

BIHAR URBAN INFRASTRUCTURE DEVELOPMENT CORPORATION LIMITED

Volume-II FINANCIAL BID

FOR

CONSTRUCTION OF INTERCEPTION & DIVERSION WORKS INCLUDING 3 PUMPING STATIONS, RISING MAIN, NEW TAPPINGS, TAPPINGS FOR 6 DRAINS (Thana Chowk Nala, Chakwara Sthan, Sidh Nath Ghat, Dhaurani Tola Nala, Chinta Mani Chak Ghat Nala, Mokama Ghat Nalaa) CONTROLLED WITH SCADA & CONSTRUCTION OF SEWAGE TREATMENT PLANT OF CAPACITY 8 MLD INCLUDING DISPOSAL & REUSE FACILITY WITH 2 MONTHS TRIAL, RUN, TESTING, COMMISSIONING & MAINTENANCE OF COMPLETE SYSTEM ON DESIGN BUILD OPERATE (DBOT) BASIS & THERE AFTER OPERATION & MAINTENANCE FOR 15 YEARS FOR MOKAMA TOWN, BIHAR, INDIA

(Town. Mokama)

UNDER

"NAMAMI GANGE" SCHEME

CONSTRUCTION OF INTERCEPTION & DIVERSION WORKS INCLUDING 3 PUMPING STATIONS, RISING MAIN, NEW TAPPINGS, TAPPINGS FOR 6 DRAINS (Thana Chowk Nala, Chakwara Sthan, Sidh Nath Ghat, Dhaurani Tola Nala, Chinta Mani Chak Ghat Nala, Mokama Ghat Nalaa) CONTROLLED WITH SCADA & CONSTRUCTION OF SEWAGE TREATMENT PLANT OF CAPACITY 8 MLD INCLUDING DISPOSAL & REUSE FACILITY WITH 2 MONTHS TRIAL, RUN, TESTING, COMMISSIONING & MAINTENANCE OF COMPLETE SYSTEM ON DESIGN BUILD OPERATE (DBOT) BASIS & THERE AFTER OPERATION & MAINTENANCE FOR 15 YEARS FOR MOKAMA TOWN, BIHAR, INDIA

(Town. Mokama)

ABSTRACT OF TOTAL COST

SEWAGE TREATMENT PLANT AND I & D ALLIED WORKS INCLUDING SPSs

Grand Summary

No.	Component	Price			
1.	Design-Build price for STP and allied infrastructure				
	(Schedule A)				
2	Design-Build price for I & D and allied Works including SPSs (Schedule B)				
3 A.	Total O & M Price of STP for 15 years				
3 B	NPV of Total O & M Price of STP for 15 years				
4 A.	Total O & M Price of I & D works including SPSs for 15 years				
4 B	NPV of Total O & M Price of I & D works including SPSs for 15 years				
5.	Cost of Land requirement for setting up the STP facility as indicated in the bid				
Total Price based on quoted O&M prices including price of land $(1+2+3A+4A+5) =$					
[in figure	[in figures]				
[In word	[In words]				
Total Price based on NPV of quoted O&M prices including price of land (1+2+3B+4B+5) =					
[in figure	[in figures]				
[In word	[In words]				

SCHEDULE A

Table Ab2 - Price Schedule: PART A (STP) – Design-Build Price

S.N.	Works Activity	Design-Build Price
1	CONSTRUCTING OF STP OF CAPACITY 8 M	ILD
Break-up of Pri	ce of item 1 above	
1A	Civil and Structural Works	
	(including that required for disposal an d reuse)	
1B	Installation, testing and commissioning of Electromechanical and Instrumentation equipment and accessories including equipments for electricity generation from solar photovoltaic arrangement.	0 —
С	Ancillary works like, internal roads, area grading	etc.
	Total Design Build Price	
	Amount in Words	•

Indicative Flow

Indicative Flow for the purpose of evaluation of bidsduring the Operations Period shall be as follows:

Year of Operations	Indicative Sewage flow rate for STP& MPS (MLD)*
1- Year One	7.26
2- Year Two	7.31
3- Year Three	7.36
4- Year Four	7.41
5- Year Five	7.46
6- Year Six	7.51
7- Year Seven	7.56
8- Year Eight	7.61
9- Year Nine	7.66
10- Year Ten	7.72
11- Year Eleven	7.77
12- Year Twelve	7.82
13- Year Thirteen	7.87
14- Year Fourteen	7.93
15- Year Fifteen	8.00

^{*&}quot;Indicative flow rate for STP" means the rate of sewage flow which is projected by the Owner to be available for treatment in the STP facility for each of the 15 years of the O & M period.

Table Ab3 - Price Schedule
PARTS B & C (STP) and Annual O&M Price and Additional O&M Price

Year of Oper ations	Currency INR	PART B Annual O & M Price for treatment of Threshold Sewage Flow of 7.26 MLD (Amount) (a)	PART C Annual Additional O&M Price for treatment of additional sewage flow in excess of the Threshold flow on a per MLD basis (Amount Per MLD) (b)	Total Annual O&M Price, assuming Indicative Sewage Flow reaching the STP c = a + b* x (x = indicative flow minus threshold sewage flow)	NPV factor (d) (Based on discount factor of 10% p.a.)	Value e= c*d
1			· /		0.909	
2					0.826	
3					0.751	
4					0.683	
5					0.621	
6					0.564	
7					0.513	
8					0.467	
9					0.424	
10					0.386	
11					0.350	
12					0.319	
13					0.290	
14					0.263	
15					0.239	
as per in figure in word NPV of Rate"	Total of Column 'es: s: Total O&M Pri Total of Column 'es:	ce for 15 years assi	ing "Indicative Sew uming "Indicative			

The area of the land that is required for the STP, roads, drains and other appurtenant reuse infrastructure in accordance square meters.

Cost of Land

S. N.	Component	
1.	Area of Land Required for STP as per given Technology by Bidder SQM	

2.	Price of Land per square meter as per Bid Data Sheet clause 3.3 (c)	
Total P	rice of Land(INR):	
Amour	t in Words:	

1.9 Part D (STP)The Electricity Consumption guaranteed by the bidder

Table Ab4 - Part D (STP) Guaranteed Electricity Consumption

Year of Operations	Guaranteed Electricity Consumption for the year (KWh / MLD)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Notes B:

- 1. Bidder shall indicate the land requirement for STP, roads, drains and other appurtenant structures in Square Metres, along with calculations considering the proposed treatment process.
- 2. The Bidder shall provide along with the price schedule a separate table giving details of taxes, GST, duties, levies and other applicable taxes considered by him and included in the prices offered under Part A& Part B.
- 3. The prices quoted in each of the sub parts of the Price Schedules shall be supported by sufficient justification, financial model and support materials / calculations showing the methods and the rates assumed at arriving these numbers.

Signature of the Bidder Name of the Bidders Rubber stamp with Designation Signature of the Engineer Name of the Engineer Designation

Date

SCHEDULE "B"

I&D & Allied works

Table Ab3, Design-Build Price of I& D with Allied works including SPSs.

S.N.	Works Activity		Design-Build Price
1	CONSTRUCTING OF INTERCEPTION & DIVERSION WORKS INCLUDING 3 Nos PUMPING STATIONS, RISING MAIN, SEWER LINE, NEW TAPPINGS, RENOVATIONS OF OLD TAPPINGS & CLEANING OF SEWER LINE FOR Mokama & 6 OTHER DRAINS (Thana Chowk nala, Chakwara Sthan Gravity, Sidh Nath Ghat, Dhaurani Tola Nala, Ram Ghat Nala, Chinta Mani Chak Ghat Nala, Mokama Ghat Nala)		
Break-up of Pri	ce of item 1 above		
1A	Civil & Electromechanical Works of I & D Works (including SPSs and Rising Main)		
	Total Design Build Price		
	Amount in Words		

Indicative Sewage Flow Rate for SPS

Year of	Indicative Sewage flow rate (MLD)		
Operations	SPS A	SPS B	SPS C
1st year	4.28	0.63	2.42
2 nd Year	4.31	0.63	2.44
3 rd year	4.33	0.64	2.45
4 th year	4.36	0.64	2.47
5 th Year	4.39	0.65	2.48
6 th year	4.42	0.65	2.50
7 th Year	4.44	0.65	2.51
8 th year	4.47	0.66	2.53
9 th year	4.50	0.66	2.55
10 th year	4.53	0.67	2.56
11 th year	4.56	0.67	2.58
12 th year	4.59	0.68	2.59
13 th year	4.62	0.68	2.61
14 th year	4.64	0.68	2.63
15 th year	4.67	0.69	2.64

Indicative Sewage flow rate for SPS means the rate of sewage flow which is projected by the Owner to be available for handling in the SPS for each of the 15 years of the O&M period.

O&M Price for Operation and Maintenance of the Sewerage Network and Sewage Pumping Stations in each of the 15 years of the Operations Period as provided in the table below

Overall O&M Prices for Sewerage Network including Rising Mains and SPSs etc

Table 5

Year of Operations	Annual Operation and Maintenance Price for Sewerage Network including Rising Main and SPSs ¹		NPV Factor (Based on discount factor of 10% p.a.)	NPV of O&M Price Col 5 = Col 2 *
•	In Figures	In words		Col 3 = Col 2 $Col 4$
(1)	(2)	(3)	(4)	(5)
1			0.909	
2			0.826	
3			0.751	
4			0.683	
5			0.621	
6			0.564	
7			0.513	
8			0.467	
9			0.424	
10			0.386	
11			0.350	
12			0.319	
13			0.290	
14			0.263	
15			0.239	
		NPV of Total O&M	Price for 15 years	

Figures in Table 3 are derived from Figures in Table 4

Note:

- 1.. The bidder shall furnish break-up of the O&M prices as under for each year along with the respective calculation sheets in support of the Part B (lump-sum) prices quoted in the Table above.
 - [i] O&M charges for as applicable for each size of sewerage lineseparately on per Km basis;
 - [ii] O&M charges for the each set of pumping stations; and
 - [iii] O& M charges for other assets, if any.
- 2. . The break-up of charges quoted by the bidder (Operator) shall be basis for determining the variation in the O&M payments for any period during which the scope of O&M services of the Operator is varied by the Owner owing to variation in the lengths of sewerage lines and number of pumping stations to be operated and

¹Bidder may quote in more than one currency in accordance with ITB 3.12.

3.	maintained during the contract term, (Please refer Article 2 of Schedule 6 to the contract relating to Terms and procedure of Payment.) The Bidder shall provide along with the price schedule a separate table giving details of taxes, duties, levies and other applicable taxes considered by him and included in the prices offered under Part A & Part B.Service Tax shall not be included in the prices and the same shall be paid separately by the Owner, if applicable, against proof of applicability and payment.
	Page 11 of 117

$\label{eq:particle} \textbf{PART} \ \textbf{C} - \textbf{Guaranteed Electricity Consumption for SPS}$

Table 7 A

The Electricity Consumption guaranteed by the bidder shall be as under: For SPS \boldsymbol{A}

Year of Operations	Guaranteed Annual Energy Consumptionfor Sewage flow rate (KWh / MLD of Sewage pumped over the year)
1	,
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

 $\begin{tabular}{ll} \textbf{Table 7 B} \\ \end{tabular}$ The Electricity Consumption guaranteed by the bidder shall be as under: For SPS B

Year of Operations	Guaranteed Annual Energy Consumption for Sewage flow rate (KWh / MLD of Sewage pumped over the year)
1	,
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

 $\begin{tabular}{ll} \textbf{Table 7 C} \\ \begin{tabular}{ll} \textbf{The Electricity Consumption guaranteed by the bidder shall be as under:} \\ \begin{tabular}{ll} \textbf{For SPS C} \\ \end{tabular}$

Year of	Guaranteed Annual Energy
Operations	Consumption for Sewage flow rate (KWh / MLD of Sewage pumped over the year)
1	year)
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Summary of O & M Price Table 8

Year		Quoted Bid Price for 15 Years O&M									
	Sewer	SPS A	SPS B	SPS C	Total Price						
	network &				(2+3+4+5)						
	rising mains										
1	2	3	4	5	6						
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
Total											

Item Description	Quantity	Total Amount
Drain construction Cost	Detailes are attached	
Outfall Structure cost	Detailes are attached	
Generator Room Cost	Detailes are attached	
Operator Quarter Cost	Detailes are attached	
Elctrical Component Cost	Detailes are attached	
DG Cost	Detailes are attached	
Rising Main Cost	Detailes are attached	
Pump and screen cost	Detailes are attached	
Total Co		

	2.1: Drain Construction Cost																	
	F									Existing	Drain Size			Prop	osed Drain Size			
SI. No.	Name of Drains/ Nallah falling in Ganga River	Length of Drain (m) to be constructed	Velocity (m/sec)	Distance (m)	Flow (m3/sec)	Width	Depth	Area	Effective flow area	Flow	Flow (MLD)	Width	Height		Width	Height	I&D	Remark
1	Thana Chowk nala	100	0.12	100	0.015	0.50	1.00	0.5	10%	0.00615	0.53	0.50	1.00		1.00	1.00	Gravity/Diversion	Ram Ghat
2	Chakwara Sthan	400	0.11	100	0.014	1.00	1.50	1.5	10%	0.016611	1.44	1.00	1.50		1.50	1.50	Gravity/Diversion	Ram Ghat
3	Sidh Nath Ghat Dhaurani Tola Nala	150	0.12	100	0.002	1.00	1.50	1.5	10%	0.018657	1.61	1.00	1.50		1.50	1.50	Gravity/Diversion	Ram Ghat
4	Ram Ghat Nala	100	0.09	100	0.002	1.00	1.50	1.5	10%	0.013	1.12	1.00	1.50		1.50	1.50	Pumping	TO STP
	Total Cost, Rs										•		Drain constructi	ion cost including divers	ion			

Note: Design for diversion will be workout as per site condition, additional length of drain is to be included in diversion.

actification of the controllation for force of the production of colors and among to footcome, that a globous, including globous producting and the becavaried soil and disposal of surplus excavaried soil as directed, with all each and intromplete as per the specification and as directed by the production of the produ				2.2 STORM D	DRAIN OUTFAL	L STRUCTURE - BOO
actin work excentation in foundation treather or durine scienting decising of all deless and immorphic fototons. If its a follows, including deling out the becavaried soil and disposal of surplus excevaried soil as directed, with all east and intrompted as per the specification and as directed by the property of the		SIZE OF DRAIN AT OUTFALL	(Width)	1.0	Mtr	
15.88 December 2 December 2 December 2 December 2 December 3 December	S.No.				Unit	Quantity
sead and lift complete as part the specification and as directed by the Engineer Paymer Sead of the Engineer Paymer Sead of the Sead of th		sides and ramming of bottoms, lift as follows		15.88		
The pages with beautiful pages with a 3.0 m. It is m to 4.0 m	1	ead and lift complete as per the specification	Cum	15.60		
### 15 of 10		In all types soils				
Sand filling upto 300mm in Pirith including watering and compacting in system of 150 mm thick as per specifications and as directed by the Engineer. A 23 12 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45						
sand filling upto 300mm in Pinth including watering and compositing in yours of 350 mm thick as per specifications and as directed by the Engineer 24 movement of 300 mm thick as per specifications and as directed by the Engineer 24 movement 250 mm thick as per specifications and as directed by the Engineer 250 mm thick as per specifications and as directed by the Engineer 250 mm thick as per specifications and as directed by the Engineer 250 mm thick as per specification and the 250 mm thick as per specification and the 250 mm thick and sestions with add diseign microarced comment converted of specified grade for enterior and the 250 mm thick and sestions without diseign microarced comment converted of specified grade for enterior and the 250 mm thick and sestions with add diseign and elements, excluding the cost of centering, shuttering, finishing and reinforcement, M. 20 grade reinforced sometic converted specified grade for enterior converted structures and the enterior of the 250 mm to vertical walls. 2000 2011 11 mm to vertical walls. 2000 2012 29 356 mm to vertical walls. 2000 2014 2015 2016 2016 2016 2016 2016 2016 2016 2016		1.5 m to 3.0 m				
syers of 150 mm face, as per specifications and as directed by the Engineer. 6.75 Providing and laying in position cement concrete of specified grade excluding he cost of centring and shuttering - all work upto pilithin level in 1:3:6 (1) 2 mm face so to centring and shuttering - all work upto pilithin level in 1:3:6 (1) 2 mode of the cost of centring and shuttering - all work upto pilithin level in 1:3:6 (1) 2 mode of the cost of centring and shuttering and the cost of specified grade for which cost of exception of the cost of exception of exc	2				Cum	
Providing and laying in position cement concrete of specified grade excluding he cost of centring and shuttering - all work upto plinth level in 1:3-6 (1" — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2.000 — 2	-	ayers of 150 mm thick as per specifications	and as directed	I by the Engineer.	oum	
Providing and laying in position coment concrete of specified grade exclusing he cost of conting and shattering — all work upto pithth level in 1:3.6 (1) 2						
Dament: 3 coarse sand: 6 granded stone) 0.08 8.18 6.11 Providing and bying in position machine batched, machine mixed, and workine dended design mis conveits of spelling spale for uniforced center concrete or functural elements, excluding the cost of penetring, shuttering, finishing and reinforcement, M-20 grade reinforced errent concrete structural elements, excluding the cost of penetring, shuttering, finishing and reinforcement, M-20 grade reinforced errent concrete structural elements, excluding the cost of penetring, shuttering, finishing and reinforcement, M-20 grade reinforced errent concrete. 2.01 2.03.6 2.03.6 2.03.6 2.03.6 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.00 2.03.6 2.03.6 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04	3	Providing and laying in position cement conc	rete of specified	d grade excluding	Cum	
Providing and laying in position machine batched, machine mixed, and machine vibrated design mix element concrete of specified grade for sontering, shuttering, finishing and reinforcement, M-20 grade reinforced ament concrete. Cum Cum Cum Cum Committed and Shuttering including strutting, propping etc. and removal of comment concrete. Som for vertical walls Som 20.00 Total 2.00 Ending and Shuttering including strutting, propping etc. and removal of comment concrete. Reinforcement for R. C. C. work including straightening, cutting, bending, stocking in position and binding all complete. Phermo-Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) Aggregate Carane Sand Carane Sand Carane Sand Carane Sand Sand Carane Sand Carane Sand Carane Sand Sand Carane Sand Sand Carane Sand Sand Carane Sand Sand Sand Sand Sand Sand Sand Sand			dpto piintiriev	CI III 1.0.0 (1	oum	
rooviding and laying in position machine batched, machine mixed, and machine without disagn inscrement concrete of specified grade for eliforcead coment, concrete structural elements, excluding the cost of carbonic control of cost of carbonic cost of carboni						8.15
invaline vibrated design mis ceremit concrete structural elements, excluding the cost of ceretoring, shuttering, finishing and reinforcement, M-20 grade reinforced ceremit concrete structural elements, excluding the cost of ceremit ceremit concrete. 20		Droulding and louing in position machine bat	ahad maahina	miyod and		6.11
bentering, shuttering, finishing and reinforcement, M-20 grade reinforced perment concrete. 0.11		machine vibrated design mix cement concrete of sp	pecified grade for			
Sement concrete. Sement concrete. 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 29.36 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.0	4	reinforced cement concrete structural element centering, shuttering, finishing and reinforce	nts, excluding t ment, M-20 gra	he cost of ade reinforced	Cum	
Dontring and Shuttering including strutting, propping etc. and removal of orm for vertical walls 20.00 101.42 Nonforcoment for R. C. C. work including straightening, cutting, bending, stocking in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) Aggregate 2642.40 Aggregate Course Sand Local Sand Cement Steel 2642.40 2642.40 2642.40 2642.40 Aggregate Course Sand Local Sand Cement Steel 2642.40 2762.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40 2862.40		cement concrete.				
Entring and Shuttering including strutting, propping etc. and removal of orm for vertical walls 2000 101.42 Rainforcement for R. C. C. work including straightening, cutting, bending, slacing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) 2642.40 2642.40 Aggregate 2642.40 Aggregate Coarso Sand Comment Sahrication & supply of water tight structural steel sliding type low head pate for dam head staking at work site as per specification & direction of E/I. Comment Steel Sahrication & supply of water tight structural steel sliding type low head pate for dam head staking at work site inlined of appropriate size for seal seats and sill and seals seat 1 or roof slab Weather shado, Chajjas, corbels etc. including edges Roinforcement for R. C. C work including straightening, cutting, bending, slacing in position and binding all completes. Sized quantities Reg 900.00 27 28 mark construction above pinth level upto floor V cum 29 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 or Internal walls) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 or External walls) 80 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 30 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sa						
Reinforcement for R. C. C work including straightening, cutting, bending, bending, bending, properties with providing and complete. Thermo - Mischanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) Aggregate Carriage of the following materials from quarry to work site including leading, and staking at work site as per specification & direction of E/1. Carriage of the following materials from quarry to work site including leading, and staking at work site as per specification & direction of E/1. Fabrication & supply of water tight structural steel sliding type low head gate for dam head sluce and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and still and seals seat For roof slab Weather shade, Chajlas, corbels etc. including edges Reinforcement for R. C. C work including straightening, cutting, bending, slacing in position and binding all complete. Permo. Mechanically Treated bars Steel quantities Steel quantities Thermo. Mechanically Treated bars Steel quantities 2 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for rotinal walls) Sqm 27 27 28 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for ceiling) 29 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for ceiling) Regulariting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for ceiling) Regulariting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for ceiling) Regulariting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for ceiling) Regulariting and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with mecessary screws excluding panelling which will be paid for separately - 10 mm thick. Providing and fixing glazi						
Reinforcement for R. C. C work including straightening, cutting, bending, slecing in position and binding all complete. Agroads the following materials from quarry to work site including loading, inloading and staking at work site as per specification & direction of E/I. Coarse Sand Linearial freeze work site as per specification & direction of E/I. Tarriage of the following materials from quarry to work site including loading, inloading and staking at work site as per specification & direction of E/I. Tarriage of the following materials from quarry to work site including loading, including and staking at work site as per specification & direction of E/I. Tarriage of the following materials from quarry to work site including loading, including and staking at work site as per specification & direction of E/I. Tarriage of the following materials from quarry to work site including loading to the staking at work site as per specification & direction of E/I. Tarriage of the following materials from quarry to work site including loading to the staking at work site and frame as per IS 5620 240 Tarriage of the following materials from quarry to work site including loading to the staking at the staking	5		propping etc. ar	nd removal of	Sqm	
Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Informor-Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) Aggregate Coarse Sand 240 240 240 240 240 240 240 24					'	
blacing in position and binding all complete. Thermo-Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum) Aggregate Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/1. Substitution & supply of water tight structural sited sliding type low head age to red am head sulkes and canals with gate leaf and frame as per IS 55.00 complete with beas? I stainless sited lining of appropriate size for seal seats and sill and seals seat. To roof slab Weather shade, Chajjas, corbels etc. including edges Monther shade, Chajjas, corbels etc. including edges Sindifforcement for R. C. C work including straightening, cutting, bending, slacing in position and binding all complete. Thermo-Mechanically Treated bars Sized quantities Sized quantities Sized quantities 3rick work with picks of class designation 100A in foundations and plinth in Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 5gm 27 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 7gr crelling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 7gr crelling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 7gr crelling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 7gr crelling) 20 mm Cement plaster on course sand in 1:3 (1 cement : 3 coarse sand) 7gr crelling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 21 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 22 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 23 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 24 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 25 mm Cement plaster on course sand in 1:3 (1 cement : 3 coarse sand) 26 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 providing		Painforcement for D. C. C. work including the	aightoning or **	ing handing		
Aggregate Carriage of the following materials from quarry to work site including loading, and staking at work site as per specification & direction of E/I. Carses Sand Local Sand Cament Siteel 2.64 Fabrication & supply of water tight structural steel sliding type low head pate for dam head sluice and canals with gate leaf and frame as per IS 5c20 complete with brass / stainless steel lining of appropriate size for seal seats and slil and seals seat For roof slab Weather shade, Chajjas, corbels etc. including edges Reinforcement for R. C. C work including straightening, cutting, bending, blacing in position and binding all complete. Phermo-Mechanically Treated bars Steel quantities Brick work with bricks of class designation 100A in foundations and plinth in Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for Internal walls) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 21 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 21 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 22 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 23 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 24 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 25 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 26 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 grand Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 grand Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 26 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 grand Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 28 grand Cement plaster	6	placing in position and binding all complete.	-		Kg	
Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I. Cement Steel 2.64 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and slil and seals seat For roof slab Sqm 20 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, slacing in position and binding all complete. Thermo - Mechanically Treated bars Steel quantities Brick work with bricks of class designation 100A in foundations and plinth in Extra for Rick work in superstructure above plinth level upto floor V cum 6.21 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for ceiling) Providing wood work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing and fixing panelled or paneled and glazed shutters for doors, windows and clirestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 20 mm thick. For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item)		rnermo - Mechanically Treated bars TMTC - 5	ιου (Quantity	at 90 kg/cum)		2642.40
Darriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of £71. To consider the state of the s			· <u> </u>			
Exprication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per 15 8620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat For roof slab Weather shade, Chajjas, corbels etc. including edges Weather shade, Chajjas, corbels etc. including edges Reinforcement for R. C. C work including straightening, cutting, bending, slacing in position and binding all complete. Thermo - Mechanically Treated bars Steel quantities Brick work with bricks of class designation 100A in foundations and plinth in Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for Internal walls) Sqm 27 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for ceiling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for Extra for Brick work in superstructure above plinth level upto floor V cum 6.21 21 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for ceiling) 22 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 72 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 84 and plainting with plastic emulsion paint of approved brand and manufacture on year even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture on year even shade : Two or more coats on new work (for ceilling) Providing wood work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Providing and fixing plazing in aluminium door, window V shutters and aartition etc wit	7	Carriage of the following materials from qual	rry to work site	including loading,		
Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 1 or roof slab 2 Weather shade. Chajjas, corbels etc. Including edges 8 Reinforcement for R. C. C work including straightening, cutting, bending, slocing in position and binding all complete. 10 hermore – Mechanically Treated bars 8 Steel quantities 8 Jeel quantities 9 Jeel quantities 9 Jeel quantities 9 Jeel quantities 9 Jeel quantities 10 Jeel quantities 9 Jeel quanti		g and and work site as per sp			Cement	
pate for dam head sulce and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat For roof slab Weather shade, Chajjas, corbels etc. including edges Weather shade, Chajjas, corbels etc. including edges Weather shade, Chajjas, corbels etc. including edges Sqm 20 Weather shade, Chajjas, corbels etc. including straightening, cutting, bending, slacing in position and binding all complete. Intermo - Mechanically Treated bars Steel quantities Brick work with bricks of class designation 100A in foundations and plinth in Extra for Brick work in superstructure above plinth level upto floor V cum La mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Tor Internal walls) Sqm 27 La mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Tor External walls) Sqm 27.9 Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for celling) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for celling) Providing wood work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing mod work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS but hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Providing and fixing glazing in aluminium door, window V shutters and certification etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the dir					Steel	2.64
Weather shade, Chajjas, corbels etc. including edges Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. The provided in t	8	gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats				240
Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo-i Mechanically Treated bars Steel quantities Steel quantities Steel quantities Steel quantities The Steel quantities Steel quantities The Steel quantities	8.1	For roof slab			Sqm	20
slacing in position and binding all complete. Thermo - Mechanically Treated bars Steel quantities Sized quantities of sized quantities and authities of sized quantities of sized quantities Sized quantities of sized quantities s	8.2				Sqm	1.2
Steel quantities Kg 900.00	9	placing in position and binding all complete.	aightening, cutt	ing, bending,		10
Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for internal walls) 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for celling) 20 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for celling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for External walls) Sqm 27.9 27.9 Wall painting with plastic emulsion paint of approved brand and manufacture of give an even shade: Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture of give an even shade: Two or more coats on new work (for celling) Appying one coat of cement primer of approved brand and manufacture on wall surface for External walls) Providing wood work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing and fixing panelled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Furne, Red, Brown, Isald on 20 mm thick cement mortar		Steel quantities			kg	900.00
tor Internal walls) 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls) 21 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade : Two or more coats on new work (for ceiling) Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading-shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Jaid on 20 mm thick cement mortar	10				Cum	6.21
tor celling) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) for External walls) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for celling) Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS but thinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and aartition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of situminium snap bading-shall be paid in basic Item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iadio no 20 mm thick cement mortar	11		(1 cement : 3	coarse sand)	Sqm	27
tor External walls) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for ceiling) Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other rames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick. For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium manp bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as While, Ivory, Grey, Fume, Red, Brown, Iadio no 20 mm thick cement mortar	12		(1 cement : 3	coarse sand)		20
to give an even shade: Two or more coats on new work (for Internal walls) Wall painting with plastic emulsion paint of approved brand and manufacture or give an even shade: Two or more coats on new work (for celling) Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other trames, wrought framed and fixed in position in local wood for Door Cum 0.5 Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick. For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium manp bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iald on 20 mm thick cement mortar	13		(1 cement : 3	coarse sand)	Sqm	27.9
lo give an even shade: Two or more coats on new work (for celling) Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other trames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick. For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium nanp bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as While, Ivory, Grey, Fume, Red, Brown, Iald on 20 mm thick cement mortar	14				Sqm	27
wall surface (for External walls) Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading-shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as While, Ivory, Grey, Fume, Red, Brown, Iaid on 20 mm thick cement mortar	15	to give an even shade : Two or more coats of	on new work (fo	r ceiling)	Sqm	20
rames, wrought framed and fixed in position in local wood for Door Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick. For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium nanp bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iaid on 20 mm thick cement mortar	16	wall surface	ved brand and r	manuracture on	Sqm	27.9
windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be pald for separately - 30 mm thick For Doors Sqm 1.8 Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium ranp bading shall be pald in basic Item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iaid on 20 mm thick cement mortar	17				Cum	0.5
Providing and fixing glazing in aluminium door, window V shutters and aurition act with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of sluminium anap bading shall be paid in basic Item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 15:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as Sqm 20	18	windows and clerestory windows including bl with necessary screws excluding panelling w	lack enameled N	MS butt hinges		
partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of sluminium snap bading shall be paid in basic Item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iaid on 20 mm thick cement mortar 20		For Doors			Sqm	1.8
be specified by the manufacturer) of 1st quality conforming to IS:13755 of IITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, Iaid on 20 mm thick cement mortar 20	19	partition etc with PVC / neoprene gasket etc architectural drawings and the directions of I aluminium snap bading shall be paid in basic	. complete as pe Engineer inchar : item). With gla	er the ge. (Cost of	Sqm	0.5
cement and matching pigments etc, complete.	20	pe specified by the manufacturer) of 1st qua NITCO, ORIENT, SOMANY, KAJARIA or equiv White, Ivory, Grey, Fume, Red, Brown, Iaid 1:4 (1 cement: 4 coarse sand) including gro	ality conforming calent make in c on 20 mm thick outing the joints	to IS:13755 of colours such as cement mortar	Sqm	20

	2.2.1: Cost E	stimate f	timate for Outfall Structures						
SI no.	Description of Item	Unit	Quantity	Rate	Amount				
1	Earth work excavation in foundation trenches or drains including dressing of sides and ramming of bottoms, lift as follows, including getting out the excavated soil and disposal of surplus excavated soil as directed, with all lead and lift complete as per the specification and as directed by the Engineer. All kinds of soils								
	Upto1.50m depth	cum	33.73						
1.1.1	1.5 m to 3 m	cum	43.40						
2	Sand filling upto 300mm in Plinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer.	cum	6.75						
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	Cum	8.15						
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.	Cum	29.36						
5	Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls	sqm	101.42						
6	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum)	Kg	2642.40						
	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.								
7	Aggregate	Cum	56.52						
	Sand	Cum	28.26						
	Cement	MT	25.20						
	Steel Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc.	MT	2.6424						
8	including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately	Kg	240.00						
	Erection of gates (a) 30% item NO- 8		240.00						
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab				<u>L</u>				
8.1	For roof slab	Sqm	20.00						
8.2	Weather shade, Chajjas, corbels etc. including edges	Sqm	1.20						
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars		10.00						
	Steel quantities	kg	900.00						
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	6.21						
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) [(for Internal walls)	Sqm	27.00						

SI no.	Description of Item	Unit	Quantity	Rate	Amount
12.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling)		20.00		
13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	27.90		
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for Internal walls)	Sqm	27.00		
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for ceiling)	Sqm	27.00		
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	20.00		
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	27.90		
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick		0.50		
	For Doors	Sqm	1.80		
19.0	Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)	Sqm	0.50		
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.	Sqm	20.00		
	Total Cost, Rs				

	2.2.2: DETAILS OF MEASUREMENT (Carriage Items)									
S.No.	Particulars of item	Unit	Quantity	Cement (Kg)	Sand (Cum)	Aggregate (Cum)				
1	RCC (1:1.5:3)	Cum	59.36	23447.20	24.58	49.15				
2	PCC (1:3:6)	PCC (1:3:6) Cum		1752.25	3.68	7.37				
	Total			25199	28.26	56.52				

SI. No.	Item description	Unit	Quantity	Rate	Amount
	Earth work	2		(INR)	(INR)
1.0	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m.				
	(For all kinds of soil)	_			
1.1	From 0 m to 1.5 m	Cum	22.54		
1.2	From 1.5 m to 3 m	Cum	1.35		
2.0	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing complete. For Generater room	Cum	7.20		
3.0	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone upto 20 mm nominal size)	Cum	7.33		
4.0	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.				
4.1	For Footings	Cum	1.44		
4.2	Column below GL up to Plinth	Cum	0.26		
4.3	Plinth beams	Cum	1.61		
4.4	For columns above Ground levels	Cum	0.87		
4.5	Lintel beams	Cum	1.43		
4.6	Roof Beams	Cum	1.33		
4.7	For roof slab	Cum	4.32		
4.8	For Sunshades over Door & Windows :	Cum	0.23		
5.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
5.1	For footing - F	Sqm	4.80		
5.2	Column upto GL - C	Sqm	4.60		
5.3	Plinth beams :	Sqm	14.00		
6.0	Centring and Shuttering including strutting, propping etc. and removal of form for	Sqm			
6.1	Lintel beams	Sqm	12.40		
6.2	Roof beams	Sqm	12.40		
7.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
	Column	Sqm	15.09		
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab				
8.1	For roof slab	Sqm	24.00		
8.2	Weather shade,Chajjas, corbels etc. including edges	Sqm	4.13		
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars				
	steel quantities	MT	1.34		
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	17.53		
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	64.48		
	1		1		I

				1
13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	89.54	
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for Internal walls)	Sqm	64.48	
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for ceiling)	Sqm	24.00	
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	89.54	
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	0.16	
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick			
	For Doors	Sqm	4.20	
	Providing and fixing glazing in aluminium door, window V shutters and			
19.0	partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)	Sqm	4.32	
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.			
	Generater room	Sqm	24.00	
21.0	Cement plaster skirting (upto 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement. 18 mm thick	Sqm	2.70	
22.0	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.	Sqm	24.00	
23.0	Providing and fixing on wall face unplastidsed-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS: 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter	m	13.50	
24.0	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead.	Cum	14.86	
	Carriage of Materials :			
	Aggregate	Cum	16.66	
	Coarse Sand	Cum	31.07	
25.0	Local Sand	Cum	7.20	
	Cement	MT	6.01	
	Steel	MT	0.14	
	Brick (1000 Nos)		8.59	
	Total Cost			

2.4 Cost Estimate of Operators Quarter										
SI. No	Item description	Unit	Quantity	Rate (INR)	Amount (INR)					
1	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m. (For all kinds of soil)									
1.1	From 0 m to 1.5 m	Cum	36.72							
1.2	From 1.5 m to 3 m	Cum	3.24							
2	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing	Cum	18.82							
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	Cum	23.51							
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.									
4.1	For Columnn Footing	Cum	4.48							
4.2	For Column below GL up to plinth	Cum	0.74							
4.3	For Plinth beams-PB	Cum	5.08							
4.4	For columns above GL	Cum	2.45							
4.5	For lintel beams	Cum	2.04							
4.6	For Roof beams	Cum	3.59							
4.7	For Roof slab	Cum	12.03							
4.8	For Parapet	Cum	2.39							
5	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.									
5.1	Sunshade over Windows	Cum	0.89							
5.2	For Lofts & Racks	Cum	1.88							
6	Centring and Shuttering including strutting, propping etc. and removal of form for									
6.1	For Columnn Footing (C1 F1)	Sqm	10.80							
6.2	For Column below GL up to plinth	Sqm	51.36							
6.3	For Plinth beams-PB	Sqm	41.65							
6.4	For columns above GL	Sqm	42.66							
6.5	For lintel beams	Sqm	23.43							
6.6	For Roof beams	Sqm	30.97							
6.7	For Roof slab	Sqm	131.94							
6.8	For Parapet	Sqm	4.90							
	Reinforcement for R. C. C work including straightening,									
7	cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars	MT	4.14							
8	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	31.58							
9	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	167.68							
10	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand)	Sqm	58.41							

(for ceiling)			
20 mm Cement plaster in course sand in 1:3 (1 cement : 3			
coarse sand) (for External walls)	Sqm	147.88	

	T		1		1
12	Wall painting with plastic emulsion paint of approved brand an	Sqm	226.09		
13	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	191.98		
14	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood	Cum	0.50		
15	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick	Sqm	6.93		
16	Providing and fixing glazing in aluminium door, window ventilator shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)				
16.1	For Windows	Sqm	8.28		
16.2	For Ventilators	Sqm	0.72		
17	Providing and fabricating and fixing of M S grill for window protection etc ,. As per specification, drawing and as directed by the engineer				
	For Windows & Ventilators	kg	9.00		
18	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.				
18.1	Slope concrete	Sqm	74.92		
19	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1 st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
	Total quantity		58.41		
20	Providing and fixing first quality ceramic glazed wall tiles conforming to 1S 15622 (thickness to be specified by the manufacturer) of approved maike in all colours shades except burgundy, bottle green, black of any size as approved by engineer incharge in skirting risers of steps and dados over 12 mm thick bed of cement mortar (1:3) and jointing with grey cement slurry at 3.3 kg per sqm including pointing in white cement mixed with pigment of matching shade complete				
	Total quantity	Rmt	55.67		
21	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to Is: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
21.1	Toilet	Sqm	5.85		
22	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
22.1	Toilet Walls	Sqm	17.54		
	<u> </u>	•]	<u> </u>	l

		1	1	
23	Providing and fixing on wall face unplastidsed-PVC(working pressure 4 kgf per sqm) rain water pipes conforming to IS: 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion	Rmt	15.60	
24	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead.	Cum	25.88	
	Carriage of Materials :			
	Aggregate	Cum	52.34	
	Coarse Sand	Cum	68.34	
25	Local Sand	Cum	18.82	
25	Cement	MT	18.80	
	Steel	MT	0.00	
	Brick (1000 Nos)		15.48	
	Total Cost			
26.0	Plumbing work :			
26.1	Stainless steel kitchen sink - without drain board 470 mm X 420 mm bowl depth 178 mm	No.	1	
26.2	Salem Stainless steel AISI - 304 (18/8) Round basin 405 mm X 355 mm	No.	2	
26.3	PTMT - Soap Dish/Holder 138 mm X 102 mm X 75 mm	No.	3	
	White vitreous china dual purpose closet (Anglo Indian W.C.)			
26.4	suitable for use as squatting pan or European type water closet as per manufacturer's specifications	No.	1	
26.4.1	White Vitreous china 10 lit. (full flush) capacity controlled low levelflushing cistern with all fittings	No.	1	
26.5	C.P.brass toilet paper holder of standard size	No.	3	
26.6	PTMT - Towel Rail (600 mm)	No.	3	
26.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.			
26.7.1	15 mm nominal outer dia Pipes	m	25	
26.7.2	25 mm nominal outer dia Pipes	m	25	
26.7.3	32 mm nominal outer dia Pipes	m	15	
26.8	uPVC pipes (working pressure 4 kg / cm2) Single socketed pipe			
26.8.1	75 mm	m	30	
26.8.2	110 mm	m	30	
26.9	15 mm C.P. brass tap with elbow operation lever	No.	4	
26.10	Gunmetal non-return valve-horizontal (screwed end) 25 mm	No.	1	
	dia Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI: 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	lit	2000	
26.12	Brass full way valve with C.I. wheel (screwed end) 40 mm dia	No	1	
26.13	Gunmetal non-return valve-horizontal (screwed end) 25 mm dia	No	1	
26.14	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with 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 with frame to be not less than 38kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 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 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	

26.15	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	
26.16	Circular shape 560 mm dia precast R.C.C. manhole cover with frame - H.D 35	No	1	
	Total Cost of Sanitary items			
	Total Cost			

	2.5 Cost estimate For Elec	ctrical C	omponents I	1 1			
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)		
1.0	EARTHING						
1.1	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required.	No	2				
1.2	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2				
2.0	LT PANEL BOARD (Indoor type)						
2.1	Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator) 2 + 8 way/10 way, Double door	No	1				
2.2	MCCB DISTRIBUTION BOARDS						
	Providing and fixing 100A rating and 16KA breaking capacity and pole TP MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, ets as required.	No	1				
2.3	MINIATURE CIRCUIT BREAKERS						
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit breaker for inductive load of triple pole and neutral in the existing MCB DB complete with connections, testing and committee cas required.	No	2				
2.4	MINIATURE CIRCUIT BREAKERS Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit breaker for inductive load of single pole and neutral in the existing MCB DB complete with connections, testing and committening etc as required.	No	1				
2.5	EARTHING						
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2				
3.0	DISTRIBUTION BOARD						
3.1	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral bus bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	m	1				
3.2	EARTHING						
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2				
4	CABLES						
	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed , galvanised steel wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)						
4.1	4Cx16 sq mm + 2x16 sq mm earth wire	m	1				
4.2	4Cx10 sq mm + 2x10 sq mm earth wire	m	6.5				
4.3	4Cx4 sq mm + 2x4 sq mm earth wire	m	15				
4.4	2Cx2.5 sq mm + 1x2.5 sq mm earth wire	m	14				
_	LUMINARIES, SOCKETS AND SWITCHES						
5.0		No	2				
5.0 5.1	120W Gate lamp with fitting				Ī		
	120W Gate lamp with fitting 40W flourescent lamp	No	4				
5.1		No No	4				
5.1 5.2	40W flourescent lamp						

	2.6 Cost estimate For Electrical Components For Pumphouse										
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)						
1.0	DIESEL GENERATOR 50 KVA										
1.1	50 KVA, 40KW, 415V, 50 Hz, comprising of Perkins Engine Coupled to Stamford make Alternator, complete with all Standard accessories and ATS with Acoustic enclosure	No	1								
1.2	EARTHING										
1.2.1	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required	No	2								
1.2.2	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement ar watering pipe etc with charcoal/coke and salt as required.		2								
2.0	LT PANEL BOARD (Indoor type)										
2.1	Supplying and fixing 4 ways surface/recess mounting, vertical type, 415V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with provision of 100A TP 16KA MCCB as incommer, interconnection between incomer MCCB and bus bars (but without MCB,s /MCCB's) as required. (Note: Vertical type MCB TPDE is normally used where 3 phase outlets are required.)	No	1								
2.2	MCCB DISTRIBUTION BOARDS										
	Providing and fixing 100A rating and 16KA breaking capacity and pole TP MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections ets as required.		1								
2.3	MINIATURE CIRCUIT BREAKERS										
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit breaker for inductive load of triple pole and neutral in the with connections, testing and committioning etc as required.	te No	2								
2.4	MINIATURE CIRCUIT BREAKERS										
	Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit breaker for inductive load of single pole and neutral in the with connections, testing and committoning etc as required.	te No	1								
2.5	EARTHING										
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement ar watering pipe etc with charcoal/coke and salt as required.		2								
3.0	DISTRIBUTION BOARD										
3.1	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral bu bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	s m	1								
3.2	EARTHING										
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement ar watering pipe etc with charcoal/coke and salt as required.		2								
4.0	CABLES										
	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed, galvanised stee wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)	d d									
4.1	4Cx16 sq mm + 2x16 sq mm earth wire	m	1								
4.2	4Cx10 sq mm + 2x10 sq mm earth wire	m	6.5								
4.3	4Cx4 sq mm + 2x4 sq mm earth wire	m	15								
4.4	2Cx2.5 sq mm + 1x2.5 sq mm earth wire	m	14								
5.0	LUMINARIES, SOCKETS AND SWITCHES										
5.1	120W Gate lamp with fitting	No	2								
5.2	40W flourescent lamp	No	4								
5.3	70W MH Lamp for site lighting	No	4		 						

5.4	Single switched socket with multi purpose	No	2							
5.5	Switches	No	6							
	Total Cost									

	2.7 SITC of Mechanical Components at each Pumping Station										
SI.No	Description	Quantity	Units	Rate	Amount						
1	Manually Cleaned Bar Screen										
	The screen shall be of removable type and shall consist of a welded stainless steel (AISI410) frame with vertical flats spaced at 30 mm. The flats shall not be less than 10 mm in thickness and not less than 50 mm deep. The flats shall not have any joint. The spacing between the flats shall be uniform and preferably so maintained by adequate number of spacers, which shall be so located as not to interfere with the raking operation. To facilitate the manual cleaning of the screen the inclination of the screen shall be between 45° and 60° to the horizontal. Single piece screen width should not be more than 1.5 m.Two numbers stainless steel rollers shall be fixed on each side of frame to facilitate rolling contact with guide channel during lifting and lowering of screen.										
1.2	(500 X 1500) mm	4	Nos								
2	Providing, erecting and giving test of Non clog sewage submersible pump set with SS CF8 M impeller, CI casing, SS 316 shaft suitable for 3 Ph ,415 V , 50 Hz A.C. Supply, submersible motor having TEFC encloouser with class F insulation and IP 68 protection. The pump shall be operated at 1450 RPM. The scope shall include required accessories viz automatic coupling device, guide pipe, chain with shakle, flat submersible cable upto starter panel through suitable GI pipe (30 mtr 3 Core flat copper for each pump with necessary electrical connection with the starter panel and as per specifications. (HP)										
	22 HP	4	Nos								
	4 Pumps for 2 lean, 1 peak and 1 average flow	4	INUS								
3	Providing Supplying erection testing and commissioning of 2 Tonne capacity Mobile Crane										
3.1	1 T Capacity for 7 m lift.	1	Nos								
	Total Cost, Rs										

	2.8 Rising Main Data Sheet													
SI.	Chain	age	Diameter (mm)	L (m)		Avg Depth of cut (m)	Sand Bediing depth	Total Depth	Total Quantity	Pipe Volume (cum)	Sand Bedding (cum)	Refilling (cum)	Disposal (cum)	Depth wise excvation quantity (Cum)
	From	То					(m)	(m)	(cum)					0.0 to 2 m
1	2	3	4	5	6	7	8	9=7+8	10= 5x6x9	11 =0.786* 4 ^2* 5	12 =5*6 *8	13= 10-11-12	14 =11+12	
1	Zon	e I	300.00	3395.36	0.90	1.35	0.15	1.50	4583.74	240.19	458.37	3885.17	698.56	4583.74
		Total		3395.36		1.50			4583.74	240.19	458.37	3885.17	698.56	4583.74

2.8.1 Rising Main - BOQ										
I. No.	Description of Item	Unit				Quantity				
1.0	Excavating trenches of required width for pipes cables, etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.									
	0.0 to 1.5 mtr. Depth									
1.1	do - in all kindes of soil - 100%	m				4583.74				
2.0	Supplying and Filling in plinth with local sand and under floors including , watering, ramming consolidation and dressing complete.	cum				458.37				
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329 :DI-K9 (MM)									
3.1	300.00	m				3395.36				
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).									
4.1	300.00	Joint				566				
5.0	Providing and laying D.I. specials of class K-12 suitable for pushon jointing as per IS: 9523:									
5.1	Bends-As per BS 4772 code									
J. 1	90 degree (63.5 Kg)	kg				444.50				
5.2	Taper-As per BS 4772 code									
	300x200mm (34.5 Kg)	kg				34.50				
5.3	Tee-As per BS 4772 code									
	300x300x300 mm (79.5 Kg)	kg				79.50				
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)									
6.1	300.00	No				4.00				
7.0	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately)									
7.1	300.00	No				3.00				
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation, disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification & drawing.									
8.1	Sluice valve chambers	No				3.00				
8.2	Scour valve chambers	No				3.00				
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends including the excavations of soils up to the required depth ,disposal of soils after refilling with selected available earth,providing PCC including cost of labours,materials tools,curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)									
	300.00	No	7.00			7.00				
9.4	Enter Total pipe length	3395.36	m							
	Percentage of CC Road in town	70	%			2376.752				
	Percentage of Asphalt Road in town	30	%			1018.608				

10.1	Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable material	cum	320.86
	Bituminous courses by mechanical means	cum	45.84
10.2	Granular courses by manualmeans	cum	534.77
11	Restoration of road as per the specification and as directed by the engineer		
11.3.1	Restoration of CC road		
a	Compacting original ground supporting subgrade (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.) Rolling with vibratory roller	cum	1527.91
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	114.59
С	Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to 15 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing)	cum	320.86
12.0	Granular Sub-base with Close graded Material (By Mix in Place Method) - Construction of Granular sub-base(GSB) by providing close graded Material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per Technical Specification		
		cum	320.86
	Total for Grading II Matrerial (50% of Total)	cum	160.43
	Total for Grading I Matrerial (50% of Total)	cum	160.43
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	534.77
	Pavement Courses - Bituminous		
	Prime Coat - Providing and applying primer coat with Bitumen emulsion on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.6kg/sqm using mechnical means complete	sqm	2139.08
С	Tack Coat - Providing and applying tack coat with Bitumen emulsion using emulsion pressure distributor at the rate of 0.2 kg per sqm on the prepared bituminous/granular surface cleaned with mechancial broom .	sqm	2139.08
	Providing and laying Dense graded bituminous macadam with 100-120 TPH batch HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 % by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specifications Clause 507. (Grading II -19mm nominal size)	cum	53.48

		2.0.2 KIS	ing Main - Co	st Estimate	
SI. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)
1.0	Excavating trenches of required width for pipes cables, etc., nocluding excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 m in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.				
	0.0 to 1.5 mtr. Depth				
1.1	do - in all kindes of soil - 100%	m			
2.0	Supplying and Filling in plinth with local sand and under floors ncluding, watering, ramming consolidation and dressing complete.	cum			
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329:DI-K9				
3.1	300.00	m			
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).				
4.1	300.00	Joint			
5.0				_ 	
5.1	Bends-As per BS 4772 code	ba			
	90 degree (63.5 Kg) Taper-As per BS 4772 code	kg			
5.2					
	300x200mm (34.5 Kg) Tee-As per BS 4772 code	kg			
5.3	300x300x300 mm (79.5 Kg)	kg			
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)				
6.1	300.00	No			
7.0	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)				
7.1	300.00	No			
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in prick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation, disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification & drawing.				
8.1	Sluice valve chambers	No			
8.2	Scour valve chambers	No			
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends nocluding the excavations of soils up to the required depth ,disposal of soils after refilling with selected available earth,providing PCC ncluding cost of labours,materials tools,curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)				
	90 degree	No			
9.1	Enter Total pipe length	3395.36			
	Percentage of CC Road in town	70.00			
	Percentage of Asphalt Road in town	30.00			
10	Dismantling and restoration of roads :				
10.1	Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable material	cum			
	Dismantalling of flexible Pavements(dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 m, stacking serviceable and unserviseable materials separately)				

Granular courses by manualmeans	cum		

11	Restoration of road as per the specification and as directed by the engineer					
11.1	Restoration of CC road					
а	Compacting original ground supporting subgrade (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.) Rolling with vibratory roller	cum	1	1527.91		
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	1	114.59		
С	Cement Concrete Pavement (Construction of un-reinforced, dowel ointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to 1S 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant orimer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing)	cum	1	320.86		
	Pavement Courses - Granular					
12	Granular Sub-base with Close graded Material (By Mix in Place Method) - Construction of Granular sub-base(GSB) by providing close graded Material, spreading in uniform layers with motor grader on brepared surface, mixing by mix in place method by rotavator at DMC, and compacting with vibratory power roller to achieve the desired density, complete as per Technical Specification					
		cum	1			
	Total for Grading II Matrerial (50% of Total)	cum		160.43		
	Total for Grading I Matrerial (50% of Total)	cum		160.43		
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	1	534.77		
	Pavement Courses - Bituminous					
	Prime Coat - Providing and applying primer coat with Bitumen emulsion on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.6kg/sqm using mechnical means complete	sqm	1	2139.08		
с	Tack Coat - Providing and applying tack coat with Bitumen emulsion using emulsion pressure distributor at the rate of 0.2 kg per sqm on the prepared bituminous/granular surface cleaned with mechancial proom.	sqm	1	2139.08		
	Providing and laying Dense graded bituminous macadam with 100-120 TPH batch HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 % by weight of total mix and liller, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem tollers to achieve the desired compaction as per MoRTH specifications Clause 507. (Grading II -19mm nominal size)	cum	1	53.48		
	Total Cost, Rs					

		2.9 THRUST BLOCK - 90-degree									
SI No	Particulars	Unit	Quantity	Rate INR	Amount INR						
1	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.	cum									
		cum	2.250								
	Reduction for Pipe	cum	0.012								
	Total Quantity	cum	2.238								
2	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia	MT	0.011								
	Combring and Chattaning										
3	Centring and Shuttering including strutting, propping etc.	sqm	3.000								
	and removal of form for	sqm	3.000								
	Carriage of Materials	34111	3.000								
	Sand	cum	0.127								
4	Aggregate	cum	0.255								
	Cement	MT	0.114								
	Steel	MT	0.001								

	2.10 \	VALVE (VE CHAMBER (MASONARY)							
SI. No	I tem description	Unit	Qty	Rates (INR)	Amount (INR)					
	Earthwork in excavation over areas (exceeding 1.5m in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be leveled and neatly dressed.									
1	From 0 m to 1.5 m	cum	7.02							
	From 3 m to 4.5 m	m^3	0.00							
	From 4.5 m to 6 m	m ³	0.00							
2	From 6 m to 7.5 m	m ³	0.00							
2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	cum	0.48							
3	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.									
	Top slab	cum	0.60							
	Total		0.60							
	Brick work with bricks of class designation 100B in foundations and plinth in : Cement Mortar 1:4 (1 cement : 4 coarse sand) Extra for Brick work in superstructure above plinth level upto floor V cum									
4	Walls									
	Long walls Short walls	cum	1.50							
	Total Quantity for walls	cum	2.63							
5	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia	MT	0.06							
6	Cement plaster in course sand in 1:3 -20 mm thick (1 cement : 3 coarse sand)	Sqm	18.00							
7	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm cement concrete block 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) complete as per standard design.	Each	5							
	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead.									
8	Total Earth work Quantity	cum	7.02							
	Deduct P.C.C quantity	cum	-0.48							
	Deduct Wall Quantity	cum	-5.40							
	Total Quantity	cum	1.13							
	Carriage of Materials									
	Coarse Sand	cum	0.92							
	Aggregate	cum	0.96							
9	Cement	MT	0.88							
	Steel	MT	0.01							
	Bricks (1000 Nos)		1.30							
			l							

				2.11 P	umping Main	Design - Econo	omical Diam	neter				
Year	Disc	harge		Design Param	eters		Stage	e I		Stage II	Unit	Pipe material
				Discharge at St	art		4.28	MLD		4.69	MLD	D.I.
2020	4.28	MLD		Discharge at Er	nd of Period		4.69	MLD		4.97	MLD	
2035	4.69	MLD		Avg. Discharge			4.49	MLD		4.83	MLD	
2050	4.97	MLD			at the End of Pe		20.00	hrs		20.00	hrs	
Doolan				Life of Electric N	nours during the	Period	15.00	hrs		19.44	hrs hrs	
Design Period	15			Combined Eff. (75.00	years %		75.00	%	
Static Head	10.00	m		Energy Charges	3		6.50	Rs./Unit		12.00	Rs./Unit	
Static Head	10.00	111		Interest Rate			10.00	%		10.00	%	
Terminal		m		Length of Pipeli	ne		3395.36	m		3395.36	m	
Head				Capitalisation C	oefficient for 15	years	7.6061			7.6061		
Static + Terminal	10.00	m		Hazen William (Coefficient for D	I Pipes	140			120		
Head				Pump Cost per	KW in Rs.	10000.00	Rs./KW		20000.00	Rs./KW		
				KW Reqd			0.852	per m Head		0.903	per m Head	
				Avg Annual Elec	trical Charge in	Rs.	45407.04	per KW		85190.70	per KW	
			<u> </u>		Stage I			l.				
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m³/sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	Pump Cost including 50% standby (Lakhs Rs.)
1	250	0.25	4.49	0.065	1.33	6.15	20.90	2.09	22.99	32.99	28.106	
2	300	0.30	4.49	0.065	0.92	2.53	8.60	0.86	9.46	19.46	16.580	
3	350	0.35	4.49	0.065	0.68	1.20	4.06	0.41	4.47	14.47	12.325	
4	400	0.40	4.49	0.065	0.52	0.62	2.12	0.21	2.33	12.33	10.506	
5	450	0.45	4.49	0.065	0.41	0.35	1.19	0.12	1.31	11.31	9.639	
6	600	0.60	4.49	0.065	0.23	0.09	0.29	0.03	0.32	10.32	8.796	
7	600	0.60	4.49	0.065	0.23	0.09	0.29	0.03	0.32	10.32	8.796	
	l		l		T T	Stage II		l	l		Γ	l .
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m³/sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	Pump Cost including 50% standby (Lakhs Rs.)
1	100	0.10	4.49	0.065	8.29	533.55	1811.59	181.16	1992.75	2002.75	1706.377	
2	150	0.15	4.49	0.065	3.69	74.06	251.48	25.15	276.62	286.62	244.208	
3	200	0.20	4.49	0.065	2.07	18.25	61.95	6.20	68.15	78.15	66.581	
4	250	0.25	4.49	0.065	1.33	6.15	20.90	2.09	22.99	32.99	28.106	
5	300	0.30	4.49	0.065	0.92	2.53	8.60	0.86	9.46	19.46	16.580	
6	350	0.35	4.49	0.065	0.68	1.20	4.06	0.41	4.47	14.47	12.325	
7	400	0.40	4.49	0.065	0.52	0.62	2.12	0.21	2.33	12.33	10.506	
8	450	0.45	4.49	0.065	0.41	0.35	1.19	0.12	1.31	11.31	9.639	
10	500 600	0.50	4.49 4.49	0.065 0.065	0.33	0.21	0.71	0.07	0.79	10.79	9.190 8.796	
11	700	0.70	4.49	0.065	0.23	0.04	0.14	0.03	0.32	10.32	8.650	
I.D. (mm)	Rate per m length (Rs.) of DI Pipe	Pipe Cost (Lakhs Rs.)	Pump Cost (Lakhs Rs.)	Annual Energy Charges (Lakhs Rs.)	tage I Capitilised Energy Charges (Lakhs Rs.)	Capitilised Total Cost (Lakhs Rs.)						Grand Total of Capitilised Cost (Lakhs Rs.)
100	1024.6	34.789	255.957	774.82	5893.31	6184.05						
150	1537.0	52.187	36.631	110.89	843.42	932.24						
200	2114.6	71.798	9.987	30.23	229.95	311.74						
250	2945.9	100.024	4.216	12.76	97.07	201.31						_
300	3663.7	124.396	2.487	7.53	57.26	184.14						
350	4503.1	152.896	1.849	5.60	42.57	197.31						
400	5768.7	195.868	1.576	4.77	36.28	233.73						

450	6668.8	226.430	1.446	4.38	33.29	261.17
500	8421.7	285.947	1.378	4.17	31.74	319.06
600	10168.7	345.264	1.319	3.99	30.38	376.96
700	14059.3	477.364	1.298	3.93	29.88	508.54

3.0 I&D Nal	lah: Chinta Mani Chak Gha	at
Item Description	Quantity	Total Amount
Drain construction Cost	Detailes are attached	
Outfall Structure cost	Detailes are attached	
Generator Room cost	Detailes are attached	
Operator Quarter Cost	Detailes are attached	
Elctrical Component Cost	Detailes are attached	
DG Cost	Detailes are attached	
Rising main cost	Detailes are attached	
Pump and screen cost	Detailes are attached	
Total Cos	st, Rs	

	3.1 : Drain Construction Cost																
									Existing	Drain Size				Proposed	l Drain Size	e	
SI. No.	Name of Drains/ Nallah falling in Ganga River	Length of Drain (m) to be constructed	Velocity (m/sec)	Width	Depth	Area	effective flow area	Flow	Flow (MLD)	Width	Height	Rate	Drain Cost	Width	Height	I&D	Remark
1	Chinta Mani Chak Ghat Nala	600	0.10	1.00	1.50	1.5	10%	0.015	1.27	1.00	1.50			1.50	1.50	Pumping	TO STP

			3.2 STORM DRAIN OUT	FALL STRUCT	JRE - BOQ
5	IZE OF DRAIN AT OUTFALL	(Width)	1.5	Mtr	
S.No.	Prticular of items			Unit	Quantity
1	Earth work excavation in foundation sides and ramming of bottoms, lift excavated soil and disposal of surplements and lift complete as per the specific in all types soils Depth upto 1.5 m	as follows us excavate	, including getting out the ed soil as directed, with all lead	Cum	13.50 21.60 3.00 38.10
	1.5 m to 3.0 m				41.40
2	Sand filling upto 300mm in Plinth in of 150 mm thick as per specification			Cum	2.70 4.32 0.60 7.62
3	Providing and laying in position cem the cost of centring and shuttering Cement: 3 coarse sand: 6 grande	j - all work		Cum	2.75 4.40 0.15 7.30
4	Providing and laying in position manachine vibrated design mix cemen cement concrete structural elemer shuttering, finishing and reinforcer concrete.	t concrete onts, excludi	of specified grade for reinforced ng the cost of centering,	Cum	4.13 6.60 6.60 0.21 5.50 3.30 26.34
5	Centring and Shuttering including st for vertical walls	rutting, pro	pping etc. and removal of form	Sqm	55.00 22.00 77.00
6	Reinforcement for R. C. C work inc placing in position and binding all Thermo - Mechanically Treated bar	complete.		Kg	2370.60 2370.60
7	Carriage of the following materials f unloading and staking at work site			Aggregate Coarse Sand Local Sand Cement Steel	2.37
8	Fabrication & supply of water tight s for dam head sluice and canals wit complete with brass / stainless ste and sill and seals seat	th gate lea	f and frame as per IS 5620		240
8.1	For roof slab			Sqm	22
8.2	Weather shade, Chajjas, corbels et	c. including	g edges	Sqm	1.2
9	Reinforcement for R. C. C work inc placing in position and binding all Thermo - Mechanically Treated bars	luding stra		,	11
	steel quantities			kg	990.00
10	Brick work with bricks of class design :Extra for Brick work in superstruc	_	·	Cum	6.555
11	12 mm Cement plaster in course s (for Internal walls)	and in 1:3	(1 cement : 3 coarse sand)	Sqm	28.5
12	12 mm Cement plaster in course s (for ceiling)	and in 1:3	(1 cement : 3 coarse sand)		22
13	20 mm Cement plaster in course s (for External walls)	and in 1:3	(1 cement : 3 coarse sand)	Sqm	29.4
14	Wall painting with plastic emulsion to give an even shade: Two or mo			Sqm	28.5

			3.2 STORM DRAIN OU	TFALL STRUCT	JRE - BOQ
S	IZE OF DRAIN AT OUTFALL	(Width)	1.5	Mtr	
S.No.	Prticular of items			Unit	Quantity
15	Wall painting with plastic emulsion to give an even shade : Two or mo			Sqm	22
16	Appying one coat of cement primer wall surface (for External walls)	of approv	ed brand and manufacture on	Sqm	29.4
17	Providing wood work in frames of door, window clerestory windows and other			Cum	0.5
18	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick				
	For Doors			Sqm	1.8
19	Providing and fixing glazing in alur partition etc with PVC / neoprene (architectural drawings and the dire aluminium snap bading shall be pa mm thickness (Weight not less tha	gasket etc. ections of E id in basic	complete as per the Engineer incharge. (Cost of item). With glass pans of 5.50	Sqm	0.5
20	Providing and laying Ceramic glazed specified by the manufacturer) of NITCO, ORIENT, SOMANY, KAJARI White, Ivory, Grey, Fume, Red, Brd 1:4 (1 cement : 4 coarse sand) incement and matching pigments et	1st quality A or equiva own, laid on cluding gro	conforming to IS:13755 of alent make in colours such as n 20 mm thick cement mortar outing the joints with white		22

		Te ioi	Outfall Str	uctures	
SI No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)
1	Earth work excavation in foundation trenches or drains including dressing of sides and ramming of bottoms, lift as follows, including getting out the excavated soil and disposal of surplus excavated soil as directed, with all lead and lift complete as per the specification and as directed by the Engineer. All kinds of soils				
	Upto1.50m depth	cum	38.10		
1.1.1	1.5 m to 3 m	cum	41.40		
2	Sand filling upto 300mm in Plinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer.	cum	7.62		
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement: 3 coarse sand: 6 granded stone)	Cum	7.30		
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the	Cum	26.34		
	cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.				
5	Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls	sqm	77.00		
	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and				
6	binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum)	Kg	2370.60		
	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.				
7	Aggregate	Cum	55.73		
	Sand	Cum	27.87		
	Cement	MT	25.01		
	Steel	MT	2.37		
8	Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately	Kg	240.00		
	Erection of gates (a) 30% item NO- 8	kg	240.00		
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab	Š			
8.1	For roof slab	Sqm	22.00		
8.2	Weather shade, Chajjas, corbels etc. including edges	Sqm	1.20		
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars		11.00		
	steel quantities	kg	990.00		
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in	Cum	6.56		

superstructure above plinth level upto floor V cum

SI No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	28.50		
12.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling)		22.00		
13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	29.40		
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for Internal walls)	Sqm	28.50		
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for ceiling)	Sqm	28.50		
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	22.00		
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	29.40		
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick		0.50		
	For Doors	Sqm	1.80		
19.0	Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)	Sqm	0.50		
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.	sqm	22.00		
	Total Cost, Rs				

	3.2.2 DETAILS OF MEASUREMENT (Carriage Items)										
S.No.	Particulars of item	Unit	Quantity	Cement (Kg)	Sand (Cum)	Aggregate (Cum)					
1	RCC (1:1.5:3)	Cum	59.34	23439.30	24.57	49.13					
2	PCC (1:3:6)	Cum	7.30	1569.50	3.30	6.60					
	Total			25009	27.87	55.73					

			rator Room	Rate	Amount
SI. No.	Item description	Unit	Quantity	(INR)	(INR)
1.0	Earth work Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m.				
1.1	(For all kinds of soil) From 0 m to 1.5 m	Cum	22.54		
1.1	From 1.5 m to 3 m	Cum	1.35		
1.2		Odin	1.55		
2.0	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing complete. For Generater room	Cum	7.20		
3.0	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone upto 20 mm nominal size)	Cum	7.33		
4.0	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.				
4.1	For Footings	Cum	1.44		
4.2	Column below GL up to Plinth	Cum	0.26		
4.3	Plinth beams	Cum	1.61		
4.4	For columns above Ground levels	Cum	0.87		
4.5	Lintel beams	Cum	1.43		
4.6	Roof Beams	Cum	1.33		
4.7	For roof slab	Cum	4.32		
4.8	For Sunshades over Door & Windows :	Cum	0.23		
5.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
5.1	For footing - F	Sqm	4.80		
5.2	Column upto GL - C	Sqm	4.60		
5.3	Plinth beams :	Sqm	14.00		
6.0	Centring and Shuttering including strutting, propping etc. and removal of form for	Sqm			
6.1	Lintel beams	Sqm	12.40		
6.2	Roof beams	Sqm	12.40		
7.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
	Column	Sqm	15.09		
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab				
8.1	For roof slab	Sqm	24.00		
8.2	Weather shade,Chajjas, corbels etc. including edges	Sqm	4.13		
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars				
	steel quantities	MT	1.34		
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	17.53		
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	64.48		
	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand)				

13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	89.54	
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for Internal walls)	Sqm	64.48	
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for ceiling)	Sqm	24.00	
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	89.54	
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	0.16	
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick			
	For Doors	Sqm	4.20	
19.0	Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of	Sqm	4.32	
	aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)			
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 1S:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.			
	Generater room	Sqm	24.00	
21.0	Cement plaster skirting (upto 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement. 18 mm thick	Sqm	2.70	
22.0	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.	Sqm	24.00	
23.0	Providing and fixing on wall face unplastidsed-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS : 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter	m	13.50	
24.0	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead.	Cum	14.86	
	Carriage of Materials :			
	Aggregate	Cum	16.66	
	Coarse Sand	Cum	31.07	
25.0	Local Sand	Cum	7.20	
	Cement	MT	6.01	
	Steel	MT	0.14	
	Brick (1000 Nos)		8.59	
	Total Cost			

	3.4 Cost Estima	ate of Ope	te of Operators Quarter						
SI. No	Item description	Unit	Quantity	Rate (INR)	Amount (INR)				
1	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m. (For all kinds of soil)								
1.1	From 0 m to 1.5 m	Cum	36.72						
1.2	From 1.5 m to 3 m	Cum	3.24						
2	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing	Cum	18.82						
	complete.	oum	10.02						
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement: 3 coarse sand: 6 granded stone)	Cum	23.51						
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.								
4.1	For Columnn Footing	Cum	4.48						
4.2	For Column below GL up to plinth	Cum	0.74						
4.3	For Plinth beams-PB	Cum	5.08						
4.4	For columns above GL	Cum	2.45						
4.5	For lintel beams	Cum	2.04						
4.6	For Roof beams	Cum	3.59						
4.7	For Roof slab	Cum	12.03						
4.8	For Parapet	Cum	2.39						
5	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.								
5.1	Sunshade over Windows	Cum	0.89						
5.2	For Lofts & Racks	Cum	1.88						
6	Centring and Shuttering including strutting, propping etc. and removal of form for								
6.1	For Columnn Footing (C1 F1)	Sqm	10.80						
6.2	For Column below GL up to plinth	Sqm	51.36						
6.3	For Plinth beams-PB	Sqm	41.65						
6.4	For columns above GL	Sqm	42.66						
6.5	For lintel beams	Sqm	23.43						
6.6	For Roof beams	Sqm	30.97						
6.7	For Roof slab	Sqm	131.94						
6.8	For Parapet	Sqm	4.90						
	Reinforcement for R. C. C work including straightening,								
7	cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars	MT	4.14						
8	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	31.58						
9	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	167.68						
10	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for celling)	Sqm	58.41						
	20 mm Cement plaster in course sand in 1:3 (1 cement : 3								

11	coarse sand)	Sqm	147.88					
	(for External walls)			i				

	T		1		1
12	Wall painting with plastic emulsion paint of approved brand an	Sqm	226.09		
13	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	191.98		
14	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood	Cum	0.50		
15	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick	Sqm	6.93		
16	Providing and fixing glazing in aluminium door, window ventilator shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)				
16.1	For Windows	Sqm	8.28		
16.2	For Ventilators	Sqm	0.72		
17	Providing and fabricating and fixing of M S grill for window protection etc ,. As per specification, drawing and as directed by the engineer				
	For Windows & Ventilators	kg	9.00		
18	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.				
18.1	Slope concrete	Sqm	74.92		
19	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1 st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
	Total quantity		58.41		
20	Providing and fixing first quality ceramic glazed wall tiles conforming to 1S 15622 (thickness to be specified by the manufacturer) of approved maike in all colours shades except burgundy, bottle green, black of any size as approved by engineer incharge in skirting risers of steps and dados over 12 mm thick bed of cement mortar (1:3) and jointing with grey cement slurry at 3.3 kg per sqm including pointing in white cement mixed with pigment of matching shade complete				
	Total quantity	Rmt	55.67		
21	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to Is: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
21.1	Toilet	Sqm	5.85		
22	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
22.1	Toilet Walls	Sqm	17.54		
	<u> </u>	•]	<u> </u>	l

		1	1	
23	Providing and fixing on wall face unplastidsed-PVC(working pressure 4 kgf per sqm) rain water pipes conforming to IS: 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion	Rmt	15.60	
24	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead.	Cum	25.88	
	Carriage of Materials :			
	Aggregate	Cum	52.34	
	Coarse Sand	Cum	68.34	
25	Local Sand	Cum	18.82	
25	Cement	MT	18.80	
	Steel	MT	0.00	
	Brick (1000 Nos)		15.48	
	Total Cost			
26.0	Plumbing work :			
26.1	Stainless steel kitchen sink - without drain board 470 mm X 420 mm bowl depth 178 mm	No.	1	
26.2	Salem Stainless steel AISI - 304 (18/8) Round basin 405 mm X 355 mm	No.	2	
26.3	PTMT - Soap Dish/Holder 138 mm X 102 mm X 75 mm	No.	3	
	White vitreous china dual purpose closet (Anglo Indian W.C.)			
26.4	suitable for use as squatting pan or European type water closet as per manufacturer's specifications	No.	1	
26.4.1	White Vitreous china 10 lit. (full flush) capacity controlled low levelflushing cistern with all fittings	No.	1	
26.5	C.P.brass toilet paper holder of standard size	No.	3	
26.6	PTMT - Towel Rail (600 mm)	No.	3	
26.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.			
26.7.1	15 mm nominal outer dia Pipes	m	25	
26.7.2	25 mm nominal outer dia Pipes	m	25	
26.7.3	32 mm nominal outer dia Pipes	m	15	
26.8	uPVC pipes (working pressure 4 kg / cm2) Single socketed pipe			
26.8.1	75 mm	m	30	
26.8.2	110 mm	m	30	
26.9	15 mm C.P. brass tap with elbow operation lever	No.	4	
26.10	Gunmetal non-return valve-horizontal (screwed end) 25 mm	No.	1	
	dia Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI: 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	lit	2000	
26.12	Brass full way valve with C.I. wheel (screwed end) 40 mm dia	No	1	
26.13	Gunmetal non-return valve-horizontal (screwed end) 25 mm dia	No	1	
26.14	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with 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 with frame to be not less than 38kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 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 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	

26.15	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	
26.16	Circular shape 560 mm dia precast R.C.C. manhole cover with frame - H.D 35	No	1	
	Total Cost of Sanitary items			
	Total Cost			

	3.5 Cost estimate For Elect	ctrical Co	omponents I	· ·	1
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)
1.0	EARTHING				
1.1	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required.	No	2		
1.2	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2		
2.0	LT PANEL BOARD (Indoor type)				
2.1	Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator) 2 + 8 way/10 way, Double door	No	1		
2.2	MCCB DISTRIBUTION BOARDS				
	Providing and fixing 100A rating and 16KA breaking capacity and pole TP MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, ets as required.	No	1		
2.3	MINIATURE CIRCUIT BREAKERS				
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit breaker for inductive load of triple pole and neutral in the existing MCB DB complete with connections, testing and committening etc as required.	No	2		
2.4	MINIATURE CIRCUIT BREAKERS Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit breaker for inductive load of single pole and neutral in the existing MCB DB complete with connections, testing and committening etc as required.	No	1		
2.5	EARTHING				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2		
3.0	DISTRIBUTION BOARD				
3.1	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral bus bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	m	1		
3.2	EARTHING				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2		
4	CABLES				
	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed ,galvanised steel wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)				
	4Cx16 sq mm + 2x16 sq mm earth wire	m	1		
4.1		m	6.5		
4.1	4Cx10 sq mm + 2x10 sq mm earth wire				
	4Cx10 sq mm + 2x10 sq mm earth wire 4Cx4 sq mm + 2x4 sq mm earth wire	m	15		
4.2		m m	15 14		
4.2	4Cx4 sq mm + 2x4 sq mm earth wire				
4.2 4.3 4.4	4Cx4 sq mm + 2x4 sq mm earth wire 2Cx2.5 sq mm + 1x2.5 sq mm earth wire				
4.2 4.3 4.4 5.0	4Cx4 sq mm + 2x4 sq mm earth wire 2Cx2.5 sq mm + 1x2.5 sq mm earth wire LUMINARIES, SOCKETS AND SWITCHES	m	14		
4.2 4.3 4.4 5.0 5.1	4Cx4 sq mm + 2x4 sq mm earth wire 2Cx2.5 sq mm + 1x2.5 sq mm earth wire LUMINARIES, SOCKETS AND SWITCHES 120W Gate lamp with fitting	m No	14		
4.2 4.3 4.4 5.0 5.1	4Cx4 sq mm + 2x4 sq mm earth wire 2Cx2.5 sq mm + 1x2.5 sq mm earth wire LUMINARIES, SOCKETS AND SWITCHES 120W Gate lamp with fitting 40W flourescent lamp	Mo No	14 2 4		

	3.6 Cost estimate For Electrical (Components F	or Pumphous	e	
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)
1.0	DIESEL GENERATOR 50 KVA				
	50 KVA, 40KW, 415V, 50 Hz, comprising of Perkins Engine Coupled to Stamford				
1.1	make Alternator, complete with all Standard accessories and ATS with Acoustic enclosure.	No	1		
1.2	EARTHING				
1.2	LAKTIING				
	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick				
1.2.1	including accesseries, and providing masonary enclosure with cover plate having locking	No	2		
	arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required.				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries,				
1.2.2	and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2		
2.0	LT PANEL BOARD (Indoor type) Supplying and fixing 4 ways surface/recess mounting, vertical type, 415V, TPN MCB				
	distribution board of sheet steel, dust protected , duly powder painted, inclusive of 200A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with				
2.1	provision of 100A TP 16KA MCCB as incommer, interconnection between incomer MCCB	No	1		
	and bus bars (but without MCB,s /MCCB's) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
2.2	MCCB DISTRIBUTION BOARDS Providing and fixing 100A rating and 16KA breaking capacity and pole TP MCCB in				
	existing cubicle panel board including drilling holes in cubicle panel, making connections,	No	1		
2.3	ets as required. MINIATURE CIRCUIT BREAKERS				
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit				
	breaker for inductive load of triple pole and neutral in the with connections, testing and committioning etc as required.	No	2		
2.4	MINIATURE CIRCUIT BREAKERS				
	Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit				
	breaker for inductive load of single pole and neutral in the with connections, testing and committoning etc as required.	No	1		
2.5	EARTHING				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries,				
	and providing masonary enclosure with cover plate having locking arrangement and	No	2		
	watering pipe etc with charcoal/coke and salt as required.				
3.0	DISTRIBUTION BOARD				
	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral				
3.1	bus bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	m	1		
3.2	EARTHING				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries,				
	and providing masonary enclosure with cover plate having locking arrangement and	No	2		
	watering pipe etc with charcoal/coke and salt as required.				
4.0	CABLES				
	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed, galvanised steel wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)				
	wine 73con tap armodied cable with FVC outer sheathing 1.1 KV Class)				
4.1	4Cx16 sq mm + 2x16 sq mm earth wire	m	1		
4.2	4Cx10 sq mm + 2x10 sq mm earth wire	m	6.5		
4.3	4Cx4 sq mm + 2x4 sq mm earth wire	m	15		
4.4	2Cx2.5 sq mm + 1x2.5 sq mm earth wire	m	14		
5.0	LUMINARIES, SOCKETS AND SWITCHES				
5.1	120W Gate lamp with fitting	No	2		
5.2	40W flourescent lamp	No	4		
5.3	70W MH Lamp for site lighting	No	4		
5.4	Single switched socket with multi purpose	No	2		
J.4	omgo omtorica societi with main purpose	INU			<u> </u>

5.5 Switches No 6

	3.7 SITC of Mechanical Co	mponents a	t each Pu	mping Station	1
SI.No	Description	Quantity	Units	Rate	Amount
1	Manually Cleaned Bar Screen				
	The screen shall be of removable type and shall consist of a welded stainless steel (AISI410) frame with vertical flats spaced at 30 mm. The flats shall not be less than 10 mm in thickness and not less than 50 mm deep. The flats shall not have any joint. The spacing between the flats shall be uniform and preferably so maintained by adequate number of spacers, which shall be so located as not to interfere with the raking operation. To facilitate the manual cleaning of the screen the inclination of the screen shall be between 45° and 60° to the horizontal. Single piece screen width should not be more than 1.5 m.Two numbers stainless steel rollers shall be fixed on each side of frame to facilitate rolling contact with guide channel during lifting and lowering of screen.				
1.2	(500 X 1500) mm	4	Nos		
2	Providing, erecting and giving test of Non clog sewage submersible pump set with SS CF8 M impeller, CI casing, SS 316 shaft suitable for 3 Ph ,415 V , 50 Hz A.C. Supply, submersible motor having IEFC encloouser with class F insulation and IP 68 protection . The pump shall be operated at 1450 RPM. The scope shall include required accessories viz automatic coupling device, guide pipe, ,chain with shakle,flat submersible cable upto starter panel through suitable GI pipe (30 mtr 3 Core flat copper for each pump with necessary electrical connection with the starter panel and as per specifications. (HP)				
	4HP				
	4 Pumps for 2 lean, 1 peak and 1 average flow	4	Nos		
3	Providing Supplying erection testing and commissioning of 2 Tonne capacity Mobile Crane				
3.1	1 T Capacity for 7 m lift.	1	Nos		
	Total Cost, Rs				

								3.8: Ri	sing Main Data									
SI. No. No	IVO.		Chainage		Chainage		Diameter (mm)	L (m)	B (mm)	Avg Depth of	Sand Bediing depth	Total Depth	Total Quantity	Pipe Volume (cum)	Sand Bedding	Refilling (cum)	Disposal (cum)	Depth wise excvation quantity (Cum)
	From	То			(******)	cut (m)	(m)	(m)	(cum)	(carry	(cum)			0.0 to 2 m				
1	2	3	4	5	6	7	8	9=7+8	10= 5x6x9	11 =0.786* 4 ^2* 5	12 =5*6 *8	13= 10-11- 12	14 =11+12					
1	Zone	e I	150.00	2857.21	0.75	1.35	0.15	1.50	3214.36	50.53	321.44	2842.40	371.97	3214.36				
	T	otal		2857.21		4.05			3214.36	50.53	321.44	2842.40	371.97	3214.36				

	3.8.1: Rising	Main - BOO		
SI. No.	Description of Item	Unit		Quantity
1.0	Excavating trenches of required width for pipes cables, etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.			
	0.0 to 1.5 mtr. Depth		l _o	
1.1	do - in all kindes of soil - 100%	m		3214.36
2.0	Supplying and Filling in plinth with local sand and under floors including , watering, ramming consolidation and dressing complete.	cum		321.44
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329 :DI-K9 (MM)			
3.1	150.00	m		2857.21
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).			
4.1	150.00	Joint		476
5.0	Providing and laying D.I. specials of class K-12 suitable for push-on jointing as per IS: 9523:			
5.1	Bends-As per BS 4772 code			
	90 degree (63.5 Kg)	kg		444.50
5.2	Taper-As per BS 4772 code			
	300x200mm (34.5 Kg) Tee-As per BS 4772 code	kg		34.50
5.3	300x300x300 mm (79.5 Kg)	kg		79.50
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)	Ů		
6.1	150.00	No		4.00
7.0	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)			
7.1	150.00	No		3.00
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation, disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification & drawing.			
8.1	Sluice valve chambers	No		3.00
8.2	Scour valve chambers	No		3.00
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends including the excavations of soils up to the required depth ,disposal of soils after refilling with selected available earth,providing PCC including cost of labours,materials tools,curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)			
	150.00	No		7.00
9.4	Enter Total pipe length Percentage of CC Road in town	2857.21 70	M %	2000.047
	Percentage of Asphalt Road in town	30	%	857.163

10.1	Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable material	cum			270.01
	Bituminous courses by mechanical means	cum			38.57
10.2	Granular courses by manualmeans	cum			450.01
11	Restoration of road as per the specification and as directed by				
	the engineer				
11.3.1	Restoration of CC road				
a	Compacting original ground supporting subgrade (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.) Rolling with vibratory roller	cum			1285.74
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in subbase/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum			96.43
С	Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing)	cum			270.01
12.0	Granular Sub-base with Close graded Material (By Mix in Place Method) - Construction of Granular sub-base(GSB) by providing close graded Material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per Technical Specification				
	Specification	cum			270.01
	Total for Grading II Matrerial (50% of Total)	cum			135.00
	Total for Grading I Matrerial (50% of Total)	cum			135.00
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum			450.01
	Pavement Courses - Bituminous				
	Prime Coat - Providing and applying primer coat with Bitumen emulsion on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.6kg/sqm using mechnical means complete	sqm			1800.04
С	Tack Coat - Providing and applying tack coat with Bitumen emulsion using emulsion pressure distributor at the rate of 0.2 kg per sqm on the prepared bituminous/granular surface cleaned with mechancial broom .	sqm			1800.04
	Providing and laying Dense graded bituminous macadam with 100-120 TPH batch HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 % by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specifications Clause 507. (Grading II -19mm nominal size)	cum			45.00

		3.8.2: I	Rising Main-	Cost Estimat	e
SI. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)
1.0	Excavating trenches of required width for pipes cables, etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.				
	0.0 to 1.5 mtr. Depth				
1.1	do - in all kindes of soil - 100%	m	3214.36		
2.0	Supplying and Filling in plinth with local sand and under floors including , watering, ramming consolidation and dressing complete.	cum	321.44		
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329:DI-K9				
3.1	150.00	m	2857.2		
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).				
4.1	150.00	Joint	476		
5.0	Providing and laying D.I. specials of class K-12 suitable for push-on jointing as per IS : 9523 :	30111	470		
5.1	Bends-As per BS 4772 code				
	90 degree (63.5 Kg) Taper-As per BS 4772 code	kg	444.50		
5.2	300x200mm (34.5 Kg)	kg	34.50		
5.3	Tee-As per BS 4772 code				
	300x300x300 mm (79.5 Kg)	kg	79.50		
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)				
6.1	150.00	No	4.00		
7.0	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)				
7.1	150.00	No	3.00		
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation, disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification& drawing.				
8.1	Sluice valve chambers	No	4.00		
8.2	Scour valve chambers	No	4.00		
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends including the excavations of soils up to the required depth, disposal of soils after refilling with selected available earth, providing PCC including cost of labours, materials tools, curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)				
	90 degree	No	2.00		
0.1	Enter Total pipe length	2857.21	М		
9.1	Percentage of CC Road in town	70.00	%		
	Percentage of Asphalt Road in town	30.00	%		
10	Dismantling and restoration of roads :				
10.1	Dismantling and restoration of roads: Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations	cum	270.01		

and disposal of dismantled materials up to a lead of 1000			ı
metres, stacking serviceable and unserviceable material			
			1

38.57 450.01 1285.74	
1285.74	
1285.74	
96.43	
270.01	
135.00	
135.00	
450.01	
1800.04	
1800.04	
45.00	
	135.00 135.00 450.01

		3	.9 THRUST I	BLOCK - 90	-degree
SI No	Particulars	Unit	Quantity	Rate	Amount INR
	Providing and laying in position machine batched,	cum			
1	machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.	cum	2.25		
	Reduction for Pipe	cum	0.01236		
	Total Quantity	cum	2.23764		
2	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia	MT	0.01119		
3	Centring and Shuttering including strutting, propping etc. and removal of form for	sqm	3		
		sqm	3		
	Carriage of Materials				
	Sand	cum	0.13		
4	Aggregate	cum	0.25		
	Cement	MT	0.11		
	Steel	MT	0.00		<u> </u>

	3.10 VALVE CHAMBER (MASONARY)							
SI. No	Item description	Unit	Qty	Rates (INR)	Amount (INR)			
	Earthwork in excavation over areas (exceeding 1.5m in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be leveled and neatly dressed.							
1	From 0 m to 1.5 m	cum	7.02					
	From 3 m to 4.5 m	m ³	0.00					
	From 4.5 m to 6 m	m ³	0.00					
2	From 6 m to 7.5 m	m ³	0.00					
2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	cum	0.48					
3	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.							
	Top slab	cum	0.60					
	Total Brick work with bricks of class designation 100B in foundations and plinth in : Cement Mortar 1:4 (1 cement : 4 coarse sand) Extra for Brick work in superstructure above plinth level upto floor V cum		0.60					
4	Walls							
	Long walls Short walls	cum	1.50 1.13					
		cum						
	Total Quantity for walls	cum	2.63					
5	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia	MT	0.06					
6	Cement plaster in course sand in 1:3 -20 mm thick (1 cement : 3 coarse sand)	Sqm	18.00					
7	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm cement concrete block 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) complete as per standard design.	Each	5					
	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead.							
8	Total Earth work Quantity	cum	7.02					
	Deduct P.C.C quantity	cum	-0.48					
	Deduct Wall Quantity	cum	-5.40					
	Total Quantity	cum	1.13					
	Carriage of Materials							
	Coarse Sand	cum	0.92					
	Aggregate	cum	0.96					
9	Cement	MT	0.88					
	Steel	MT	0.01					
	Bricks (1000 Nos)		1.30					
	Total Cost							
	Total Cost,	Rs						

				3.11 Pu	mping Main De	esign - Econo	mical Diam	eter				
Year	Discha	arge		Design Parame	eters		Stag	e I		Stage II		Pipe material
				Discharge at Sta			0.63	MLD		0.69	MLD	D.I.
2020	0.63	MLD MLD		Discharge at End Avg. Discharge	of Period		0.69	MLD MLD		0.73 0.71	MLD MLD	
2050	0.73	MLD		Pumping hours a	it the End of Per	iod	20.00	hrs		20.00	hrs	
Dosign	l			Avg. Pumping ho Life of Electric M		Period	19.13 15.00	hrs years		19.45 15.00	hrs hrs	
Design Period	15			Combined Eff. O			75.00	%		75.00	%	
Static	16.00	m		Energy Charges			6.50	Rs./Unit		12.00	Rs./Unit	
Head Terminal				Interest Rate Length of Pipelin	e		10.00 2857.21	% m		10.00 2857.21	% m	
Head Static +		m		Capitalisation Co			7.6061			7.6061		
Terminal	16.00	m		Hazen William Co Pump Cost per K		Pipes	140	Rs./KW		120 20000.00	Rs./KW	
Head				KW Regd	.w iii ks.		0.125	per m		0.133	per m	
				Avg Annual Elect	rical Charge in	Rs.	45418.04	Head per KW		85258.36	Head per KW	
	ı		I			Stage I				l		
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m³/sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	Pump Cost including 50% standby (Lakhs Rs.)
1	250	0.25	0.66	0.010	0.20	0.18	0.51	0.05	0.56	16.56	2.075	
2	300	0.30	0.66	0.010	0.14	0.07	0.21	0.02	0.23	16.23	2.034	
3	350	0.35	0.66	0.010	0.10	0.03	0.10	0.01	0.11	16.11	2.019	
4	400	0.40	0.66	0.010	0.08	0.02	0.05	0.01	0.06	16.06	2.013	
5	450	0.45	0.66	0.010	0.06	0.01	0.03	0.00	0.03	16.03	2.010	
6	600	0.60	0.66	0.010	0.03	0.00	0.01	0.00	0.01	16.01	2.007	
7	600	0.60	0.66	0.010	0.03	0.00 Stage II	0.01	0.00	0.01	16.01	2.007	
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m³/sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	Pump Cost including 50% standby (Lakhs Rs.)
1	100	0.10	0.66	0.010	1.22	15.34	43.82	4.38	48.20	64.20	8.047	
2												
3	150	0.15	0.66	0.010	0.54	2.13	6.08	0.61	6.69	22.69	2.844	
	200	0.15	0.66	0.010		2.13 0.52	6.08 1.50	0.61 0.15	6.69 1.65	22.69 17.65	2.844	
4					0.54							
5	200	0.20	0.66	0.010	0.54	0.52	1.50	0.15	1.65	17.65	2.212	
5	200 250 300 350	0.20 0.25 0.30 0.35	0.66 0.66 0.66	0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10	0.52 0.18 0.07 0.03	1.50 0.51 0.21 0.10	0.15 0.05 0.02 0.01	1.65 0.56 0.23 0.11	17.65 16.56 16.23 16.11	2.212 2.075 2.034 2.019	
5 6 7	200 250 300 350 400	0.20 0.25 0.30 0.35 0.40	0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10 0.08	0.52 0.18 0.07 0.03 0.02	1.50 0.51 0.21 0.10 0.05	0.15 0.05 0.02 0.01 0.01	1.65 0.56 0.23 0.11 0.06	17.65 16.56 16.23 16.11 16.06	2.212 2.075 2.034 2.019 2.013	
5 6 7 8	200 250 300 350 400 450	0.20 0.25 0.30 0.35 0.40	0.66 0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10 0.08 0.06	0.52 0.18 0.07 0.03 0.02 0.01	1.50 0.51 0.21 0.10 0.05 0.03	0.15 0.05 0.02 0.01 0.01 0.00	1.65 0.56 0.23 0.11 0.06 0.03	17.65 16.56 16.23 16.11 16.06	2.212 2.075 2.034 2.019 2.013 2.010	
5 6 7	200 250 300 350 400	0.20 0.25 0.30 0.35 0.40	0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10 0.08	0.52 0.18 0.07 0.03 0.02	1.50 0.51 0.21 0.10 0.05	0.15 0.05 0.02 0.01 0.01	1.65 0.56 0.23 0.11 0.06	17.65 16.56 16.23 16.11 16.06 16.03	2.212 2.075 2.034 2.019 2.013	
5 6 7 8 9	200 250 300 350 400 450 500	0.20 0.25 0.30 0.35 0.40 0.45	0.66 0.66 0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05	0.52 0.18 0.07 0.03 0.02 0.01 0.01	1.50 0.51 0.21 0.10 0.05 0.03 0.02	0.15 0.05 0.02 0.01 0.01 0.00	1.65 0.56 0.23 0.11 0.06 0.03	17.65 16.56 16.23 16.11 16.06	2.212 2.075 2.034 2.019 2.013 2.010 2.008	
5 6 7 8 9	200 250 300 350 400 450 500	0.20 0.25 0.30 0.35 0.40 0.45 0.50	0.66 0.66 0.66 0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	
5 6 7 8 9	200 250 300 350 400 450 500	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Stag Annual Energy Charges	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Capitilised Energy Charges	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00 0.00 Capitilised Total Cost	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	Grand Total of Capitilised Cost (Lakhs Rs.)
5 6 7 8 9 10 11	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.)	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 Pump Cost (Lakhs Rs.)	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Stag Annual Energy Charges (Lakhs Rs.)	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Capitilised Energy Charges (Lakhs Rs.)	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00 0.00 Capitilised Total Cost (Lakhs Rs.)	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost
5 6 7 8 9 10 11	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe 1024.6	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.) 29.275	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 1.207	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Star Annual Energy Charges (Lakhs Rs.) 3.65	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Ge I Capitilised Energy Charges (Lakhs Rs.) 27.80	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00 Capitilised Total Cost (Lakhs Rs.) 58.28	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost
5 6 7 8 9 10 11	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe 1024.6	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.) 29.275 43.915	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 1.207 0.427	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Stag Annual Energy Charges (Lakhs Rs.)	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Capitilised Energy Charges (Lakhs Rs.) 27.80 9.83	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00 0.00 Capitilised Total Cost (Lakhs Rs.)	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost
5 6 7 8 9 10 11 (mm)	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe 1024.6	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.) 29.275	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 1.207	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Stag Annual Energy Charges (Lakhs Rs.) 3.65 1.29	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Ge I Capitilised Energy Charges (Lakhs Rs.) 27.80	0.52 0.18 0.07 0.03 0.02 0.01 0.00 0.00 Capitilised Total Cost (Lakhs Rs.) 58.28 54.17	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost
5 6 7 8 9 10 11 (mm) 100 150 200	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe 1024.6 1537.0 2114.6	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.) 29.275 43.915 60.419	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.427 0.427	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Stag Annual Energy Charges (Lakhs Rs.) 3.65 1.29 1.00	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Capitilised Energy Charges (Lakhs Rs.) 27.80 9.83 7.64	0.52 0.18 0.07 0.03 0.02 0.01 0.01 0.00 0.00 Capitilised Total Cost (Lakhs Rs.) 58.28 54.17 68.39	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost
5 6 7 8 9 10 11 I.D. (mm) 150 200 250	200 250 300 350 400 450 500 600 700 Rate per m length (Rs.) of DI Pipe 1024.6 1537.0 2114.6 2945.9	0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 Pipe Cost (Lakhs Rs.) 29.275 43.915 60.419 84.171	0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 0.66 Pump Cost (Lakhs Rs.) 1.207 0.427 0.332 0.311	0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 Star Annual Energy Charges (Lakhs Rs.) 3.65 1.29 1.00 0.94	0.54 0.31 0.20 0.14 0.10 0.08 0.06 0.05 0.03 0.02 Capitilised Energy Charges (Lakhs Rs.) 27.80 9.83 7.64 7.17	0.52 0.18 0.07 0.03 0.02 0.01 0.00 0.00 Capitilised Total Cost (Lakhs Rs.) 58.28 54.17 68.39 91.65	1.50 0.51 0.21 0.10 0.05 0.03 0.02 0.01	0.15 0.05 0.02 0.01 0.01 0.00 0.00	1.65 0.56 0.23 0.11 0.06 0.03 0.02	17.65 16.56 16.23 16.11 16.06 16.03 16.02	2.212 2.075 2.034 2.019 2.013 2.010 2.008 2.007	of Capitilised Cost

	450	6668.8	190.542	0.301	0.91	6.94	197.79
	500	8421.7	240.626	0.301	0.91	6.94	247.86
	600	10168.7	290.541	0.301	0.91	6.93	297.77
,	700	14059 3	401 704	0.301	0.91	6.93	408 93

4.0 &[) Nallah - Mokama Ghat N	lallah
Item Description	Quantity	Total Amount
Drain construction Cost	Detailes are attached	
Outfall Structure cost	Detailes are attached	
Generator Room cost	Detailes are attached	
Operator Quarter Cost	Detailes are attached	
Elctrical Component	Detailes are attached	
DG Cost	Detailes are attached	
Rising main cost	Detailes are attached	
Pump and screen cost	Detailes are attached	
Total Co	st, Rs	

4.1: Drain Construction Cost

								Existing Drain Size				Proposed Drain Size						
•	SI. No.	Name of Drains / Nallah falling in Ganga River	Length of Drain (m) to be constructed	Velocity (m/sec)	Width	Depth	Area	Effective flow area	Flow	Flow (MLD)	Width	Height	Rate	Drain Cost	Width	Height	I&D	Remark
	6	Mokama Ghat Nala	100	0.10	1.00	1.50	1.5	10%	0.015	1.30	1.00	1.50			1.50	1.50	Pumping	TO STP

S.No. Pricular of items Unit Quantity Earth work occavation in foundation tembers or drains including desting of the data of emmany of portions. Bit is follows, subding apeting out the occavated and disposal of supples excavated soil as directed, with all lead and lift complete as per the specification and as directed, with all lead and lift complete as per the specification and as directed by the Engineer 1 so and filling upto 300mm in Plieth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer. 2 award filling upto 300mm in Plieth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer. 2 providing and laying in position coment concrete of spacified grade excluding the cost of centring and shuttering: all work upto plieth level in 13:5 of 1 centent; 3 coarse sand; 6 granded stone) 2 providing and laying in position machine batches, machine mixed, and reading and application of the providing and supplied providing store of machine providing and report of the providing and supplied providing store of machine providing and applied providing and supplied providing store of machine providing and report of the providing and supplied providing store of machine providing and supplied providing a			4.2: Out	fall Structure -	BOQ
Earth work excavation in foundation frenches or drains including dressing of sides and ramming of bottoms, lift as follows, including getting out the excavated soil and disposal of surplus excavated soil as directed by the fingineer beginning of sides and full complete as per the specification and as directed by the fingineer beginning of the specification and as directed by the fingineer beginning of the specification and as directed by the fingineer beginning of the specification and as directed by the fingineer. 2 In Sand filling upto 300mm in Plinth including watering and compacting in layors of 150 mm thick as per specifications and as directed by the Engineer. 3 Providing and laying in position cement concrete of specified grade excluding the cost of centring and shurtering - all work upto plinth level in 13.6 (1 Commit 13 causes sand 6 granded store) 4 Providing and laying in position machine batched, machine mixed, and machine withrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shurtering, firshing and reinforcement, M-20 grade reinforced cement concrete. 5 Centring and Shurtering including strutting, propping etc. and removal of form for vertical walls. 6 Providing and shurtering including strutting, propping etc. and removal of form for vertical walls. 7 Centring and Shurtering including strutting, propping etc. and removal of form for vertical walls. 8 Providing and state of the following materials from quarry to work site including backing in position and winding all compacts. 9 Providing and state of the following materials from quarry to work site including allowing and state of the following materials from quarry to work site including backing in position and backing at work site as per specifications. 10 Provided the following materials from quarry to work site including packing in position and backing at complete. 11 Provided the following materials from quarry to work site including packing in po	SI	ZE OF DRAIN AT OUTFALL (Width) 1.5		Mtr	
dressing of sides and ramming of bottoms, lift as follows, including getting out the executated soil and disposed of surplus executed soil as directed by the Engineer of the Community of the Co	S.No.	Prticular of items		Unit	Quantity
1.5 m to 3.0 m 41.40 Sand filling upto 300mm in Plinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer. Providing and laying in position coment concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone) Providing and laying in position machine batched, machine mixed, and machine vibrated design mix coment concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, inhishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of centering, shuttering including strutting, propping etc. and removal of form for vertical walls Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Centring and shuttering including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/c/c/m) (Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Cement of Erl. Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Cement of Erl. Fabrication & supply of water tight structural steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per 15 Sozo complien with broas 2 stabless steel lining of appropriate size for call seasis and sill and seals seat seed lining of appropriate size for call seasis and sill and seals seat seed lining of appropriate size for call seasis and sill and seals seat seed lining of appropriate size for line of size work with bricks of class designation 100A in foundations and plint in : Extra for firick work in su	1	dressing of sides and ramming of bottoms, lift as follow getting out the excavated soil and disposal of surplus e directed, with all lead and lift complete as per the spec directed by the Engineer In all types soils	s, including xcavated soil as	Cum	21.60
Sand filling upto 300mm in Plinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer. Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3 to (1 Cement : 3 coarse sand : 6 granded stone) Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of contering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of contering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of contering, shuttering including strutting, propping etc. and removal of form for vertical walls Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Sqm 22.00 Reinforcement for R. C. C. work including straightening, cutting, bending, placing in position and binding all complete. Carriage of the following materials from quarry to work site including local place in the properties of the following materials from quarry to work site including date for dam head sluice and canals with gate leaf and frame as per IS 5x20 complete with brass / stainless steel lining of appropriate size for seal seats and still and seals seat 8.1 For roof slab Sqm 22 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Nechanically Treated bars steel uncluding edges Sqm 240 Sqm 22.00 Cum 6.555 Sqm 240 Sqm 22.10 277.00 Aggregate Coarsa Sand Local Sand Cement Steel Sqm 240 Sqm 25 Sqm 26 Sqm 27 27 27 28 29 20 27 20 27 27 20 27 20 27 20 27 20 27 20 27 20 27 20 20		45			
Sand filling upto 300mm in Pilinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer. Providing and laying in position coment concrete of specified grade excluding the cost of centring and shuttering - all work upto pilinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone) Providing and laying in position machine batched, machine mixed, and machine birated design mix coment concrete of specified grade for reinforced cement concrete is ructural elements, excluding the cost of centering, shuttering, linishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of centering, shuttering, linishing and reinforcement, M-20 grade reinforced cement concrete. Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Sqm 22.00 77.00 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all compilete. Farmor - Mechanically Treated bars TMTC - 500 (Quantity at 90 vg/ccm) Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of £7. Carriage of the following materials from quarry to work site including again for dam head sluice and canals with gate leaf and frame as per IS 5c00 complete with brass / stainless steel lining of appropriate size for seal seats and still and seals seat 8.1 For roof slab Sqm 22 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, alonging in position and binding all complete. Thermo - Mechanically Treated bars steel quantities Sqm 240 Script vertical search and the season of the steel propriate size for seal seats and still and seals seat 10 Sick work with braks of class designation 100A in foundat		1.5 m to 3.0 m			
Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded store) Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural dements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete structural dements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete. Cum Cum Cum Cum Cum Cum Cum Com Co	2	layers of 150 mm thick as per specifications and as dire		Cum	4.32
Providing and laying in position cement concrete of specified grade excluding the cost of centring and shartring - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone) Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete structural elements, excluding the cost of centering, shuttering including strutting, propping etc. and removal of form for vertical walls Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls Entermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/crum) Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/crum) Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I. Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluce and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and still and seals seat 8.1 For roof slab Segm 22 Weather shade, Chajjas, corbels etc. including edges Placeforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars 10 Placeforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for internal walls) 20 m					
Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete international elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete. Cum Cum Cum Cum Cum Cum Cum Cu	3	excluding the cost of centring and shuttering - all work		Cum	4.40 0.15
cement concrete. 5.50		machine vibrated design mix cement concrete of specif	ied grade for		4.13 6.60 6.60
Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls 22.00 77.00	4		grade reinforced	Cum	5.50 3.30
Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 2370.60 2370.60 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and staking at work site as per specification & Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Carriage of the following materials from quarry to work site including Carriage Sand Local Sand Coarse Sand Local Sand Coarse Sand Local Sand Coarse Sand Sand Sand Sand Sand Sand Sand Coarse Sand Local Sand Coarse Sand Sand Sand Sand Sand Sand Sand Sand	5		c. and removal of		
placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Carriage of the following and staking at work site as per specification & Carriage of the following at the state of the seal seads and staking at work site and frame as per IS Steel 2.3706 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS Seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sill and seals seat lining of appropriate size for seal seats and sea					77.00
Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Local Sand Cement Steel 2.3706 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab Sqm 22 8.2 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities steel quantities kg 990.00 Brick work with bricks of class designation 100A in foundations and plinth in: Extra for Brick work in superstructure above plinth level upto floor V cum 6.555 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls) Sqm 28.5 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5	6	placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quar		Kg	2370.60
Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Local Sand Cement Steel 2.3706 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab Sqm 22 8.2 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities 8 Brick work with bricks of class designation 100A in foundations and plinth in : Extra for Brick work in superstructure above plinth level upto floor V cum 10 Promodement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 28.5 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 28.5 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5					2370.60
Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & Cement Steel 2.3706 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab Sqm 22 8.2 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities kg 990.00 Brick work with bricks of class designation 100A in foundations and plinth in: Extra for Brick work in superstructure above plinth level upto floor V cum 6.555 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 28.5 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 22. 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5			-		
direction of E/I. Cement Steel 2.3706 Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab Sqm 22 8.2 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities kg 990.00 Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum 6.555 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 28.5 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 22. 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5					
Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab 8.2 Weather shade, Chajjas, corbels etc. including edges 8.3 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. 9 Thermo - Mechanically Treated bars steel quantities 8 prick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum 10 placing in position and in 1:3 (1 cement : 3 coarse sand) 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 14 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work 14 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work	/		ification &		
Fabrication & supply of water tight structuraal steel sliding type low head gate for dam head sluice and canals with gate leaf and frame as per IS 5620 complete with brass / stainless steel lining of appropriate size for seal seats and sill and seals seat 8.1 For roof slab Sqm 22 8.2 Weather shade, Chajjas, corbels etc. including edges Sqm 1.2 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities kg 990.00 Brick work with bricks of class designation 100A in foundations and plinth in: Extra for Brick work in superstructure above plinth level upto floor V cum 6.555 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 28.5 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 22 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5			}		2.270/
8.2 Weather shade, Chajjas, corbels etc. including edges Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities Brick work with bricks of class designation 100A in foundations and plinth in : Extra for Brick work in superstructure above plinth level upto floor V cum Cum 6.555 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls) Sqm 28.5 12 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5	8	gate for dam head sluice and canals with gate leaf and 5620 complete with brass / stainless steel lining of app	frame as per IS	Steel	
Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities Brick work with bricks of class designation 100A in foundations and plinth in : Extra for Brick work in superstructure above plinth level upto floor V cum 10 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 11 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 12 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 14 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5	8.1	For roof slab		Sqm	22
placing in position and binding all complete. Thermo - Mechanically Treated bars steel quantities Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum 10 transport of the place of the pla	8.2	Weather shade, Chajjas, corbels etc. including edges		Sqm	1.2
Brick work with bricks of class designation 100A in foundations and plinth in: Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 13 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 14 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 22 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work Sqm 28.5	9	Reinforcement for R. C. C work including straightening, placing in position and binding all complete.	cutting, bending,		11
plinth in: Extra for Brick work in superstructure above plinth level upto floor V cum 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 13 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 14 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 15 sqm 26 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 28 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 21 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 22 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 23 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 24 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 25 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 26 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 27 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 28 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 29 learn Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand)		steel quantities		kg	990.00
12 (for Internal walls) 12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) 14 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work 28.5 Sqm 28.5	10	plinth in :Extra for Brick work in superstructure above		Cum	6.555
12 (for ceiling) Sqm 22 13 20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls) Sqm 29.4 Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work Sqm 28.5	11		: 3 coarse sand)	Sqm	28.5
13 (for External walls) Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work Sqm 29.4	12		: 3 coarse sand)	Sqm	22
14 manufacture to give an even shade : Two or more coats on new work Sqm 28.5	13		: 3 coarse sand)	Sqm	29.4
	14	manufacture to give an even shade: Two or more coat		Sqm	28.5

			4.2: Out	fall Structure -	BOQ	
SI	ZE OF DRAIN AT OUTFALL	(Width)	1.5	Mtr		
S.No.	Prticula	r of items		Unit	Quantity	
15	Wall painting with plastic emulsion pmanufacture to give an even shade (for ceiling)			Sqm	22	
16	Appying one coat of cement primer on wall surface (for External walls)	d brand and manufacture	Sqm	29.4		
17	Providing wood work in frames of do other frames, wrought framed and f Door		Cum	0.5		
18	Providing and fixing paneled or pane windows and clerestory windows inc hinges with necessary screws exclusive separately - 30 mm thick	ck enameled MS butt				
	For Doors			Sqm	1.8	
19	Providing and fixing glazing in alum partition etc with PVC / neoprene garchitectural drawings and the direc aluminium snap bading shall be paid 5.50 mm thickness (Weight not less	Sqm	0.5			
20	to be specified by the manufacturer, IS:13755 of NITCO, ORIENT, SOMA colours such as White, Ivory, Grey, thick cement mortar 1:4 (1 cement	5.50 mm thickness (Weight not less than 13.75 kg/sqm) Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to 1S:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make is colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including groutin the joints with white cement and matching pigments etc, complete.				

	4.2.1 Cost Estir	mate for	or Outfall Structures				
SI no.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)		
1	Earth work excavation in foundation trenches or drains including dressing of sides and ramming of bottoms, lift as follows, including getting out the excavated soil and disposal of surplus excavated soil as directed, with all lead and lift complete as per the specification and as directed by the Engineer. All kinds of soils				(IMA)		
1.1.1	Upto1.50m depth	cum	38.10				
1.1.1	1.5 m to 3 m	cum	41.40				
2	Sand filling upto 300mm in Plinth including watering and compacting in layers of 150 mm thick as per specifications and as directed by the Engineer.	cum	7.62				
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	Cum	7.30				
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.	Cum	26.34				
5	Centring and Shuttering including strutting, propping etc. and removal of form for vertical walls	sqm	77.00				
6	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars TMTC - 500 (Quantity at 90 kg/cum)	Kg	2370.60				
	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.						
7	Aggregate	Cum	55.73				
•	Sand	Cum	27.87				
	Cement	MT	25.01				
	Steel	MT	2.3706				
8	Wrought iron and mild steel welded work (using angles, square bars, tees and channel grills, grating frames, gates and tree guards of any size and design etc. including cost of screens and welding rods or bolts and nuts complete fixed in position but without the cost of excavation and concrete for fixing which will be paid separately	Kg	240.00				
	Erection of gates (a) 30% item NO- 8	kg	240.00				
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab						
8.1	For roof slab	Sqm	22.00				
8.2	Weather shade,Chajjas, corbels etc. including edges	Sqm	1.20				
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars		11.00				
	steel quantities	kg	990.00				
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	6.56				
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	28.50				
12.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand)	Sqm	22.00				

SI no.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)
13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	29.40		
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for Internal walls)	Sqm	28.50		
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for ceiling)	Sqm	28.50		
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	22.00		
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	29.40		
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick		0.50		
	For Doors	Sqm	1.80		
19.0	Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)	Sqm	0.50		
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.	Sqm	22.00		
	Total Cost, Rs				

	4.2.2 DETAILS OF MEASUREMENT (Carriage Items)											
S.No.	Particulars of item	Particulars of item Unit Quantity Cement (Kg)		Sand (Cum)	Aggregate (Cum)							
1	RCC (1:1.5:3)	Cum	59.34	23439.30	24.57	49.13						
2	PCC (1:3:6)	Cum 7.30 15		1569.50	3.30	6.60						
	Total			25009	27.87	55.73						

	4.3 Cost estimate	e of Gener	ator Room		
SI. No.	I tem description	Unit	Quantity	Rate (INR)	Amount (INR)
	Earth work				
1.0	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m.				
	(For all kinds of soil)				
1.1	From 0 m to 1.5 m	Cum	22.54		
1.2	From 1.5 m to 3 m	Cum	1.35		
2.0	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing complete. For Generater room	Cum	7.20		
3.0	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone upto 20 mm nominal size)	Cum	7.33		
4.0	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.				
4.1	For Footings	Cum	1.44		
4.2	Column below GL up to Plinth	Cum	0.26		
4.3	Plinth beams	Cum	1.61		
4.4	For columns above Ground levels	Cum	0.87		
4.5	Lintel beams	Cum	1.43		
4.6	Roof Beams	Cum	1.33		
4.7	For roof slab	Cum	4.32		
4.8	For Sunshades over Door & Windows :	Cum	0.23		
5.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
5.1	For footing - F	Sqm	4.80		
5.2	Column upto GL - C	Sqm	4.60		
5.3	Plinth beams :	Sqm	14.00		
6.0	Centring and Shuttering including strutting, propping etc. and removal of form for	Sqm			
6.1	Lintel beams	Sqm	12.40		
6.2	Roof beams	Sqm	12.40		
7.0	Centring and Shuttering including strutting, propping etc. and removal of form for				
7.0	Column	Sqm	15.09		
8.0	Centring and Shuttering including strutting, propping etc. and removal of form for Roof slab				
8.1	For roof slab	Sqm	24.00		
8.2	Weather shade,Chajjas, corbels etc. including edges	Sqm	4.13		
9.0	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars				
	steel quantities	MT	1.34		
10.0	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	17.53		
11.0	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	64.48		
	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand)				

Generator room	Sqm	24.00		

				Ī	1
13.0	20 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for External walls)	Sqm	89.54		
14.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade : Two or more coats on new work (for Internal walls)	Sqm	64.48		
15.0	Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work (for ceiling)	Sqm	24.00		
16.0	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	89.54		
17.0	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood for Door	Cum	0.16		
18.0	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick				
	For Doors	Sqm	4.20		
	Providing and fixing glazing in aluminium door, window V shutters and partition etc with PVC / neoprene gasket etc. complete as per the				
19.0	architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)	Sqm	4.32		
20.0	Providing and laying Ceramic glazed floor tiles (400x400) mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS:13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as White, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
	Generater room	Sqm	24.00		
21.0	Cement plaster skirting (upto 30 cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement. 18 mm thick	Sqm	2.70		
22.0	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.	Sqm	24.00		
23.0	Providing and fixing on wall face unplastidsed-PVC (working pressure 4 kgf per sqm) rain water pipes conforming to IS : 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion. 110 mm diameter	m	13.50		
24.0	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead.	Cum	14.86		
	Carriage of Materials :				
	Aggregate	Cum	16.66		
	Coarse Sand	Cum	31.07		
25.0	Local Sand	Cum	7.20		
	Cement	MT	6.01		
	Steel	MT	0.14		
	Brick (1000 Nos)		8.59		
	Total Cost				

4.4 Cost Estimate of Operators Quarter										
SI. No	Item description	Unit	Quantity	Rate (INR)	Amount (INR)					
1	Earthwork in excavation in foundation trenches or drains (not exceeding 1.5 m width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposals of surplus excavated soil as directed, within a lead of 50 m. (For all kinds of soil)									
1.1	From 0 m to 1.5 m	Cum	36.72							
1.2	From 1.5 m to 3 m	Cum	3.24							
2	Supplying and Filling on plinth with local sand and under floors including watering, ramming consolidating and dressing	Cum	18.82							
	complete.	Oum	10.02							
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - all work upto plinth level in 1:3:6 (1 Cement : 3 coarse sand : 6 granded stone)	Cum	23.51							
4	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.									
4.1	For Columnn Footing	Cum	4.48							
4.2	For Column below GL up to plinth	Cum	0.74							
4.3	For Plinth beams-PB	Cum	5.08							
4.4	For columns above GL	Cum	2.45							
4.5	For lintel beams	Cum	2.04							
4.6	For Roof beams	Cum	3.59							
4.7	For Roof slab	Cum	12.03							
4.8	For Parapet	Cum	2.39							
5	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.									
5.1	Sunshade over Windows	Cum	0.89							
5.2	For Lofts & Racks	Cum	1.88							
6	Centring and Shuttering including strutting, propping etc. and removal of form for									
6.1	For Columnn Footing (C1 F1)	Sqm	10.80							
6.2	For Column below GL up to plinth	Sqm	51.36							
6.3	For Plinth beams-PB	Sqm	41.65							
6.4	For columns above GL	Sqm	42.66							
6.5	For lintel beams	Sqm	23.43							
6.6	For Roof beams	Sqm	30.97							
6.7	For Roof slab	Sqm	131.94							
6.8	For Parapet	Sqm	4.90							
	Reinforcement for R. C. C work including straightening,									
7	cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars	MT	4.14							
8	Brick work with bricks of class designation 100A in foundations and plinth in :Extra for Brick work in superstructure above plinth level upto floor V cum	Cum	31.58							
9	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for Internal walls)	Sqm	167.68							
10	12 mm Cement plaster in course sand in 1:3 (1 cement : 3 coarse sand) (for ceiling)	Sqm	58.41							
	20 mm Cement plaster in course sand in 1:3 (1 cement : 3		Ī							

11	coarse sand)	Sqm	147.88	
	(for External walls)			

	T		1	ı	1
12	Wall painting with plastic emulsion paint of approved brand an	Sqm	226.09		
13	Appying one coat of cement primer of approved brand and manufacture on wall surface (for External walls)	Sqm	191.98		
14	Providing wood work in frames of door, window clerestory windows and other frames, wrought framed and fixed in position in local wood	Cum	0.50		
15	Providing and fixing paneled or paneled and glazed shutters for doors, windows and clerestory windows including black enameled MS butt hinges with necessary screws excluding panelling which will be paid for separately - 30 mm thick	Sqm	6.93		
16	Providing and fixing glazing in aluminium door, window ventilator shutters and partition etc with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer incharge. (Cost of aluminium snap bading shall be paid in basic item). With glass pans of 5.50 mm thickness (Weight not less than 13.75 kg/sqm)				
16.1	For Windows	Sqm	8.28		
16.2	For Ventilators	Sqm	0.72		
17	Providing and fabricating and fixing of M S grill for window protection etc ,. As per specification, drawing and as directed by the engineer				
	For Windows & Ventilators	kg	9.00		
18	Providing and laying in situ five course water proofing treatment with glass fibre tissue reinforced bitumen over roof consisting of first coat of bitumen primer @ 0.40 kg per sqm, 2nd and 4th courses of bonding material 1.60 kg per sqm which shall consist of blown type bitumen of grade 85/25 conforming to IS: 702, third layer of glass fibre tissue course as specified, fifth, the top most layer of stone grit 6 mm and down size or pea-seized gravel sprad @ 6 dm³ per sqm including preparation of surface excluding grading for slope etc. compete.				
18.1	Slope concrete	Sqm	74.92		
19	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1 st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours such as white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
	Total quantity		58.41		
20	Providing and fixing first quality ceramic glazed wall tiles conforming to 1S 15622 (thickness to be specified by the manufacturer) of approved maike in all colours shades except burgundy, bottle green, black of any size as approved by engineer incharge in skirting risers of steps and dados over 12 mm thick bed of cement mortar (1:3) and jointing with grey cement slurry at 3.3 kg per sqm including pointing in white cement mixed with pigment of matching shade complete				
	Total quantity	Rmt	55.67		
21	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to Is: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
21.1	Toilet	Sqm	5.85		
22	Providing and laying Ceramic glazed floor tiles 400x400 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS: 13755 of NITCO, ORIENT, SOMANY, KAJARIA or equivalent make in colours except white, Ivory, Grey, Fume, Red, Brown, laid on 20 mm thick cement motar 1:4 (1 cement: 4 Coarse sand) including grouting the joints with white cement and matching pigments etc, complete.				
22.1	Toilet Walls	Sqm	17.54		
	<u> </u>	•]	<u> </u>	l

		1	1	
23	Providing and fixing on wall face unplastidsed-PVC(working pressure 4 kgf per sqm) rain water pipes conforming to IS: 4985 including jointing with seal ring conforming to IS: 5382 leaving 10 mm gap for thermal expansion	Rmt	15.60	
24	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead.	Cum	25.88	
	Carriage of Materials :			
	Aggregate	Cum	52.34	
	Coarse Sand	Cum	68.34	
25	Local Sand	Cum	18.82	
25	Cement	MT	18.80	
	Steel	MT	0.00	
	Brick (1000 Nos)		15.48	
	Total Cost			
26.0	Plumbing work :			
26.1	Stainless steel kitchen sink - without drain board 470 mm X 420 mm bowl depth 178 mm	No.	1	
26.2	Salem Stainless steel AISI - 304 (18/8) Round basin 405 mm X 355 mm	No.	2	
26.3	PTMT - Soap Dish/Holder 138 mm X 102 mm X 75 mm	No.	3	
	White vitreous china dual purpose closet (Anglo Indian W.C.)			
26.4	suitable for use as squatting pan or European type water closet as per manufacturer's specifications	No.	1	
26.4.1	White Vitreous china 10 lit. (full flush) capacity controlled low levelflushing cistern with all fittings	No.	1	
26.5	C.P.brass toilet paper holder of standard size	No.	3	
26.6	PTMT - Towel Rail (600 mm)	No.	3	
26.7	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge.			
26.7.1	15 mm nominal outer dia Pipes	m	25	
26.7.2	25 mm nominal outer dia Pipes	m	25	
26.7.3	32 mm nominal outer dia Pipes	m	15	
26.8	uPVC pipes (working pressure 4 kg / cm2) Single socketed pipe			
26.8.1	75 mm	m	30	
26.8.2	110 mm	m	30	
26.9	15 mm C.P. brass tap with elbow operation lever	No.	4	
26.10	Gunmetal non-return valve-horizontal (screwed end) 25 mm	No.	1	
	dia Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI: 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	lit	2000	
26.12	Brass full way valve with C.I. wheel (screwed end) 40 mm dia	No	1	
26.13	Gunmetal non-return valve-horizontal (screwed end) 25 mm dia	No	1	
26.14	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with 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 with frame to be not less than 38kg (weight of cover 23 kg and weight of frame 15 kg), R.C.C. top slab with 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 fine sand : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design : With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	

26.15	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	No	1	
26.16	Circular shape 560 mm dia precast R.C.C. manhole cover with frame - H.D 35	No	1	
	Total Cost of Sanitary items			
	Total Cost			

	4.5 Cost estimate For Elec					
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)	
1.0	EARTHING					
	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick including accesseries, and					
1.1	providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required.	No	2			
1.2	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2			
2.0	LT PANEL BOARD (Indoor type)					
2.1	Supplying and fixing following way prewired SP&N MCB distribution board of steel sheet for 240 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required. (But without MCB/ RCCB/ Isolator) 2 + 8 way/10 way, Double door	No	1			
2.2	MCCB DISTRIBUTION BOARDS					
	Providing and fixing 100A rating and 16KA breaking capacity and pole TP MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, ets as	No	1			
2.3	required. MINIATURE CIRCUIT BREAKERS					
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit breaker for inductive load of triple pole and neutral in the existing MCB DB complete with connections, testing and committening etc as required.	No	2			
2.4	MINIATURE CIRCUIT BREAKERS					
	Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit breaker for inductive load of single pole and neutral in the existing MCB DB complete with connections, testing and committening etc as required.	No	1			
2.5	EARTHING					
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2			
3.0	DISTRIBUTION BOARD					
3.1	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral bus bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	m	1			
3.2	EARTHING					
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc with charcoal/coke and salt as required.	No	2			
4	CABLES					
	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed ,galvanised steel wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)					
4.1	4Cx16 sq mm + 2x16 sq mm earth wire	m	1			
4.2	4Cx10 sq mm + 2x10 sq mm earth wire	m	6.5			
4.3	4Cx4 sq mm + 2x4 sq mm earth wire	m	15			
4.4	2Cx2.5 sq mm + 1x2.5 sq mm earth wire	m	14		1	
5.0	LUMINARIES, SOCKETS AND SWITCHES				1	
5.1	120W Gate lamp with fitting	No	2			
5.2	40W flourescent lamp	No	4		1	
5.3	70W MH Lamp for site lighting	No	4			
5.4	Single switched socket with multi purpose	No	2			
5.5	Switches	No	6		1	
5.5	O	NO	U]	

	4.6 Cost estimate For Electr	rical Components For Pumphouse					
SI.No	Description	Unit	Quantity	Rate (INR)	Amount (INR)		
1.0	DIESEL GENERATOR 50 KVA						
	50 KVA, 40KW, 415V, 50 Hz, comprising of Perkins Engine Coupled to Stamford						
1.1	make Alternator, complete with all Standard	No	1				
	accessories and ATS with Acoustic enclosure.						
1.2	EARTHING						
	Neutral Earthing - Earthing with Copper earth plate 600mmx600mmx3mm thick including accesseries, and						
1.2.1	providing masonary enclosure with cover plate having locking arrangement and watering pipe of 2.7m long etc with charcoal/coke and salt as required.	No	2				
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing						
1.2.2	masonary enclosure with cover plate having locking arrangement andwateringpipeetc with charcoal/coke and salt as required.	No	2				
2.0	LT PANEL BOARD (Indoor type)						
2.1	Supplying and fixing 4 ways surface/recess mounting, vertical type, 415V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200A tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with provision of 100A TP 16KA MCCB as incommer, interconnection between incomer MCCB and bus bars (No	1				
	but without MCB,s /MCCB's) as required. (Note: Vertical type MCB TPDB is normally used where 3 phase outlets are required.)						
2.2	phase outlets are required.) MCCB DISTRIBUTION BOARDS						
<u></u>	Providing and fixing 100A rating and 16KA breaking						
	capacity and pole TP MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, ets as required.	No	1				
2.3	MINIATURE CIRCUIT BREAKERS						
	Supplying and fixing 32A, triple pole and neutral, 415V, "C" curve, miniature circuit breaker for inductive load of triple pole and neutral in the existing MCB DB complete with connections, testing and committoning etc as required.		2				
2.4	MINIATURE CIRCUIT BREAKERS						
	Supplying and fixing 32A, single pole and neutral, 240V, "C" curve, miniature circuit breaker for inductive load of single pole and neutral in the existing MCB DB complete with connections, testing and committed and committed the control of the c		1				
2.5	EARTHING						
	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement andwateringpipeetc with charcoal/coke and salt as required.	No	2				
3.0	DISTRIBUTION BOARD						
3.1	Supply and fixing 4+12 way, single door, horizontal type thee pole and neutral, sheet steel, MCB DB, 415V, on surface/recess, complete with tinned copper bus bar, nuetral bus bar, earth bar, din bar, interconnections, powdered painted including earthing etc as required. (but without MCB/RCCB/isolators)	m	1				
3.2	EARTHING						
5.2	Body Earthing - Earthing with Gi earth pipe 4.5m long, 40mm dia including accesseries, and providing masonary enclosure with cover plate having locking arrangement andwateringpipeetc with	No	2				
4.0	charcoal/coke and salt as required.						
4.0	Supply of LT UG cable having Copper conductor PVC insulated, Sheathed ,galvanised steel wire /steel tap armoured cable with PVC outer sheathing 1.1 KV class)						
4.1	4Cx16 sq mm + 2x16 sq mm earth wire	m	1				
4.2	4Cx10 sq mm + 2x10 sq mm earth wire	m	6.5				

4.3	4Cx4 sq mm + 2x4 sq mm earth wire	m	15		
4.4	2Cx2.5 sq mm + 1x2.5 sq mm earth wire	m	14		
5.0	LUMINARIES, SOCKETS AND SWITCHES				
5.1	120W Gate lamp with fitting	No	2		
5.2	40W flourescent lamp	No	4		
5.3	70W MH Lamp for site lighting	No	4		
5.4	Single switched socket with multi purpose	No	2		
5.5	Switches	No	6		
	Total Cost				

	4.7: Rising Main Data													
SI. No. No			Diameter (mm)	L (m)	B (mm)	Avg Depth of cut	Sand Bediing depth	Total Depth	Total Quantity	Pipe Volume (cum)	Sand Bedding	Refilling (cum)	Disposal (cum)	Depth wise excvation quantity (Cum)
	From	То				(m)	(m)	(m)	(cum)		(cum)			0.0 to 2 m
1	2	3	4	5	6	7	8	9=7+8	10= 5x6x9	11 =0.786* 4 ^2* 5	12 =5*6 *8	13= 10-11-12	14 =11+12	
1	Zon	e I	200.00	2123.00	0.80	1.35	0.15	1.50	2547.60	66.75	254.76	2226.09	321.51	2547.60
	T	otal		2123.00		4.05			2547.60	66.75	254.76	2226.09	321.51	2547.60

	4.7.1: Risin	g Main - BO	2		
SI. No.	Description of Item	Unit			Quantity
1.0	Excavating trenches of required width for pipes cables, etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.				
	0.0 to 1.5 mtr. Depth			J (
1.1	do - in all kindes of soil - 100%	m			2547.60
2.0	Supplying and Filling in plinth with local sand and under floors including , watering, ramming consolidation and dressing complete.	cum			254.76
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329:DI-K9 (MM)				
3.1	200.00	m			2123.00
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).				
4.1	200.00	Joint			354
5.0	Providing and laying D.I. specials of class K-12 suitable for push- on jointing as per IS: 9523:				
5.1	Bends-As per BS 4772 code				
	90 degree (63.5 Kg)	kg			317.50
5.2	Taper-As per BS 4772 code				
5.2	300x200mm (34.5 Kg)	kg			34.50
5.3	Tee-As per BS 4772 code				
3.3	300x300x300 mm (79.5 Kg)	kg			79.50
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)				
6.1	200.00	No			4.00
7.0	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately)				
7.1	200.00	No			3.00
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation, disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification & drawing.				
8.1	Sluice valve chambers	No			3.00
8.2	Scour valve chambers	No			3.00
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends including the excavations of soils up to the required depth ,disposal of soils after refilling with selected available earth,providing PCC including cost of labours,materials tools,curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)				
	200.00	No	5.00		5.00
9.4	Enter Total pipe length	2123.00	m or		
	Percentage of CC Road in town Percentage of Asphalt Road in town	70 30	%		1486.1
10	Dismantling and restoration of roads :	30	/0	- - 	030.9

10.1	Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable material	cum			200.62
10.2	Bituminous courses by mechanical means	cum			28.66
10.2	Granular courses by manualmeans	cum			334.37
11	Restoration of road as per the specification and as directed by the engineer				
11.3.1	Restoration of CC road				
а	Compacting original ground supporting subgrade (Loosening of the ground upto a level of 500 mm below the subgrade level, watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.) Rolling with vibratory roller	cum			955.35
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum			71.65
С	Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound,finishing to lines and grades as per drawing)	cum			200.62
12.0	Granular Sub-base with Close graded Material (By Mix in Place Method) - Construction of Granular sub-base(GSB) by providing close graded Material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per Technical Specification				
		cum			200.62
	Total for Grading II Matrerial (50% of Total)	cum			100.31
	Total for Grading I Matrerial (50% of Total)	cum			100.31
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum			334.37
	Pavement Courses - Bituminous				
	Prime Coat - Providing and applying primer coat with Bitumen emulsion on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.6kg/sqm using mechnical means complete	sqm			1337.49
С	Tack Coat - Providing and applying tack coat with Bitumen emulsion using emulsion pressure distributor at the rate of 0.2 kg per sqm on the prepared bituminous/granular surface cleaned with mechancial broom .	sqm		 	1337.49
	Providing and laying Dense graded bituminous macadam with 100-120 TPH batch HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 % by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specifications Clause 507. (Grading II -19mm nominal size)	cum			33.44

		4.7.2: Risir	ng Main - Cost Es	stimate			
I. No.	Description of Item	Unit	No.	Quantity	Rate (INR)	Amount (INR)	
	Excavating trenches of required width for pipes cables, etc., including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth including consolidating each deposited layer by ramming, watering etc., and disposing of surplus excavated soil as directed, within a lead of 50 m.						
	0.0 to 1.5 mtr. Depth						
1.1	do - in all kindes of soil - 100%	m		2547.60			
	Supplying and Filling in plinth with local sand and under floors including, watering, ramming consolidation and dressing complete.	cum		254.76			
3.0	Providing and laying S&S Centrifugally Cast (Spun) / Ductile Iron. Pipes conforming to IS: 8329:DI-K9						
3.1	200.00	m		2123.0			1
4	Providing push on joints to Centifugally (Spun) Cast Iron Pipes or Ductile Iron Pipes inculding testing of joints and the cost of rubber gasket (one at every 6m).						
4.1	200.00	Joint		354			
5.0		•					
5.1	Bends-As per BS 4772 code						
	90 degree (63.5 Kg)	kg		317.50			1
5.2	Taper-As per BS 4772 code						1
	300x200mm (34.5 Kg)	kg		34.50			
5.3	Tee-As per BS 4772 code						
	300x300x300 mm (79.5 Kg)	kg		79.50			
6.0	Providing and fixing C.I. sluice valves (with cap) complete with bolts, nuts, rubber insertions etc. (the tail pieces if required will be paid separately)						
6.1	200.00	No		4.00			
	Providing and fixing C.I. sluice valves for Scouring (with cap) complete with bolts, nuts, rubber insertions etc.(the tail pieces if required will be paid separately)						
7.1	200.00	No		3.00			
8.0	Providing & Constructing masonry Chamber 1.5x1.5x1.5 m inside, in brick work in cement mortar 1:3 (1 cement : 3 coarse sand) for valve, with cast insitu RCC slab with necessary reinforcment. The valve chamber shall be plastered with CM 1:4, A levelling coars of M10 shall be provided. The cost is inclusive of excavation , disposal and construction of valve chamber with moduar bricks plasting with cement mortar with all lead and lift etc., as per specification & drawing.						
8.1	Sluice valve chambers	No		4.00			
8.2	Scour valve chambers	No		4.00			
9.0	Providing and constructing of the RCC Thrust Blocks for DI bends including the excavations of soils up to the required depth, disposal of soils after refilling with selected available aarth, providing PCC including cost of labours, materials tools, curing etc., complete as per drawing and as directed by the Engineer (inclusive of cost of steel)						
	90 degree	No		2.00			
9.1	Enter Total pipe length	2123.00		m			
7.1	Percentage of CC Road in town	70.00		%			

10	Dismantling and restoration of roads :				
10.1	Dismantling of cement concrete pavement (dismantling of cement concrete pavements by mechanical means using pneumatic tools, breaking to pieces not exceeding 0.02 cum in volume and stock pilling at designated locations and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable material	cum	200.62		

10.2	Dismantalling of flexible Pavements(dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 m, stacking serviceable and unserviseable materials separately)				
10.2	Bituminous courses by mechanical means	cum	28.66		
	Granular courses by manualmeans	cum	334.37		
11	Restoration of road as per the specification and as directed by the engineer				
11.1	Restoration of CC road				
	Compacting original ground supporting subgrade (Loosening of the ground upto a level of 500 mm below the subgrade level,				
	watered, graded and compacted in layers to meet requirement of table 300-2 for subgrade construction.) Rolling with vibratory roller	cum	955.35		
	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of				
	tipper to site, laying in uniform layers with paver in sub- base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	71.65		
	Cement Concrete Pavement (Construction of un-reinforced, dowel jointed, plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a patching and mixing plant as per approved mix design, transported to site, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and ongitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures as approved, curing compound, finishing to lines and grades as per drawing)	cum	200.62		
	Pavement Courses - Granular				
12	Granular Sub-base with Close graded Material (By Mix in Place Method) - Construction of Granular sub-base(GSB) by providing close graded Material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method by rotavator at OMC, and compacting with vibratory power roller to achieve the desired density, complete as per Technical Specification	cum			
	Total for Grading II Matrerial (50% of Total)	cum	100.31		
	Total for Grading I Matrerial (50% of Total)	cum	100.31		
b	Wet Mix Macadam - Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mix plant carriage of mixed mathod of tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with vibratory roller to achieve the desired density complete as per Specification	cum	334.37		
	Pavement Courses - Bituminous				
	Prime Coat - Providing and applying primer coat with Bitumen emulsion on prepared surface of granular base		1207 :0		
	ncluding cleaning of road surface and spraying primer at the rate of 0.6kg/sqm using mechnical means complete	sqm	1337.49		
С	Tack Coat - Providing and applying tack coat with Bitumen amulsion using emulsion pressure distributor at the rate of 0.2 kg per sqm on the prepared bituminous/granular surface cleaned with mechancial broom .	sqm	1337.49		
	Providing and laying Dense graded bituminous macadam with 100-120 TPH batch HIMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.0 to 4.5 % by weight of total mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with	cum	33.44		

smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specifications Clause 507. (Grading II -19mm nominal size)			
Total Cost, Rs			

	4.8 SITC of Mechanic	al Componer	its at eac	h Pumping Sta	tion	
SI.No	Description	Quantity	Units	Rate	Amount	Rate Reference
1	Manually Cleaned Bar Screen					
	The screen shall be of removable type and shall consist of a welded stainless steel (AISI410) frame with vertical flats spaced at 30 mm. The flats shall not be less than 10 mm in thickness and not less than 50 mm deep. The flats shall not have any joint. The spacing between the flats shall be uniform and preferably so maintained by adequate number of spacers, which shall be so located as not to interfere with the raking operation. To facilitate the manual cleaning of the screen the inclination of the screen shall be between 45° and 60° to the horizontal. Single piece screen width should not be more than 1.5 m.Two numbers stainless steel rollers shall be fixed on each side of frame to facilitate rolling contact with guide channel during lifting and lowering of screen.					
1.2	(500 X 1500) mm	4				
	Providing, erecting and giving test of Non clog sewage submersible pump set with SS CF8 M impeller,Cl casing,SS 316 shaft suitable for 3 Ph ,415 V , 50 Hz A.C. Supply, submersible motor having TEFC encloouser with class F insulation and IP 68 protection .The pump shall be operated					
	at 1450 RPM .The scope shall include required accessories viz					
2	automatic coupling device,guide pipe,,chain with shakle,flat submersible cable upto starter panel through suitable GI pipe (30 mtr 3 Core flat copper for each pump with necessary electrical connection with the starter panel and as per specifications. (HP)					
	16HP	,				
	4 Pumps for 2 lean, 1 peak and 1 average flow	4				
3	Providing Supplying erection testing and commissioning of 2 Tonne capacity Mobile Crane					
3.1	1 T Capacity for 7 m lift.	1				
	Total Cost, Rs					

Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, asxibiting the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete. Top slab Cum 0.60 Total Brick work with bricks of class designation 1008 in foundations and polinth in: Cement Mortar 1:4 (1 cement: 4 coarse sand) Extra for Brick work in superstructure above plinth level upto floor v cum Walls Long walls Short walls Cum 1.50 Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia Cement plaster in course sand in 1:3 -20 mm thick (1 cement: 3 coarse sand) Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar zonforming to IS: 1786 having minimum cross section as 23 mm X 25 mm and overall minimum H2 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring or relequenting on tall length on 138 mm as			400	ALVE O	HAMPED	(MACONA)	DV)	
Earthwork in execusation over areas (exceeding 1.5m in depth 1.5 m in depth 1.5 m in which as well to 3 year on pain by including deposed of execusited evoled and nearly dressed. From 0 m to 1.5 m From 0 m to 1.5 m From 3 m to 4.5 m From 3 m to 4.5 m From 3 m to 4.5 m From 6 m to 7.5 m From 6 m to 6 m From 6 m to 7.5 m From 7 m to 1.5 m From 8 m to 6 m From 8 m to 6 m From 8 m to 6 m From 9 m to 6 m From 1.5 m From 9 m to 7.5 m From 1.5 m From 9 m to 7.5 m From 1.5 m Fro			4.9 V	ALVE C	HAIVIBER	Ì	T .	
certificate in microcardian over areas (secretary). 1 Jan in regen 1.5 institib is a sile of the period bedieving depaid of certain of certain or the certain of the period and meanty decisions are selected and meanty decisions are selected and meanty decisions. If you no m to 1.5 m			I tem description	Unit	Qty			
From 3 m to 4.5 m m² 0.00 m² 0	140	in width a earth lead	s well as 10 sqm on plan) including disposal of excavated dupto 50m and lift upto 1.5m, disposal earth to be			(Huk)	(Huk)	
From 4.5 m to 6 m m² 0.00 m² 0	1	From 0 m	to 1.5 m	cum	7.02			
2 From 6 m to 7.5 m Providing and laying in position cement concrete of specified grade backulding the cost of contring and shuttering: all work upto plints are very in the cost of contring and shuttering: all work upto plints are very in the cost of contring and shuttering: all work upto plints are very in the cost of contring and shuttering: all work upto plints are very in the cost of contring shuttering, shuttering, finaling and application of the cost of contring shuttering, shuttering, finaling and shuttering and shuttering shuttering, shuttering		From 3 m	to 4.5 m	m ³	0.00			
2 From 6 m to 7.5 m Providing and slying in position cament concrete of specified grade sockulding the cost of centring and shuttering: all work upto plinth ever in 0.48 1.3.6 (1 Cement : 3 coarse sand : 6 granded stone) Providing and laying in position machine batched, machine mixed in machine bridged grade for reinforced coment concrete structural elements, sockoling the coat of centrings, shattering, finshing and shatter of the coat of centrencing, shattering, finshing and shatter of the coat of centrencing, shattering, finshing and shatter of the coat of centrencing, shattering, finshing and shatter of the coat of centrencing, shattering in the coat of centrencing, shattering in the coat of centrency shattering in the coat of centre of centre of the coat of centre of the centre of centre of the centre of centre of centre of the centre of cen		From 4.5	m to 6 m	m ³	0.00			
rovoiding and laying in position coment of specified grade sockulding the cost of contring and shutering: a flav work you poletin course of contring and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of specified grade for reinforced coment concrete structural elements, sockulding the cost of contenting, shutering in finshing and sunforcement, M-20 grade reinforced cement concrete. [op slab Comment Machine 114 (*) comment - 4 course sandy state for Principle of the Comment of Course sandy State for Principle of Course sandy in 1:33 course sandy s	2			m ³	0.00			
and machine vibrated design mix cement concrete of specified grade for reinforced cement concrete structural elements, source and control cements. In 20 grade reinforced cement concrete. Top slab Top slab Top slab Total Brick work with bricks of class designation 1008 in foundations and slow of control cement concrete. Walls Common Mortan 14 of a convent of a classes usually control control cement concrete. Walls Common Mortan 14 of a convent of a classes usually control cement concrete. Walls Common Mortan 14 of a convent of a classes usually control cement concrete. Total Quantity for walls Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars - 10 mm dia Common place of the convent of the control control cement 1:3 Sqm 18.00 Common place of the control contro	2	Providing excluding level in	and laying in position cement concrete of specified grade the cost of centring and shuttering - all work upto plinth					
Total Prick work with bricks of class designation 1008 in foundations and pirck work with bricks of class designation 1008 in foundations and pirck work in superstructure above plinth level upto floor V cum Walls Long walls Long walls Reinforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straightening, cutting, Benforcement for R. C. C work including straighten	3	and mach grade fo excluding	nine vibrated design mix cement concrete of specified r reinforced cement concrete structural elements, the cost of centering, shuttering, finishing and					
Pick work with bricks of class designation 1008 in foundations and plinth in 1. Coment Mortar 1.4 (1 cement 1.4 carses) and 2 cazes sand) Extra for Brick work in superstructure above plinth level upto floor V cum Walls ong walls Fotal Quantity for walls Reinforcement for R. C. C work including straightening, cutting, ending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia Reinforcement for R. C. C work including straightening, cutting, ending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per 15 : 10910 on 12 mm dia steel bar conforming to 15 : 1786 habity minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as per standard drawing and suitable to with stand the bend test and manufactures permanent identification marks to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm cement concrete block 13:6 (I cement : 3 cases sand : 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, plinth, sides of forundations excl. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead. Fotal Earth work Quantity Deduct P.C. C quantity Cum -0.48 Aggregate Our -0.90 Aggregate MT -0.01 Bricks (1000 Nos) Fotal Cost		Top slab		cum	0.60			
blinth in : Cement Mortar 1:4 (1 cement : 4 coarse sand)			which bricks of close designation 1000 to form this		0.60			
Comparison of		plinth in : Extra for l	Cement Mortar 1:4 (1 cement : 4 coarse sand)					
Short walls Total Quantity for walls Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars - 10 mm dia bending, placing in position and binding all complete. Thermo-Mechanically Treated bars - 10 mm dia bending, placing in position and binding all complete. Thermo-Mechanically Treated bars - 10 mm dia bending and provided in the providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per 15 : 10910 on 12 mm dia steel bar conforming to 15 : 1786 hadying minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protroided legs having 2 mm read on top surface by ribbing or chequering besides necessary and adequate anthoring projections on tall length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to 30 wiseless and provided to the stand permanent control blook 13 cf. 10 cment : 3 crosses sand : 6 rained at the provided standard design. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead. Total Earth work Quantity cum -0.48 Deduct P.C.C quantity cum -0.48 Carriage of Materials Total Cost MT -0.88 Bricks (1000 Nos) 1.3.00	4							
Total Quantity for walls Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia Cement plaster in course sand in 1:3 -20 mm thick (1 cement : 3 coarse sand) Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12 mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mm X Z5 mm and overall minimum langht 23 mm and width as 165 mm with minimum 112 mm space between protrudel legs having 2 mm read on top surface by ribbility or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as ber standard drawing and suitable to with stand the bend test and shemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manifoles with 30 x 20 x 15 cm sement concrete block 1:3 of 1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, planth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead. Fotal Earth work Quantity Deduct P.C.C quantity Cum -5.40 Carriage of Materials Coarse Sand cum 0.92 Garriage of Materials Coarse Sand cum 0.92 Carriage of Materials Coarse Sand MT 0.01 Bricks (1000 Nos) Total Cost								
Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia 6 Cement plaster in course sand in 1:3 -20 mm thick (1 cement : 3 coarse sand) 7 roviding orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12 mm dia steel bar conforming to IS : 1786 Awing minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protuded legs having 2 mm read on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as 7 per standard drawing and suitable to with stand the bend test and heming manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm perment concrete block 1:3.6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, polinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead. For the IE and								
bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia cement plaster in course sand in 1:3 -20 mm thick (1 cement : 3 coarse sand) Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910 on 12 mm dia steel bar conforming to IS : 1786 having minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm read on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as 7 per standard drawing and suitable to with stand the bend test and hemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm expensed concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidating each deposited layer by ramming and wateing lead. For International Consolidation each consolidating each deposited layer by ramming and wateing lead. For International Consolidation each consolidation each consolidation				cum	2.63			
Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS: 10910 on 12 mm dia steel bar conforming to IS: 1786 having minimum cross section as 23 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm read on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as per standard drawing and suitable to with stand the bend test and themical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in mannlose with 30 X20 X15 cm cement concrete block 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateing lead. Total Earth work Quantity	5	bending,	placing in position and binding all complete.	MT	0.06			
blastic encapsulated as per IS : 10910 on 12 mm dia steel bar conforming to IS : 1786 having minimum cross section as 22 mm X 25 mm and overall minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tall length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30 X 20 X15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) complete as per standard design. Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth : consolidating each deposited layer by ramming and vateing lead. Total Earth work Quantity Deduct P.C.C quantity Cum -0.48 Deduct Wall Quantity Cum -5.40 Total Quantity Carriage of Materials Coarse Sand Cum 0.92 Cement MT 0.88 Steel MT 0.01 Bricks (1000 Nos) Total Cost	6			Sqm	18.00			
Delinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and wateling lead. Total Earth work Quantity Deduct P.C.C quantity Deduct Wall Quantity Cum -0.48 Total Quantity Cum 1.13 Carriage of Materials Coarse Sand Cum 0.92 Aggregate Cum 0.96 Cement MT 0.88 Steel Bricks (1000 Nos) Total Cost	7	plastic en conformin 25 mm an with minir tread on t and adequ per standa chemical manufactu after fixin cement co stone agg	capsulated as per IS: 10910 on 12 mm dia steel bar g to IS: 1786 having minimum cross section as 23 mm X d overall minimum length 263 mm and width as 165 mm num 112 mm space between protruded legs having 2 mm op surface by ribbing or chequering besides necessary uate anchoring projections on tail length on 138 mm as ard drawing and suitable to with stand the bend test and resistance test as per specifications and having ure's permanent identification mark to be visible even g, including fixing in manholes with 30 X 20 X15 cm norrete block 1:3:6 (1 cement: 3 coarse sand: 6 graded	Each	5			
Deduct P.C.C quantity Deduct Wall Quantity Total Quantity Carriage of Materials Coarse Sand Aggregate Cum 0.92 Aggregate Cum 0.96 Steel MT 0.01 Bricks (1000 Nos) Total Cost		plinth, sid depth :	les of foundations etc. in layers not exceeding 20 cm in consolidating each deposited layer by ramming and					
Deduct Wall Quantity	8	Total Eart	h work Quantity	cum	7.02			
Total Quantity cum 1.13 Carriage of Materials		Deduct P.	C.C quantity	cum	-0.48			
Carriage of Materials cum 0.92 Coarse Sand cum 0.92 Aggregate cum 0.96 Cement MT 0.88 Steel MT 0.01 Bricks (1000 Nos) 1.30 Total Cost Total Cost		Deduct W	all Quantity	cum	-5.40			
Coarse Sand cum 0.92 Aggregate cum 0.96 Cement MT 0.88 Steel MT 0.01 Bricks (1000 Nos) 1.30 Total Cost				cum	1.13			
Aggregate cum 0.96 Cement MT 0.88 Steel MT 0.01 Bricks (1000 Nos) 1.30 Total Cost		Carriage o	of Materials					
Cement		Coarse Sa	and	cum	0.92			
Steel MT 0.01 Bricks (1000 Nos) 1.30 Total Cost		Aggregate		cum	0.96			
Bricks (1000 Nos) 1.30 Total Cost	9	Cement		MT	0.88]
Total Cost		Steel		MT	0.01			
Total Cost		Bricks (10	000 Nos)		1.30			1
			·					
				Do				

		4.	.10 THRUST	BLOCK - 90	O-degree
SI No	Particulars	Unit	Quantity	Rate	Amount INR
	Providing and laying in position machine batched, machine mixed, and machine vibrated design mix	cum			
1	cement concrete of specified grade for reinforced ement concrete structural elements, excluding the cost of centering, shuttering, finishing and reinforcement, M-20 grade reinforced cement concrete.	cum	2.25		
	Reduction for Pipe	cum	0.01236		
	Total Quantity	cum	2.23764		
2	Reinforcement for R. C. C work including straightening, cutting, bending, placing in position and binding all complete. Thermo - Mechanically Treated bars - 10 mm dia	MT	0.01119		
3	Centring and Shuttering including strutting, propping etc. and removal of form for	sqm	3		
		sqm	3		
	Carriage of Materials				
	Sand	cum	0.13		
4	Aggregate	cum	0.25		
	Cement	MT	0.11		
	Steel	MT	0.00		

					4.11: Pumping	g Main Design - Eco	nomical Diamete	r				
Year	Disch	arge			Design Paramete	ers	Stage I			Stage II		Pipe material
				Discharge at St	art		2.42	MLD		2.65	MLD	D.I.
2020	2.42	MLD]	Discharge at En	d of Period		2.65	MLD		2.81	MLD	
2035	2.65	MLD		Avg. Discharge			2.54	MLD		2.73	MLD	
2050	2.81	MLD		Pumping hours	at the End of Perio	d	20.00	hrs		20.00	hrs	
				Avg. Pumping h	ours during the Pe	riod	19.13	hrs		19.43	hrs	
Design	15			Life of Electric N			15.00	years		15.00	hrs	
Period				Combined Eff. Of Pump Sets			75.00	%		75.00	%	
Static Head	10.00	m		Energy Charges			6.50	Rs./Unit		12.00	Rs./Unit	
-				Interest Rate Length of Pipeli	ne		10.00 2123.00	% m		10.00	% m	
Terminal Head		m			oefficient for 15yea	nrs	7.6061			7.6061		
Static +			1	Hazen William (Coefficient for DI Pi	pes	140			120		
Terminal Head	10.00	m		Pump Cost per	KW in Rs.	•	10000.00	Rs./KW		20000.00	Rs./KW	
				KW Reqd			0.481	per m		0.510	per m	
				· · · · · · · · · · · · · · · · · · ·	trical Charge in Rs		45421.94	Head per KW		85164.34	Head per KW	
				rvg Amidai Elec	trical charge in its	Stage I	43421.74	per kw	<u> </u>	03104.34	per RW	
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m³/sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	Pump Cost including 50% standby (Lakhs Rs.)
1	250	0.25	2.54	0.037	0.75	2.14	4.54	0.45	4.99	14.99	7.218	
2	300	0.30	2.54	0.037	0.52	0.88	1.87	0.19	2.05	12.05	5.803	
3	350	0.35	2.54	0.037	0.38	0.42	0.88	0.09	0.97	10.97	5.281	
4	400	0.40	2.54	0.037	0.29	0.22	0.46	0.05	0.51	10.51	5.058	
5	450	0.45	2.54	0.037	0.23	0.12	0.26	0.03	0.29	10.29	4.951	
6	600	0.60	2.54	0.037	0.13	0.03	0.06	0.01	0.07	10.07	4.848	
7	600	0.60	2.54	0.037	0.13	0.03	0.06	0.01	0.07	10.07	4.848	
						Stage II						Pump Cost
S. No.	I.D. (mm)	I.D. (m)	Discahrge (MLD)	Discahrge (m ³ /sec)	Velocity (m/sec)	Frictional Head Loss per 1000m (m)	Total Frictional Head Loss (m)	Other Losses (m)	Total Head Loss (m)	Total Head (m)	Power Reqd (KW)	including 50% standby (Lakhs Rs.)
1	100	0.10	2.54	0.037	4.69	185.36	393.52	39.35	432.87	442.87	213.204	
2	150	0.15	2.54	0.037	2.08	25.73	54.63	5.46	60.09	70.09	33.742	
3	200	0.20	2.54	0.037	1.17	6.34	13.46	1.35	14.80	24.80	11.940	
4	250	0.25	2.54	0.037	0.75	2.14	4.54	0.45	4.99	14.99	7.218	
5	300	0.30	2.54	0.037	0.52	0.88	1.87	0.19	2.05	12.05	5.803	
6	350	0.35	2.54	0.037	0.38	0.42	0.88	0.09	0.97	10.97	5.281	
7	400	0.40	2.54	0.037	0.29	0.22	0.46	0.05	0.51	10.51	5.058	
8	450	0.45	2.54	0.037	0.23	0.12	0.26	0.03	0.29	10.29	4.951	
9	500	0.50	2.54	0.037	0.19	0.07	0.16	0.02	0.17	10.17	4.896	
10	600	0.60	2.54	0.037	0.13	0.03	0.06	0.01	0.07	10.07	4.848	
11	700	0.70	2.54	0.037	0.10	0.01	0.03	0.00	0.03	10.03	4.830	
	Rate per				Stage I							
I.D. (mm)	m length (Rs.) of DI Pipe	Pipe Cost (Lakhs Rs.)	Pump Cost (Lakhs Rs.)	Annual Energy Charges (Lakhs Rs.)	Capitilised Energy Charges (Lakhs Rs.)	Capitilised Total Cost (Lakhs Rs.)						Grand Total of Capitilised Cost (Lakhs Rs.)
100												
150												
200												
250												
300												
350												
400												
450												
730			l	J		l						

500			
600			
700			

DETAILS OF MEASUREMENT (DRAIN D-1) Drain D-1 (1000 x 500 mm) along Internal Roads Qty S.No Particulars of item Unit Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm 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 50 m. 1(a) cum 1.25 n all types of soil arth work in excavation in foundation trenches or drains (not Earth work in excavation in foundation trennes or drains (not sexceeding 1.5 m in width or 10 sqm 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 50 m. In all types of soil 1(b) 0.15 cum extra including for carriage of Sludge Open timbering in trenches including strutting and shoring omplete (Measurements to be taken of the face area 1(C) Depth not exceeding 1.5 m 1.50 Sqm lepth exceeding 1.5 m but not exceeding 3 m Sqm 0.00 Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (PCC in Drain Bottom) 1:3:6 (1 Cement :3 coarse sand :6 graded stone agregate 40 2 cum 0.25 nm nominal size) Providing designation 100 A one brick flat soling joints filled 3 with local sand including cost of watering, taxes, royalty all complete as per building specification and direction of E/I, Sqm 1.66 Brick work with bricks of class designation 100A in 4 0.28 oundations and plinth in: cum ement mortar 1:6 (1 cement: 6 coarse sand) Plastering with cement mortar (1:3) on brick work in sub-5 Per 10 sam 0.15 structure as per Technical specifications Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (Screed in Drain Channel) 1:2:4 (1 Cement: 3 coarse sand: 4 graded stone agregate 20 cum 0.10 nm nominal size) roviding and fixing precast cement concrete Kerb stone block 7 M-30 grade(size 375mmx300mm R Mtr 1.00 Centring and shuttering including strutting, propping etc. and 8 emoval of form for Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc. Sam 1.00 Providing, precast cement concrete Jali 1:2:4(1 cement: 2 coarse sand: 4 stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. Complete excluding plastering of the 9 Sqm 0.55 jambs, sills and soffits. 50 mm thick

Drain D-1 (1000 x 500 mm) along Internal Roads - Cost Estimate S.No. BSR Ref. Particulars of item Qty Rate Unit Amount											
S.No.	BSR Ref.	Particulars of item	Qty	Rate	Unit	Amount					
1(a)	BIHAR SoR- 2016/ Item No. 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm 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 50 m. In all types of soil	1.25		Per cum						
1(b)	BIHAR SoR- 2016/ Item No. 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on olan) 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 50 m. In all types of soil Extra including for carriage of Sludge	0.15		Per cum						
1 (C)	BIHAR SoR- 2016/ Item No.	Open timbering in trenches including strutting and shoring complete (Measurements to be taken of the face area timbered).									
1 (0)	2.20	Depth not exceeding 1.5 m.	1.5		sqm						
		Depth exceeding 1.5 m but not exceeding 3 m	0		sqm						
2	BIHAR SoR- 2016/ Item No. 4.4.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (PCC in Drain Bottom) 1:3:6 (1 Cement :3 coarse sand :6 graded stone agregate 40 mm nominal size)	0.25		Per cum						
3	BIHAR SoR- 2016/ Item No. 11.72	Providing designation 100 A one brick flat soling joints filled with local sand including cost of watering, taxes, royalty all complete as per building specification and direction of E/I,	1.66		Sqm						
4	BIHAR SoR- 2016/ Item No. 6.1A. Sub-item no. 6.1.14A	Brick work with bricks of class designation 100A in foundations and plinth in : Cement mortar 1:6 (1 cement: 6 coarse sand)	0.28		Per cum						
5		Plastering with cement mortar (1:3) on brick work in sub-structure as per Technical specifications	0.15		Per 10 sqm						
6	BIHAR SoR- 2016/ Item No. 4.5.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (Screed in Drain Channel) 1:2:4 (1 Cement :3 coarse sand :4 graded stone agregate 20 mm nominal size)	0.1		Per cum						
7	RCD-SOR 2017 Item No-M-200	Providing and fixing precast cement concrete Kerb stone block M-30 grade(size 375mmx300mm	1		Per R / Mtr						
8	BIHAR SoR- 2016/ Item No. 5.9.2	Centring and shuttering including strutting, propping etc. and removal of form for Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc.	1		Sqm						
9	BIHAR SoR- 2016/ Item No. 5.18.1	Providing, precast cement concrete Jali 1:2:4(1 cement:2 coarse sand:4 stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement:3 fine sand) etc. Complete excluding plastering of the jambs, sills and soffits. 50 mm thick	0.55		Sqm						
		Per Meter Cost for Drain D-4 (1000 x 500) =									

	DETAILS OF MEASUREMENT (DRAIN D-2)							
	Drain D-2 (1500 x 1000 mm) along Roads							
S.No.	Particulars of item	Unit	Qty.					
1(a)	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m . ncluding getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. In all types of soil	cum	5.94					
1(b)	Extra for every additional lift of 1.5 m or part thereof in : Ali kinds of soil.	cum	1.89					
1(C)	Open timbering in trenches including strutting and shoring complete (Measurements to be taken of the face area timbered).							
1(0)	Depth not exceeding 1.5 m.	Sqm	3.00					
	Depth exceeding 1.5 m but not exceeding 3 m	Sqm	1.40					
2	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m . ncluding getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. In all types of soil Extra including for carriage of Sludge	cum	0.15					
3	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (PCC in Drain Bottom) 1:3:6 (1 Cement :3 coarse sand :6 graded stone agregate 40 mm nominal size)	cum	0.18					
		cum	0.30					
		cum	0.48					
4	Providing designation 100 A one brick flat soling joints filled with local sand including cost of watering, taxes, royalty all complete as per building specification and direction of E/I,	Sqm	2.70					
	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering finishing and reinforcement-All work up to plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)	cum	0.36					
5		cum	0.51					
		cum	0.87					
6	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500-8mm dia.	Kg	10.44					
7	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (Screed in Drain Channel) 1:2:4 (1 Cement :3 coarse sand :4 graded stone agregate 20 mm nominal size)	cum	0.15					
8	Providing and fixing precast cement concrete Kerb stone block M-30 grade(size 375mmx300mm	R Mtr	1.00					
9	Centring and shuttering including strutting,propping etc. and removal of form for Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc.	Sqm	3.40					
10	Providing, precast cement concrete Jali 1:2:4(1 cement:2 coarse sand:4 stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. Complete excluding plastering of the lambs, sills and soffits.	Sqm	1.60					

		Drain D-6 (1500 x 1000 mm) along Roads				
S.No.	BSR Ref.	Particulars of item	Qty	Rate	Unit	Amount
1(a)	BIHAR SoR-2016/ Item No. 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm 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 50 m. In all types of soil	5.94		Per cum	
1(b)	BIHAR SoR-2016/ Item No. 2.27.1	Extra for every additional lift of 1.5 m or part thereof in : Ali kinds of soil.	1.89		Per cum	
1 (C)	BIHAR SoR-2016/ Item No. 2.20	Open timbering in trenches including strutting and shoring complete (Measurements to be taken of the face area timbered).			sqm	
		Depth not exceeding 1.5 m.	3		sqm	
		Depth exceeding 1.5 m but not exceeding 3 m	1.4		sqm	
2	BIHAR SoR-2016/ Item No. 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm 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 50 m. In all types of soil Extra including for carriage of Sludge	0.15		Per cum	
3	BIHAR SoR-2016/ Item No. 4.4.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level. (PCC in Drain Bottom) 1:3:6 (1 Cement :3 coarse sand :6 graded stone agregate 40 mm nominal size)	0.48		Per cum	
4	BIHAR SoR-2016/ Item No. 11.72	Providing designation 100 A one brick flat soling joints filled with local sand including cost of watering, taxes, royalty all complete as per building specification and direction of E/I,	2.7		Sqm	
5	BIHAR SoR-2016/ Item No. 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering ,finishing and reinforcement-All work up to plinth level 1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)	0.87		Per cum	
6	BIHAR SoR-2016/ Item No. 5.22.7A	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars TMTC-500- 8mm dia.	10.44		Kg	
7	BIHAR SoR-2016/ Item No. 4.5.2	Providing and laying in position cement concrete of specified grade extuding the cost of centring and shuttering-all work upto plinth level. (Screed in Drain Channel) 1:2:4 (1 Cement :3 coarse sand :4 graded stone agregate 20 mm nominal size)	0.15		Per cum	
8	RCD-SOR-2017 Item No-M-200	Providing and fixing precast cement concrete Kerb stone block M-30 grade(size 375mmx300mm	1		Per R / Mtr	
9	BIHAR SoR-2016/ Item No. 5.9.2	Centring and shuttering including strutting, propping etc. and removal of form for Walls (any thickness) including attached pilasters. Butteresses, plinth and string courses etc.	3.4		Sqm	
10	BIHAR SoR-2016/ Item No. 5.18.1	Providing, precast cement concrete Jali 1:2:4(1 cement: 2 coarse sand: 4 stone aggregate 6mm nominal size) reinforced with 1.6 mm dia mild steel wire including roughening cleaning, fixing and finishing in cement mortar 1:3 (1 cement: 3 fine sand) etc. Complete excluding plastering of the jambs, sills and soffits. 50 mm thick	1.6		Sqm	

Page 117 of 117