - 1 No.		
	7) Suitable surge suppressor (arrestor) for protection from lightning or incoming signal cable from transducer and power supply cable of meter - 1 set.		
b)	Working Condition & Specifications :		
	a) Water Temp. : 10 Deg. to 50 Deg.		
	b) Water Quality : Raw water, turbid in nature, potable chlorinated water		
	c) Operating pressure : 10-16 kg/cm ²		
	d) Pipeline MOC : CI, DI, MS with/without mortar lined, Non metallic pipes		
	e) Pipe diameter : >80mm - 4000 mm		
	80mm- 600mm: Single Path/track/channel		
	600mm- 800mm: Single Path/track/channel		
	800mm and above: Single Path/track/channel		
	f) Flow - Up to 300 MLD		
	g) Pipe condition : Pipe shall be running full.		
	h) Ultrasonic flow meters shall be designed, manufactured to international standard with accuracy of +/-1% of actual flow. The supplier should have flow calibration laboratory accredited to International Standard		
	i) Functional details : Freely programmable		
	j) Measurement - Volumetric flow rate, totalized flow		
	k) Flow Direction - Forward & Reverse.		
	l) Display - Graphic 128 x 64 / 16 x 2 LCD display with suitable lines, digits, segments, markers, for identification of current output. The digit shall be clear, bold nad can be read from 1 mtrs. distance		
	m) Out put - for current - 4mA - 20 mA HART for measuring flow in pipeline. Frequency output shall be 1 Khz, Open collector, passive.		
	n) Meter shall be suitable for remote facility.		

	o) Power supply - 85 - 260 V AC (45-65 Hz)/ 16-62 V DC		
	p) Galvanic isolation - Input & output Galvanically isolated from power supply from the sensor and from each other		
I	Ultrasonic insertion type Flow Meter (Single Channel/path)	Each	412333.00
II	Ultrasonic insertion type Flow Meter (Two Channel/path)	Each	911778.00
III	Ultrasonic insertion type Flow Meter (Four Channel/path)	Each	1968743.00
15149	Battery powered, inline Ultrasonic Flow Meter		
	Supply and Commission installation & successful testing of Battery powered, inline ultrasonic flow meter confirming to ISO - 17025 working on following conditions & specifications, calibration, inspection, testing, training along with accredited flow ring certificate of compliance with guarantee period of 12 months, suitable for maximum working pressure of 16 kg /sq.cm.		
b)	Working Condition & Specifications :		
	1) Fluid suitability :- Raw, turbid and muddy water with aquatic lives like fish and floating material/clear, cold chlorinated water.		
	2) Operating pressure :- 0 to 16 kg/cm ²		
	3) Pipe line diameter (D.I/C.I/M.S with or without cement mortar lining,& non metallic pipes):- 50 mm to 500 mm		
	4) Water temperature :- 10 to 50 deg. C		
	5) Accuracy :- +1% of reading		
	6) Display :- Alphanumeric LCD display for flow rate & totaliser		
	7) Logger capacity :- Hourly record for 1 year/Daily record for 5 years		
	8) communication :- RS 232		
	9) Ingress protection : IP 67		
	10) Material of sensor : Stainless steel/Epoxy		
	11) Battery Type :- Li-SOCL2		
	12) Battery life : Two years minimum, five years maximum		
	13) Ingress Protection : IP-67		
	14) Connectivity :- Facility for GSM connectivity should be available inbuilt		

	Remote Monitoring System for data acquisition/date transfer & alert SMS/Warning based on GSM technology with complete hardware like wireless communication device, HART cables, necessary software system		
	1) GSM/GPRS modem shall be installed in conjunction with ultrasonic flowmeter Picosonic at various location at NMC		
	2) Successful contractor has to study the serial protocol of Picosonic flowmeter for phisibility		
	3) while executing contract performance of present system shall not be hampered		
	4) Successful contractor has to arrange demonstration of his system within 8 days from notice		
	5) GSM/GPRS modem shall be installed in conjunction with ultrasonic flowmeter Picosonic at various location at NMC		
	6) Successful contractor has to study the serial protocol of Picosonic flowmeter for phisibility		
	7) while executing contract performance of present system shall not be hampered		
	8) Successful contractor has to arrange demonstration of his system within 8 days from notice		
	9) GSM/GPRS system shall send SMS to Central Monitoring room or Central Monitoring rooms with user predefined frequency 1Hr-24Hr.		
	10) GSM/GPRS system shall send SMS to min 3 cell nos.with user predefined frequency 1Hr-24Hr. With additions to central Monitoring room.		
	11) GSM/GPRS system shall send SMS to min 1 cell no in predefined alarm condition such as high flow rate, low flow rate		
	12) GSM/GPRS system shall work at least 12 hours in absence of electric supply		
	13) Successful contractor has to carry out survey of necessary strength of RF signal for proper functioning of system		
	14) Successful contractor has to give location wise suitability of service provider		

	15) Successful Bidder shall have experience of supply installation & commissioning of minimum 5 ultrasonic flowmeter with GSM modems in single contract		
a	50mm dia	Each	162610.00
b	65mm dia	Each	180033.00
c	80mm dia	Each	187002.00
d	100mm dia	Each	203263.00
e	150mm dia	Each	229977.00
f	200mm dia	Each	253207.00
g	250mm dia	Each	283406.00
h	300mm dia	Each	306636.00
i	350mm dia	Each	331028.00
j	400mm dia	Each	400718.00
k	450mm dia	Each	450662.00
l	500mm dia	Each	520352.00
<hr/>			
15150	Supplying, installation, testing and Commissioning of Full Bore Carbon Steel Flanged ends Electromagnetic Flow Meter (FBEM), for Raw/ treated water with accuracy+/-0.5% and sensor of protection of IP 68 Grade for pressure rating PN 16 including sensor coil housed in Cast Aluminium/ Carbon Steel with anti-corrosive food grade powder coating; Co-axial signal sensor/ transmitter & power cable routed through duct of 50mm dia G.I. Pipe; surge arrestor; over voltage protection unit, PTFE/ Rubber Liner material(as desired by the Engineer-in charge). The output showing volumetric flow rate and totalized flow with other details shall be on LCD display screen mounted on the flow meter body or in the near by control room with upto 25m length transmitter / sensor cabling and simultaneous transmission of reading through GSM Mobile signals to designated phone numbers and meter should have data storage of required capacity and shall be freely programmable for future upgradation and Scada compatible with power supply 80-300 V AC/DC etc. complete as directed by Engineer-incharge.		
1	100mm dia	Each	96405.00
2	150mm dia	Each	112666.00
3	200mm dia	Each	174225.00
4	250mm dia	Each	191648.00
5	300mm dia	Each	213716.00
6	350mm dia	Each	241592.00

7	400mm dia	Each	296183.00
8	450mm dia	Each	336835.00
9	500mm dia	Each	371680.00
10	600mm dia	Each	408848.00
11	700mm dia	Each	423948.00
12	750mm dia	Each	462277.00
13	800mm dia	Each	485507.00
14	900mm dia	Each	522675.00
15	1000mm dia	Each	685285.00
15151	Supply, installation, testing and Commissioning of INBUILT BATTERRY OPERATED Electromagnetic Flow Meter (EMF), for Raw/ treated water with accuracy +/-1% of measured valve and protection as per given specifications for size 100 mm – 1000 mm including sensor, transmitter, surge arrestor, 25 mtrs sensor/transmitter AC/ DC. Inbuilt battery should proSupply, installation, testing and Commissioning of INBUILT BATTERRY OPERATED Electromagnetic Flow Meter (EMF), for Raw/ treated water with accuracy +/-1% and sensor of protection of IP 68 Grade for pressure rating PN 16 including sensor coil housed in Cast Aluminium/ Carbon Steel with anti-corrosive food grade powder coating; Co-axial signal sensor/ transmitter & power cable routed through duct of 50mm dia G.I. Pipe; surge arrestor; over voltage protection unit, PTFE/ Rubber Liner material(as desired by Engineer in-charge). The output showing volumetric flow rate and totalized flow with other details shall be on LCD display screen mounted on the flow meter body or in the near by control room with upto 25m length transmitter / sensor cabling and simultaneous transmission of reading through GSM Mobile signals to designated phone numbers and meter should have data storage of required capacity and shall be freely programmable for future upgradation and Scada compatible. Inbuilt battery should provide power to meter for minimum five years etc. complete as directed by Engineer-incharge.vide power to meter for minimum five years etc. complete as directed by Engineer-incharge.		
1	100mm dia	Each	191648.00
2	125mm dia	Each	209070.00
3	150mm dia	Each	229977.00
4	200mm dia	Each	246238.00
5	250mm dia	Each	298506.00
6	300mm dia	Each	311282.00
7	350mm dia	Each	322897.00

8	400mm dia	Each	357742.00
9	450mm dia	Each	387941.00
10	500mm dia	Each	455308.00
11	600mm dia	Each	524998.00
12	700mm dia	Each	627210.00
13	750mm dia	Each	673670.00
14	800mm dia	Each	720130.00
15	900mm dia	Each	755556.00
16	1000mm dia	Each	871706.00
15152	Additional / Optional Accessories :		
1	Sensor / Transmitter cable		
	3 x 0.38 mm 2 PVC cable with common, braided copper shield(7 mm dia) and individually shielded cores. With empty pipe detection 9 EPD 4 x 0.38 mm 2 PVC cable with common braided copper shield (7 mm dia) and individually shielded cores Conductor resistant.	Metre	406.00
2	Coil Cable		
	3 x 0.75 mm 2 PVC cable with common, braided copper shield (7 mmdia) – Conductor resistance :</=37 Ohm/km. – Capacitance : core / core, shield grounded : </= 120 pF/m Permanent operating temperature : 20...+80 Deg.C	Metre	435.00
3	Pressure Transmitter Cable		
	3 x 0.75 mm 2 PVC cable with common , braided copper shield (7mm dia) – Conductor resistance :</37 Ohm/km. – Capacitance: core/core, shield grounded: </=120 pF/m Permanent operating temperature : 20...+80 deg.C	Metre	145.00
4	GI duct of 50 mm with suitable rating		
	For laying underground with all the necessary fitting joints etc for housing the cables between sensor and transmitter. The cable shall be installed in a suitable GI duct to minimize the risk of damage during excavation. All cable laid at a minimum depth.	Metre	509.00

15153	Hydraulic Design, Analysis & Pipeline for Pressure, Surge analysis, manufacturing, supplying of electrically/ hydraulically operated surge Relief Valve with integral flanges of high strength D.I/ C.I. body with pressure rating PN 1.6/ PN 2.5 having two pressure sensing pilots, reinforced diaphragm of EPDM material or piston based water release mechanism etc. complete as directed by Engineer in charge.		
a	100 mm	Each	414564.00
b	150 mm	Each	621846.00
c	200 mm	Each	829128.00
d	250 mm	Each	1036409.00
e	300 mm	Each	1243691.00
15154	Supply of waterlight control panel of required dimensions with AC and DC relays of 12 Volts, Electronic timer with 0 to 60 sec time settings should be provided for operation of the valve.	Each	51013.00
15155	Supply of maintenance free batteries of Exide make or equivalent of 24 volts each with an automatic battery charger should be provided in the control panel. (2 Batteries)	Each	4836.00
15156	Installation, testing and commissioning of Surge relief valve by gas cutting the existing M.S. pipe and welding, fixing a M.S. tail piece length as per the site conditions.		
a	100 mm	Each	3240.00
b	150 mm	Each	3780.00
c	200 mm	Each	4320.00
d	250 mm	Each	4860.00
e	300 mm	Each	5400.00

	DUCTILE IRON VALVES		
	DUCTILE IRON RESILIENT SEATED SLUICE VALVES		
15157	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stackingetc. Ductile Iron double flanged, manually operated Sluice valve generally confirming to IS 14846-2000, non rising spindle type, (soft seated) resilient seated with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12, 400/15, 500/7 or equivalent grade as per IS 3896 part 2-1985 and subsequent revisions, Wedge fully rubber lined with food grade EPDM(WRAS approved) and seals of NBR, spindle stem SS/AISI 410 and having glandless operation. The valve should be vacuum tight 100% leak proof with face to face dimensions as per IS14846-2000 or BS 5163-89 or DIN 3202-F4. The valves should be coated with electrostatic Powder/Epoxy Coating on both inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water and shall have pocket less body passage. The flanges shall be Drilled as per IS: 1538 with latest amendments. The valve shall be supplied with Hand Wheel for operation (by-pass and gear arrangements for sizes above 400mm dia) and relevant Test & Guarantee certificates. TYPE P.N. 1.0 (Class A)		
	Nominal Diameter in mm		
a	50	Each	8919.00
b	80	Each	13032.00
c	100	Each	16706.00
d	125	Each	22391.00
e	150	Each	26065.00
f	200	Each	42438.00
g	250	Each	69831.00
h	300	Each	94451.00
i	350	Each	155704.00
j	400	Each	226199.00
k	450	Each	268615.00
l	500	Each	366524.00
m	600	Each	501164.00
n	800	Each	1394022.00

15158	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron double flanged, manually operated Sluice valve generally confirming to IS 14846-2000, non rising spindle type, (soft seated) resilient seated with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12, 400/15, 500/7 or equivalent grade as per IS 3896 part 2-1985 and subsequent revisions, Wedge fully rubber lined with food grade EPDM(WRAS approved) and seals of NBR, spindle stem SS/AISI 410 and having glandless operation. The valve should be vacuum tight 100% leak proof with face to face dimensions as per IS14846-2000 or BS 5163-89 or DIN 3202-F4. The valves should be coated with electrostatic Powder/ Epoxy Coating on both inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water and shall have pocket less body passage. The flanges shall be Drilled as per IS: 1538 with latest amendments. The valve shall be supplied with Hand Wheel for operation (by-pass and gear arrangements for sizes above 400mm dia) and relevant Test & Guarantee certificates. TYPE P.N. 1.6 (Class A)		
	Nominal Diameter in mm		
a	50	Each	8919.00
b	80	Each	13032.00
c	100	Each	16706.00
d	125	Each	22391.00
e	150	Each	26065.00
f	200	Each	42438.00
g	250	Each	69831.00
h	300	Each	94451.00
i	350	Each	155704.00
j	400	Each	226199.00
k	450	Each	268615.00
l	500	Each	366524.00
m	600	Each	501164.00
n	800	Each	1421902.00

DUCTILE IRON METAL SEATED SLUICE VALVES				
15159	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron double flanged, manually operated Sluice valve generally confirming to IS 14846-2000,with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12, 400/15, 500/7 or equivalent grade as per IS 3896 part 2-1985 and subsequent revisions, four faces and spindle nut of leaded gun metal of IS 318 GR LTB 2/Al Bronze, inside screw of non rising stainless steel AISI 410/420 spindle. . The valves should be coated with electrostatic Powder/Epoxy Coating on both inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water. The flanges shall be Drilled as per IS: 1538 with latest amendments. The valve shall be supplied with Hand Wheel for operation (by-pass and gear arrangements for sizes above 400 mm dia) and relevant Test & Guarantee certificates. TYPE P.N. 1.0 (Class A)			
	Nominal dia in MM			
a	50	Each	10145.00	
b	80	Each	14961.00	
c	100	Each	19988.00	
d	150	Each	30357.00	
e	200	Each	50542.00	
f	250	Each	71833.00	
g	300	Each	94597.00	
h	350	Each	182049.00	
i	400	Each	247290.00	
j	450	Each	313188.00	
k	500	Each	392850.00	
l	600	Each	592887.00	
m	700	Each	933590.00	
n	750	Each	1132574.00	
o	800	Each	1182472.00	
p	900	Each	1586520.00	
q	1000	Each	2011806.00	
r	1200	Each	2822060.00	

15160	Supplying at store or site of work including freight, transit insurance ,carting, loading, unloading, stacking etc Ductile Iron double flanged, manually operated Sluice valve generally confirming to IS 14846-2000,with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12, 400/15, 500/7 or equivalent grade as per IS 3896 part 2-1985 and subsequent revisions, four faces and spindle nut of leaded gun metal of IS 318 GR LTB 2/Al Bronze, inside screw of non rising stainless steel AISI 410/420 spindle. . The valves should be coated with electrostatic Powder/ Epoxy Coating on both inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water. The flanges shall be Drilled as per IS: 1538 with latest amendments. The valve shall be supplied with Hand Wheel for operation (by-pass and gear arrangements for sizes above 400 B38mm dia) and relevant Test & Guarantee certificates. TYPE P.N. 1.6 (Class A)		
	Nominal dia in MM		
a	50	Each	11172.00
b	80	Each	16461.00
c	100	Each	21988.00
d	150	Each	33383.00
e	200	Each	55595.00
f	250	Each	79017.00
g	300	Each	104045.00
h	350	Each	200261.00
i	400	Each	278186.00
j	450	Each	352322.00
k	500	Each	441958.00
l	600	Each	666997.00
m	700	Each	1026937.00
o	750	Each	1245844.00
p	800	Each	1300715.00
q	900	Each	1762800.00
r	1000	Each	2235340.00
s	1200	Each	3135623.00

DUCTILE IRON AIR VALVES				
15161	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron Single chamber/kinetic double orifice, tamper proof type Air Valve generally conforming to IS 14845 with body and cover in Ductile Iron of grade SG 400/12, 500/7 or equivalent grade as per IS 3896 part2-1985 and subsequent revisions. All internal parts such as float, shell etc. all cover bolts of Stainless Steel and Gaskets, seals etc made of food grade EPDM. The valve body shall be coated with food grade blue colour Epoxy inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water. The flanges shall be Drilled as per IS: 1538. etc complete (Class A)			
	TYPE P.N. 1.0			
a	50.00	Each	16825.00	
b	80.00	Each	20848.00	
c	100.00	Each	25620.00	
d	150.00	Each	67812.00	
e	200.00	Each	71587.00	
15162	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron Single chamber/kinetic double orifice, tamper proof type Air Valve generally conforming to IS 14845 with body and cover in Ductile Iron of grade SG 400/12, 500/7 or equivalent grade as per IS 3896 part2-1985 and subsequent revisions. All internal parts such as float, shell etc. all cover bolts of Stainless Steel and Gaskets, seals etc made of food grade EPDM. The valve body shall be coated with food grade blue colour Epoxy inside and outside minimum 250 microns thickness of blue color RAL5017/5005 suitable for drinking water. The flanges shall be Drilled as per IS: 1538. etc complete TYPE P.N. 1.6 (Class A)			
	Nominal Diameter in mm			
a	50	Each	16825.00	
b	80	Each	20848.00	
c	100	Each	25620.00	
d	150	Each	67812.00	
e	200	Each	71587.00	

DUCTILE IRON BUTTERFLY VALVES

15163	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron Butterfly (tight Shut off) valve with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12 or equivalent grade as per IS 3896 part2-1985 and subsequent revisions, Body seat with Stainless Steel/Nickel Weld overlay and Disc seat of replaceable EPDM. Internal Fasteners and Seal Retaining Ring of Stainless Steel 304 grades. The valves shall be 100% leak proof. Face to face dimensions as per IS 13095 or BS 5155. Valves shall be with Epoxy Coating both inside and outside. Flanges Drilled as per IS: 1538. Operation by worm gear for 500mm dia and above. TYPE P.N. 1.0 (Class A)		
	Nominal Diameter in mm		
a	100	Each	25367.00
b	150	Each	36239.00
c	200	Each	42883.00
d	250	Each	60398.00
e	300	Each	87578.00
f	350	Each	96637.00
g	400	Each	120796.00
h	450	Each	129856.00
i	500	Each	172135.00
j	600	Each	226493.00
k	700	Each	289910.00
l	800	Each	344269.00
m	900	Each	422786.00
n	1000	Each	597940.00
15164	Supplying at store or site of work including freight, transit insurance, carting, loading, unloading, stacking etc. Ductile Iron Butterfly (tight Shut off) valve with Body, Bonnet of Ductile Iron of grade GGG40 or SG 400/12 or equivalent grade as per IS 3896 part2-1985 and subsequent revisions, Body seat with Stainless Steel/Nickel Weld overlay and Disc seat of replaceable EPDM. Internal Fasteners and Seal Retaining Ring of Stainless Steel 304 grades. The valves shall be 100% leak proof. Face to face dimensions as per IS 13095 or BS 5155. Valves shall be with Epoxy Coating both inside and outside. Flanges Drilled as per IS: 1538. Operation by worm		

	gear. TYPE P.N. 1.6 (Class A)		
	Nominal Diameter in mm		
a	100	Each	25367.00
b	150	Each	36239.00
c	200	Each	42883.00
d	250	Each	60398.00
e	300	Each	87578.00
f	350	Each	102677.00
g	400	Each	126836.00
h	450	Each	141936.00
i	500	Each	199313.00
j	600	Each	280851.00
k	700	Each	338229.00
l	800	Each	413727.00
m	900	Each	501303.00
n	1000	Each	685518.00

CHAPTER VI LAYING PIPES AND ACCESSORIES ETC.	
	Notes:
	Carriage
1	The items for laying of pipes include for carriage of pipes from stacks at site. If the pipes are to be transported from departmental stores to site , separate provision for this shall be made in the estimate.
2	Soil Cover <p>2.1. For AC/RCC/PVC/Stoneware pipes, the minimum soil cover shall be</p> <ul style="list-style-type: none"> i) 75cm when laid under footpath. ii) 90cm when laid under light traffic or cultivated soil. iii) 100cm under roads with heavy traffic and if soil has a poor bearing capacity. iv) pipes line subjected to heavy traffic pipe shall be laid on concrete cradle. <p>2.2. For C.I /D.I pipes, shall not be less than 1 meter under roads and not less than 95cm elsewhere.</p> <p>2.3. For G.I. pipes, the soil cover shall be 60cm. for pipe diameter 15mm to 50mm and 75cm for pipe diameter 65mm to 100 mm.</p> <p>2.4. For PVC pipes, the soil cover shall be 90cm .</p> <p>2.5. The initial backfill for 15cm shall be in soft soil and bedding for pipes shall be soft soil free from rock and gravel.</p>
3	The road crossing shall always be done with a casing pipe for A.C. /G.I /PVC/ HDPE pipelines.
4	The trench width <p>4.1. for A.C./ C.I /D.I/ PVC/HDPE shall be such as</p> <ul style="list-style-type: none"> (i) To provide a space of 300mm on either side of the pipe. (ii) Nominal diameter plus 40cm but not less than 60 cm in case of all kinds of soil excluding hard rock and not less than 100cm in case of hard rock. (iii) For G.I pipe of diameter from 15 to 50mm shall be 30cm and 45cm for 65 to 100mm.

	(iv) For refilling the initial back filling material for first 30cm shall be free of large stones and dry lumps. In rocky areas the material for backfilling shall be shared from the side of trenches. The initial backfilling shall be done in layers of 10cm thick and properly consolidated and continued for minimum 30cm cover from the pipe balance of the backfill need not be so carefully selected as the initial material.
5	Plastic/jute bags and marshy earth with vegetable matter shall not be used for bedding for pipes for laying and gravel or crushed stone shall be used.
6	The hydraulic test shall be conducted as per relevant specification. The rate for jointing is inclusive of charges for hydraulic testing. Separate item is provided for hydraulic testing of the pipeline as per the standards of "manual on water supply and treatment" (published by CPHEEO). This item is inclusive of cost of water required for hydraulic testing. If water is supplied by the department for testing, the same shall be recovered at the prevailing commercial rates.
7	Rates for hoisting and laying of sluice valves, reflux valves, double orifice type air valve are inclusive of the cost of flanged joints including the cost of nut bolts and rubber packing etc as required for fixing completely the unit.
8	For AC pipe, the laying rate is including of cutting and filing charges wherever required and for G.I. pipe the rate inclusive of cutting and threading of pipes and specials required. For C.I. pipes and D.I., separate for each cut according to diameter shall be estimated.
9	For sluice valves and butterfly valves, non return valves, water meter etc. where there is not complete item (Providing and laying) available separate rates for hoisting and laying and jointing as required shall be made.
10	The rates for masonry chambers, includes the rates for earthwork required for such work either in soil or rock as applicable and as such no extra shall be paid on this account.
11	Reference in the CPHEEO manual on water supply and treatment is to be made for design of water supply schemes as per table-1.

Table-1.

Description	Clause no	Appendix No
Population forecast	2.2.7	Appendix 2.1
Economics of Rising main and design of Pump set	6.14	Appendix 6.5
Design of thrust blocks	16.16.18	Appendix 6.6
Service Reservoir	10.4	Appendix 10.1
Testing of Pipe line	6.44	---

CHAPTER VI LAYING PIPE AND ACCESSORIES			
A	CONVEYING & LAYING		
Item No	Description	Unit	Rate
15201	Conveying carefully from stack at site, 250m from both sides rolling and lowering in trenches, laying and jointing true to line and level and perfect linking of joints		
a	Cast iron or Ductile iron or A.C. or S & S or flanged & PVC pipes.	QTL	261.00
b	S&S flanged/plain ended specials	QTL	597.00
15202	Conveying carefully from stack at site, 250m from both sides rolling and lowering in trenches, laying and jointing true to line and level and perfect linking of joints, including tack welding for mild steel pipes for water supply pipeline complete in all respects as per the direction of the engineer in-charge		
	Nominal diameter in mm		
a	200	Metre	108.00
b	250	Metre	146.00
c	300	Metre	171.00
d	350	Metre	180.00
e	400	Metre	183.00
f	450	Metre	205.00
g	500	Metre	209.00
h	600	Metre	225.00
i	700	Metre	238.00
j	750	Metre	245.00
k	800	Metre	255.00
l	900	Metre	265.00
m	1000	Metre	278.00
n	1100	Metre	292.00
o	1200	Metre	294.00
15203	Conveying carefully from stack at site, 250m from both sides rolling and lowering in trenches, laying true to line and level and perfect linking for joints for P.V.C / H.D.P.E complete in all respects as per the direction of the engineer in-charge		
a	63 mm OD	Metre	2.50
b	75 mm OD	Metre	3.00
c	90 mm OD	Metre	3.20

d	110 mm OD	Metre	3.60
e	140 mm OD	Metre	5.40
f	160 mm OD	Metre	5.90
g	180 mm OD	Metre	6.35
h	200 mm OD	Metre	6.90
i	225 mm OD	Metre	7.60
j	250 mm OD	Metre	8.50
k	280 mm OD	Metre	9.53
l	315 mm OD	Metre	11.00
B	CONVEYING, LAYING & JOINTING		
15204	Conveying carefully from stack at site, 250m from both sides rolling and lowering into trenches, laying and jointing true to line and level, RCC spun pressure and non pressure pipes of various classes, specials including collar and perfect linking of joint with jack to correct position including cost of jointing material in cement mortar 1:2, necessary hydraulic testing, curing of cement mortar etc. complete.		
	Nominal diameter in mm		
a	100	Metre	69.00
b	150	Metre	84.00
c	250	Metre	136.00
d	300	Metre	159.00
e	350	Metre	204.00
f	400	Metre	217.00
g	450	Metre	261.00
h	500	Metre	281.00
i	600	Metre	306.00
j	700	Metre	359.00
k	800	Metre	388.00
l	900	Metre	437.00
m	1000	Metre	518.00
n	1100	Metre	605.00
o	1200	Metre	706.00
15205	Conveying carefully from stack at sites 250m from both the sides rolling and lowering into trenches, laying, jointing G.I. Pipes with G.I Fittings of sizes given below true to line and level including fixing sockets, elbows tees bends, gland packing and other fittings with cutting and threading as required including hydraulic testing. etc complete.		

	Nominal diameter in mm		
a	15	Metre	20.00
b	20	Metre	23.00
c	25	Metre	33.00
d	32	Metre	37.00
e	40	Metre	48.00
f	50	Metre	63.00
g	65	Metre	96.00
h	80	Metre	102.00
i	100	Metre	116.00
j	125	Metre	135.00
k	150	Metre	177.00
<hr/>			
15206	Conveying carefully from stack at site, 250m from both sides into trenches, laying and jointing salt glazed stone ware pipes true to line and level including perfect linking at joints, including caulking with hemp dipped in tar and jointing with Cement mortar 1:1 and testing with water etc. complete.		
	Nominal diameter in mm		
a	100	Metre	128.00
b	150	Metre	192.00
c	200	Metre	224.00
d	230	Metre	295.00
e	250	Metre	359.00
f	300	Metre	394.00
<hr/>			
C	JOINTING		
<hr/>			
15207	Making C.I Detachable joints to A.C. pressure pipes of various classes and C.I Plain ended specials with collar, rubber rings, nut and bolts, etc. complete including testing of joints but excluding the cost of joints		
	Nominal diameter in mm		
a	50	Each	74.00
b	80	Each	91.00
c	100	Each	126.00
d	125	Each	161.00
e	150	Each	196.00
f	200	Each	231.00
g	250	Each	266.00
h	300	Each	301.00
i	350	Each	328.00

j	400	Each	363.00
k	450	Each	398.00
l	500	Each	433.00
m	600	Each	468.00
n	700	Each	503.00
o	750	Each	538.00
p	800	Each	573.00
q	900	Each	608.00
r	1000	Each	643.00
15208	Jointing of RING FIT PVC pipes by cleaning the pipes and hydraulic testing of joints etc. complete,as directed by the engineer in-charge		
	Outer Diameter in mm		
a	63	Each	6.30
b	75	Each	6.60
c	90	Each	7.30
d	110	Each	8.50
e	140	Each	9.70
f	160	Each	11.20
g	180	Each	12.80
h	200	Each	28.70
i	225	Each	31.50
j	250	Each	34.90
k	315	Each	39.00
15209	Jointing of rigid / SEL FIT PVC pipes by cleaning the pipe with solvent cement including the cost of solvent cement and hydraulic testing of joints etc. complete as per IS:7634-1975 Part 3, including hydraulic testing of joints as directed by the engineer in-charge.		
	Outer Diameter in mm		
a	63	Each	14.00
b	75	Each	17.00
c	90	Each	24.00
d	110	Each	35.00
e	140	Each	47.00
f	160	Each	66.00
g	180	Each	78.00
h	200	Each	143.00
i	225	Each	190.00
j	250	Each	214.00
k	315	Each	307.00

15210	Jointing of HDPE pipes by heating the two ends of the pipe with electrically heated mirror, to the required temperature, including the hire charges of heating mirror and the generator set for the electricity for the heating mirror etc complete as per the direction of the engineer in- charge		
I	63 mm to180 mm OD		
a	63 mm OD	Each	63.00
b	75 mm OD	Each	70.00
c	90 mm OD	Each	79.00
d	110 mm OD	Each	91.00
e	125 mm OD	Each	106.00
f	140 mm OD	Each	127.00
g	160 mm OD	Each	159.00
h	180 mm OD	Each	177.00
II	for diameter from 200 mmto 800 mm diameter		
a	200 mm OD	Each	119.00
b	225 mm OD	Each	134.00
c	250 mm OD	Each	143.00
d	280 mm OD	Each	143.00
e	315 mm OD	Each	153.00
f	355 mm OD	Each	165.00
g	400 mm OD	Each	179.00
h	450 mm OD	Each	195.00
i	500 mm OD	Each	266.00
j	560 mm OD	Each	297.00
k	630 mm OD	Each	334.00
l	710 mm OD	Each	336.00
m	800 mm OD	Each	337.00
15211	Jointing of C.I/D.I pipes and specials with rubber gaskets (TYTON joints) EPDM type including cleaning the socket and spigot ends with kerosene oil/below lamp and applying soft soap to socket and spigot ends before inserting for rubber gasket jacking and fixing in proper condition including cost of rubber gasket, oil, soft soap and hydraulic testing of jointing as per IS:3144-1985.		
	Nominal diamter in mm		
a	80	Each	110.00
b	100	Each	141.00
c	125	Each	164.00
d	150	Each	197.00

e	200	Each	256.00
f	250	Each	346.00
g	300	Each	405.00
h	350	Each	531.00
i	400	Each	613.00
j	450	Each	703.00
k	500	Each	878.00
l	600	Each	1181.00
m	700	Each	1692.00
n	750	Each	1893.00
o	800	Each	1994.00
p	900	Each	2373.00
q	1000	Each	3279.00
15212	Jointing of C.I/D.I pipes and specials with rubber gaskets (TYTON joints) SBR type including cleaning the socket and spigot ends with kerosene oil/below lamp and applying soft soap to socket and spigot ends before inserting for rubber gasket jacking and fixing in proper condition including cost of rubber gasket, oil, soft soap and hydraulic testing of jointing as per IS:3144-1985		
	Nominal diamter in mm.		
a	80	Each	110.00
b	100	Each	129.00
c	125	Each	146.00
d	150	Each	174.00
e	200	Each	221.00
f	250	Each	299.00
g	300	Each	358.00
h	350	Each	436.00
i	400	Each	507.00
j	450	Each	585.00
k	500	Each	712.00
l	600	Each	968.00
m	700	Each	1384.00
n	750	Each	1538.00
o	800	Each	1639.00
p	900	Each	1935.00
q	1000	Each	2664.00

15213	Jointing of PVC pipes of ASTM Schedule 40/ 80 with by cleaning the pipe and joining with solvent cement including the cost of solvent cement and hydraulic testing of joints etc. complete as per IS:7634-1975 Part 3, as per the direction of the engineer in-charge		
a	20 mm O.D	Each	17.00
b	25 mm O.D	Each	20.00
c	32 mm O.D	Each	22.00
d	40 mm O.D	Each	29.00
e	50 mm O.D	Each	32.00
15214	Jointing of PVC pipes of ASTM Schedule 40/ 80 with by threading the pipe and joining with threaded fittings including the cost of threading, fittings and hydraulic testing of joints etc. complete as per IS:7634-1975 Part 3, as per the direction of the engineer in-charge		
a	20 mm O.D	Each	37.00
b	25 mm O.D	Each	49.00
c	32 mm O.D	Each	59.00
d	40 mm O.D	Each	71.00
e	50 mm O.D	Each	82.00
15215	Making joints to CI/DI pipes and specials with yarn and lead including melting lead caulking and hydraulic testing of the joints as per IS:782-1978 but excluding the cost of lead for the following sizes.		
	Nominal diamter in mm		
a	100	Each	223.00
b	125	Each	324.00
c	150	Each	332.00
d	200	Each	440.00
e	250	Each	553.00
f	300	Each	672.00
g	350	Each	699.00
h	400	Each	905.00
i	450	Each	1010.00
j	500	Each	1068.00
k	600	Each	1430.00
l	700	Each	1555.00
m	750	Each	1684.00
n	800	Each	1813.00
o	900	Each	1943.00

15216	Making hydrotite coupling joint to AC pressure pipes of various classes and C.I Plain ended specials with collars, rubber rings etc. complete including testing of joints but excluding cost of joints.		
	Nominal diameter in mms		
a	80	Each	60.00
b	100	Each	72.00
c	150	Each	98.00
d	200	Each	135.00
e	250	Each	154.00
f	300	Each	216.00
15217	Making C.I Detachable joints to P.V.C. pressure pipes of 6 kgs /sq.cm and C.I Plain ended specials with collar, rubber rings, nut and bolts, etc. complete including testing of joints excluding cost of joints		
	outer diameter in mms		
a	63	Each	27.00
b	75	Each	58.00
c	90	Each	91.00
d	110	Each	126.00
e	140	Each	161.00
f	160	Each	196.00
g	200	Each	231.00
15218	Making joints to D.I/ C.I pipes with mechanical joints by nut bolts rubber rings that are provided with the joints,for pushon tight joints including the cost of work force, tools, hydraulic testing of joints etc complete as per the direction of the engineer in-charge.		
I	Double socketed specials such as bends, collar couplings etc		
	Nominal Diameter in mm		
a	80	Each	182.00
b	100	Each	252.00
c	125	Each	322.00
d	150	Each	392.00
e	200	Each	462.00
f	250	Each	532.00
g	300	Each	602.00
h	350	Each	656.00
i	400	Each	726.00
j	450	Each	796.00

k	500	Each	866.00
l	600	Each	936.00
l	700	Each	1006.00
m	750	Each	1076.00
n	800	Each	1146.00
o	900	Each	1216.00
p	1000	Each	1286.00
II	All Socket Tee		
	Nominal Diameter in mm		
a	80x80	Each	273.00
b	100x80	Each	343.00
c	100x100	Each	378.00
d	150x80	Each	483.00
e	150x100	Each	518.00
f	150x150	Each	588.00
g	200x80	Each	553.00
h	200x100	Each	588.00
i	200x150	Each	658.00
j	200X200	Each	693.00
k	250x80	Each	623.00
l	250x100	Each	658.00
m	250x150	Each	728.00
n	250x200	Each	763.00
o	250x250	Each	798.00
p	300x80	Each	693.00
q	300x100	Each	728.00
r	300x150	Each	798.00
s	300x200	Each	833.00
t	300x250	Each	868.00
u	300x300	Each	903.00
v	350x80	Each	747.00
w	350x100	Each	782.00
x	350x150	Each	852.00
y	350x200	Each	887.00
z	350x250	Each	922.00
a1	350x300	Each	957.00
b1	350x350	Each	984.00
c1	400x80	Each	817.00
d1	400x100	Each	852.00
e1	400x150	Each	922.00
f1	400x200	Each	957.00

g1	400x250	Each	992.00
h1	400x300	Each	1027.00
i1	400x350	Each	1051.00
j1	400x400	Each	1086.00
k1	450x100	Each	922.00
l1	450x200	Each	1027.00
m1	450x250	Each	1062.00
n1	450x300	Each	1097.00
o1	450x350	Each	1121.00
p1	450x400	Each	1159.00
q1	450x450	Each	1190.00
r1	500x100	Each	992.00
s1	500x150	Each	1062.00
t1	500x200	Each	1097.00
u1	500x350	Each	1191.00
v1	500x400	Each	1229.00
w1	500x500	Each	1295.00
x1	600x150	Each	1132.00
y1	600x200	Each	1167.00
z1	600x300	Each	1237.00
a2	600x350	Each	1264.00
b2	600x400	Each	1299.00
c2	600x500	Each	1369.00
III	Double Socket Reducer		
	Nominal Diameter in mm		
a	100x80	Each	217.00
b	150x80	Each	287.00
c	150x100	Each	322.00
d	200x80	Each	322.00
e	200x100	Each	357.00
f	200x150	Each	427.00
g	250x80	Each	357.00
h	250x100	Each	392.00
I	250x150	Each	462.00
j	250x200	Each	497.00
k	300x80	Each	392.00
l	300x100	Each	427.00
m	300x150	Each	497.00
n	300x200	Each	532.00
o	300x250	Each	567.00
p	350x80	Each	419.00

q	350x100	Each	454.00
r	350x150	Each	524.00
s	350x200	Each	559.00
t	350x250	Each	594.00
u	350x300	Each	629.00
v	400x80	Each	454.00
w	400x100	Each	489.00
x	400x150	Each	559.00
y	400x200	Each	594.00
z	400x250	Each	629.00
a1	400x300	Each	664.00
b1	400x350	Each	726.00
c1	450x250	Each	500.00
d1	450x300	Each	796.00
e1	450x350	Each	726.00
f1	450x400	Each	761.00
g1	500x100	Each	524.00
h1	500x150	Each	629.00
i1	500x200	Each	655.00
j1	500x250	Each	699.00
k1	500x300	Each	721.00
l1	500x350	Each	761.00
m1	500x400	Each	796.00
n1	500x450	Each	831.00
o1	600x350	Each	796.00
p1	600x400	Each	831.00
q1	600x500	Each	901.00
15219	Making joints to D.I/ C.I pipes with mechanical joints by nut bolts rubber rings that are provided with the joints,for pushon tight joints, and including the cost of rubber ring, nut bolts, for flanged joint, including the cost of work force, tools, hydraulic testing of joints etc complete as per the direction of the engineer in-charge.		
I	All Socket branch flange Tee		
	Nominal Diameter in mm		
a	80x80	Each	439.00
b	100x40	Each	381.00
c	100x50	Each	477.00
d	100x80	Each	509.00
e	100x100	Each	701.00
f	150x40	Each	521.00

g	150x50	Each	617.00
h	150x80	Each	649.00
I	150x100	Each	841.00
j	150x150	Each	946.00
k	200x80	Each	719.00
l	200x100	Each	911.00
m	200x150	Each	1016.00
n	200X200	Each	1070.00
o	250x80	Each	789.00
p	250x100	Each	981.00
q	250x150	Each	1086.00
r	250x200	Each	1140.00
s	250x250	Each	1387.00
t	300x80	Each	859.00
u	300x100	Each	1051.00
v	300x150	Each	1156.00
w	300x200	Each	1210.00
x	300x250	Each	1457.00
y	300x300	Each	1663.00
z	350x80	Each	907.00
a1	350x100	Each	1099.00
b1	350x150	Each	1204.00
c1	350x200	Each	1258.00
d1	350x250	Each	1505.00
e1	350x300	Each	1711.00
f1	350x350	Each	1820.00
g1	400x80	Each	976.00
h1	400x100	Each	1168.00
i1	400x150	Each	1273.00
j1	400x200	Each	1327.00
k1	400x250	Each	1574.00
l1	400x300	Each	1780.00
m1	400x350	Each	1889.00
n1	400x400	Each	3273.00
o1	450x80	Each	1046.00
p1	450x100	Each	1238.00
q1	450x150	Each	1737.00
r1	450x200	Each	1397.00
s1	450x250	Each	1644.00
t1	450x300	Each	1850.00
u1	450x350	Each	1959.00
v1	450x400	Each	3343.00

w1	450x450	Each	3549.00
x1	500x80	Each	1115.00
y1	500x100	Each	1307.00
z1	500x150	Each	1412.00
a2	500x200	Each	1466.00
b2	500x250	Each	1713.00
c2	500x300	Each	1919.00
d2	500x350	Each	2028.00
e2	500x400	Each	3412.00
f2	500x500	Each	3618.00
g2	600x80	Each	1184.00
h2	600x100	Each	1825.00
i2	600x150	Each	2035.00
j2	600x200	Each	1535.00
k2	600x250	Each	1782.00
l2	600x300	Each	1988.00
m2	600x350	Each	2097.00
n2	600x400	Each	3481.00
o2	600x500	Each	3687.00
p2	600x600	Each	1648.00
q2	700 x80	Each	1511.00
r2	750 x100	Each	1964.00
s2	750 x400	Each	3620.00
t2	800x400	Each	3689.00
u2	900x100	Each	2102.00
v2	900x400	Each	3758.00
II	Flanged Socket		
a	80	Each	348.00
b	100	Each	575.00
c	150	Each	750.00
d	200	Each	839.00
e	250	Each	1121.00
f	300	Each	1362.00
g	350	Each	1498.00
h	400	Each	2917.00
I	450	Each	2985.00
j	500	Each	3193.00
k	600	Each	4541.00
l	700	Each	4698.00
m	750	Each	3550.00
n	800	Each	4731.00

o	900	Each	10275.00
p	1000	Each	10423.00
15220	Making flanged joints for C.I./D.I. Pipes and specials with rubber insertion, nuts and bolts including necessary hydraulic testing etc. complete including cost of rubber insertion nuts and bolts,as directed by the engineer in-charge.		
	Nominal diamter in mm.		
a	80	Each	257.00
b	100	Each	449.00
c	125	Each	486.00
d	150	Each	554.00
e	200	Each	608.00
f	250	Each	855.00
g	300	Each	1061.00
h	350	Each	1170.00
i	400	Each	2554.00
j	450	Each	2587.00
k	500	Each	2760.00
l	600	Each	4073.00
m	700	Each	4195.00
n	750	Each	3012.00
o	800	Each	4158.00
p	900	Each	9667.00
q	1000	Each	9780.00
	D-HYDRAULIC TESTING		
15221	Hydralic testing of pipeline as per CLAUSE NO 6.4.4 of CPHEEO MANUAL on water supply and treatment, a to the required test pressusre by providing all work force,materials, reciprocating pump, pressure gauge,including the cost of water required, maintaining the test pressure for a period of 24 hours from the time the pipe line has attained the test pressure for successful testing, as per the standards, and maintaining the records of hydralic test as required as per the direction of the engineer in- charge		
I	R.C.C/A.C/G.I.		
a	80 mm diameter	Metre	9.00
b	100 mm diameter	Metre	10.00
c	125 mm diameter	Metre	12.00

d	150 mm diameter	Metre	12.00
e	200 mm diameter	Metre	15.00
f	250 mm diameter	Metre	19.00
g	300 mm diameter	Metre	23.00
h	350 mm diameter	Metre	28.00
i	400 mm diameter	Metre	35.00
j	450 mm diameter	Metre	41.00
k	500 mm diameter	Metre	49.00
l	600 mm diameter	Metre	64.00
m	700 mm diameter	Metre	85.00
n	750 mm diameter	Metre	96.00
o	800 mm diameter	Metre	108.00
p	900 mm diameter	Metre	133.00
15222	Hydraulic testing of pipeline as per CLAUSE NO 6.4.4 of CPHEEO MANUAL on water supply and treatment, a to the required test pressure by providing all work force, materials, reciprocating pump, pressure gauge, including the cost of water required, maintaining the test pressure for a period of 24 hours from the time the pipe line has attained the test pressure for successful testing, as per the standards, and maintaining the records of hydraulic test as required as per the direction of the engineer in-charge For PVC/HDPE pipeline		
a	63 mm to 110 mm OD	Metre	11.00
b	140mm to 160 mm OD	Metre	12.00
c	180mm to 225 mm OD	Metre	14.00
d	250 mm OD & above	Metre	19.00
15223	Hydraulic testing of pipeline as per CLAUSE NO 6.4.4 of CPHEEO MANUAL on water supply and treatment, to the required test pressure by providing all work force, materials, reciprocating pump, pressure gauge, including the cost of water required, maintaining the test pressure for a period of 24 hours from the time the pipe line has attained the test pressure for successful testing, as per the standards, required as per the direction of the engineer in-charge for ductile Iron/ Mildsteel/cast iron pipeline.		
a	200 mm	Metre	15.00
b	250 mm	Metre	23.00
c	300 mm	Metre	27.00
d	350 mm	Metre	32.00
e	400 mm	Metre	38.00

f	450 mm	Metre	45.00
g	500 mm	Metre	52.00
h	600 mm	Metre	82.00
i	700 mm	Metre	88.00
j	750 mm	Metre	99.00
k	800 mm	Metre	112.00
l	900 mm	Metre	137.00
m	1000 mm	Metre	166.00
n	1100 mm	Metre	197.00
o	1200 mm	Metre	234.00
	HOISTING & LAYING / FIXING OF APPURTUNANCES		
15224	Hoisting laying cast iron sluice valves/butterfly valves/reflux valve of size given below at location in pipeline etc. complete as directed as per IS:2685-1971 CLASS I		
	Nominal diamter in mm.		
a	80	Each	193.00
b	100	Each	264.00
c	125	Each	336.00
d	150	Each	433.00
e	200	Each	725.00
f	250	Each	1074.00
g	300	Each	1447.00
15225	Hoisting laying cast iron sluice valves/butterfly valves/reflux valve of size given below at location in pipeline etc .complete as directed as per IS:2685-1971 CLASS II & III.		
	Nominal diamter in mm.		
a	350	Each	1952.00
b	400	Each	3254.00
c	450	Each	3821.00
d	500	Each	4657.00
e	600	Each	6400.00
f	700	Each	8179.00
g	750	Each	9134.00

15226	Fixing C.I. Single large orifice air valve of similar make with bronze ferrule at inlet screwed suitable to working pressure of 15kg/sq. cm for 12 mm to 20mm and 10kg/sq. cm for 25mm to 50mm,complete,as directed by the engineer in-charge,of following sizes.		
	Nominal diamter in mm.		
a	25	Each	77.00
b	40	Each	102.00
c	50	Each	210.00
15227	Fixing C.I. Double orifice / Kinetic type air valve of following sizes with bronze ferrule at inlet screwed on isolating valve small orifice elastic ball resting valve small orifice elastic ball resting on small bronze orifice nipple and large orifice vulcanite ball resting on moulded seat ring inlet faced and drilled to BST "D" suitable to working pressure of 10 kg/sq. cm.		
	Nominal diamter in mm.		
a	40	Each	291.00
b	50	Each	312.00
c	65	Each	343.00
d	80	Each	494.00
e	100	Each	773.00
f	150	Each	936.00
g	200	Each	1050.00
15228	Fixing C.I. Tamper proof Kinetic double orifice type air valve. Small orifice elastic ball resting on bronze orifice nipple and large orifice vulcanite ball resting on moulded seat ring with built in Kinetic features of isolating sluice valve of rating P.N. 1.6 with ISI mark mounted on a horizontal mounting operated by metered wheel gear suitable for working pressure of 10 kg / sq. cm		
	Nominal diamter in mm.		
a	50	Each	312.00
b	80	Each	496.00
c	100	Each	777.00
d	150	Each	942.00
e	200	Each	1056.00

15229	Providing C.I. stand post fire hydrant conforming to IS:908-1969 bearing ISI certification mark consisting of two nos. 80mm sluice valves one duck foot bend, one no. C.I. surface box, 100x160x180mm, 80 mm dia tail piece and stand post including bronze coupling etc. complete.		
	Nominal diamter in mm.		
a	80	Each	27911.00
15230	Providing C.I. underground fire hydrant conforming IS:906-1969 bearing ISI certification mark consisting of two no.80mm sluice valve one duck foot bend, one number C.I. surface box, 100x160x180mm ,80mm dia tail piece and stand post including bronze coupling etc. complete but underground fire hydrant bearing to IS:909-1969 including gun metal instantaneous metal coupling instead of stand post.		
	Nominal diamter in mm.		
a	80	Each	22113.00
15231	Providing M.S. ladders 50x50x6mm (2" x2" x 1/4) equal with 18 mm M.S. rods 45 cm wide for steps placed at 30 cm c/c welded including two coats of red oxide etc. complete.	Metre	704.00
15232	Providing 40mm (1½)dia G.I. Ladder medium class G.I. Pipe with 20 mm dia G.I. Pipe (medium class) steps 45cm wide place at 30cm c/c welded in the interior of reservoir including painting two coats with non- poisonous red oxide paint etc. complete.	Metre	805.00
15233	Providing 80x60cm M.S. inspection door with 25x25x5mm angle iron frame welded and M.S. shutter 3mm thick with locking arrangement iron but hinges 100mm x 40mm size painting with red oxide paint in two coats. complete	Each	1423.00
15234	Providing 25mm G.I. pipe railing (medium class) in three horizontal rows of pipes and angles of a size 65x65x8mm, 1.15m height and placed at 1.85m to centre including painting two coats and embedded in cement concrete complete.	Metre	1562.00

15235	Providing water level indicator (gauge) with M.S. Sheet 3 to 4mm thick with copper floats indicator and flexible copper/nylon wire fixed on standard pulleys including necessary arrangement to prevent the swinging by hooks, painting figure with approved enamel paint etc. complete.	Metre	2814.00
15236	Construction of masonry chamber 60x60x75cm inside in 40kg/sq. cm ,brickwork complete with 23 cms wall thickness and in cement mortar 1:4(1 cement : 4coarse sand) for sluice valves 50 to 80mm with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface cover and all other materials and labour and as per details below)		
a	with C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	8438.00
b	with C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	9826.00
c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	24560.00
d	With D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size wighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	17324.00
e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	12400.00

	f	with M.S. sheet cover with 12mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	16615.00
	g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	7214.00
15237		Construction of masonry chamber 90x90x100 cm inside in 40kg/sq. cm brickwork complete with 23 cms wall thickness and in cement mortar 1:4(1 cement : 4 coarse sand) for sluice valve of sizes 100 mm, 120 mm 150 mm and 200mm dia with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface cover and all other materials and labour and as per details below)		
	a	with C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	14806.00
	b	with C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	16165.00
	c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	30865.00
	d	With D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size weighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	23752.00

	e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	21421.00
	f	with M.S. sheet cover with 12mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	28444.00
	g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	13598.00
15238		Construction of masonry chamber 120x120x100 cm inside in 40kg/sq. cm brickwork complete with 23 cms wall thickness and in cement mortar1:4 (1 cement : 4 coarse sand) for sluice valve size beyond 200mm dia with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface cover and all other materials and labour and as per details below)		
	a	with C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	19721.00
	b	with C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	21080.00
	c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	35481.00
	d	Witn D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size weighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	28245.00

e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	30371.00
f	with M.S. sheet cover with 12mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	40692.00
g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	18513.00
15239	Add or deduct for every 0.10 m depth or part thereof for brick masonry chamber.		
a	60cm x60cmx75cm	Per 10 cms	555.00
b	90cm x90cmx100cm	Per 10 cms	873.00
c	120cm x120cmx 100cm	Per 10 cms	1085.00
15240	Construction of masonry chamber 60x60x75cm inside in laterite masonry in neatly dressed stones complete with 23 cms wall thickness and in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valves 50 to 80mm with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface cover and all other materials and labour and as per details below)		
a	with C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	7360.00
b	with C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	8748.00

c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	23482.00
d	With D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size wighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	16246.00
e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	11322.00
f	with M.S. sheet cover with 12mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	15537.00
g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	6136.00
15241	Construction of masonry chamber 90 x 90 x100 cm inside in 40kg/sq. cm laterite masonry in neatly dressed stones complete with 23 cms wall thickness and in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve of sizes 100 mm, 120 mm 150 mm and 200mm dia with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface cover and all other materials and labour and as per details below)		
a	with C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	12609.00
b	with C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	13968.00

	c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	28668.00
	d	Witn D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size weighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	21555.00
	e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	19270.00
	f	with M.S. sheet cover with 12mm thick M.S. plate and frame of Angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	26247.00
	g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	11401.00
15242		Construction of masonry chamber 120 x 120 x100 cm inside in laterite masonry in neatly dressed stones complete with 23 cms wall thickness and in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve size beyond 200mm dia with necessary excavation, foundation concrete 1:5:10 (1 cement : 5 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and chamber cover as specified below etc. all complete as per standard drawing . (rate is inclusive of rate earthwork excavation, cost of surface-cover and all other materials and labour and as per details below)		
	a	With C.I. Surface box 100mm top dia 160mm bottom dia and 160mm deep of wt 15kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	16941.00
	b	With C.I. Surface box 200mm top dia 300mm bottom dia and 300 mm deep of wt 32kg inside with chain lid in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	18299.00

c	with C.I. cover and frame 600mm x600mm weighing not less than 250 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	32700.00
d	With D.I hinged, square, frame and cover as per EN 124 standards of size 600mm x 600mm size weighing not less than 98 kgs in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	25465.00
e	with M.S. sheet cover with 6 mm thick M.S. plate and frame of angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	27591.00
f	with M.S. sheet cover with 12mm thick M.S. plate and frame of angle iron 50x50x6mm in 120 mm thick RCC slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	34397.00
g	Without surface box and with 120 mm thick R.C.C. slab cover in cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone ballast 20 mm nominal size)	Each	11816.00
15243	Add or deduct for every 0.10m depth or part thereof for laterite stone masonry chamber.		
a	60cm x60cmx75cm	Per 10 cms	412.00
b	90cm x90cmx100cm	Per 10 cms	653.00
c	120cm x120cmx100cm	Per 10 cms	807.00
15244	Fixing of water meter by conveying and laying of pipeline, including threading, jointing of pipes inside the meter box with necessary fittings(four elbows and one union joint) in "U "shape(vertical side of U measuring 15cms and horizontal side of U having 0.55 or more as required), conforming to IS specification 2401-1973 for installation of meter including making holes in the masonry of the meter box but excluding cost of meter and valves, at various scattered locations as directed by the Engineer in-charge.		
a	Size from 15mm to 25 mm size	Each	685.00

15245	Fixing of water meter including providing and laying of pipeline, including threading, laying and jointing of pipes inside the meter box with necessary fittings(four elbows and one union joint) in "U "shape(vertical side of U measuring 15cms and Horizontal side of U having 0.55 or more as required), conforming to IS 2401-1973 specification in meter for installation of meter including making holes in the masonry of the meter box but excluding cost of meter and valves, at various scattered locations as directed by the Engineer in-charge.		
a	with G.I pipes and fittings		
i	15 mm nominal diamter	Each	1044.00
ii	20 mm nominal diamter	Each	1336.00
iii	25 mm nominal diamter	Each	1797.00
b	with U-pvc plumbing threadable pipes and fittings		
i	20mm outer diamter	Each	945.00
ii	25mm outer diamter	Each	967.00
15246	Making connection to individual 15mm/20mm/25mm G.I/ OD Blue PVC pipeline with existing distribution line of any diameter with saddle piece / and necessary pipe and specials required suitable to the distribution line with road cutting trenching refilling the same including the cost of labour and accessories etc. complete. as per the direction of engineer -in- charge.	Each	3383.00
15247	Blast cleaning the surface of the old or new pipeline internally to remove all rust etc. complete, including providing sand, machinary, labour cutting of pipes at required places and rewelding the same etc., complete as directed by the engineer-in-charge (pipes pieces if required for rewelding of old pipeline shall be paid separately)	Sq. m.	568.00
15248	Cleaning of new or old pipeline internally with mechanical cleaning machine having steel scraper blades with required passes including removing all rust, scaling etc. including cutting the pipes required places, rewelding the same including cost of all the material and labour etc. complete(pipes pieces if required for welding of old pipeline shall be paid separately) as per the direction of engineer -in- charge.	Sq. m.	708.00

15249	Blast cleaning the surface of the old or new pipeline /concrete/R.C.C. Externally to remove all rust including providing sand machinery etc. complete as directed by the Engineer-in-charge.	Sq. m.	521.00
15250	Providing & applying primer and one coat of Red Oxide of iron paints, internally, including cleaning the surface of pipes with steel scappers, wire brushes, and metal cleaning solution, etc,as per the direction of engineer -in- charge.	Sq. m.	313.00
15251	Gas cutting (either square cut or V cut) pipes, plates etc. of thickness.		
a	Upto 5 mm dia.	Metre	191.00
b	Above 5 mm upto 10 mm dia.	Metre	284.00
c	Above 10 mm upto 14 mm dia.	Metre	331.00
15252	Gas cutting holes upto 50 mm dia. (for plugs) thickness of shell : 5 mm to 12 mm	Each	191.00
15253	Providing and making inner cement mortar lining to M.S. pipes with mechanical devices in cement mortar 1:1 proportion, including cost of all material, labour, special sand & required, machinery power generation all equipments and tacking necessary access opening and manholes cuts at suitable intervals as directed by the Engineer-in-charge.and rewelding the same after done with doubler plates pipes including necessary excavation refilling, concrete breaking and remaking if any, breaking guniting and remaking the same, repainting whenever required with epoxy paint in 3 coats, all dewatering including emptying the pipeline and refilling the same after done with(water to be supplied by the department free of cost within 5 kms. lead at fixed point and all other arrangement to be done by agency) including carrying out "C" value performance test of the pipeline, complete job as per the directions of the engineer-in-charge.		
a	10 mm thick for pipes upto 700 mm dia.	Sq.m.	803.00
b	12 mm thick for pipes upto 700 mm dia.	Sq.m.	803.00
c	10 mm thick for pipes above 700 mm dia.and upto 1250 mm Dia.	Sq.m.	1072.00
d	12 mm thick for pipes above 700 mm dia.and upto 1250 mm Dia.	Sq.m.	1072.00

	Construction precast public fountain consisting of RCC vertical foundation slab in cement concrete 1:1. 5:3 (1 cement: 1.5 coarse Sand : 3 coarse aggregate 20mm nominal size) with nominal reinforcement at 80kg cum. of cement concrete including finishing and plastering with 6mm thick plaster, foundation, platform curb and footrest in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 stone aggregate 20 mm nominal size) including 12mm thick plaster for platform and foot rest in cement mortar 1:3 (1 cement: 3 coarse sand) and providing and fixing G.I. Pipe 20mm nominal bore of length 4m including fixing of brass bib cock 20mm size (heavy duty) as per standard design etc. complete .		
a	circular platform or square platform type	Each	12405.00
15255	Disinfecting C.I. water mains by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with fresh water, operation to be repeated three times including getting the sample of water from the disinfected main tested in the municipal laboratory , as per the direction of the engineer in-charge		
	Nominal diamter in mm.		
a	80	Metre	7.10
b	100	Metre	9.00
c	125	Metre	12.00
d	150	Metre	14.00
e	200	Metre	19.00
f	250	Metre	24.00
g	300	Metre	27.00
h	350	Metre	30.00
i	400	Metre	33.00
j	450	Metre	37.00
k	500	Metre	40.00
l	600	Metre	48.00
15256	Extra for every operation of disinfecting the C.I. main by flushing with water containing bleaching powder at 0.5 gms per litre of water and cleaning the same with fresh water, including getting the samples of water tested in the municipal laboratory, as per the direction of the engineer in-charge		
	Nominal diamter in mm.		
a	80	Metre	3.00
b	100	Metre	3.00

c	125	Metre	4.00
d	150	Metre	5.00
e	200	Metre	7.00
f	250	Metre	8.00
g	300	Metre	9.00
h	350	Metre	11.00
i	400	Metre	13.00
j	450	Metre	14.00
k	500	Metre	15.00
l	600	Metre	20.00
15257	Construction of Reinforcement cement concrete chamber 90x90x150cm inside with 30 cms wall thickness in Cement Concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded granitic or basaltic stone aggrt. 20mm. nominal size) including centering/shuttering and TMT steel not less than 70kgs/cu.m, for sluice valves or equivalent main valves of suitable diameter, with necessary excavation, 15cms thick rubble packing and 10cms thick foundation concrete 1:3:6 (1 cement : 3 coarse sand: 6 graded granitic or basaltic stone aggrt. 40 mm nominal size) and inside plastered with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and as per standard drawing (rate is inclusive of earthwork excavation, and all other materials and labour as per details above ,excluding cost of surface chamber cover) as directed by the Engineer in-charge.	Each	30630.00

15257 (A)	Manufacturing, Fabricating supplying and fixing in position over the main valve chamber. Two/three shutter M. S. cover, manufactured out of 10mm thick M.S. plate ,size (1.2mx1.2m),with bottom angles of size 65x65x6mm supporting parallel in the middle M.S. I beam of size 125x75 as per requirement & size of chamber with both side extended 20cm to 30cm to be fixed in the wall further supporting Diagonal angles and cross angles of size 65x65x6mm to both way perfectly hinged with 8nos of bar hinges capable to withstand heavy vehicle impact 4 nos. of handles made out of 12mm to 16mm dia bar, bottom side locking arrangement for both main shutter as well a side shutter, and welded 4 nos. of holdfast of L.S. 65x65x6mm to 40cm-long 4nos of bar hinges of high strength double angles and hold fast should be embedded in reinforcement concrete of 1:2:4 or richer mix incl. Transportation, labour, Priming coat, painting etc. complete As per standard drawing.(10mm thick ,1.2m x 1.2m, M.S plate , surface cover for R.C.C chamber size, 90cmx90cmx150cm) as directed by the Engineer in-charge.	Each	25254.00
15258	Construction of Reinforcement cement concrete chamber 120x120x170cm inside with 30 cms wall thickness in Cement Concrete 1:2:4 (1 cement : 2 coarse sand:4 graded granitic or basaltic stone aggrt. 20mm. nominal size) including centering/shuttering and TMT steel not less than 70kgs/cu.m, for sluice valves or equivalent main valves of suitable diameter, with necessary excavation, 15cms thick rubble packing and 10cms thick foundation concrete 1:3:6 (1 cement : 3 coarse sand: 6 graded granitic or basaltic stone aggrt. 40 mm nominal size) and inside plastered with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and as per standard drawing (rate is inclusive of earthwork excavation, and all other materials and labour as per details above ,excluding cost of surface chamber cover) as directed by the Engineer incharge.	Each	43896.00

15258(A)	Manufacturing, Fabricating supplying and fixing in position over the main valve chamber. Two/three shutter M. S. cover, manufactured out of 10mm thick M.S.plate ,size (1.5mx1.5m),with bottom angles of size 75x75x8mm supporting parallel in the middle M.S. I beam of size 150x100 as per requirement & size of chamber with both side extended 20cm to 30cm to be fixed in the wall further supporting Diagonal angles and cross angles of size 75x75x8mm to both way perfectly hinged with 8nos of bar hinges capable to withstand heavy vehicle impact 4 nos. of handles made out of 12mm to 16mm dia bar, bottom side locking arrangement for both main shutter as well a side shutter, and welded 4 nos. of holdfast of L.S. 75x75x8mm to 40cm-long 4nos of bar hinges of high strength double angles and hold fast should be embedded in reinforcement concrete of 1:2:4 or richer mix incl. Transportation, labour, Priming coat, painting etc. complete As per standard drawing.(10mm thick ,1.5m x 1.5m, M.S plate for surface cover for R.C.C chamber size, 120cmx120cmx170cm) as directed by the Engineer in charge.	Each	43542.00
15259	Construction of Reinforcement cement concrete chamber 150x150x200cm inside with 30 cms wall thickness in Cement Concrete 1:2:4 (1 cement : 2 coarse sand:4 graded granitic or basaltic stone aggrt. 20mm. nominal size) including centering/shuttering and TMT steel not less than 70kgs/cu.m, for sluice valves or equivalent main valves of suitable diameter, with necessary excavation, 15cms thick rubble packing and 10cms thick foundation concrete 1:3:6 (1 cement : 3 coarse sand: 6 graded granitic or basaltic stone aggrt. 40 mm nominal size) and inside plastered with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and as per standard drawing (rate is inclusive of earthwork excavation, and all other materials and labour as per details above ,excluding cost of surface chamber cover) as directed by the Engineer incharge.	Each	62358.00

15259 (A)	<p>Manufacturing, Fabricating supplying and fixing in position over the main valve chamber. Two/three shutter M. S. cover, manufactured out of 10mm thick M.S.plate ,size (1.8mx1.8m),with bottom angles of size 75x75x8mm supporting parallel in the middle M.S. I beam of size 150x100 as per requirement & size of chamber with both side extended 20cm to 30cm to be fixed in the wall further supporting Diagonal angles and cross angles of size 75x75x8mm to both way perfectly hinged with 8nos of bar hinges capable to withstand heavy vehicle impact 4 nos. of handles made out of 12mm to 16mm dia bar, bottom side locking arrangement for both main shutter as well a side shutter, and welded 4 nos. of holdfast of L.S. 75x75x8mm to 40cm-long 4nos of bar hinges of high strength double angles and hold fast should be embedded in reinforcement concrete of 1:2:4 or richer mix incl. Transportation, labour, Priming coat, painting etc. complete As per standard drawing.(10mm thick ,1.8m x 1.8m, M.S plate for surface cover for R.C.C chamber size, 150x150x200cm) as directed by the Engineer in charge.</p>	Each	55828.00
----------------------------	---	------	-----------------

CHAPTER VII	
R.C.C. GROUND LEVEL AND OVERHEAD TANKS	
	NOTES:-
1	Rates for the R.C.C works in construction of ground level and overhead reservoirs are inclusive of (a) Cost of concreting, centering & shuttering. (b) 6mm rendering for all external surfaces of reservoirs, (c) 12 mm thick plastering for the inside surfaces (including the bottom surface of dome) of water tank, (d) Construction of working platform for all necessary stages required for the required height of Ground level reservoir and overhead reservoir. (e) Water tightness test as per IS- 3370 required for the construction of reservoir.
2	The rates for guniting the reservoirs are inclusive of construction of working platform with necessary staging, water tightness test as per IS- 3370 for ground and overhead reservoirs.
3	Rates for Ready mix concrete as well as design mix concrete are furnished in the section for GLR and OHR. Preference shall be given for ready mix concrete for reservoir works.
4	Rates for the ready mix concrete are for initial lead of 10 kilometers from the plant. In case the distance to the work site is more than 10 kilometers from the nearest plant additional lead is to be provided in the respective item of the estimate by rate analysis by providing additional lead as required.
5	The measurement for any member shall be made exclusive of thickness of plaster and rendering.
6	Service reservoirs are to be designed as per the clause no 10.4 of the CPHEEO manual on water supply and treatment. (Vide appendix 10.1 for the example).

RESERVOIRS			
READY MIXED CONCRETE-GROUND LEVEL RESERVOIR			
Item No	Description	Unit	Rate
15301	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer, manufactured as per the mix design of M- 15(by using 325kg of cement per cu.m of concrete in Ground level reservoir) including the cost of pumping the R.M.C from transit mixer to the site of laying, including the cost of centering shuttering for plain cement concrete work, complete in all respects in Ground level reservoir as per the direction of the Engineer-in-charge..		
a	Foundation and Plinth	Cu.m	7618.00
15302	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer,manufactured as per the mix design of M- 30(by using 410kg of cement per cu.m of concrete in Ground level reservoir) for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying, excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including rendering in cement mortar of 1:3 in 6mm thickness for all external R.C.C surfaces, and 12mm cement mortar of 1:3 for internal surfaces, in carring including the cost of successful water tightness test as per IS code with relevant latest amendments complete in all respects in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	Bottom slab of GLR Including Haunch portion	Cu.m	9147.00

	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer, manufactured as per the mix design of M- 30 (by using 410kg of cement per cu.m of concrete in Ground level reservoir)for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including construction of working platforms with staging, at suitable heights for the construction of the ground reservoir for a height of 6 metre with ballies, bamboos, planks rafters, and allied components, including rendering in cement mortar of 1:3 in 6mm thickness for all external R.C.C. surfaces of reservoir, including the cost of plastering in cement mortar in 1:3 in 12 mm thickness for all internal surfaces of reservoir (with mechanical machine mixer for plaster) including the cost of successful water tightness test as per IS code with relevant latest amendments complete in all respects in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	From ground level upto 5m height in walls	Cu.m	26056.00
b	Dome More than 5m upto 6.5m including ring beam	Cu.m	32500.00
READY MIXED CONCRETE - RESERVOIRS RECTANGULAR OR SQUARE IN PLAN			
	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer,manufactured as per the mix design, including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability in M- 15 grade of concrete for cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering, and near even finishing etc. complete in all respects as per the direction of the Engineer -in -charge in Ground level reservoir/Under ground reservoir.		
a	Foundation and Plinth	Cu.m	7555.00

	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 10 kilometres distance having continuous agitated mixer, manufactured as per the mix design, including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete to improve workability without impairing strength and durability in M- 30 grade of concrete with 420 kg of cement per cu.m of concrete, for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including Plastering in cement mortar of 1:3 in 12mm thickness with water proofing compound with a neat finishing floating coat of cement for internal R.C.C surfaces of bottom slab complete in all respects as per the direction of the Engineer -in -charge in Ground level reservoir/Under ground reservoir.		
a	Bottom slab of GLR including Haunch portion	Cu.m.	9607.00
	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 10 kilometres distance having continuous agitated mixer, manufactured as per the mix design, including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete to improve workability without impairing strength and durability of concrete, in M- 30 grade of concrete with 420 kg of cement per cu.m of concrete, for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including construction & removal of working platforms at suitable heights for the construction of the ground level reservoir/Under ground reservoir for a height of 6 metre with ballies, bamboos, planks rafters, and allied components, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces of reservoir, including the cost of plastering in cement mortar in 1:3 in 12 mm thickness with waterproofing compound for all internal surface of reservoir (with mechanical machine mixer for plaster), including the cost of water tightness test as per I.S code with relevant latest amendments complete in all respects as per the direction of the Engineer in-		

	charge in Ground level reservoir/Under ground reservoir.		
a	Upto 5m height in straight walls	Cu.m	25103.00
15307	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer,manufactured as per the mix design, including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete to improve workability without impairing strength and durability of concrete, in M- 30 grade of concrete with 420 kg of cement per cu.m of concrete, for reinforced cement concretemwork including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including constriction & removal of working platforms at suitable heights for the construction of the ground level reservoir/Under ground reservoir for a height of 6 meter with ballies, bamboos, planks rafters, and allied components, including plastering in cement mortar of 1:3 in 12mm thickness for all external R.C.C surfaces of coulums beams and bracings,including the cost of plastering in cement mortar in 1:3 in 12 mm thickness with water proofing compound for all surfaces of columns beams bracings etc in reservoir (with mechanical machine mixer for plaster), complete in all repects as per the direction of the Engineer- in- charge in Ground level reservoir/Under ground reservoir.		
a	columns beams bracings upto roof slab level	Cu.m	14207.00

	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer,manufactured as per the mix design including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete to improve workability without impairing strength and durability of concrete, in M- 30 for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying excluding the cost of reinforcement , including the cost of centering shuttering for R.C.C work, including construction & removal of working platforms at suitable heights for the construction of the ground level reservoir/sump for a height of 6 metre with ballies, bamboos, planks rafters, and allied components, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces of reservoir roof slab, including the cost of plastering in cement mortar in 1:3 in 6 mm thickness for all internal surface of reservoir roof slab (with mechanical machine mixer for plaster), including the cost of water tightness test as per I.S code with relevant latest amendments complete in all respects as per the direction of the engineer in- charge in Ground level reservoir/sump.		
a	Suspended Roof slab for Ground level reservoir/under ground reservoir	Cu.m	17260.00
READY MIXED CONCRETE-OVERHEAD RESERVOIR			
	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10kms having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C., from the transit mixer to the site of laying, including the cost of centering, shuttering, finishing the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability in M-15 grade of plain cement concrete by using 325 kg of cement per cu.m of concrete in overhead reservoir as per the directions of the Engineer- in -Charge.		
a	Foundation and Plinth	Cu.m	7714.00

	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer,manufactured as per the mix design including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability of M- 30 for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying, excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces complete in all respects as per the direction of the Engineer in -charge in overhead reservoir.		
a	Foundation and footing, beams columns, braces, landing slabs, cantilever portion etc. upto ground level	Cu.m	10447.00
	Providing and laying in position ready mixed concrete manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead upto 10 kilometres distance having continuous agitated mixer, manufactured as per the mix design including the cost of admixtures in recommended proportions as per IS : 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability of M- 30 for reinforced cement concrete work including the cost of pumping the R.M.C from transit mixer to the site of laying, excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including construction of working platforms with staging at suitable heights for the construction of the overhead reservoir for a height of 25 metre with ballies, bamboos, planks rafters, and allied components, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces of columns, beams ,bracings, girders of over head reservoir, (with mechanical machine mixer for plaster),including the cost of successful water tightness test as per IS code with relevant latest amendments complete in all respects as per IS code with relevant latest amendments complete in all respects as per the direction of the Engineer in charge in overhead reservoir.		
a	From ground level upto 5m height including 1st bracing beam (Column beam,bracings, landing slab etc)	Cu.m	21422.00

b	More than 5m upto 10m height including 2nd bracing beam (Column an beam, bracings,landing slab etc)	Cu.m	30826.00
c	More than 10m upto 15m height including 3rd bracing beam (Column an beam, bracings,landing slab etc)	Cu.m	40246.00
d	More than 15m upto 20m. height in column, beams bracings, landing slabs etc	Cu.m	47585.00
e	Bottom dome including bottom ring beam up to 20m level	Cu.m	47625.00
f	Circular walls,circular conical walls and alike between 20m to 25m. level	Cu.m	29133.00
g	Upper domes including top ring beam more than 20m upto 25m. level	Cu.m.	44618.00

DESIGN MIX- GROUND LEVEL RESERVOIR OR UNDER GROUND RESERVOIR

15312	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper, for cement concrete work of specified grade including the cost of laying , centering shuttering, finishing as per the direction of the Engineer-in-charge in M-15 grade of plain cement concrete by using 325kg of cement per cu.m of concrete in Ground level reservoir/sump		
a	Foundation and Plinth	Cu.m	7080.00
15313	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, centering shuttering, including Plastering in cement mortar of 1:3 in 12mm thickness with water proofing compound with a neat finishing floating coat of cement for internal R.C.C surfaces of bottom slab with neat finish including the cost of successful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcement in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in Ground level/under ground reservoir as per the direction of the Engineer-in-charge.		
a	Bottom slab of GLR including Haunch portion	Cu.m	8888.00

	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, centering shuttering, plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces, including construction & removal of working platforms with staging at suitable heights for the construction of the overhead reservoir for a height of 25 metre with ballies, bamboos, planks rafters, and allied components, plastering the internal surfaces with 12 mm thickness cement plaster in 1:3 with water proofing compound with neat finish including the cost of successful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcement in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	Upto 5m height in walls	Cu.m	25359.00
b	Spherical dome including circular ring beam upto 6.5m	Cu.m.	31803.00
DESIGN MIX- RESERVOIRS RECTANGULAR OR SQUARE IN PLAN			
15315	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper, for cement concrete work of specified grade including the cost of laying , centering shuttering, finishing as per the direction of the Engineer-in-charge in M-15 grade of plain cement concrete by using 325kg of cement per cu.m of concrete in Ground level reservoir/sump		
a	Foundation and Plinth	Cu.m.	7017.00
15316	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, centering shuttering, including Plastering in cement mortar of 1:3 in 12mm thickness with water proofing compound with a neat finishing floating coat of cement for internal R.C.C surfaces of bottom slab with neat finish including the cost of sucessful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcement in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	Bottom slab of GLR including Haunch portion	Cu.m.	8909.00

15317	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, centering shuttering, plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces, plastering the internal surfaces with 12 mm thickness cement plaster in 1:3 with water proofing compound with neat finish, including construction of working platforms with staging at suitable heights for the construction of the overhead reservoir for a height of 6 meter with ballies, bamboos, planks rafters, and allied components including the cost of sucessful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcement in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	Upto 5m height in straight walls	Cu.m.	24405.00
15318	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, placing in position,centering shuttering, plastering all the surfaces with 12 mm thickness cement plaster in 1:3 with water proofing compound with neat finish,including the cost of centering shuttering for R.C.C work, including construction of working platforms with staging at suitable heights for the construction of the overhead reservoir for a height of 6 meter with ballies, bamboos, planks rafters, and allied components including the cost of successful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcmennt in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in Ground level reservoir as per the direction of the Engineer-in-charge.		
a	Columns and beams bracings upto roof slab level	Cu.m.	11926.00

	Providing and laying in position Design mixed concrete manufactured in continuous agitated mixer at site ,manufactured as per the mix design in M- 30 by using 420kg of cement per cu.m of concrete for reinforced cement concrete work including the cost of laying and placing in position from mixer to the site of laying excluding the cost of reinforcement ,including the cost of centering shuttering for R.C.C work, including construction of working platforms at suitable heights for the construction of the ground level reservoir/sump for a height of 6 metre with ballies, bamboos, planks rafters, and allied components, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces of reservoir roof slab, including the cost of plastering in cement mortar in 1:3 in 6 mm thickness for all internal surface of reservoir roof slab (with mechanical machine mixer for plaster),including the cost of water tightness test as per IS code with relevant latest amendments complete in all respects as per the direction of the Engineer -in -charge in Ground level reservoir/sump.		
a	Suspended Roof slab of rectangular/ square in plan for Ground level reservoir/ under ground reservoir	Cu.m.	14955.00
DESIGN MIX-OVERHEAD RESERVOIR			
	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper, for cement concrete work including the cost of laying , centering shuttering, finishing , as per the direction of the Engineer-in-charge in M-15 grade of plain cement concrete by using 325kg of cement per cu.m of concrete in over head reservoir .		
a	Foundation and Plinth	Cu.m.	7175.00
	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper, for cement concrete work including the cost of laying , centering shuttering, finishing , as per the direction of the Engineer-in-charge in M-30 grade of plain cement concrete by using 420kg of cement per cu.m of concrete ,including the cost of centering shuttering for R.C.C work, including plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces of foundation complete in all respects as per the direction of the Engineer -in -		

	charge in overhead reservoir.		
a	Foundation and footing, beams, columns, braces, cantilever portion etc. upto ground level	Cu.m.	9666.00
15322	Providing and laying in position Design mix concrete mixed in the mechanical mixing mixer with hopper for reinforced cement concrete work including the cost of laying, centering shuttering, plastering in cement mortar of 1:3 in 15mm thickness for all external R.C.C surfaces, including construction of working platforms with staging at suitable heights for the construction of the overhead reservoir for a height of 6 metre with ballies, bamboos, planks rafters, and allied components including the cost of sucessful water tightness test as per IS code with relevant latest amendments and excluding the cost of reinforcement in M-30 grade of reinforced cement concrete by using 420kg of cement per cu.m of concrete in overhead reservoir as per the direction of the Engineer-in-charge.		
a	From ground level upto 5m height including 1st bracing beam (Column beam,bracings, landing slab etc)	Cu.m.	20730.00
b	More than 5m upto 10m height including 2nd bracing beam (Column and beam, bracings,landing slab etc)	Cu.m.	30131.00
c	More than 10 m upto 15m height including 3rd bracing beam (Column and beam, bracings,landing slab etc)	Cu.m.	39548.00
d	More than 15m upto 20m. height in column, beams bracings, landing slabs etc	Cu.m.	46880.00
e	Bottom dome including bottom ring beam up to 20m level	Cu.m.	46917.00
f	Circular walls, conical walls and alike between 20m to 25m level	Cu.m.	28422.00
g	Upper domes including top ring beam more than 20m upto 25m. level	Cu.m.	43912.00
15323	12mm plaster in cement mortar 1:3 with neat finish for internal surfaces of the water tank such as one side of conical wall, one side of vertical wall, one surface of dome, complete as per the direction of the Engineer- in -charge.	Sq.m	322.00

15324	20mm plaster with neat finish in cement mortar 1:3 for internal surfaces of the water tank such as one side of conical wall, one side of vertical wall, one surface of dome, complete as per the direction of the Engineer-in-charge.	Sq.m	394.00
15325	Providing Corrosion resistant steel CRS-50 bars of (SAIL,TATA,VIZAG,JSW Steel Ltd.)(Conforming to IS 1786 of 1985) for R.C.C. work including bending, binding & placing in position with factory made precast concrete cover blocks of strength more than M-30 for maintaining the required clear cover for R.C.C structures in all the floors complete as per the direction of the Engineer- in -charge.	Kg	78.00
15326	Providing Mild steel reinforcement for R.C.C. work (Conforming to I.S 1786 of 1986) including bending,binding & placing in position with factory made precast concrete cover blocks of strength more than M-30 for maintaining the required clear cover for R.C.C structures in all the floors complete as per the direction of the Engineer -in- charge.	Kg	70.00
15327	Providing TMT steel reinforcement bars of (SAIL,TATA,VIZAG,JSW Steel Ltd.) for R.C.C. work(Conforming to I.S 1786 of 1986) including bending,binding & placing in position with factory made precast concrete cover blocks of strength more than M-30 for maintaining the required clear cover for R.C.C structures in all the floors complete as per the direction of the Engineer in charge.	Kg	75.00
15328	Providing High yield strength steel (HYSD)for R.C.C. work (Conforming to I.S 1786 of 1986) including bending,binding & placing in position with factory made precast concrete cover blocks of strength more than M-30 for maintaining the required clear cover for R.C.C structures in all the floors complete as per the direction of the Engineer- in -charge.	Kg	67.00
15329	providing and fixing ornamental cast iron stair case for over head reservoir full set consisting of 12 steps with tread, riser,side guard, baluster, central post , hand rail, foundation plate fastners for pivoting the stairacase including painting in black colour complete in all respects as per the direction of the Engineer- in -charge.	Set	60591.00

15330	Add or deduct for providing an fixing each step of ornamental cast iron staircase for over head reservoir set consisting of one step with tread, riser, side guard, baluster, central post , hand rail, foundation plate fastners for pivoting the staircase including painting in black colour and complete in all respects as per the direction of the Engineer- in -charge.	Each	6969.00
15331	Drilling 40mm dia holes in masonry or concrete structure with providing and fixing 0.5m long G.I Pipe nozzles for pressure grouting including all material labour cost and machinery Charges , etc. complete in all respects as per the direction of the Engineer -in-charge.		
a	In Ground level reservoir.	R.mt	5252.00
15332	Providing pressure grouting at a pressure of 5.6kg/sqcm in required row / zigzag fashion as specified at 1.5m interval, as per the site condition to stop leakages, in water retaining structures, including the cost of water proofing compound, hardening materials, compressor, necessary allied equipments,scaffolding centering, shuttering ,and necessary platform with staging required,along with smooth finishing the grouted surface, water tightness test as per relevant IS code with latest amendments,etc in Ground level reservoir for reinforced concrete structure complete in all respects as per the direction of the Engineer in charge.	Per Bag	15049.00
15333	Providing and applying one coat of gamma coating or equivalent such as DR. bake , krishna conchem, asia paints atul limited burger paints expoy primer 50 to 60 microns thick and covering two coats of gamma coating or equivalent such as DR. bake , krishna conchem, asia paints atul limited burger paints 30microns thick each to new M.S pipes and structural steel or concrete surface including preparing the surface by finishing by solvent de-greasing and de-rusting by applying chemical method and scaffolding is necessary as per manufacture specifications complete in all respects as per the direction of the Engineer- in- charge. in Ground level reservoir .	sq.m	2323.00

15334	Drilling 40mm dia holes in masonry or concrete structure with providing and fixing 0.5m long G.I Pipeline for pressure grouting including all material labour cost and machinery Charges , etc. complete in all respects as per the direction of the Engineer in charge in overhead reservoir.	Rmt	7979.00
15335	Providing pressure grouting at a pressure of 5.6kg/sqcm in required row / zigzag fashion as specified at 1.5m interval, as per the site condition to stop leakages, in water retaining structures, including water proofing compound, hardening materials, compressor, necessary allied equipments,scaffolding centering, shuttering ,and necessary platform with staggering required for the completion of the job along with smooth finishing the grouted surface etc in overhead reservoir for reinforced concrete structure complete in all respects as per the direction of the Engineer -in -charge.	Per Bag	19190.00
15336	Providing and applying one coat of gamma coating or equivalent such as DR. bake , krishna conchem, asia paints atul limited burger paints expoy primer 50 to 60 microns thick and covering two coats of gamma coating or equivalent such as DR. bake , krishna conchem, asia paints atul limited burger paints 30microns thick each to new M.S pipes and structural steel or concrete surface including preparing the surface by finishing by solvent de-greasing and de-rusting by applying chemical method and scaffolding is necessary etc. complete as per manufacture specifications in overhead reservoir.	sq.m	7575.00
15337	Providing and fixing MS clamps fabricated out M.S flat of 6mm thickness 100mm wide to hold the inlet/outlet/ scour pipes in vertical position, supporting on R.C.C column of the reservoir, along with nut bolts , fixture ,inclusive of anti-corrosive paint etc.complete in overhead reservoir.	Each	1212.00
15338	Supplying and fixing of cast iron ladder in concrete ladder of width 45 cms (in side dimensions of ladder) for inside/outside for RC.C. reservoir with steps spaced at 25 cms centre to centre with size of 15mm x 6mm for vertical supports in ladder and 10mmx 6 mm size for steps complete in all respects as per the direction of the Engineer- in -charge.	Metre	1162.00

15339	Hoisting laying CI /DI/ MS Flanged pipes including specials in vertical position and perfect alignment in correct plumbing for RCC overhead reservoir complete in all respects as per the direction of the Engineer in charge.	Metre	1364.00
15340	Providing & fixing P.V.C. water stopper 150mm wide and 6mm thick corrugated with centre bulb for insertion for construction joints in R.C.C. works complete in all respects as per the direction of the Engineer- in- charge.	Metre	382.00
15341	Extra for carriage of R.M.C beyond the initial lead of 10kms.	Per Cu.m. per Km	96.00
15342	Supply of low density solid cast iron/ ductile iron inspection door,(cover and frame fixed with hinges by welding), at domestic places or other places having size, 610mm x 455mm with weight not less than 38kg for reservoirs	Each	3990.00

CHAPTER VIII

SEWERAGE WORKS

NOTES:-	
1	Earthwork and rubble packing for all type of manholes are to be estimated separately.
2	In case of saturated soil when the strata are met the datum shall be the level at which the actual water table is measured from ground level. However above the datum up to ground level extra rates for additional lifts involved shall only be considered in the estimate. The rates mentioned for the saturated soil is inclusive of all lifts for the particular depth mentioned in the item up to ground level.
3	The datum at which the water table is located, the stretches at which the centering and shuttering is to be left permanently in position, at site is to be furnished by the division chainage wise in the estimate. Accordingly the items for pipe laying and for manhole are to be selected from the section.
4	Item number 15409 is providing dry conditions in the trench for the work of laying sewer lines together with construction of manholes.
5	The design of the sewer lines are to be made as per chapter 3 of Manual on sewerage and sewage treatment published by the ministry of urban development New Delhi. The sewer zones are to be framed with the maximum depth of manhole to 5m
6	The rates for different kind of manhole are available in the section for depth varying from 1m to 5m. Rates for a depth between any two of the successive depths are to be arrived, by adding the item of extra depth for the fractional part to the main item. Manholes are to be measured up to the accuracy of one centimetre for depths.
7	Sewer chambers are suggested up to a depth of 1m. Above 1m up to 2.0 m depth circular/conical manhole are to be preferred . The suggested depth and diameter of manholes are furnished below.
8	Sewer line estimate shall include the design of sewers, bedding, anti floatation blocks as per the Manual on sewerage and sewage treatment.

Diameter of Manhole	Suggested depth	Type of manhole	
0.9m	1m to 1.65m	Circular Brick masonry	
1.2m	1.66m to 2.02m	Circular Brick masonry	
1.2m	2.03m to 2.50m	Composite conical	
1.5m	2.51m to 5.0m	Composite conical	

CHAPTER VIII SEWERAGE WORK			
Item No	Description	Unit	Rate
4005 A	Earthwork in excavation by manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10sq.m on plan) including disposal of excavated earth lead upto 50 m and lift upto 1.5m disposed earth to be leveled and neatly dressed as directed		
a	Ordinary soil	Cu.m.	263.00
b	Hard soil	Cu.m.	342.00
c	Ordinary rock including all types of lateritic rock soil requiring blasting	Cu.m.	863.00
d	All types of lateritic rock (requiring chiselling) where blasting is prohibited	Cu.m.	1268.00
e	Hard rock (requiring blasting)	Cu.m.	1107.00
f	Hard rock requiring chiselling (where blasting is prohibited)	Cu.m.	1822.00
4006 A	Earthwork in excavation by manual means in foundation pipeline trenches drain (not exceeding 1.5m in width or 10 sq. m. on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed within a lead of 50m.		
a	Ordinary soil	Cu.m.	283.00
b	Hard soil	Cu.m.	362.00
c	Ordinary rock including all types of lateritic rock soil requiring blasting	Cu.m.	970.00
d	All types of lateritic rock (requiring chiselling) where blasting is prohibited	Cu.m.	1410.00
e	Hard rock (requiring blasting)	Cu.m.	1202.00
f	Hard rock requiring chiselling (where blasting is prohibited)	Cu.m.	1947.00
4010	Extra for additional depth of 1.5m or part thereof in		
a	All types of soil	Cu.m.	31.00
b	Saturated soil	Cu.m.	52.00
c	All types of laterite rocks and hard rocks	Cu.m.	40.00

15401	Providing barricading for water supply / sewer trenches with wooden ballies/ bamboos of 2 m height with vertical spacing at 2 meter centre to centre, and horizontal bracing at 0.6m centre to centre by forming squares of size 2m x0.6m ,and securing the joints of frames firmly with coir rope, including fixing of cautionary sign indication board of size 0.6m x0.45m, and board painted with " caution" " work in progress" letters and an arrow for diversion, all painted in reflectory paint, and providing and fixing two rows of reflectory tape in red colour along the periphery of the baricadding etc complete as per the direction of the Engineer incharge	Meter	353.00
15402	Closed planking in trenches including strutting and shoring, packing cavities (wherever required) complete for sewerage works in saturated soil strata.		
a	For works of depth up to 1.50 m	Sq.m	667.00
b	For works of depth upto to 3.00 m	Sq.m	813.00
c	For works of depth upto 4.50m	Sq.m	1152.00
d	For works at depth upto 6.00m	Sq.m	1236.00
e	For works at depth upto 7.500m	Sq.m	1318.00
15403	Earthwork in excavation over areas in saturated soil (exceeding 0.30 m depth up to a depth of 0.60 m) including disposal of excavated earth,upto a lift of 1.5 m & within a lead of 50m to be neatly dressed leveled, as directed by the Departmental Officer.		
a	excluding planking, timbering in trenches and dewatering.	Cu.m	610.00
15404	Earthwork in excavation in foundation pipeline trenches, drain in saturated soil up to a depth of 0.60 m lift up to 1.50 m including disposing the excavated soil within a lead of 50 m Disposed earth to be neatly dressed and leveled, as directed by the Departmental Officer.		
a	Excluding planking, timbering in trenches and dewatering.	Cu.m	636.00
15405	Extra for earthwork excavated in saturated soil for every 0.30 m. depth or part thereof over 0.60 m. depth.	Cu.m	95.00
15406	Extra for additional depth of 1.5 m or part thereof in saturated soil .	Cu.m	50.00

15407-(4016)	Extra for planking and strutting and packing material for cavities (in close timbering) if required to be left permanently in position (face area of timbering to be left permanently in position is to be measured)	Sq.m	1076.00
15408	Add extra for excavation in or under water and on liquid mud including cost of pumping and complete (extra rate per cu.m. of excavation qty. in saturated soil strata considering actual water table level during the construction as datum)		
a	Excavation work up to 1.5m depth from datum (measured from saturated soil/ strata level).	Cu.m	404.00
b	Excavation work upto 3.00m. depth from datum (measured from saturated soil/ strata level).	Cu.m	712.00
c	Excavation work upto 4.50 m depth from datum (measured from saturated soil/ strata level).	Cu.m	1222.00
d	Excavation work upto 6.0 m & above depth from datum (measured from saturated soil/ strata level).	Cu.m	2263.00
15409	Pumping/bailing out water from the trench excavated in saturated soil strata to maintain dry/favourable working conditions while, rubble packing, laying, jointing & satisfactory testing of the sewer lines and allied works of manholes, construction encasing etc. (Payments are per finished pipelines length including manholes).		
I	For pipelines up to 300 mm dia		
a	For works up to 1.50 m depth or part thereof (measured from saturated soil/ strata level).	Metre	264.00
b	For works upto to 3.0 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	434.00
c	For works upto to 4.50 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	660.00
d	For works upto to 6.0 m.depth or more (measured from saturated soil/ strata level).	Metre	947.00
II	For pipelines between 350 mm dia and 600 mm dia		
a	For works up to 1.50 m depth or part thereof (measured from saturated soil/ strata level).	Metre	294.00
b	For works upto to 3.0 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	479.00
c	For works upto to 4.50 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	735.00
d	For works upto to 6.0 m.depth or more (measured from saturated soil/ strata level).	Metre	1054.00

III	For pipelines from 650 mm dia and above		
a	For works up to 1.50 m depth or part thereof (measured from saturated soil/ strata level).	Metre	362.00
b	For works upto to 3.0 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	590.00
c	For works upto to 4.50 m.depth or part thereof (measured from saturated soil/ strata level).	Metre	905.00
d	For works upto to 6.0 m.depth or more (measured from saturated soil/ strata level).	Metre	1298.00
15410	Hydraulic testing of the sewer line as per IS :4127 including the cost of testing equipments and materials such as pump, water, labour, tools and plants and maintaining the necessary records etc complete as directed by the Engineer- in-charge		
a	150mm diameter	Metre	29.00
b	200mm diameter	Metre	39.00
c	230 mm diameter	Metre	47.00
d	250mm diameter	Metre	54.00
e	300mm diameter	Metre	69.00
15411	Providing and fixing C.I. foot rest having minimum weight 5.3 kgs in manhole with 20x20x10cm cement concrete blocks 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) as per standard design.	Each	974.00
15412	Providing drop connection externally for 60cm drop from branch sewer line to main sewer manhole including inspection and cleaning eyes with chain and lid, HDPE drop pipe line, bend, all encased around with cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) with all centering shuttering required, cutting holes in manhole wall and making good with brick work in cement mortar 1:5 (1 cement : 5 coarse sand), plastering with cement mortar 1:3(1 cement : 3coarse sand) on inside of the manhole wall, HDPE welded joints between pipe, bend, drop including making required channels as per standard design and specification, etc complete as directed by the engineer- in-charge.		
a	With 110 mm OD HDPE pipe drop connection	Each	3963.00
b	With 160 mm OD HDPE pipe drop connection	Each	6099.00
c	With 180 mm OD HDPE pipe drop connection	Each	6273.00
d	With 200 mm OD HDPE pipe drop connection	Each	6599.00
e	With 225 mm OD HDPE pipe drop connection	Each	7057.00
f	With 250 mm OD HDPE pipe drop connection	Each	7612.00
g	With 280 mm OD HDPE pipe drop connection	Each	8289.00

h	With 315 mm OD HDPE pipe drop connection	Each	10404.00
15413	Extra for depth beyond 60cm of HDPE PIPE drop connection-		
a	With 110 mm OD HDPE pipe drop connection	Metre	2246.00
b	With 160 mm OD HDPE pipe drop connection	Metre	2411.00
c	With 180 mm OD HDPE pipe drop connection	Metre	2729.00
d	With 200 mm OD HDPE pipe drop connection	Metre	3060.00
e	With 225 mm OD HDPE pipe drop connection	Metre	3878.00
f	With 250 mm OD HDPE pipe drop connection	Metre	4403.00
g	With 280 mm OD HDPE pipe drop connection	Metre	5070.00
h	With 315 mm OD HDPE pipe drop connection	Metre	5903.00
15414	Providing and fixing square mouth S.W. gully trap grade 'A" complete with C.I. Grading brick masonry chamber and water light C.I. cover with frame 300x300mm size (inside) the weight of the cover to be not less than 4.53kg and frame to be not less than 2.72kg as per standard design.		
a	100 mm x 100 mm size P or S type	Each	3487.00
b	150 mm x 100mm P or S.type	Each	4204.00
RECTANGULAR MANHOLE INCLUSIVE OF COST OF MANHOLE COVER & FRAME			
15415	Construction of manhole rectangular in shape including cement concrete 1:3:6 (1 cement:3 coarse sand:6 graded stone aggregate 20mm nominal size) foundation thickness of concrete 20cms and offset 10cms on both sides and first class brick work with bricks class designation 100kg/sq.cm (wire cut bricks) cement mortar 1:3 (1 cement : 3 coarse sand) 23cms thick including providing & fixing CI footrests confirming to IS 5445/69 or revised and whose weight shall not be less than 5.30kgs including fixing in man-hole at 30cm c / c in 20x 20x10cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) and 12mm thick plaster inside and outside with cement mortar 1:3 (1 cement : 3 coarse sand) including adding waterproofing compound of approved brand in cement mortar with a floating coat of neat cement and making channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size) neatly finished complete as per standard design.		
I	Inside size 0.45x 0.45m and 0.60m deep (with medium duty DI manhole cover & frame of size 0.45x 0.45m weighing 45kgs) including fixing with cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size and applying the frame & cover with coal tar.	Each	13358.00

II	Inside size 0.45x 0.60m and 0.60m deep (with medium duty DI manhole cover & frame of size 0.45x 0.60m weighing 70kgs) including fixing with cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size and applying the frame & cover with coal tar.	Each	17615.00
III	Inside size 0.60x0.60m and 0.60m deep (with medium duty DI manhole cover & frame of size 0.60x 0.60m weighing 90kgs) including fixing with cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20mm nominal size and applying the frame & cover with coal tar.	Each	21182.00
IV	Inside size 0.90 x 0.60m and 1.00m deep (with medium duty DI manhole cover & frame of size 0.90x 0.60m weighing 105 kgs including fixing with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size and applying the frame & cover with coal tar.)	Each	31306.00
15416	Extra/Additional depth of above square/ rectangular manholes at above item no in fractions with 100kg/sq.cm(wire cut bricks) brickwork in cement morter 1:3 (1cement:3coarse sand) 23cm thick including providing and fixing CI footrests not weighing less than 5.30kgs incl. fixing in manholes @ 30cmc/c staggered in 20x20x10cm cement concrete blocks 1:3:6(1cement:3coarse sand :6graded stone aggregate 20mm nominal size) 12mm thick plaster inside and outside with cement morter 1:3 (1cement :3coarse sand)including adding water proofing compound of approved brand with a floating coat of neat cement.		
I	0.45 x 0.45m Manholes.	Per cm	110.00
II	0.45 x 0.60m Manholes.	Per cm	118.00
III	0.60 x 0.60m Manholes.	Per cm	126.00
IV	0.90 x 0.60m Manholes.	Per cm	144.00
15417	Providing and fixing RCC vent shaft of 7.30 m total height including necessary , CC 1:2:4, connecting RCC NP3 class pipes, encased with CC 1:2:4 etc as per standard drawing.	Each	27445.00
15418	Providing and laying cement concrete 1:3:6 with (1 cement :3 coarse sand : 6 graded granitic or basalt 20mm nominal size) for hunching including necessary centering shuttering and form work around SW SG pipes including concrete as per standard design given IS:4127.		
a	100mm dia S.W. pipes	Metre	700.00
b	150mm dia S.W. pipes	Metre	768.00
c	200mm dia S.W. pipes	Metre	894.00
d	230mm dia S.W. pipes	Metre	975.00
e	250mm dia S.W. pipes	Metre	1026.00
f	300mm dia S.W. pipes	Metre	1152.00

15419	Providing and laying cement concrete 1:2:4 with (1 cement :2 coarse sand : 4 graded granitic or basalt 20mm nominal size) for haunching including necessary centering shuttering and form work around SW SG pipes including concrete as per standard design given IS:4127.		
a	100mm dia S.W. pipes	Metre	1193.00
b	150mm dia S.W. pipes	Metre	1275.00
c	200mm dia S.W. pipes	Metre	1584.00
d	230mm dia S.W. pipes	Metre	1680.00
e	250mm dia S.W. pipes	Metre	1742.00
f	300mm dia S.W. pipes	Metre	1893.00
15420	Providing and laying cement concrete 1:3:6 (1cement : 3 coarse sand: 6 grade granite or basaltic stone 20mm nominal size) including centering shuttering and form work for encasing around S.W. pipes including bed concrete as per standard design in IS:4127.		
a	100mm dia S.W. pipes	Metre	1454.00
b	150mm dia S.W. pipes	Metre	1532.00
c	200mm dia S.W. pipes	Metre	1865.00
d	230mm dia S.W. pipes	Metre	1974.00
e	250mm dia S.W. pipes	Metre	2046.00
f	300mm dia S.W. pipes	Metre	2221.00
15421	Providing and laying cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 grade granite or basaltic stone 20mm nominal size) including centering shuttering and form work for encasing around S.W. pipes including bed concrete as per standard design in I S:4127.		
a	100mm dia S.W. pipes	Metre	1521.00
b	150mm dia S.W. pipes	Metre	1604.00
c	200mm dia S.W. pipes	Metre	1948.00
d	230mm dia S.W. pipes	Metre	2063.00
e	250mm dia S.W. pipes	Metre	2140.00
f	300mm dia S.W. pipes	Metre	2326.00
15422	Making connections of drain or sewer line with existing manholes including Breaking and making good the walls, floors with cement concrete 1:2:4 (1 cement :2 coarse sand :4 graded stone as gggt. 20mm nominal size) 12mm thick cement plaster on both sides with cement plaster on both sides with cement mortar 1:3 (1 cement :3 coarse sand) finished with floating coat of neat cement and making necessary channels for drains etc. complete.		

a	For pipes 100 to 230 mm dia	Each	275.00
b	For pipes 250 to 300 mm dia	Each	328.00
c	For pipes 350 to 450 mm dia	Each	772.00
15423	Supplying of heavy duty C.I Cover with frame weighing not less than 230 kg- 500mm diameter as per IS 1726-1976 with latest ammendments	Each	19266.00
15424	Supplying and fixing C.I Cover 300x300mm with frame for gully trap (standard pattern the weight of cover to be not less than 7.0 kg	Each	1295.00
15425	Detecting the Manhole location by metal detector and Raising manhole cover and frame slab to the required level including dismantling and demolishing disposing existing slab and making good the damage by reconstructing the R.C.C slab at desired level including fixing of frame and cover to the perfect fixing as required upto a depth of 20cms or part thereof.		
a	Circular manhole 0.9m,1.2m and 1.5m dia	Each	4262.00
b	Rectangular manhole1.2 x 0.9m	Each	4909.00
15426	Constructing brick masonry road gully chamber 50x45x60 cm with bricks of class designation 100kg/sq.cm (wire cut bricks) in cement mortar 1:4 (1 cement : 4 coarse sand) including providing and fixing precast R.C.C. cover complete as per standard design.	Each	6812.00
15427	Constructing brick masonry road gully chamber 45x45x77.5 cm with bricks of class designation 100kg/sq.cm (wire cut bricks)in cement mortar 1:4 (1 cement : 4 coarse sand) including providing and fixing precast R.C.C. cover complete as per standard design.	Each	7384.00
15428	Constructing brick masonry road gully chamber 110x50x77.5 cm with bricks of class designation 100kg/sq.cm(wire cut bricks) in cement mortar 1:4 (1 cement : 4 coarse sand) including providing and fixing precast R.C.C. cover complete as per standard design.	Each	12099.00

	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with 100 kg/ sq.cm (wire cut bricks) class designation bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame not less than 38 kgs(minimum weight of cover 23 kgs & frame 15kgs)R.C.C top slab in 1:2:4 mix(1: cement: 2 coarse sand:4 graded stone aggregate 20 mm nominal size)foundation concrete 1:5:10(1: cement: 5 coarse sand:10 graded stone aggregate 40 mm nominal size) inside plastering inside surface with c:m 1:3(1:cement:3 coarse sand) finished with a floating coat of neat cement on walls and bed concrete etc complete as per standard design		
a	Inside dimensions 455x610 mm and 45 cm deep for single pipe line	Each	9336.00
b	Inside dimensions 500x700 mm and 45 cm deep for pipe line with one or two inlets	Each	10091.00
c	Inside dimensions 600x 850 mm and 45 cm deep for pipe line with three or more inlets	Each	11701.00
15430	Providing and fixing at the site of work orange colour safety foot rest of minimum 6mm thick plastic encapsulated as per IS:10910 on 12mm dia steel bar conforming to IS:1786 having minimum cross section as 23mm x 25mm and over all minimum length 263mm and width as 165mm with minimum 112mm space between protruded legs having 2mm thread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138mm as per standard drawing and suitable to withstand the bend test and chemical resistance test as per specifications and having manufactures permanent identification mark to be visible even after fixing including fixing in manholes with 30x20x15 in Cement Concrete blocks 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate. 20 mm nominal Size) complete as per standard design.	Each	583.00
15431	Provding and fixing leak proof HDPE collar type clamps for the holes in the manholes, made for the entry of sewer lines in to the manholes to have a perfect leakproof joint between masonry/ concrete/R.C.C surface of manhole and the HDPE surface of sewer		
a	With 160 mm OD HDPE pipe drop connection	Each	185.00
b	With 180 mm OD HDPE pipe drop connection	Each	233.00
c	With 200 mm OD HDPE pipe drop connection	Each	289.00
d	With 225 mm OD HDPE pipe drop connection	Each	364.00
e	With 250 mm OD HDPE pipe drop connection	Each	449.00

f	With 280 mm OD HDPE pipe drop connection	Each	562.00
g	With 315 mm OD HDPE pipe drop connection	Each	711.00
15432	construction of coffer dam in order to segregate the working area for laying of sewer lines across the nallah or drainage including all material, labour, tools and plants complete as directed by the engineer-in-charge.	Metre	3769.00

MANHOLES

CONICAL BRICK MASONRY MANHOLES

15433	Construction of manhole conical in shape including cement concrete 1:2:4 (1 cement:2coarse sand:4 graded stone aggregate 20mm nominal size) foundation thickness of concrete 25cms and offset 15cms on both sides and first class brick work with bricks class designation 100kg/sq.cm (wire cut bricks) in cement mortar 1:3 (1 cement : 3 coarse sand) 35cms thick including providing & fixing CI footrests confirming to IS 5445/69 or revised and whose weight shall not be less than 5.30kgs including fixing in man-hole at 30cm c/c in 20 x 20 x 10cm cement concrete block 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and 12mm thick plaster inside and outside with cement mortar 1:3 (1 cement : 3 coarse sand) including adding waterproofing compound of approved brand in cement mortar with a floating coat of neat cement and making channel in cement concrete 1:2:4 (1 cement :2 coarse sand : 4 graded stone aggregate 20m nominal size) neatly finished including providing and fixing manhole cover and frame in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) complete as per standard design.		
	A Supply of 500mm dia heavy duty solid type C.I. circular cover and frame weighing not less than 230 kgs.		
(i)	0.90m dia	-	-
	(a) 1.00m deep	Each	45914.00
	(b) 1.50m deep	Each	47742.00
(ii)	1.20m dia		
	(a) 1.50m deep	Each	63892.00
	(b) 2.00m deep	Each	72749.00
	(c) 2.50m deep	Each	83838.00
B	Supply 500mm dia D.I. heavy duty class C-250 circular cover with square frame weighing not less than 65 kgs.		
(i)	0.90m dia	-	-
	(a) 1.00m deep	Each	35692.00

	(b) 1.50m deep	Each	37521.00
(ii)	1.20m dia		
	(a) 1.50m deep	Each	46797.00
	(b) 2.00m deep	Each	62527.00
	(c) 2.50m deep	Each	73617.00
C	Supply 500mm dia SFRC cover consisting of cast iron frame of 12mm thick having four prizing slots and cover embedded in 12mm thick cast iron ring suiting to fit into the frame.		
(i)	0.90m dia		
	(a) 1.00m deep	Each	35534.00
	(b) 1.50m deep	Each	37362.00
(ii)	1.20m dia		
	(a) 1.50m deep	Each	46639.00
	(b) 2.00m deep	Each	62370.00
	(c) 2.50m deep	Each	73458.00
15434	Add extra for conical brick masonry manhole for fractional depth of each one centimetre or part thereof for		
a	0.90m dia manhole	Per cm	181.00
b	1.2m dia manhole	Per cm	215.00

COMPOSITE CONICAL MANHOLE AS PER STANDARD DRAWING

15435	Construction of manholes conical in shape at top including laying cement concrete 1:1.5:3 (1cement:1.5coarse sand:3graded stone aggregate 20mm nominal size) at base thickness of concrete as per diagram and offset 15cm and PCC 1:2:4 (1cement:2coarse sand :4graded stone aggregate 20mm nominal size)in vertical and conical wall with first class brick work in cement mortar 1:3 (1cement:3 coarse sand) with bricks of class designation 100 kg/sq.cm (wire cut bricks) incl.fixing C.I.footrests confirming to IS 5455/69 or revised whose weight shall not be less than 5.30kg including fixing in manhole at 30cm c/c staggered in 20x20x15cm cement concrete blocks 1:2:4 (1cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and 12mm thick plaster with cement morter 1:3 (1 cement:3 coarse sand) inside and outside with water proofing compound and a floating coat of neat cement & providing and fixing C.I.manhole frame and cover 50cm dia heavy duty both weighing 230kgs in cement concrete 1:2:4 (1cement:2coarse sand:4 graded stone aggregate 20mm nominal size) and applying the frame and cover with coal tar and making channels in cement concrete 1:2:4 (1 cement : 2 Coarse sand:		
--------------	--	--	--

	4 graded stone aggregate 20mm nominal size) and neatly finished complete as per standard design.Cost of manhole inclusive of frame cover & footrest.		
A	With 500mm dia heavy duty solid type C.I. circular cover and frame weighing not less than 230 kgs.		
(i)	1.20m dia		
	2.00 m depth	Each	67493.00
	2.50 m depth	Each	76768.00
(ii)	1.50m dia		
	2.50 m depth	Each	85005.00
	3.00 m depth	Each	101309.00
	4.00 m depth	Each	127327.00
	5.00 m depth	Each	149789.00
B	With 500mm dia D.I. heavy duty class C-250 circular cover with square frame weighing not less than 65 kgs.		
(i)	1.20m dia		
	2.00 m depth	Each	57272.00
	2.50 m depth	Each	66547.00
(ii)	1.50m dia		
	2.50 m depth	Each	74784.00
	3.00 m depth	Each	91088.00
	4.00 m depth	Each	117106.00
	5.00 m depth	Each	139568.00
C	With 500mm dia SFRC cover consisting of cast iron frame of 12mm thick having four prizing slots and cover embedded in 12mm thick cast iron ring suiting to fit into the frame.		
(i)	1.20m dia		
	2.00 m depth	Each	57113.00
	2.50 m depth	Each	66388.00
(ii)	1.50m dia		
	2.50 m depth	Each	74626.00
	3.00 m depth	Each	90929.00
	4.00 m depth	Each	116948.00
	5.00 m depth	Each	139409.00
15436	Add extra for composite manhole for fractional depth for each one centimetre or part thereof		
a	1.20m dia	Per cm	227.00
b	1.50m dia	Per cm	263.00

SCRAPPER TYPE MANHOLE				
15437	Construction of scrapper manhole in R.C.C as per standard drawing of 1.8m diameter consisting of			
I (a)	Circular cylindrical R.C.C section in design mix M-30 of wall thickness 0.20m for the required height			
(b)	Bottom R.C.C raft of 0.2m thickness in design mix M-30			
(c)	Laid on a bed concrete of 0.2m in C.C.in design mix M-15			
(d)	Plastering the inside and outside surfaces of manhole in c:m 1:3 with water proofing compound.			
(e)	Benching , making channel at the bottom of the manhole in cement concrete 1:2:4.			
(f)	C.C top slab in 15cms thick in M-15 mix to fix the manhole cover and frame			
(g)	Providing and fixing 2nos heavy duty manhole covers with frame.			
(h)	Providing and fixing of C.I. foot rests confirming to IS 5445/69 or revised and whose weight shall not be less than 5.30 kgs at a spacing of 30 cms centre to centre in staggered manner,including fixing in manholes with 20x20x10 in Cement Concrete blocks 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate. 20 mm nominal Size) complete as per standard design.			
(i)	Water tightness test as per IS 3370			
(j)	Including the cost of centering shuttering , reinforcement,material, labour tools as required for completion of work complete as per the direction of the Engineer- in-charge.			
A	With 500mm dia heavy duty solid type C.I. circular cover and frame weighing not less than 230 kgs.			
	Depth of manhole in metre			
	(a) 3.00	Each	187596.00	
	(b) 4.00	Each	201579.00	
	(c) 5.00	Each	245699.00	
B	With 500mm dia D.I. heavy duty class C-250 circular cover with square frame weighing not less than 65 kgs.			
	Depth of manhole in metre			
	(a) 3.00	Each	167153.00	
	(b) 4.00	Each	181136.00	
	(c) 5.00	Each	225256.00	

C	With 500mm dia SFRC cover consisting of cast iron frame of 12mm thick having four prizing slots and cover embedded in 12mm thick cast iron ring suiting to fit into the frame.		
	Depth of manhole in metre		
	(a) 3.00	Each	166837.00
	(b) 4.00	Each	180819.00
	(c) 5.00	Each	224940.00
15438	Add extra for each centimeter or part thereof depth for scrapper manhole	Per cm	285.00
15439	Supplying, of HDPE pipes at store or site of work including loading & unloading stacking, transit insurance etc. Complete bearing ISI mark conforming to IS: 14333 - 1996 and made from PE 100 resin Class IV (6kg/cm²)		
	PE 100		
a	160	Metre	1090.00
b	180	Metre	1372.00
c	200	Metre	1699.00
d	225	Metre	2141.00
e	250	Metre	2645.00
f	280	Metre	3306.00
g	315	Metre	4188.00
h	355	Metre	5301.00
i	400	Metre	6890.00
j	450	Metre	8700.00
k	500	Metre	12699.00
l	560	Metre	15876.00
m	630	Metre	20109.00
n	710	Metre	25521.00
o	800	Metre	32430.00
p	900	Metre	45737.00
q	1000	Metre	56651.00
15440	Supplying, of HDPE pipes at store or site of work including loading & unloading stacking, transit insurance etc. Complete bearing ISI mark conforming to IS: 14333 - 1996 and made from PE 80 resin Class IV(6kg/cm²)		
	PE 80		
a	160	Metre	1315.00
b	180	Metre	1659.00

c	200	Metre	2045.00
d	225	Metre	2581.00
e	250	Metre	3196.00
f	280	Metre	4004.00
g	315	Metre	5051.00
h	355	Metre	6415.00
i	400	Metre	8331.00
j	450	Metre	10524.00
k	500	Metre	15369.00
l	560	Metre	18801.00
m	630	Metre	23883.00
n	710	Metre	30346.00
o	800	Metre	38521.00
15441	Supplying, of HDPE pipes at store or site of work including loading & unloading stacking, transit insurance etc. Complete bearing ISI mark conforming to IS: 14333 - 1996 and made from PE 100 resin Class IV(10kg/cm²)		
	PE 100		
a	160	Metre	1956.00
b	180	Metre	2471.00
c	200	Metre	3047.00
d	225	Metre	3858.00
e	250	Metre	4765.00
f	280	Metre	5923.00
g	315	Metre	7555.00
h	355	Metre	9583.00
i	400	Metre	12296.00
j	450	Metre	15612.00
k	500	Metre	19329.00
l	560	Metre	24200.00
m	630	Metre	30844.00
15442	Supplying, of HDPE pipes at store or site of work including loading & unloading stacking, transit insurance etc. Complete bearing ISI mark conforming to IS: 14333 - 1996 and made from PE 80 resin Class IV(10kg/cm²)		
	PE 80		
a	160	Metre	2304.00
b	180	Metre	2910.00
c	200	Metre	3605.00
d	225	Metre	4546.00

e	250	Metre	5614.00
f	280	Metre	7190.00
g	315	Metre	8905.00
h	355	Metre	11323.00
i	400	Metre	14523.00
j	450	Metre	18079.00
k	500	Metre	22931.00
15443	Construction of brick masonry chamber 90x60x100 cm with brick work of class designation 75kg/sq. cm (wire cut bricks) of 23 cms wall thickness in cement mortar 1: 5(1cement: 5 coarse sand) with necessary excavation in foundation rubble soling , pcc in foundation of 15 & 10 cm thk respectively benching ,haunching , in cement concrete 1:2:4 (1 cement :2 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and external plaster of 18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1 : 5 (1 cement :5 coarse sand) and top layer 6mm thick in cement plaster 1:3 (1 cement :3 coarse sand) all other materials and labour as per details above)	Each	13316.00
15444	Construction of brick masonry chamber 90x60x100 cm with brick work of class designation 40kg/sq. cm of 23 cms wall thickness in cement mortar 1:5 (1cement : 5coarse sand)with necessary excavation in foundation rubble soling, pcc in foundation of 15 & 10 cm thk respectively benching ,haunching , in cement concrete 1:2:4 (1 cement :2 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and external plaster of 18 mm cement plaster in two coats under layer 12 mm thickcement plaster 1 : 5 (1 cement :5 coarse sand) and top layer 6mm thick in cement plaster 1:3 (1 cement :3 coarse sand) all other materials and labour as per details above)	Each	11825.00

15445	Construction of brick masonry chamber 60x45x100 cm with brick work of class designation 75kg/sq. cm (wire cut bricks) of 23 cms wall thickness in 1:3 cement mortar (1cement: 3coarse sand)with necessary excavation in foundation rubble soling, pcc in foundation of 15 & 10 cm thk respectively benching ,haunching , in cement concrete 1:2:4 (1 cement :2 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and external plaster of 18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1 : 5 (1 cement :5 coarse sand) and top layer 6mm thick in cement plaster 1:3 (1 cement :3 coarse sand) all other materials and labour as per details above)	Each	9781.00
15446	Construction of brick masonry chamber 60x45x100 cm with brick work of class designation 40kg/sq. cm of 23 cms wall thickness in 1:5 cement mortar (1cement : 3coarse sand)with necessary excavation in foundation rubble soling , pcc in foundation of 15 & 10 cm thk respectively benching ,haunching , in cement concrete 1:2:4 (1 cement :2 coarse sand: 10 graded stone ballast 40 mm nominal size) and inside plastered with CM 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement complete and external plaster of 18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1 : 5 (1 cement :5 coarse sand) and top layer 6mm thick in cement plaster 1:3 (1 cement :3 coarse sand) all other materials and labour as per details above)	Each	9117.00
15447	Opening jammed manhole covers covered with asphalt due to constant plying of heavy vehicles to facilitate releasing of house Sewer connection, cleaning o manholes or sewerline as and when required as directed by Engineer-in-charges.	Each	321.00
15448	Desilting the gritty and silt deposits from manholes including necessary arrangements for lifting the deposits taking out and disposal within 5 K.m.s. as directed by the Engineer-in-charge		
A	Manholes of upto 2.0 M depth	Each	937.00
B	Manholes of upto 3.0 M depth	Each	955.00
C	Manholes of 3.0 M depth upto 6.0 M depth	Each	1402.00

15449	Identifying of choked in Sewerlines between two consecutive manholes cleaning and removal of all choked materials without excavating for pipes of Sewer and disposal of unserviceable rubbish, dirty materials etc as directed within alead of 3km,from worksite ,and restoration of Sewers to functioning and flushing the Sewers, including necessary dewatering, Sewer cleaning, rodding and scavanging arrangements all complete within 8 hours from written instruction by Engineer-in-charge.	Each	119.00
15450	Flushing and rodding the Sewerlines to clear the chokes and removal of grit and silt so accumulated in manholes due to flushing and rodding outside and disposal to a distance of 5 km including,providing necessary tools, rods, flushing water tankers,ladders,safety equipment etc complete.	R.Metre	65.00
15451	Pumping the Sewage from upstream Sewers to down stream to prevent overflow's when Sewer fails to function or when incase of major faults and when the line has to be rectified as directed by Engineer-in-charge, until rectification work is started.	Per Hour	463.00
15452	Plugging of manhole both from upstream and pumping of Sewage from upstream or downstream sides while carrying out rectification of the Sewerlines /removing chokeup with sand bags and removing the same pluggings after completion of the said work and making way for the smooth flow of sewage as directed by Enginneer-in-charge.	Per Manhole	11916.00

CHAPTER IX
MISCELLANEOUS

Item No	Description	Unit	Rate
15501	Construction of meter box of size 1.00x0.45x0.90 m in laterite stone masonry in cement mortar 1:5 (1 cement : 5 coarse sand). Foundation concrete of 8cm thick 1:4:8 (1 cement : 4 coarse sand : 8 graded granitic or basaltic stone aggregate 40mm nominal size) RCC top slab 8cm thick 1:2:4 (1 Cement: 2 coarse sand: 4 graded granitic or basaltic stone aggregate 20mm nominal size) including high yield steel bars 8mm dia. 4 nos. each in both directions finished with 12mm thick cement plaster 1:6 (1 cement: 6 coarse sand) including white washing with lime, two or more coats to give an even shade. Providing & fixing door cover of mild steel angle frame of size 20mmx20mmx3mm including necessary hinges and holdfast of size 100mmx20mmx3mm (2 Nos.), paintings etc. complete as directed by the Departmental Officer (rate inclusive of earthwork in excavation, rubble packing 10cm thick, refilling of excavated earth etc. complete as per the standard drawing).		
(a)	In the various Scattered locations as per the direction of the Engineer -in-charge	Each	4211.00
15502	Supply of water by tanker for domestic/commercial purpose (to & fro trip), excluding cost of water including the cost of hire charges of the vehicle with water tanker (with stainless steel lining for internal surface of the water tanker), wages of driver, mazdoor, hose pipe for a length of 20 metres, cost of diesel, oil lubricant, etc. complete as per the direction of the Engineer in-charge.		
a	For a distance upto 10 kilometres(to & fro totalled together)	Cu. m.	133.00
b	For a distance upto 20 kilometres(to & fro totalled together)	Cu. m.	167.00
c	For a distance upto 30 kilometres(to & fro totalled together)	Cu. m.	189.00
d	For a distance upto 40 kilometres(to & fro totalled together)	Cu. m.	222.00
e	For a distance upto 50 kilometres(to & fro totalled together)	Cu. m.	256.00
15503	Supply of cast iron self closing tap (gravity operated) with pilferage proof arrangement and with ball for self closing action 20 mm size	Each	118.00

15504	Dismantling old C.I./D.I. Pipes including excavation and refilling trenches after taking out the pipes, breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes at site, lead up to 50 metres at site.		
	Diameter in mm		
a	80	Metre	214.00
b	100	Metre	222.00
c	125	Metre	230.00
d	150	Metre	237.00
e	200	Metre	245.00
f	250	Metre	254.00
g	300	Metre	261.00
h	350	Metre	264.00
i	400	Metre	268.00
j	450	Metre	272.00
k	500	Metre	275.00
l	600	Metre	275.00
15505	Manual cutting of C.I. Pipes with a steel saw/ hacksaw, by cutting the pipe vertically in two pieces including the cost of labour, tools etc complete as per the direction of Engineer in-charge		
	Dia in mm		
a	80	Each	66.00
b	100	Each	85.00
c	125	Each	117.00
d	150	Each	156.00
e	200	Each	206.00
f	250	Each	255.00
g	300	Each	306.00
h	350	Each	355.00
I	400	Each	406.00
j	450	Each	457.00
k	500	Each	508.00
l	600	Each	605.00
15506	Cutting of cast iron / ductile iron pipes by mechanical grinder working on electricity, including the cost of hire charges of mechanical grinder, diesel operated electrical generator set, suitable for supplying power for the grinder for cutting, cost of grinding blades , skilled work force, fuel etc required for completion of job as per the direction of Engineer- in -charge		
	Dia in mm		

a	80	Each	135.00
b	100	Each	139.00
c	125	Each	143.00
d	150	Each	148.00
e	200	Each	154.00
f	250	Each	164.00
g	300	Each	176.00
h	350	Each	190.00
i	400	Each	206.00
j	450	Each	224.00
k	500	Each	247.00
l	600	Each	276.00
m	700	Each	311.00
n	750	Each	414.00
o	800	Each	497.00
p	900	Each	625.00
q	1000	Each	714.00
r	1100	Each	833.00
s	1200	Each	1000.00
<hr/>			
15507	Supply at store/site of work including transportation ,loading & unloading etc. Blue Pig lead conforming to BIS specification of 99.99 purity	Kg	232.00
<hr/>			
15508 (a)	Supply at store/site of work including ,transportation ,loading & unloading etc of Alumina ferric containing 16% of Al_2O_3 content as per IS 299/2012 Grade -IV packed in HDPE bags of uniform weight, suitable for water treatment plant.	M.T.	21958.80
<hr/>			
15509	Conveying transportating , of empty liquid chlorine cylinders from the departmental store to the refilling place , refilling the cylinder to its designed capacity & retransporting to the departmental store from refilling plant including loading unloading ,freight insurance ,etc. complete		
a	900kgs capacity cylinder	M.T.	25520.00
b	100 Kgs capacity cylinder (Minimum 10 cylinder at a time)	M.T.	44080.00
<hr/>			

15510	Supply at store/site of work Bleaching powder stable grade-I, confirming to IS specification 1065:1989 including transportation, loading unloading etc. complete.		
a	34% available chlorine	M.T.	25636.00
b	32% available chlorine	M.T.	25462.00
15511	Supplying of Filter sand of size conforming to the IS specification with latest amendments suitable for Rapid gravity sand filter media (sand) conforming to the IS specification with latest amendments suitable for Rapid gravity sand filter for treating water in treatment plants with following specification as per the sizes as given below;:-	Cu. m.	16463.00
a	Effective size - 4.50mm to 0.70mm		
b	Uniformity Co-Efficient - 1.30 to 1.70		
c	Specific gravity - 2.55		
d	Silica content more than - 90%		
e	Acid Solubility less than - 5%		
f	Loss on ignition less than - 1.5%		
15512	Supplying of gravel media suitable for rapid gravity sand filter media as desired by the department of following size		
a	6mm to 12mm	Cu. m.	15352.00
b	12mm to 38mm	Cu. m.	15352.00
c	38mm to 50mm	Cu. m.	15352.00
15513	Supplying of grit media of size 2mm to 6mm suitable for rapid gravity sand filters as desired by the department .	Cu. m.	16412.50
15514	Supplying of M.S. full Threaded/half threaded Nut & bolts	Kg	139.20
15515	Supply at store/site of work including transportation, loading & unloading hydrated lime containing of 86% of calcium hydroxide $\text{Ca}(\text{OH})_2$ as confirming to IS 1540 and tested ,analyzed as per IS 1514 packed in HDPE bags suitable for potable water treatment ,delivered at water treatment plant from the refilling place etc. complete	M.T.	12470.00
15516	Supply at store/site of work including transportation, loading & unloading Poly Aluminium Chloride - Powder as per IS 15573:2005	Kg	38.28

15517	Transportation from one drilling site to the next site, of the down the hole hammer drilling rig. along with the compressor, supports truck all the allied drilling instruments diesel and oil barrels drilling screw and laborers for all leads.	Each	5721.00
15518	Setting of drilling rig on the drilling site and its shifting after completion of bore wells, drilling 203/150mm dia bore hole in all types of strata up to a maximum depth of 100mts and collecting and supplying representative sample of all soil rock strata encountered during drilling etc. complete. Over burden drilling 203mm dia and drilling through rock should be 150mm dia.	Metre	1430.00
15519	Development of borewell using air compressor air/back washing for a period of and less than hours until all lines are flushed out and steady discharge is attend & measuring the well discharge on 90 degree V notch or with a barrels and stop watch. tube wells by use of compressed air/back washing for a minimum period of two hours and all fines are flushed out including equipment for re-drilling and its removal after completion.	No	14303.00
15520	Providing and fixing threaded well cap of cast iron/G.I suitable for 150mm (6) dia casing pipes bore wells as directed.	Each	128.00
15521	Flushing existing tubewell with the help of drilling machine,fitted with air compressor including following operations.		
a	Transportation of drilling equipment with air compressor, truck, labourers and other allied articles required for drilling / flushing of existing tubewell from one site to other site irrespective of distance including truck,oil and other petty charges.	Each	3623.00
b	Removal of submersible pumpset from the existing tubewell arranging tripod stand, chain pulley block and labourers as required.	Each	6675.00
c	Setting of drilling equipment over the existing tubewell after removal of pumpset incl. cleaning all the hindrances nearby to tubewell and flushing tubewell compressor air / back washing for a with min. period of one hour or upto all times are flushed out till water is cleaned conducting yield test with 'V' notch by pumping out water by means of compressor or drilling machine.	Each	26889.00
d	Reinstallation of submersible pumpset in the tubewell removed from the tubewell or new pump after flushing etc. all	Each	6675.00

	complete excluding cost of G.I. pipe reqd. to be replaced if necessary.		
15522	Supplying of G.I. seamless collar couplings 50mm dia.	Each	123.00
15523	Providing 150mm (6") dia. G.I.pipes Medium grade (Class B) conforming to IS 1239/1973 for casing pipe including seam collar coupling etc. complete and lowering the casing pipes in the drilling holes during drilling including fixing the pipe with socket of welding etc. complete.	RM	6740.00
15524	Supplying at departmental store, Caustic Soda Flakes with Min 99.5% (as NaOH, dry basis), conforiming to IS 252/1991 (With latest amendments), packed in 25/50 Kg HDPE bags with inner HM-HDPE liners, including costs towards freight, loading & unloading, c. complete.	MT	56364.40

LIST OF APPROVED BRANDS

1. <u>A.C. Pipes:</u>	Ramco, Charminar, Swastik
2. <u>P.V.C. Pipes: & UPVC, CPVC Pipes</u>	Finolex, Supreme, Miraj, Ashirwad, Truflo (Hardware) & Monarch, Kisan, Astral, Skipper, Movilex.
3. <u>H.D.P.E. Pipes: & Fittings</u>	Duraline, Miraj, Supreme, Kimplas, Movilex.
4. <u>M.D.P.E. Pipes: & Fittings</u>	Kimplas, Miraj, Duraline, Supreme
5. <u>C.I. Pipes</u>	Electrosteel India, Srikalashthi, Kapilansh.
A. <u>C. I. Fittings & Specials:</u>	Electrosteel India, Srikalashthi, Kapilansh, Truform (Techno Products Ltd.), Alfa Hydrotech, Kejriwal castings.
6. <u>D.I. Pipes</u>	Electrosteel India, Tata, Srikalashthi pipes, Jindal, Rashmi Metaliks Ltd., Electrotherm.
A. <u>D. I. Fittings & Specials:</u>	Electrosteel India, Tata, Srikalashthi, Jindal, Kejriwal castings, Truform (Techno Products Ltd.).
7. <u>Mechanical Joint Pipe Fittings:</u>	Orient, Jindal, Kejriwal castings, Kapilansh, Alfa Hydrotech
8. <u>Water Meters: Domestic Meters (Single/ Multi Jet)</u>	Zenner-Aquamet, Itron, GLOB TECH, Kranti, Crescent, Venus.
A. <u>Class A/ Class B:</u>	Zenner - Aquamet, Itron, Baylan, GLOB TECH
B. <u>With MID/ EEC/OIML:</u>	Baylan, Adept, Chetas, Electronet, Siemens, R.L. Technologies Pvt. Ltd, KROHNE MARSHALL.
C. <u>Ultrasonic/ Electromagnetic Flow Meters:</u>	
9. <u>Valves</u>	
A. <u>Class A:</u>	Kirloskar, IVC, Fouress, AVK, Sigmaflow, Avishkar, R & D Multiples (Metal Cast) Pvt. Ltd., Zoloto.
B. <u>Class B (with ISI mark):</u>	Kamala, Mayur, Upadhay, Durga, KVMC, Shri.Krishna Industries, Bir make.
10. <u>GRP/ FRP (Manhole Covers) :</u>	Fibrocast, HP International(Strong Drain).
11. <u>G.I. Pipes:</u>	Jindal, Tata, Zenith, Apollo
12. <u>D.I. & C.I. Covers:</u>	Neco, Municast, Kapilansh.
13. <u>O-PVC Pipes:</u>	Floking Pipes, CCAL(Chemfab Alkalies Ltd), Parvati.
14. <u>CID Joint:</u>	Charminar, Bikanner Engg.Works, Mukesh Iron Foundry Pvt. Ltd.

For any other Brands:

Prior approval of the Chief Engineer is to be obtained before executing the work with brand other than specified above.