INTERNAL DEVELOPMENT WORKS DESIGN AND COST ESTIMATES

FOR

PROPOSED GROUP HOUSING

ON 12.83 Acres

IN

SECTOR – 83
AT GURGAON, MANESAR URBAN COMPLEX

DEVLOPED BY M/S VATIKA LTD.

REPORT

Gurgaon town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at a distance of 30 kms for Delhi. Being in the national capital Region, the town has fast developing tendency and potential. Further, it has also started sharing the growing Industrial load of Delhi. In order to relieve the growing pressure of population in National Capital of Delhi, it has been decided by the Haryana Government to establish various residential Sectors alongwith infrastructure facilities in Gurgaon. This report is for Proposed Group Housing Complex on land measuring 11.83 Acres at India Next ,Gurgaon. for M/s. Vatika Limited, Vatika Traingle, Sushant Lok 1, Block –A, M.G Road, Gurgaon-122002, Haryana . License no. 113/2008, no. 71 & 2nd 2010 and 02/2011) in Sec-81, 82A, 83 Gurgaon.

WATER SUPPLY

At present the source of water supply in this area is bore well. It may be noted that HUDA is laying main water trunk lines As the underground water is potable, provision for one number of Borewell have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details, for domestic purpose. The underground tanks will be filled up from the proposed bore wells or HUDA riser and the water will be pumped to the tank proposed on the roof of the building. The water supply has been designed as per Hazen Willam's formula for pressure pipes.

DESIGN :

The scheme has been designed for population as given in attached sheets.

PUMPING EQUIPMENTS

It has been proposed to install pumping set as described with standby of equal capacity. The provision for standby generating set has also been provided in case of any electricity failure. Generator will be provided separately or added to the capacity of main generator.

SEWERAGE SCHEME

This scheme is designed for captive Sewage Treatment and Recycling Plant within the Complex and only emergency overflow to be connected to HUDA sewer to be laid along main 30 m wide HUDA sector road. The sewerage system has been marked on the respective plans.

The sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the domestic water (as per MoEF guidelines for EIA approval) supply shall find its way into the underground sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self cleaning velocity. Necessary provisions for laying S.W pipe sewer line, construction of required number of manholes etc., have been made in the estimate. Manning's formula has been used for the design of sewerage system (Non-pressure under gravity flow).

Necessary design statement for entire sewerage system has been prepared and attached with estimate.

For VATIKA LIMITED

Authorised Signatory

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME , INDIA NEXT, GURGAON

STORM WATER DRAINAGE

Complete rainwater harvesting system has been adopted in accordance with CGWA and MoEF EIA guidelines. Twelve rainwater harvesting pits have been provided. The rainwater harvesting pit design details have been attached with the estimates (Annexure-III) and details incorporated in the drawings also.

Manning's formula has been used for the design of underground stormwater drainage system (Non-pressure under gravity flow).

SPECIFICATIONS

The work will be carried out in accordance with the standard specifications of P.H as laid down by the Haryana Govt./HUDA.

Roads:
Cost of road has been taken in the estimate.

Street Lighting
Provision for external lighting of proposed area has been made.

Horticulture
Estimates and details of plantation, landscaping, signage, etc., has been included.

Rates
The estimate has been based on the present market rates.

1438.00 Lacs

Cost:
The total cost of the scheme, including cost of all services works out to be **Rs ~~581.65~~ Lakhs** including 3% contingencies and 49% departmental charges, price escalation, unforeseen administrative charges.

For Vatika Ltd.

Authorized signatory

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON License in (113 of, 71 of 2010 or 62 of 2011) in Sector 82, 82A, and 83, Gurgaon - M/s Vatika Ltd.

ABSTRACT OF COST

Sub Work No.	Description	Amount in Rs. Lakhs.	
SUB WORK NO. I	WATER SUPPLY SCHEME	~~167.50~~ ~~290.29~~	368.40
SUB WORK NO.II	SEWERAGE SCHEME	~~22.82~~ ~~100.82~~	130.00
SUB WORK NO.III	STORM WATER DRINAGE	~~42.48~~ ~~77.93~~	78.00
SUB WORK NO.IV	ROAD	~~166.85~~ ~~347.75~~	385.20
SUB WORK NO.V	STREET LIGHTING	~~19.69~~ ~~24.62~~	24.70
SUB WORK NO. VI	HORTICULTURE	~~17.89~~ ~~24.76~~ 24.80	
SUB WORK NO. VII	MAINTENANCE CHARGES FOR 10 YEARS INCLUDING RESURFACING OF ROADS AFTER 1ST 5 YEARS AND 2nd 5 YEARS OF MAINTENANCE	~~144.42~~ ~~334.43~~ 426.90	
	TOTAL 1438.00	1438.00 ~~1200.60~~	

Cost per Acre = ~~581.65 per Acre~~ 1200.60 ~~1200.60~~ ~~581.65 lacs~~ / 12.83 Acre = ~~Rs. 45,335/- Per Acre~~ 93.58 112.08

For VATIKA LIMITED

Say 94 Lac

Authorised Signatory

112.10 lacs.

Executive Engineer
HUDA Division No. III
Gurgaon

Checked subject to comments in forwarding letter No. 1559 Dt. 31/1/14 and notes attached with the estimate

Executive Engineer (W)
for Chief Engineer
HUDA Panchkula

29/1/14

Superintending Engineer
HUDA Circle No. 1
Gurgaon

Director General
Town and Country Planning,
Haryana, Chandigarh

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

I. DESIGN CALCULATIONS

1. Site Area 12.83 Acre
2. Proposed FAR area = 87,399.644 sqm
3. Population = ~~3701~~ 4070
4. **Water Calculations (Refer Annexure I : Attached)**

S.No.	Floor lvl.	No. of DUs	Population density	Expected population	Water requirement per person in lpd (As/HUDA norms)	Total Water consumption in lpd	
1	Residential apartments	663	@5 persons/DU	3315	~~135~~ 172.50	~~447,525~~ 571838	
2	Domestic servants rooms	70	@2 per qrt.	140	~~135~~ 172.50	~~18,900~~ 24150	
3	EWS	123	@~~2~~ 5 per qtr.	~~246~~ 615	~~135~~ 172.50	~~33,210~~ 106088	
4	Club and Facilities	856 1	Assumed 10% population@~~15%~~ of total population	4070 611 ~~534~~	45	702076 ~~27495~~ ~~24,030~~	702 KLD
5	Workers/support staff	1	Flushing Assumed population	50	45	18315 ~~2,250~~	
~~6~~	~~Visitors~~	~~1~~	~~Assumed population@10% of total population~~	~~473~~ ~~356~~	~~15~~	~~7095~~ ~~5,340~~	
7	Evaporation losses make-up for water bodies/swimming pool etc.	~~1000 sqm~~	~~Assumed 5 mm /day/sqm surface area~~	~~1000~~	~~5~~	~~5,000~~	22140 22 KLD
8	Convenient Shopping (0.5%)	261 sqm	@3 sqm/person (visitors)	87			
			Shop works@10% population	9	45	405	
			Shoppers@90% population	78	15	1,170	
A	SUBTOTAL		Domestic Water &	6378 Flushing	Water Demand	745191 ~~537,830~~	724216

Say 725 KLD

(a) Domestic water Demand (Litres / day) (65%) ~~358,553~~ 470 KL

(b) Flushing water Demand (Litres / day) (35%) ~~179,277~~ 248696 235 KLD

B	Garden irrigation @ 5 lit/sqm/day (Assumed subject to confirmation from Landscape Architect)-20% green area assumed	~~9345.91~~ ~~17480~~ 17480	5	~~46,730~~ ~~87400~~	90 KLD

C Additional water usage (Not as per normal demand)

Add for equipment backwash @ 30 min for 8 hours operation (1 shift, backwash period 30 min)			33,614
DG cooling tower make-up (Assumed subject to confirmation from Elect. Engineer)-4000 lphx 6 hrs			24,000
DG air washers make-up (Assumed subject to confirmation from HVAC Engineer)-2000 lphx6 hours			12,000
Club house air washer (Assumed subject to confirmation from HVAC Engineer)-50 lphx12 hours			600
			~~70,214~~ 70 KLD

This demand as per ... met from Re-cycle water from STP

10 TOTAL WATER DEMAND (795+90+70) = 885 ~~654,774~~

f) Sewage influent to STP (795 x 80.) ~~479548~~ 653911 litres/day 580 KLD

Treated effluent available from STP @ 80 % ~~360000~~ 523129 litres/day

g) NET DAILY REQUIREMENT OF FRESH WATER (A-B) = ~~958,553~~ 408897 litres/day

SAY ~~280 KLD~~ ~~440 KLD~~ 470 KLD

(785 X 65%)

II. Fire demand

As per NBC of India 2005, static underground fire storage = 100 kL

Provided = ~~350~~ kL 200

(Additional storage provided for automatic sprinkler protection and provision for water curtain for basement compartmentation)

III. Underground water tanks provided: (for 12 Hrs)

Fire	~~250~~ kL 200
Raw water	~~105~~ kL
Treated water	~~265~~ kL
Recycled STP Treated water	200 kL
Soft water	~~70~~ kL 50
Total	~~640~~ kL

IV. BOREWELLS

It may be noted that HUDA is laying main water trunk lines in the vicinity of the development to supply potable water to the proposed Life Style Home Development and adjoining areas. Therefore, it is proposed to provide One (1) Nos of Borewells as supplementary source to the HUDA water supply network.

$\frac{470}{15 \times 10} = 3.13$ Say 4 Nos.

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

V. PUMPING MACHINERY FOR BOREWELLS (9 Nos)

Gross working head		45.00 mts.
Average fall in S.L.		5.00 mts.
Depression Head		5.00 mts.
Friction loss in main		10.0 mts
	Total	65.00 mts.

HP= $\frac{15000 \times 65 \times 2}{60 \times 60 \times 75 \times 0.6}$ = 12.03 SAY 12.5 HP

VI. BOOSTING MACHINERY (Water distribution pumps).

a. Potable water supply

- Daily demand/shift — ~~358,553~~ litres/day
- Pumping per hour @ 6 hr. pumping day — ~~59,758.83~~ litres/hr or ~~995.98~~ lpm
  Say ~~1000~~ lpm

Cap of each pump $\frac{1300}{2}$ = 600 LPM/Hr each

-Proposed three pumps of 600lpm each (2 working+1 standby]

Gross working head [Each pump configuration]

Suction lift		0.0 metre
Delivery head (residual)		5.0 metres
Frictional loss in mains & specials		10.0 mts.
		15.0 metres
Clear Head required		51.5 (G+15 roof)+5 metres
		56.5 metres
	Total	71.5 metres
	SAY	**75 metres**

Pump $\frac{HP - 600 \times 75}{60 \times 75 \times 0.65}$ = 15.38 HP

SAY **15 HP**

It is proposed to provide 3 nos of domestic water transfer pumping sets of 600 lpm discharge each at 75 m. head of 15 HP each (**two pumps in working** and one as standby).

b. Flushing water supply (235 KL)

- Daily demand/shift — ~~479,277~~ litres/day
- Pumping per hour @ 6 hr. pumping day — ~~20,970.5~~ litres/hr or ~~497.99~~ lpm
  Say ~~600~~ lpm

Cap of each pump $\frac{700}{2}$ = 350 LPM

Proposed two pumps of ~~300~~ lpm each (~~1~~ working+1 standby]

Gross working head [Each pump configuration]

Suction lift		0.0 metre
Delivery head (residual)		5.0 metres
Frictional loss in mains & specials		**10.0 mts.**
		15.0 metres
Clear Head required		51.5 (G+30 roof)+5 metres
		56.5 metres
	Total	71.5 metres
	SAY	**75 metres**

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Pump HP = 300 x 75 / 60x75x0.65 = 7.69 HP SAY 10 HP

It is proposed to provide 3 nos of flushing water transfer pumping sets of 300 lpm discharge each at 75 m. head of 10 HP each (**one pump in working** and one as standby).

c. Soft water transfer pumps (90+70)=160 KLD

- Daily demand/shift = 112,000 litres/day
- Pumping per hour @ 6 hr. pumping day = 18,000 litres/hr or 313.33 lpm
- Say 320 lpm

-Proposed two pumps of 160 lpm each (2 working+1 standby)

Gross working head [Each pump configuration]

Suction lift	0.0 metre
Delivery head (residual)	5.0 metres
Frictional loss in mains & specials	10.0 mts.
	15.0 metres
Clear Head require	51.5 (G+30 roof)+5 metres
	56.5 metres
Total	71.5 metres
SAY	75 metres

Pump HP = 160 x 75 / 60x75x0.65 = 4.10 HP SAY 5 HP

It is proposed to provide 3 nos of soft water transfer pumping sets of 160 lpm discharge each at 75 m. head of 5 HP each (**one pump in working** and one as standby).

VII. PUMPS FOR FIRE PROTECTION

S.NO.	PARAMETERS	LOCATION	PUMP SETS		
			JOCKEY	MAIN	DIESEL
a.	Discharge in lpm	Pump room	180	2850	2850
b.	Head in meters		150	150	150
c.	HP		15	120	120
d.	Quantity in nos		2	2	1

VIII. CAPACITY OF GENERATING SETS

S.NO.	EQUIPMENT	QTY	HP	TOTAL HP
1	TUBEWELL	2	12.50	25.00
2	DOMESTIC+FLUSHING PUMP+SOFT WATER (working pumps only considered)	3 each for domestic and 1 each for others	15x2+12.5+5=47.5	56.00
3	JOCKEY PUMP	2	15	30
	TOTAL			85 HP
				63.38 kW
			SAY	79.225 kVA

Since diesel engine pump is provided no electrical back up is required for main fire pump.

126 HP

126 X 0.746 / 0.80 = 166.55 KVA

or = 120.000

Say 120 KVA

2 X 15.000 = 30.000
2 X 10.000 = 20.000
2 X 3.000 = 6.000
560.000

Campus Lighting = 15.00 HP

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

SUB WORK No. I — **Water Supply**

1.	Sub Head No. 01	Water Supply Head Works	~~21,86,680.00~~
2.	Sub Head No. 02	Pumping Machinery	~~20,35,000.00~~
3.	Sub Head No. 03	Rising Main from HUDA	~~1,28,000.00~~
4.	Sub Head No. 04	Distribution System	~~28,24,525.00~~
5.	Sub-Head No. 05	Fire fighting	~~25,12,600.00~~
6.	Sub-Head No. 06	Irrigation	~~11,61,000.00~~
		TOTAL	~~**1,08,47,805.00**~~
		Add 3% contingencies & PH Charges	~~3,25,434.15~~
		TOTAL	~~**1,11,73,239.15**~~
		Add 49% Departmental charges, Price escalation, unforeseen, Admn. charges	~~55,74,887.18~~
		TOTAL	~~**1,67,48,126.33**~~

Say ~~167.50~~ Lakhs

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub Work No. I — Water Supply
Sub Head No. 01 — Head Works

Amount in Rs.

1. Boring and installing 510 mm I/d bore well with reverse Rotary rig Complete with pipe and strainer to a depth of About 120-metre. 3 No @ Rs. 2,50,000/- each. — Rs. 2,50,000.00

2. Provision for rising mains, connecting bore wells with Water main and Bye-pass arrangements.
   a) 100 MM X 144 M @ Rs. 720/- — Rs 1,03,680.00

3. Providing Boosting arrangement by pumps:
   Capacity 600 lpm@75 m, 15 HP-3 nos @ Rs. 75,000.00 each,
   300 lpm@75 m, 12.5HP -2 nos@ Rs. 60,000.00 each,
   160 lpm@75 m, 5HP -3 nos@ Rs. 50,000.00 each, — Rs. 4,05,000.00

4. Provision for carriage for materials — L.S. — Rs. 10,000.00

5. Construction of U.G. tanks 640 KL Rs. 2200/ KL — Rs. 14,08,000.00

6. Provision for Construction of chamber
   Size 1.50 x 1.10 x 2.00 M for housing
   Tube well – 1 no. @ Rs. 10,000/- each — Rs. 10,000.00

TOTAL — **Rs 21,86,680.00**

(C.O. cost to final abstract of cost Sub Work No.1).

Material Statement for Borewell Water Supply

Nodes	Pipe Dia In MM	Length (in Meter)
BW1 TO BW1A	100Ø	60
BW1A TO BW1B	100Ø	53
BW1B TO BWIC	100Ø	6
BW1C TO BW1D	100Ø	10
BW1D TO UG TANK	100Ø	5
BW1C TO BW1E	100Ø	4
BW1E TO FIRE TANK	100Ø	6
TOTAL		**144**

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub Work No. I — Water Supply
Sub Head No. 02 — Pumping Machinery
Amount in Rs.

1.	Providing and installing electricity driven submersible pumping set capable of delivering about 15 KL / Hr. of water against a total Head of 65 M complete with motor and other accessories. - 1 No. @ Rs. 75,000/-	Rs. 1,50,000.00
2.	Provision for diesel engine genset each for standby arrangements For T.W. & Booster Pump complete with gear head arrangements of following capacities. - 1 No. 120 KVA @ Rs. 6,00,000/-	Rs. 6,00,000.00
3.	Providing & installing pumping set of following capacity For fire protection - 180 lpm at 150m Head 2 No. @ Rs. 75000/- [elect.] - 2850 lpm at 150m Head 1 No. @ Rs. 400000/-[diesel] - 2850 lpm at 150m Head 2 No. @ Rs. 250000/- each [elect.]	Rs. 1,50,000.00 Rs. 4,00,000.00 Rs. 5,00,000.00
4.	Provision for chlorination plant complete 1 nos @ Rs. 60,000/- Each	Rs. 60,000.00
5.	Provision for making foundations and erection of Pumping Machinery (lump sum)	Rs. 50,000.00
6.	Provision for pipes, valves and specials inside the pump Chamber and boosting chamber. (Lump sum)	Rs. 50,000.00
7.	Provision for electric service connection including electrical Fittings for tube-well and boosting chamber etc. (lump sum)	Rs. 50,000.00
8.	Provision for carriage of material and other unforeseen Items etc. L/S	Rs. 25,000.00
	TOTAL --	**Rs. 20,35,000.00**

Say - 60.50 Lac

(C.O. cost to final abstract of cost Sub Work No.1).

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub-Work No. I — Water Supply
Sub Head No. 03 — Rising Main from HUDA
Amount in Rs.

1. Providing, laying, jointing and testing CI/GI pipe lines Including cost of excavation etc. complete in all respects.
   - 100 mm dia. 91 m @ Rs. ~~1000/-~~ M — Rs. ~~91,000.00~~ 1365[illegible]
2. Providing and fixing sluice valve including cost of surface boxes And masonry chambers etc. complete in all respects.
   - 100mm i/d 3 No. @ Rs. ~~5500~~/- each — Rs. ~~11,000.00~~
3. Providing and fixing indicating plates for sluice valve and air valves
   2 No.@ Rs. ~~500~~/- each — Rs. ~~1000.00~~
4. Providing and fixing air release and scour valve
   - 1no. @ Rs. ~~5000~~/- each — Rs. ~~5,000.00~~
4. Provision for carriage for materials and other Unforeseen items (L/S) — Rs. ~~5,000.00~~
5. Provision for cutting of roads and making good to its original Conditions. (L/S) — Rs. ~~15,000.00~~

Total — Rs. ~~1,28,000.00~~

(C.O. cost to final abstract of cost Sub Work No.1).

Friction loss calculation for HUDA rising main:

S.NO.	Line	Daily Demand KL	Peak flow (2.5xav. Flow)	Length Mtr.	Dia mm	Friction loss in line	Velocity ft/sec.
1.	HUDA-UG tank	285 KLD	712 KLD	91	100	0.125 m	2.62 (0.8 m/s)

Material Statement for Municipal Water Supply		
Nodes	Pipe Dia In MM	Length (in Meter)
M1 TO M2	100Ø	86
M2 TO UG TANK	100Ø	5
TOTAL		**91**

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub Work No. I — Water Supply
Sub-Head No. 04 — Distribution System

		Amount in Rs.
1. Providing, Laying, jointing and testing G.I pipe line including Fittings cost of excavation etc. complete **in all respect.**		
- G.I Pipe (Domestic) 100mm, 1087 M @ Rs.1000.00	Rs.	10,87,000.00
- G.I. pipe (Domestic) 50 mm ,544 M@ Rs.600.00	Rs.	3,26,400.00
- GI pipe (Flushing) 100 mm, 1080 M@ Rs.1000.00	Rs.	10,80,000.00
- GI pipe (Flushing) 40 mm, 535 M@ Rs.475.00	Rs.	2,54,125.00
2. Provision for carriage for materials and others unforeseen items	Rs.	50,000.00
3. Providing and fixing sluice valve;		
- 100 mm dia 2 nos@ Rs. 6,500/- each	Rs.	13,000.00
- 50 mm dia 2 Nos. @ Rs. 3000/- each	Rs.	6,000.00
- 40 mm dia 2 Nos. @ Rs. 2500/- each	Rs.	5,000.00
4. Providing and fixing indicating plates for sluice valves 6 Nos.@ Rs. 500/- each	Rs.	3,000.00
Total	**Rs.**	**28,24,525.00**

(C.O. cost to final abstract of cost Sub Work No.1).

Bill of Materials [Reference drawing: A-01]

Material Statement for Domestic Water Supply

Nodes	Pipe Dia In MM Sizes	Length (in Meter)
UG TANK TO D1	100Ø	5
D1 - D2	100Ø	15
D2 - D3	100Ø	5
D3 - D4	100Ø	79
D4 - D5	100Ø	52
D5 - D6	100Ø	137
D6 - D7	100Ø	7
D7 - D8	100Ø	26
D8 - D9	100Ø	31
D9 - D10	100Ø	90
D10 - D11	100Ø	89

D11 - D12	100Ø	67
D12 - D13	100Ø	60
D13 - D14	100Ø	112
D14 - D15	100Ø	121
D15 - D16	100Ø	59
D16 - D17	100Ø	113
D17 - D3	100Ø	19
Total		**1087**
D3 - D4 - BLG. - A	50Ø	31
D5 - D6 - BLG. - B1	50Ø	87
D5 - D6 - BLG. - B2	50Ø	88
D7 - D8 - BLG. - B3	50Ø	16
D10 - D11 - BLG.- W	50Ø	43
D10 - D11 - BLG.- W	50Ø	42
D10 - D11 - BLG.- W	50Ø	50
D13 - D14 - BLG.- N	50Ø	28
D13 - D14 - BLG.- N	50Ø	26
D13 - D14 - BLG.- N	50Ø	26
D13 - D14 - BLG.- N	50Ø	26
D14 - D15 - BLG.- E	50Ø	21
D14 - D15 - BLG.- E	50Ø	22
D14 - D15 - BLG.- E	50Ø	24
D16 - D17 - BLG.- S	50Ø	14
Total	100Ø	**544**

Material Statement for Flushing Water Supply

Nodes	Pipe Dia In MM	Length (in Meter)
	Sizes	
UG TANK TO F1	100Ø	5
F1 – F2	100Ø	15
F2 - F3	100Ø	5
F3 – F4	100Ø	79
F4 - F5	100Ø	52
F5 – F6	100Ø	135
F6 - F7	100Ø	7
F7 – F8	100Ø	26
F8 - F9	100Ø	31
F9 – F10	100Ø	90
F10 - F11	100Ø	87
F11 – F12	100Ø	66
F12 - F13	100Ø	60
F13 – F14	100Ø	112
F14 - F15	100Ø	121
F15 – F16	100Ø	59

F16 – F17	100Ø	111
F17 – F3	100Ø	19
Total		**1080**
F3 - F4 - BLG. - A	40Ø	31
F5 – F6 - BLG. - B1	40Ø	85
F5 - F6 - BLG. - B2	40Ø	85
F7 – F8 - BLG. - B3	40Ø	16
F10 – F11 - BLG.- W	40Ø	40
F10 – F11 - BLG.- W	40Ø	42
F10 - F11 - BLG.- W	40Ø	50
F13 – F14 - BLG.- N	40Ø	28
F13 - F14 - BLG.- N	40Ø	26
F13 – F14 - BLG.- N	40Ø	26
F13 - F14 - BLG.- N	40Ø	26
F14 – F15 - BLG.- E	40Ø	20
F14 – F15 - BLG.- E	40Ø	22
F14 – F15 - BLG.- E	40Ø	24
F16 – F17 - BLG.- S	40Ø	14
Total	100Ø	**535**

Sub Work No. I
Sub-Head No. 05

Water Supply
Fire fighting
Amount in Rs.

1. Providing, Laying, jointing and testing M.S pipe line Including fittings, cost of excavation etc. complete In all respects.
   - M.S. pipe 150mm dia 1755M @ Rs. 1220/- M — Rs. 21,41,100.00

2. Providing and fixing Sluice valve -150mm dia 10 nos @ Rs. 8500/- each — Rs. 85,000.00

3. Providing and fixing fire hydrants with accessories 43 nos @ Rs. 5000/- each — Rs. 2,15,000.00

4. Provision for carriage of materials & other unseen items etc.L.S — Rs. 50,000.00

5. Provision for indicating plates 43 nos@ Rs. 500 each — Rs. 21,500.00

Total — **Rs. 25,12,600.00**

(C.O. cost to final abstract of cost Sub Work No.1).

Say 12.88 Lac

Bill of Materials [Reference drawing: A-01]

Material Statement for Fire Fighting Supply Line		
Nodes	Pipe Dia In MM	Length (in Meter)
	Sizes	
UG TANK TO F1	150Ø	5
F1 - F2	150Ø	15
F2 – F3	150Ø	5
F3 - F4	150Ø	79
F4 – F5	150Ø	52
F5 - F6	150Ø	135
F5 – F6- BLG. - B1	150Ø	218
F5 - F6- BLG. - B2	150Ø	69
F5 – F6- BLG. - B3	150Ø	65
F6 - F7	150Ø	7
F7 – F8	150Ø	26
F8 - F9	150Ø	31
F9 – F10	150Ø	90
F10 - F11	150Ø	87
F11 – F12	150Ø	66
F11 - F12 - BLG. - W	150Ø	34
F12 – F13	150Ø	60
F13 - F14	150Ø	112
F14 – F15	150Ø	121
F14 - F15 - BLG. - N	150Ø	100
F15 – F16	150Ø	59
F15 - F16 - BLG. - E1	150Ø	107
F15 – F16 - BLG. - E2	150Ø	64
F16 - F17	150Ø	111
F16 – F17 - BLG. - S	150Ø	18
F17 – F3	150Ø	19
Total		**1755**
NOS. OF EFH		~~43~~ ~~33~~ 43

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub Work No. I — Water Supply
Sub Head – 6 — Garden Irrigation

S.NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Providing, laying, jointing and testing HDPE pipes lines conforming to IS-4984 including cost of excavation etc. complete in all respects.			1200/-	1296000
	Pipe 100Ø	Mtr	1080	950	10,26,000.00
2	Providing and fixing CI butterfly valve with valve chamber 100 mm size	Each	3	4500 6000	13,500.00 18000
3	Providing and fixing irrigation pumps complete with foundation, motor control panel, cabling etc. Set of two pumps	Set	1	200,000 2	200,000.00 2
4	Providing and fixing irrigation hydrant valves in all respect.			1000/-	23000
	25mm dia	Each	23	500	11,500.00
5	Provision for carriage of materials and other unforeseen items	L/S		10000	50000 10,000.00
	TOTAL			50,000/-	11,61,000.00

1581000

(C.O. cost to final abstract of cost Sub Work No.1). Say 15.84 ~~15.87 Lac~~ 15.90 Lac.

Material Statement for Garden Irrigation Supply		
Nodes	Pipe Dia In MM	Length (in Meter)
	Sizes	
UG TANK TO IRR	100Ø	5
IRR1 - IRR2	100Ø	15
IRR2 - IRR3	100Ø	5
IRR3 - IRR4	100Ø	79
IRR4 - IRR5	100Ø	52
IRR5 - IRR6	100Ø	135
IRR6 - IRR7	100Ø	7
IRR7 - IRR8	100Ø	26
IRR8 - IRR9	100Ø	31
IRR9 - IRR10	100Ø	90
IRR10 - IRR11	100Ø	87
IRR11 - IRR12	100Ø	66
IRR12 - IRR13	100Ø	60
IRR13 - IRR14	100Ø	112
IRR14 - IRR15	100Ø	121
IRR15 - IRR16	100Ø	59
IRR16 - IRR17	100Ø	111
IRR17 - IRR3	100Ø	19
Total		**1080**
NOS. OF G.HYDRANT		**23**

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub-Work No. II

Sewerage Scheme
Amount in Rs.

1.	Providing, jointing, cutting and testing SW pipe class "A" and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. Complete.	
	a) SW pipe 200 mm i/d avg. depth 0-2 M 1387 M @ Rs. ~~1000~~/M	Rs. ~~13,87,000.00~~
	b) Provision for lighting and watching	Rs. ~~25,000.00~~
	c) Provision for timbering and shoring	Rs. ~~25,000.00~~
	d) Provision for making connection with HUDA	Rs. ~~25,000.00~~
	e) Provision for carriage of material (L.S)	Rs. ~~25,000.00~~
	TOTAL	Rs. ~~14,87,000.00~~
	Add 3% contingencies & PH charges	Rs ~~44,610.00~~
	TOTAL	Rs. ~~15,31,610.00~~
	Add 49% Departmental charges, price escalation, Unforeseen admn. charges	Rs. ~~7,50,488.90~~
	Total	**Rs. ~~22,82,098.90~~**

Say ~~22.82~~ Lakhs

(C.O. to final abstract of cost).

Design statement

. Carrying capacity of 200 mm dia sewer line at half full at 0.68m/sec. velocity = 0.12 Cum/sec

Max. Discharge from proposed site = 0.0044 Cum/sec

Therefore, proposed pipe diameter is enough

DESIGN CRITERIA FOR CALCULATION OF SEWERAGE DISCHARGE

Total domestic demand	=	~~285~~KLD	
Peak flow	=	3 times average flow	
Flow of sewage	=	80% of peak flow	
Avg. Sewage discharge	=	~~285~~ x 0.80	= ~~228~~ KLD
	=	~~228~~/24	= ~~9.50~~Cum/hr
Peak Sewage discharge	=	~~9.50~~ x 3	= ~~28.50~~ Cum/hr
		~~28.50~~/3600	= ~~0.0079~~ Cum/sec

Therefore the proposed dia of 200 mm @1:175 slope is more than adequate.

Sub-Work No. II Sewerage Scheme

Bill of Materials [Reference drawing: A-01]

SEWERAGE MATERIAL STATEMENT		
S.NO.	NAME OF LINE	LENGTH OF SEWER LINE IN METRES
		SIZE
		200Ø
1	MH1-MH2	9
2	MH2-MH3	21
3	MH3-MH4	35
4	MH4-MH5	22
5	MH5-MH6	22
6	MH6-MH7	17
7	MH7-MH8	16
8	MH8-MH9	14
9	MH9-MH10	8
10	MH10-MH11	7
11	MH12-MH13	13
12	MH13-MH14	24
13	MH14-MH11	25
14	MH11-MH15	9
15	MH15-MH16	15
16	MH16-MH17	6
17	MH17-MH17A	22
18	MH17A-MH18	20
19	MH18-MH19	13
20	MH19-MH20	19
21	MH20-MH21	19
22	MH21-MH22	19
23	MH22-MH23	12
24	MH23-MH24	11
25	MH24-MH25	5
26	MH25-MH26	4
27	MH26-MH27	6
28	MH27-MH28	5
29	MH28-MH33	5
30	MH29-MH30	8
31	MH30-MH31	4
32	MH31-MH32	4
33	MH32-MH33	13
34	MH33-MH34	7
35	MH34-MH35	5

36	MH35-MH36	8
37	MH36-MH37	8
38	MH37-MH51	13
39	MH38-MH39	2
40	MH39-MH40	6
41	MH40-MH41	5
42	MH41-MH42	7
43	MH42-MH43	6
44	MH43-MH44	7
45	MH44-MH45	6
46	MH45-MH46	10
47	MH46-MH47	17
48	MH47-MH48	8
49	MH48-MH49	10
50	MH49-MH50	8
51	MH50-MH51	11
52	MH51-MH52	8
53	MH52-MH53	8
54	MH53-MH54	14
55	MH54-TO EXIT CITY	8
56	MH55-MH56	10
57	MH56-MH56A	22
58	MH56A-MH56B	16
59	MH56B-MH54	24
60	MH57-MH58	7
61	MH58-MH59	14
62	MH59-MH60	16
63	MH60-MH61	18
64	MH61-MH62	14
65	MH62-MH63	17
66	MH63-MH64	14
67	MH64-MH65	14
68	MH66-MH67	22
69	MH67-MH68	16
70	MH68-MH69	17
71	MH69-MH70	9
72	MH70-MH71	9
73	MH71-MH65	10
74	MH65-MH72	5
75	MH72-MH73	5
76	MH73-MH74	9
77	MH74-MH75	11
78	MH75-MH76	9
79	MH76-MH77	13
80	MH77-MH78	17
81	MH78-MH79	19
82	MH79-MH80	20
83	MH80-MH81	23

84	MH82A-MH82	13
85	MH82-MH81	10
86	MH81-MH83	7
87	MH84-MH85	29
88	MH85-MH83	29
89	MH83-MH86	22
90	MH86-MH87	4
91	MH87-MH88	8
92	MH88-MH89	5
93	MH89-MH90	5
94	MH90-MH91	5
95	MH91-MH92	9
96	MH92-MH93	4
97	MH93-MH94	8
98	MH94-MH95	5
99	MH95-MH96	4
100	MH96-MH97	9
101	MH98-MH99	8
102	MH99-MH100	8
103	MH100-MH101	8
104	MH101-MH102	2
105	M102-MH103	3
106	MH103-MH97	15
107	MH97-MH104	20
108	MH105-MH106	4
109	MH106-MH104	18
110	MH107-MH108	3
111	MH108-MH109	3
112	MH109-MH110	4
113	MH110-MH111	8
114	MH111-MH112	2
115	MH112-MH113	7
116	MH113-MH114	12
117	MH114-MH104	17
118	MH104-MH115	19
119	MH115-MH116	8
120	MH116-TO EXIT CITY	8
TOTAL		**1387**

TOTAL SEWER LENGTH 1387 m @ 200 mm Dia

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Sub-Work No. III — Storm Water Scheme

Amount in Rs.

1a) Providing, laying, RCC pipe class NP-3 including ~~cutting~~, jointing and ~~covering~~ Manholes etc.complete in all respects.

i) 400mm dia RCC pipe 1744 M @ ~~1250/M~~ 1750		Rs. ~~14,82,400.00~~
b) Provision for road gullies& connecting pipe	L.S.	Rs. 50,000.00
c) Provision for lighting and watching		Rs. ~~45~~,000.00
d) Provision for timbering and shoring		Rs. ~~45~~,000.00
e) Provision for making connection with HUDA		Rs. ~~225~~,000.00
f) Provision for carriage of material (L.S)		Rs. ~~75~~,000.00
g) Provision for rainwater harvesting arrangements @ Rs. 1.00 lacks per acrex11.359 Acres		Rs. 11,35,900.00
Total		**Rs ~~27,68,300.00~~**
Add 3% contingencies & P.H. charges		Rs. ~~83,049.00~~
		Rs. 28,51,349.00
Add 49% Departmental charges, price escalation, Unforeseen admn. charges		Rs. 13,97,161.00
Total		**Rs. ~~42,48,510.00~~**
Say		**Rs. ~~42.48~~ Lakhs**

(C.O. cost to final abstract of cost).

Design Statement

1.	Area of site	- 11.359 acres
2.	Run off @ ¼" rainfall [For coefficient of runoff=0.7]	- 3.435 cusec.
3.	Average load per recharge pit (main 12 zones)	- 0.202 cusec
4.	Carrying capacity 400 dia pipe at 2.30-ft./sec velocities	- 0.650 cusec.

Therefore, proposed drain size is enough to carry discharge from site.

Sub-Work No. III — Storm Water Scheme

Bill of Materials [Reference drawing: A-01

STORMWATER MATERIAL STATEMENT	

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

S.NO.	NAME OF LINE	LENGTH OF DRAIN LINE IN METRES
		SIZE
		400MM
1	MH1-MH2	14
2	MH2-MH3	16
3	MH3-MH4	17
4	MH4-RW PIT	3
5	RW PIT-MH5	4
6	MH5-MH6	19
7	MH6-MH7	24
8	MH7-MH8	22
9	MH8-MH18	10
10	MH9-MH10	11
11	MH10-MH11	3
12	MH11-MH12	7
13	MH12-MH13	8
14	MH13-MH14	4
15	MH14-MH15	9
16	MH15-MH16	10
17	MH16-MH17	11
18	MH17-MH18	10
19	MH18-RW PIT	4
20	RW PIT-MH19	1
21	MH19-MH20	17
22	MH20-MH21	6
23	MH21-MH22	11
24	MH22-MH23	6
25	MH23-MH30	6
26	MH24-MH25	15
27	MH25-MH26	8
28	MH26-MH27	8
29	MH27-MH28	14
30	MH28-MH29	22
31	MH29-MH30	14
32	MH30-MH31	10
33	MH31-RW PIT	7
34	RW PIT-MH33	3
35	MH32-MH33	7
36	MH33-MH34	22
37	MH34-MH35	26

38	MH35-MH36	22
39	MH36-MH37	23
40	MH37-MH38	23
41	MH38-MH39	17
42	MH39-RW PIT	3
43	RW PIT-MH40	5
44	MH40-MH41	21
45	MH41-MH42	5
46	MH42-MH43	13
47	MH43-RW PIT	5
48	RW PIT-MH50	2
49	MH44-MH45	13
50	MH45-MH46	23
51	MH46-MH47	18
52	MH47-MH48	14
53	MH48-MH49	12
54	MH49-MH50	9
55	MH50-MH57	8
56	MH51-MH52	8
57	MH52-MH53	11
58	MH53-MH54	8
59	MH54-MH55	10
60	MH55-MH56	10
61	MH56-MH57	8
62	MH57-MH58	11
63	MH58-MH59	8
64	MH59-MH75	8
65	MH60-MH61	12
66	MH61-MH62	9
67	MH62-MH63	13
68	MH63-MH64	3
69	MH64-MH65	21
70	MH65-MH67	16
71	MH66-MH67	16
72	MH67-MH68	22
73	MH68-RW PIT	10
74	RW PIT-MH74	4
75	MH69-MH73	10
76	MH70-MH71	6
77	MH71-MH72	8
78	MH72-MH73	10
79	MH73-MH74	5

80	MH74-MH75	28
81	MH75-DRAIN PIPE EXIT TO CITY	11
82	MH76-MH77	18
83	MH77-RW PIT	3
84	RW PIT-MH78	3
85	MH78-MH79	13
86	MH79-MH106	20
87	MH80-MH81	3
88	MH81-MH82	11
89	MH82-MH83	5
90	MH83-MH86	9
91	MH84-MH85	21
92	MH85-MH86	21
93	MH86-MH87	9
94	MH87-MH93	10
95	MH88-MH89	7
96	MH89-MH90	13
97	MH90-MH92	8
98	MH91-MH92	9
99	MH92-MH93	8
100	MH93-MH94	10
101	MH94-MH100	8
102	MH95-MH96	7
103	MH96-MH100	13
104	MH97-MH98	23
105	MH98-MH99	7
106	MH99-MH100	12
107	MH100-MH101	9
108	MH101-MH104	7
109	MH102-MH103	7
110	MH103-MH104	13
111	MH104-MH105	10
112	MH105-MH106	20
113	MH106-MH107	16
114	MH107-MH108	7
115	MH108-RW PIT	3
116	RW PIT-MH109	3
117	MH109-MH110	19
118	MH110-MH111	24
119	MH111-RW PIT	5
120	RW PIT-MH112	8

121	MH112-MH113	12
122	MH113-MH114	12
123	MH114-MH115	9
124	MH115-MH122	10
125	MH116-MH117	15
126	MH117-MH118	16
127	MH118-MH122	6
128	MH119-MH120	10
129	MH120-MH121	7
130	MH121-MH122	10
131	MH122-RW PIT	7
132	RW PIT-MH123	3
133	MH123-MH124	8
134	MH124-MH125	18
135	MH125-MH126	28
136	MH126-RW PIT	3
137	RW PIT-MH127	2
138	MH127-MH128	14
139	MH128-MH130	5
140	MH129-MH130	21
141	MH130-MH131	12
142	MH131-MH132	15
143	MH132-MH133	13
144	MH133-MH134	13
145	MH134-MH143	20
146	MH135-MH136	8
147	MH136-MH137	5
148	MH137-MH138	11
149	MH138-MH139	10
150	MH139-MH140	8
151	MH140-MH141	6
152	MH141-MH142	10
153	MH142-MH143	27
154	MH143-RW PIT	5
154	RW PIT- MH144	4
GRAND TOTAL		**1744**

TOTAL STORMWATER PIPE LENGTH 1744 m @ 400 mm Dia

Sub Work No. IV **ROAD WORK FOR (BY OTHERS)**

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Annexure -11

Roads & Foot Paths

S. No.	Description of Work	Area in Sq.mt.
1	Provison for Levelling & Earth filling as per site Conditions 12.83acres @Rs. 70000/- per acres	8,98,100
2	Soling coat 100 mm thick (63-45) mm gauge compacted to 75 mm thick WBM conforming to MOT specifications (Table 400-6, Grading No. 2)	
#	Wearing (Top coat) coat 100 mm thick (53-22.4) mm gauge compacted to 75 mm thick WBM conforming to MOT specifications (Table 400-6, Grading No. 3)	
#	25 mm thick premix carpet with seal coat21786 sq.mt. @ Rs. 350/-per sq.mt.	76,25,100
3	Provison for Kerbs & Channels of CC 1:2:5 –4711 Rmt. @Rs. 350/-per Rmt.	16,48,850
4	Provison for making approach to each block and pavements. LS	500,000.00
5	Provison for guide map and other unforseen & indicating board etc.LS	50,000.00
6	Provison for Traffic Light arrangement LS	50,000.00
7	Provison for carriage of material & unforseen charges LS	100,000.00
8.		
	TOTAL	108,72,050
	Add 3% contingencies & PE charges	3,26,161
	TOTAL	111,98,211
	Add 49% Department Charges, Price Escalation, unforseen, Admn. Charges	54,87,123
	GRAND TOTAL	166,85,334
	SAY	166,85

Road no.	Width in Meter	Length in Meter	Metalled Potion	Area in Sq.m.
		PLOT-1		
1-2	6	90	---	540
2-8	6	95	----	570
2-3	6	16	----	96
3-7	6	95	----	570
3-4	6	25	----	150
4-6	6	40		240
4-5	6	33	----	198
5-6	6	80	----	480
6-7	6	75	----	444
7-7a	6	112	----	672
7a-8	6	102	----	612

7a-9a	4.5	46	----	207
8-9	6	15	----	90
9-9a	6	82	----	492
9a-10	6	110	----	660
10-11	6	195	----	1170
11-12	6	23	----	138
12-13	6	100	----	600
13-14	6	15	----	90
14-15	6	123		738
15-9	6	22		132
15-15a	7	40	----	280
16-16a	7	25		175
16-8	6	15		90
15-17	6	37		222
17-17a	6	115		690
17a-14	6	10		60
17-18	6	127		762
18-19	6	15		90
19-18	6	15		90
20-21	6	10		60
21-22	6	110		660
22-23	6	108		648
23-21	6	21		126
	TOTAL	**2141**		**12842sqm**

Annexure -11

Sub-Work No. IV

TOTAL LENGTH OF ROADS = **2141 M**

TOTAL AREA UNDER ALL ROADS = 12842 SQM

ADD ~~10%~~ 5% FOR CURVES = ~~1284.2~~ 642

ADD 10% FOR APPROACH TO TOWERS = 1284.2

14768 14770

TOTAL AREA REQUIRED FOR ROADS = ~~15410.4 to say = 15411~~

NO. OF CAR PARKING ON SURFACE = 255

AREA REQUIRED FOR CAR PARKING (25 SQM. PER CAR) = 6375

21450

TOTAL AREA REQUIRED FOR ROADS & CAR PARKING = ~~21786~~

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

LENGTH OF KERB =2141X2+10% FOR APPROACH ROADS = 4710.2to say 4711

Sub Work No. V

Amount in Rs.

Providing street lighting on roads as per standard specifications of HVPN approx. 12.83 acres @ ~~1,00,000~~ 125000/- acres	= Rs. ~~12,83,000/-~~ 1603750
Add 3% contingencies and PC Charges	= Rs. ~~38,490/-~~ 48113
Total	= Rs. ~~13,21,490/-~~ 1651863
Add 49% Departmental charges, Price Escalation, Unforeseen Adm.	= Rs. ~~6,47,530/-~~ 809413
Total	= Rs. ~~19,69,020/-~~ 2461275
Say	~~= Rs. 19.69Lakhs~~ 24.62 lacs 24.70 lac.

Carry Over to Final Abstract of Cost

Annexure -13

Sub Work No. VI

Plantation & Road side Trees

HORTICULTURE

S. No.	Description of Work	Area in Sq.mt.
1	Development of Lawn Aeas	
#	Trenching the ordinary soil upto depth of 60 cm i.e. removal and staging of serviceable material & disposing by spreading and leveling within a lead of 50 mt. and making up the trench area for proper levels by filling with e-arth or earth mixed with manure before or after flooding trench with water i.e. cost of imported earth and manure	
#	Rough dressing of Turfed Area	

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

Grassing with " DOOB GRASS " i.e watering and maintenance of lawns for 30 days till the grass forma a thick lawn, free from weeds and fit mowing in rows 7.5cm part in either direction including provisioning for hedges and turbed wire around park.

\# 12.83 acre organized green @ Rs. ~~70000~~ 100000/- /acre ~~Rs. 8,98,100~~ 1283000-00

Providing and planting trees along 6.0mt. Wide and more width at 12mt. Interval

Total Road Length = 2141.Rmt.

2 No. of Trees (2141/12x2) = 356.83 Nos. say 357 Nos.

Cost Details

Excavation	= Rs. ~~30.00~~ 50-00
Manure	= Rs. ~~60.00~~ 75-00
Tree Plant	= Rs. ~~60.00~~ 100-00
Tree Guard	= ~~Rs. 600.00~~ 700-00
Total 925	= Rs. ~~750.00~~ 925-00/-
357 .Nos. @ Rs. ~~750.00~~ each	~~Rs. 2,67,750~~ 330225-00
	TOTAL ~~Rs. 11,65,850~~ 1613225-00

Add 3% contingencies & PE charges

	TOTAL ~~34,975~~ 48397-00
	~~Rs. 12,00,825~~ 1661622-00

Add 49% Department Charges, Price Escalation, unforseen, Admn. Charges

~~5,88,404~~ 814195-00

GRAND TOTAL ~~17,89,229~~	2475816-00
SAY ~~17,89~~	24.80 lacs

Say Rs. ~~17.89~~ 24.86 lakhs
(C.O. to final abstract of cost)

Annexure -14

Sub Work No. VII

SUBHEAD VII - MTC CHARGES & RESURFACING OF ROADS

S. No.	Description of Work	Area in Sq.mt.
1 \#	Provison for Maintainence charges for Water Supply, Sewerage, Storm Water, Drainage, Roads, Street Lighting, Horticulture, etc. including Operation & establishment charges as HUDA norms after completion 12.83acres @ Rs. ~~2.75Lacs~~ 4-00 per acre 500	6415,000/- 51,32,000-00 ~~35,28,250~~
2 \#	Provison of Resurfacing of Roads after first five years of maintainence i.e. 100mmthk. With 25mmthk. premix carpet with seal coat with mechanical paver ~~21788~~ 21400 sq.mt @ ~~180~~ 500 400 per sq.mt. (50m BM + 20mm PC.)	85,60,000/- 10700000-00 ~~39,21,480~~

C.E. No. 1554
Dated 31/1/14
Annexure-

SUB:- Approval of Service Plan / Estimate for Group Housing Colony on the land measuring 12.83 acres) License No. 113 of 2008 dated 01.06.2008, 71 of 2010 dated 15.09.2010 and 62 of 2011 dated 02.07.2012) falling in the Residential Plotted Colony in Sec-82, 82A, 83, Gurgaon Manesar Urban Complex being developed by M/S. Vatika Ltd.

Technical note and comments:-

1. All detailed working drawings would have to be prepared by the colonizer for Integrating the internal services proposals with the master proposals of town.
2. The correctness of the levels will be the sole, responsibility of the colonizer for the integration of internal proposals, with the master proposals, of town and will be got confirmed before execution.
3. The material to be used shall the same specifications as are being adopted by HUDA and further shall also confirm to such directions, as issued by Chief Engineer, HUDA from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HUDA. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HUDA from time to time.
5. The colonizer will be fully responsible to meet the demand of water supply and allied services till such time these are made available by State Government/ HUDA. All link connections with the State Government/ HUDA system and services will be done by the colonizer. If necessary extra tube-wells shall also be installed to meet extra demand of water beyond the provision according to EDC deposited.
6. Structural design & drawings of all the structures, such as pump chamber, boosting chamber, RCC OHSR underground tanks quarters, manholes chamber, sections of RCC pipes sewer and SW pipes, sewer, ventilating shafts for sewerage and Masonry Ventilation Chamber for Chamber for storm water drainage, temporary disposal/ arrangement etc. will be as per relevant I.S codes and PWD specifications; colonizer himself will be responsible for structural stability of all structures.
7. Potability of water will be checked and confirmed and the tube-wells will be put into operation after getting chemical analysis of water tested.

C.E. No.

Dated:-

8. Only C.I/D.I pipes will be used in water supply and flushing system, UPVC/HDPE pipe for irrigation purposes.
9. A minimum 100 i/d C.I/D.I, 200mm i/d SW and 400mm id RCC NP-3 pipes will be used for water supply, sewerage and storm water drainage respectively.
10. Standard X-section for S.W. pipes sewer, RCC pipes sewer etc. will be followed as are being adopted in Haryana Public Health Engineering Deptt.or HUDA.
11. The X-section, width of roads, will be followed as approved by the Chief Town Planner, Haryana, Chandigarh. The kerbs and channels will also be provided as per approved X-section and specifications.
12. The specifications for various roads will be followed as per IRC/MORTH specifications.
13. The wiring system of street lighting and specifications of street lighting fixture will be as per relevant standards.
14. This shall confirm to such other conditions as are incorporated in the approved estimate and the letter of approval.

Executive Engineer (W),

For Chief Administrator, HUDA,

Panchkula

SERVICE PLAN ESTIMATE FOR PROPOSE LIFE STYLE HOME, INDIA NEXT, GURGAON

3 #	Provison of Resurfacing of Roads after first ten years of maintainence i.e. ~~100mmthk. With 25mmthk. premix carpet with seal coat with~~ mechanical paver ~~21786~~ sq.mt @ Rs. ~~90~~ per sq.mt.	~~19,60,740~~
	TOTAL ~~94,10,470~~	
	Add 3% contingencies & PE charges	
	TOTAL ~~2,82,314~~	
	TOTAL ~~96,92,784~~	
	Add 49% Department Charges, Price Escalation, unforseen, Admn. Charges	
	TOTAL = ~~47,49,464~~	
	GRAND TOTAL ~~144,42,248~~	
	SAY ~~144,42~~	

Say Rs. ~~144.42~~ lakhs

SEWERAGE LINE

Annexure-II

S.NO	SEWER LINE	Tower No.	Total Population	Total Water Requirement	Sewage Discharge (LPD)			Average Sewage Discharge	Peak Sewage Discharge		SIZES	Velocity	Design Discharge	LENGTH	SLOPE	Fall in Metres	Ground Level	Invert Level		Depth		
				LPD	Self	Branch	Total	LPS	LPS	Cusec		feet/sec	cusec			As per pipe slope		Start	End	Start	End	Average
														M			M	M	M	M	M	M
1	MH1-MH2	BLG- N	35	5434	4347	0	4347	0.05	0.151	0.005	200	2.59	0.044	9	175	0.05	231.66	230.44	230.38	1.22	1.28	1.25
2	MH2-MH3	BLG- N	40	6210	4968	4347	9315	0.11	0.323	0.011	200	2.59	0.044	21	175	0.12	231.54	230.38	230.25	1.16	1.29	1.22
3	MH3-MH4		0	0	0	9315	9315	0.11	0.323	0.011	200	2.59	0.044	35	175	0.20	231.54	230.25	230.04	1.29	1.50	1.40
4	MH4-MH5	BLG- N	150	23288	18630	9315	27945	0.32	0.970	0.034	200	2.59	0.044	22	175	0.13	231.54	230.04	229.90	1.50	1.64	1.57
5	MH5-MH6	BLG- N	230	35708	28566	27945	56511	0.65	1.962	0.069	200	2.59	0.044	22	175	0.13	231.54	229.90	229.76	1.64	1.78	1.71
6	MH6-MH7	BLG- N	230	35708	28566	56511	85077	0.98	2.954	0.103	200	2.59	0.044	17	175	0.10	231.32	229.76	229.65	1.56	1.67	1.61
7	MH7-MH8		0	0	0	85077	85077	0.98	2.954	0.103	200	2.59	0.044	16	175	0.09	231.32	229.65	229.55	1.67	1.77	1.72
8	MH8-MH9	BLG- N	40	6210	4968	85077	90045	1.04	3.127	0.109	200	2.59	0.044	14	175	0.08	231.32	229.55	229.46	1.77	1.86	1.81
9	MH9-MH10	BLG- N	35	5434	4347	90045	94392	1.09	3.278	0.115	200	2.59	0.044	8	175	0.05	231.40	229.46	229.42	1.94	1.98	1.96
10	MH10-MH11		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	7	175	0.04	231.40	229.42	229.37	1.98	2.03	2.01
11	MH12-MH13		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	13	175	0.07	231.55	229.38	230.30	2.17	1.25	1.71
12	MH13-MH14		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	24	175	0.14	231.55	230.30	230.15	1.25	1.40	1.33
13	MH14-MH11		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	25	175	0.14	231.40	230.15	230.00	1.25	1.40	1.33
14	MH11-MH15		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	9	175	0.05	231.40	229.37	229.31	2.03	2.09	2.06
15	MH15-MH16		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	15	175	0.09	231.43	229.31	229.21	2.12	2.22	2.17
16	MH16-MH17		0	0	0	94392	94392	1.09	3.278	0.115	200	2.59	0.044	6	175	0.03	231.39	229.21	229.17	2.18	2.22	2.20
17	MH17-MH17A	BLG- W	310	48128	38502	94392	132894	1.54	4.614	0.162	200	2.59	0.044	22	175	0.13	231.39	229.17	229.03	2.22	2.36	2.29
18	MH17A-MH18		0	0	0	132894	132894	1.54	4.614	0.162	200	2.59	0.044	20	175	0.11	231.18	229.03	228.91	2.15	2.27	2.21
19	MH18-MH19		0	0	0	132894	132894	1.54	4.614	0.162	200	2.59	0.044	13	175	0.07	231.18	228.91	228.83	2.27	2.35	2.31
20	MH19-MH20		0	0	0	132894	132894	1.54	4.614	0.162	200	2.59	0.044	19	175	0.11	231.18	228.83	228.71	2.35	2.47	2.41
21	MH20-MH21		0	0	0	132894	132894	1.54	4.614	0.162	200	2.59	0.044	19	175	0.11	231.30	228.71	228.59	2.59	2.71	2.65
22	MH21-MH22		0	0	0	132894	132894	1.54	4.614	0.162	200	2.59	0.044	19	175	0.11	231.30	228.59	228.47	2.71	2.83	2.77
23	MH22-MH23	BLG- W	300	46575	37260	132894	170154	1.97	5.908	0.207	200	2.59	0.044	12	175	0.07	231.41	228.47	228.39	2.94	3.02	2.98
24	MH23-MH24		0	0	0	170154	170154	1.97	5.908	0.207	200	2.59	0.044	11	175	0.06	231.41	228.39	228.32	3.02	3.09	3.06
25	MH24-MH25	EWS	20	3105	2484	170154	172638	2.00	5.994	0.210	200	2.59	0.044	5	175	0.03	231.41	228.32	228.28	3.09	3.13	3.11
26	MH25-MH26	EWS	20	3105	2484	172638	175122	2.03	6.081	0.213	200	2.59	0.044	4	175	0.02	231.41	228.28	228.25	3.13	3.16	3.15
27	MH26-MH27	EWS	40	6210	4968	175122	180090	2.08	6.253	0.219	200	2.59	0.044	6	175	0.03	231.41	228.25	228.21	3.16	3.20	3.18
28	MH27-MH28	EWS	20	3105	2484	180090	182574	2.11	6.339	0.222	200	2.59	0.044	5	175	0.03	231.41	228.21	227.17	3.20	4.24	3.72
29	MH28-MH33		20	3105	2484	182574	185058	2.14	6.426	0.225	200	2.59	0.044	5	175	0.03	231.41	227.17	228.13	4.24	3.28	3.76
30	MH29-MH30	EWS	20	3105	2484	185058	187542	2.17	6.512	0.228	200	2.59	0.044	8	175	0.05	231.80	230.20	230.14	1.60	1.66	1.63
31	MH30-MH31	EWS	40	6210	4968	187542	192510	2.23	6.684	0.234	200	2.59	0.044	4	175	0.02	231.80	230.14	230.11	1.66	1.69	1.68
32	MH31-MH32	EWS	20	3105	2484	192510	194994	2.26	6.771	0.237	200	2.59	0.044	4	175	0.02	231.80	230.11	230.08	1.69	1.72	1.71
33	MH32-MH33	EWS	20	3105	2484	194994	197478	2.29	6.857	0.240	200	2.59	0.044	13	175	0.07	231.80	230.08	230.00	1.72	1.80	1.76
34	MH33-MH34		0	0	0	197478	197478	2.29	6.857	0.240	200	2.59	0.044	7	175	0.04	231.41	228.13	228.08	3.28	3.33	3.30
35	MH34-MH35	EWS	20	3105	2484	197478	199962	2.31	6.943	0.243	200	2.59	0.044	5	175	0.03	231.28	228.08	228.04	3.20	3.24	3.22
36	MH35-MH36	EWS	20	3105	2484	199962	202446	2.34	7.029	0.246	200	2.59	0.044	8	175	0.05	231.28	228.04	227.99	3.24	3.29	3.27
37	MH36-MH37	EWS	4	621	497	202446	202943	2.35	7.047	0.247	200	2.59	0.044	8	175	0.05	231.28	227.99	227.94	3.29	3.34	3.32
38	MH37-MH51		0	0	0	202943	202943	2.35	7.047	0.247	200	2.59	0.044	13	175	0.07	231.35	227.94	227.86	3.41	3.49	3.45
39	MH38-MH39	BLG- B2	20	3105	2484	202943	205427	2.38	7.133	0.250	200	2.59	0.044	2	175	0.01	231.65	230.50	230.48	1.15	1.17	1.16
40	MH39-MH40	BLG- B2	20	3105	2484	205427	207911	2.41	7.219	0.253	200	2.59	0.044	6	175	0.03	231.65	230.48	230.44	1.17	1.21	1.19

41	MH40-MH41	BLG- B2	20	3105	2484	207911	210395	2.44	7.305	0.256	200	2.59	0.044	5	175	0.03	231.65	230.44	230.40	1.21	1.25	1.23
42	MH41-MH42		0	0	0	210395	210395	2.44	7.305	0.256	200	2.59	0.044	7	175	0.04	231.65	230.40	230.35	1.25	1.30	1.28
43	MH42-MH43	BLG- B2	20	3105	2484	210395	212879	2.46	7.392	0.259	200	2.59	0.044	6	175	0.03	231.54	230.35	230.31	1.19	1.23	1.21
44	MH43-MH44	BLG- B2	20	3105	2484	212879	215363	2.49	7.478	0.262	200	2.59	0.044	7	175	0.04	231.54	230.31	230.26	1.23	1.28	1.26
45	MH44-MH45		0	0	0	215363	215363	2.49	7.478	0.262	200	2.59	0.044	6	175	0.03	231.54	230.26	230.22	1.28	1.32	1.30
46	MH45-MH46	BLG- B2	20	3105	2484	215363	217847	2.52	7.564	0.265	200	2.59	0.044	10	175	0.06	231.51	230.22	230.15	1.29	1.36	1.32
47	MH46-MH47		0	0	0	217847	217847	2.52	7.564	0.265	200	2.59	0.044	17	175	0.10	231.51	230.15	230.04	1.36	1.47	1.41
48	MH47-MH48		0	0	0	217847	217847	2.52	7.564	0.265	200	2.59	0.044	8	175	0.05	231.50	230.04	229.98	1.46	1.52	1.49
49	MH48-MH49	BLG- B3	20	3105	2484	217847	220331	2.55	7.650	0.268	200	2.59	0.044	10	175	0.06	231.50	229.98	229.91	1.52	1.59	1.56
50	MH49-MH50		0	0	0	220331	220331	2.55	7.650	0.268	200	2.59	0.044	8	175	0.05	231.50	229.91	229.85	1.59	1.65	1.62
51	MH50-MH51	BLG- B3	20	3105	2484	220331	222815	2.58	7.737	0.271	200	2.59	0.044	11	175	0.06	231.39	229.85	229.78	1.54	1.61	1.57
52	MH51-MH52		0	0	0	222815	222815	2.58	7.737	0.271	200	2.59	0.044	8	175	0.05	231.39	227.86	227.80	3.53	3.59	3.56
53	MH52-MH53		0	0	0	222815	222815	2.58	7.737	0.271	200	2.59	0.044	8	175	0.05	231.32	227.80	227.75	3.52	3.57	3.54
54	MH53-MH54	BLG- B3	20	3105	2484	222815	225299	2.61	7.823	0.274	200	2.59	0.044	14	175	0.08	231.32	227.75	227.66	3.57	3.66	3.61
55	MH54-TO EXIT CITY		0	0	0	225299	225299	2.61	7.823	0.274	200	2.59	0.044	8	175	0.05	232.12	227.66	227.66	4.46	4.46	4.46
56	MH55-MH56	BLG- B3	20	3105	2484	225299	227783	2.64	7.909	0.277	201	2.60	0.044	10	175	0.06	231.37	231.25	231.18	0.12	0.19	0.16
57	MH56-MH56A		0	0	0	227783	227783	2.64	7.909	0.277	202	2.61	0.045	22	175	0.13	231.37	231.18	231.05	0.19	0.32	0.25
58	MH56A-MH56B	BLG- B3	20	3105	2484	227783	230267	2.67	7.995	0.280	203	2.61	0.046	16	175	0.09	231.37	231.05	230.95	0.32	0.42	0.37
59	MH56B-MH54	BLG- B3	20	3105	2484	230267	232751	2.69	8.082	0.283	204	2.62	0.046	24	175	0.14	231.37	230.95	227.66	0.42	3.71	2.07
60	MH57-MH58		0	0	0	232751	232751	2.69	8.082	0.283	200	2.59	0.044	7	175	0.04	231.55	230.38	230.33	1.17	1.22	1.20
61	MH58-MH59	BLG- E	40	6210	4968	232751	237719	2.75	8.254	0.289	200	2.59	0.044	14	175	0.08	231.55	230.33	230.24	1.22	1.31	1.27
62	MH59-MH60	BLG- E	35	5434	4347	237719	242066	2.80	8.405	0.294	200	2.59	0.044	16	175	0.09	231.66	230.24	230.14	1.42	1.52	1.47
63	MH60-MH61		0	0	0	242066	242066	2.80	8.405	0.294	200	2.59	0.044	18	175	0.10	231.66	230.14	230.03	1.52	1.63	1.58
64	MH61-MH62	BLG- E	230	35708	28566	242066	270632	3.13	9.397	0.329	200	2.59	0.044	14	175	0.08	231.66	230.03	229.94	1.63	1.72	1.68
65	MH62-MH63		0	0	0	270632	270632	3.13	9.397	0.329	200	2.59	0.044	17	175	0.10	231.87	229.94	229.84	1.93	2.03	1.98
66	MH63-MH64	BLG- E	230	35708	28566	270632	299198	3.46	10.389	0.364	200	2.59	0.044	14	175	0.08	231.87	229.84	229.75	2.03	2.12	2.08
67	MH64-MH65		0	0	0	299198	299198	3.46	10.389	0.364	200	2.59	0.044	14	175	0.08	231.87	229.75	229.66	2.12	2.21	2.17
68	MH66-MH67	BLG- S	80	12420	9936	299198	309134	3.58	10.734	0.376	200	2.59	0.044	22	175	0.13	231.59	230.54	230.41	1.05	1.18	1.12
69	MH67-MH68	BLG- S	80	12420	9936	309134	319070	3.69	11.079	0.388	200	2.59	0.044	16	175	0.09	231.76	230.41	230.31	1.35	1.45	1.40
70	MH68-MH69	BLG- S	80	12420	9936	319070	329006	3.81	11.424	0.400	200	2.59	0.044	17	175	0.10	231.76	230.31	230.20	1.45	1.56	1.51
71	MH69-MH70	BLG- E	40	6210	4968	329006	333974	3.87	11.596	0.406	200	2.59	0.044	9	175	0.05	231.76	230.20	230.14	1.56	1.62	1.59
72	MH70-MH71	BLG- S & E	115	17854	14283	333974	348257	4.03	12.092	0.423	200	2.59	0.044	9	175	0.05	231.87	230.14	230.08	1.73	1.79	1.76
73	MH71-MH65		0	0	0	348257	348257	4.03	12.092	0.423	200	2.59	0.044	10	175	0.06	231.87	230.08	230.01	1.79	1.86	1.83
74	MH65-MH72		0	0	0	348257	348257	4.03	12.092	0.423	200	2.59	0.044	5	175	0.03	231.87	229.66	229.62	2.21	2.25	2.23
75	MH72-MH73		0	0	0	348257	348257	4.03	12.092	0.423	200	2.59	0.044	5	175	0.03	231.87	229.62	229.58	2.25	2.29	2.27
76	MH73-MH74	BLG- S	40	6210	4968	348257	353225	4.09	12.265	0.429	200	2.59	0.044	9	175	0.05	231.87	229.58	229.52	2.29	2.35	2.32
77	MH74-MH75	BLG- S	40	6210	4968	353225	358193	4.15	12.437	0.435	200	2.59	0.044	11	175	0.06	231.96	229.52	229.45	2.44	2.51	2.48
78	MH75-MH76		0	0	0	358193	358193	4.15	12.437	0.435	200	2.59	0.044	9	175	0.05	231.96	229.45	229.39	2.51	2.57	2.54
79	MH76-MH77		0	0	0	358193	358193	4.15	12.437	0.435	200	2.59	0.044	13	175	0.07	231.96	229.39	229.30	2.57	2.66	2.62
80	MH77-MH78	BLG- S	80	12420	9936	358193	368129	4.26	12.782	0.447	200	2.59	0.044	17	175	0.10	231.87	229.30	229.20	2.57	2.67	2.62
81	MH78-MH79	BLG- S	80	12420	9936	368129	378065	4.38	13.127	0.459	200	2.59	0.044	19	175	0.11	231.87	229.20	229.08	2.67	2.79	2.73
82	MH79-MH80	BLG- S	80	12420	9936	378065	388001	4.49	13.472	0.472	200	2.59	0.044	20	175	0.11	231.78	229.08	228.95	2.70	2.83	2.77
83	MH80-MH81	BLG- S	80	12420	9936	388001	397937	4.61	13.817	0.484	200	2.59	0.044	23	175	0.13	231.78	228.95	228.81	2.83	2.97	2.90
84	MH82A-MH82	BLG- S	40	6210	4968	397937	402905	4.66	13.990	0.490	200	2.59	0.044	13	175	0.07	231.59	230.38	230.30	1.21	1.29	1.25
85	MH82-MH81	BLG- S	40	6210	4968	402905	407873	4.72	14.162	0.496	200	2.59	0.044	10	175	0.06	231.55	230.30	230.23	1.25	1.32	1.29
86	MH81-MH83		0	0	0	407873	407873	4.72	14.162	0.496	200	2.59	0.044	7	175	0.04	231.69	228.81	228.76	2.88	2.93	2.91
87	MH84-MH85		0	0	0	407873	407873	4.72	14.162	0.496	200	2.59	0.044	29	175	0.17	231.57	229.45	229.36	2.12	2.21	2.16
88	MH85-MH83		0	0	0	407873	407873	4.72	14.162	0.496	200	2.59	0.044	29	175	0.17	231.55	229.36	229.27	2.19	2.28	2.24
89	MH83-MH86		0	0	0	407873	407873	4.72	14.162	0.496	200	2.59	0.044	22	175	0.13	231.69	228.76	228.63	2.93	3.06	3.00
90	MH86-MH87		0	0	0	407873	407873	4.72	14.162	0.496	200	2.59	0.044	4	175	0.02	232.00	228.63	228.60	3.37	3.40	3.39
91	MH87-MH88	BLG- B1	20	3105	2484	407873	410357	4.75	14.249	0.499	200	2.59	0.044	8	175	0.05	232.00	228.60	228.55	3.40	3.45	3.43
92	MH88-MH89		0	0	0	410357	410357	4.75	14.249	0.499	200	2.59	0.044	5	175	0.03	232.00	228.55	228.51	3.45	3.49	3.47
93	MH89-MH90	BLG- B1	20	3105	2484	410357	412841	4.78	14.335	0.502	200	2.59	0.044	5	175	0.03	232.00	228.51	228.47	3.49	3.53	3.51
94	MH90-MH91	BLG- B1	20	3105	2484	412841	415325	4.81	14.421	0.505	200	2.59	0.044	5	175	0.03	232.65	228.47	228.43	4.18	4.22	4.20
95	MH91-MH92		0	0	0	415325	415325	4.81	14.421	0.505	200	2.59	0.044	9	175	0.05	232.65	228.43	228.37	4.22	4.28	4.25

96	MH92-MH93	BLG- B1	20	3105	2484	415325	417809	4.84	14.507	0.508	200	2.59	0.044	4	175	0.02	232.65	228.37	228.34	4.28	4.31	4.30
97	MH93-MH94	BLG- B1	20	3105	2484	417809	420293	4.86	14.594	0.511	200	2.59	0.044	8	175	0.05	232.90	228.34	228.29	4.56	4.61	4.59
98	MH94-MH95		0	0	0	420293	420293	4.86	14.594	0.511	200	2.59	0.044	5	175	0.03	232.90	228.29	228.25	4.61	4.65	4.63
99	MH95-MH96	BLG- B1	20	3105	2484	420293	422777	4.89	14.680	0.514	200	2.59	0.044	4	175	0.02	232.90	228.25	228.22	4.65	4.68	4.67
100	MH96-MH97		0	0	0	422777	422777	4.89	14.680	0.514	200	2.59	0.044	9	175	0.05	232.90	228.22	228.16	4.68	4.74	4.71
101	MH98-MH99	BLG- A	30	4658	3726	422777	426503	4.94	14.809	0.518	200	2.59	0.044	8	175	0.05	232.90	231.34	231.29	1.56	1.61	1.59
102	MH99-MH100	BLG- A	30	4658	3726	426503	430229	4.98	14.939	0.523	200	2.59	0.044	8	175	0.05	232.90	231.29	231.24	1.61	1.66	1.64
103	MH100-MH101		0	0	0	430229	430229	4.98	14.939	0.523	200	2.59	0.044	8	175	0.05	232.90	231.24	231.19	1.66	1.71	1.69
104	MH101-MH102	BLG- A	30	4658	3726	430229	433955	5.02	15.068	0.527	200	2.59	0.044	2	175	0.01	232.90	231.19	231.17	1.71	1.73	1.72
105	MH102-MH103		0	0	0	433955	433955	5.02	15.068	0.527	200	2.59	0.044	3	175	0.02	232.90	231.17	231.14	1.73	1.76	1.75
106	MH103-MH97	BLG- A	30	4658	3726	433955	437681	5.07	15.197	0.532	200	2.59	0.044	15	175	0.09	232.90	231.14	231.04	1.76	1.86	1.81
107	MH97-MH104	BLG- A	30	4658	3726	437681	441407	5.11	15.327	0.536	200	2.59	0.044	20	175	0.11	232.90	228.16	228.04	4.74	4.86	4.80
108	MH105-MH106	BLG- A	30	4658	3726	441407	445133	5.15	15.456	0.541	200	2.59	0.044	4	175	0.02	232.90	231.39	231.36	1.51	1.54	1.55
109	MH106-MH104	BLG- A	30	4658	3726	445133	448859	5.20	15.585	0.545	200	2.59	0.044	18	175	0.10	232.90	231.36	231.25	1.54	1.65	1.64
110	MH107-MH108	BLG- A	40	6210	4968	448859	453827	5.25	15.758	0.552	200	2.59	0.044	3	175	0.02	232.90	231.34	231.31	1.56	1.59	1.62
111	MH108-MH109		0	0	0	453827	453827	5.25	15.758	0.552	200	2.59	0.044	3	175	0.02	232.90	231.31	231.28	1.62	1.62	1.66
112	MH109-MH110	BLG- A	20	3105	2484	453827	456311	5.28	15.844	0.555	200	2.59	0.044	4	175	0.02	232.90	231.28	231.25	1.65	1.65	1.69
113	MH110-MH111		0	0	0	456311	456311	5.28	15.844	0.555	200	2.59	0.044	8	175	0.05	232.90	231.25	231.20	1.70	1.70	1.74
114	MH111-MH112	BLG- A	30	4658	3726	456311	460037	5.32	15.974	0.559	200	2.59	0.044	2	175	0.01	232.90	231.20	231.18	1.72	1.72	1.79
115	MH112-MH113	BLG- A	30	4658	3726	460037	463763	5.37	16.103	0.564	200	2.59	0.044	7	175	0.04	232.90	231.18	231.13	1.77	1.77	3.32
116	MH113-MH114	BLG- A	30	4658	3726	463763	467489	5.41	16.232	0.568	200	2.59	0.044	12	175	0.07	232.90	231.13	231.05	1.85	1.85	3.42
117	MH114-MH104		0	0	0	467489	467489	5.41	16.232	0.568	200	2.59	0.044	17	175	0.10	232.52	231.05	230.94	4.86	1.58	3.09
118	MH104-MH115		0	0	0	467489	467489	5.41	16.232	0.568	200	2.59	0.044	19	175	0.11	232.52	228.04	227.92	4.98	4.60	4.63
119	MH115-MH116		0	0	0	467489	467489	5.41	16.232	0.568	200	2.59	0.044	8	175	0.05	232.52	227.92	227.86	4.60	4.66	2.33
120	MH116-TO EXIT CITY		0	0	0	467489	467489	5.41	16.232	0.568	200	2.59	0.044	8	175	0.05	232.52	227.86	227.86	4.66	4.66	2.33

STORM WATER LINE

Annexure-III

S.NO	LINE NO.	Self Area (m2)	Self Area (Acre)	Branch Area (Acre)	Total Area (Acre)	Total Area (Hec)	Rain Fall mm/hr	Discharge @17.36 lps/Hec	SIZES	SLOPE	LENGTH	Velocity m/sec.	Cap of pipe in lps.	Fall in line mtr.	Ground Level	Invert Level Start	Invert Level End	Depth Start	Depth End	Average
											M				M	M	M	M	M	M
1	MH1-MH2	223	0.06	0	0.06	0.02	6.25	0.39	400	570	14	0.60	75.63	0.02	231.66	230.14	230.11	1.52	1.55	1.54
2	MH2-MH3	298	0.07	0.06	0.13	0.05	6.25	0.91	400	570	16	0.60	75.63	0.03	231.66	230.11	230.08	1.55	1.58	1.56
3	MH3-MH4	280	0.07	0.13	0.20	0.08	6.25	1.41	400	570	17	0.60	75.63	0.03	231.54	230.08	230.05	1.46	1.49	1.47
4	MH4-RW PIT 1	145	0.04	0.20	0.24	0.10	6.25	1.66	400	570	3	0.60	75.63	0.01	231.54	230.05	230.05	1.49	1.49	1.49
5	RW PIT 1-MH5	0	0.00	0.24	0.24	0.10	6.25	1.66	400	570	4	0.60	75.63	0.01	231.54	230.05	230.05	1.49	1.49	1.49
6	MH5-MH6	237	0.06	0.00	0.06	0.02	6.25	0.42	400	570	19	0.60	75.63	0.03	231.54	230.02	229.98	1.52	1.56	1.54
7	MH6-MH7	297	0.07	0.06	0.13	0.05	6.25	0.94	400	570	24	0.60	75.63	0.04	231.54	229.98	229.93	1.56	1.61	1.58
8	MH7-MH8	234	0.06	0.13	0.19	0.08	6.25	1.35	400	570	22	0.60	75.63	0.04	231.42	229.93	229.89	1.49	1.53	1.51
9	MH8-MH18	214	0.05	0.19	0.25	0.10	6.25	1.72	400	570	10	0.60	75.63	0.02	231.32	229.89	229.87	1.43	1.45	1.44
10	MH9-MH10	0	0.00	0.25	0.25	0.10	6.25	1.72	400	570	11	0.60	75.63	0.02	231.54	230.04	230.02	1.50	1.52	1.51
11	MH10-MH11	585	0.15	0.25	0.39	0.16	6.25	2.75	400	570	3	0.60	75.63	0.01	231.54	230.02	230.01	1.52	1.53	1.52
12	MH11-MH12	0	0.00	0.39	0.39	0.16	6.25	2.75	400	570	7	0.60	75.63	0.01	231.54	230.01	230.00	1.53	1.54	1.54
13	MH12-MH13	0	0.00	0.39	0.39	0.16	6.25	2.75	400	570	8	0.60	75.63	0.01	231.54	230.00	229.98	1.54	1.56	1.55
14	MH13-MH14	0	0.00	0.00	0.00	0.00	6.25	0.00	400	570	4	0.60	75.63	0.01	231.54	229.98	229.97	1.56	1.57	1.57
15	MH14-MH15	652	0.16	0.00	0.16	0.07	6.25	1.14	400	570	9	0.60	75.63	0.02	231.54	229.97	229.95	1.57	1.59	1.58
16	MH15-MH16	0	0.00	0.16	0.16	0.07	6.25	1.14	400	570	10	0.60	75.63	0.02	231.54	229.95	229.93	1.59	1.61	1.60
17	MH16-MH17	609	0.15	0.16	0.32	0.13	6.25	2.21	400	570	11	0.60	75.63	0.02	231.32	229.93	229.91	1.39	1.41	1.40
18	MH17-MH18	0	0.00	0.32	0.32	0.13	6.25	2.21	400	570	10	0.60	75.63	0.02	231.32	229.91	229.87	1.41	1.45	1.43
19	MH18-RW PIT 2	175	0.04	0.32	0.36	0.15	6.25	2.52	400	570	4	0.60	75.63	0.01	231.32	229.87	229.86	1.45	1.46	1.45
20	RW PIT 2-MH19	0	0.00	0.36	0.36	0.15	6.25	2.52	400	570	1	0.60	75.63	0.00	231.32	229.87	229.86	1.45	1.46	1.45
21	MH19-MH20	152	0.04	0.36	0.40	0.16	6.25	2.79	400	570	17	0.60	75.63	0.03	231.32	229.82	229.79	1.50	1.53	1.52
22	MH20-MH21	352	0.09	0.40	0.49	0.20	6.25	3.41	400	570	6	0.60	75.63	0.01	231.32	229.79	229.77	1.53	1.55	1.54
23	MH21-MH22	0	0.00	0.00	0.00	0.00	6.25	0.00	400	570	11	0.60	75.63	0.02	231.32	229.77	229.75	1.55	1.57	1.56
24	MH22-MH23	264	0.07	0.00	0.07	0.03	6.25	0.46	400	570	6	0.60	75.63	0.01	231.40	229.75	229.74	1.65	1.66	1.66
25	MH23-MH30	0	0.00	0.07	0.07	0.03	6.25	0.46	400	570	6	0.60	75.63	0.01	231.40	229.74	229.73	1.66	1.67	1.67
26	MH24-MH25	860	0.22	0.07	0.28	0.11	6.25	1.97	400	570	15	0.60	75.63	0.03	231.58	230.14	230.11	1.44	1.47	1.46
27	MH25-MH26	588	0.15	0.28	0.43	0.17	6.25	3.01	400	570	8	0.60	75.63	0.01	231.55	230.11	230.09	1.44	1.46	1.45
28	MH26-MH27	0	0.00	0.43	0.43	0.17	7.25	3.01	400	570	8	0.60	75.63	0.01	231.55	230.09	230.07	1.46	1.48	1.47
29	MH27-MH28	534	0.13	0.43	0.56	0.23	8.25	3.94	400	570	14	0.60	75.63	0.02	231.55	230.07	230.04	1.48	1.51	1.50
30	MH28-MH29	453	0.11	0.56	0.67	0.27	9.25	4.74	400	570	22	0.60	75.63	0.04	231.55	230.04	230.00	1.51	1.55	1.53
31	MH29-MH30	0	0.00	0.67	0.67	0.27	10.25	4.74	400	570	14	0.60	75.63	0.02	231.40	230.00	229.97	1.40	1.43	1.42
32	MH30-MH31	265	0.07	0.67	0.74	0.30	11.25	5.20	400	570	10	0.60	75.63	0.02	231.40	229.73	229.71	1.67	1.69	1.68
33	MH31-RW PIT 3	2821	0.71	0.74	1.45	0.59	12.25	10.16	400	570	7	0.60	75.63	0.01	231.43	229.71	229.70	1.72	1.73	1.73
34	RW PIT 3-MH33	0	0.00	1.45	1.45	0.59	13.25	10.16	400	570	3	0.60	75.63	0.01	231.43	229.71	229.70	1.72	1.73	1.73
35	MH32-MH33	0	0.00	1.45	1.45	0.59	14.25	10.16	400	570	7	0.60	75.63	0.01	231.39	229.51	229.49	1.88	1.90	1.89

36	MH33-MH34	1240	0.31	1.45	1.76	0.71	15.25	12.34	400	570	22	0.60	75.63	0.04	231.39	229.49	229.45	1.90	1.94	1.92
37	MH34-MH35	0	0.00	1.76	1.76	0.71	16.25	12.34	400	570	26	0.60	75.63	0.05	231.18	229.45	229.00	1.73	2.18	1.96
38	MH35-MH36	0	0.00	1.76	1.76	0.71	17.25	12.34	400	570	22	0.60	75.63	0.04	231.18	229.00	228.96	2.18	2.22	2.20
39	MH36-MH37	1315	0.33	1.76	2.09	0.84	18.25	14.64	400	570	23	0.60	75.63	0.04	231.18	228.96	228.91	2.22	2.27	2.25
40	MH37-MH38	1645	0.41	2.09	2.50	1.01	19.25	17.53	400	570	23	0.60	75.63	0.04	231.18	228.91	228.87	2.27	2.31	2.29
41	MH38-MH39	0	0.00	2.50	2.50	1.01	20.25	17.53	400	570	17	0.60	75.63	0.03	231.41	228.87	228.84	2.54	2.57	2.55
42	MH39-RW PIT 4	1035	0.26	2.50	2.76	1.11	21.25	19.35	400	570	3	0.60	75.63	0.01	231.41	228.84	228.83	2.57	2.58	2.57
43	RW PIT 4-MH40	0	0.00	2.76	2.76	1.11	22.25	19.35	400	570	5	0.60	75.63	0.01	231.41	228.84	228.83	2.57	2.58	2.57
44	MH40-MH41	0	0.00	2.76	2.76	1.11	23.25	19.35	400	570	21	0.60	75.63	0.04	231.80	229.91	229.87	1.89	1.93	1.91
45	MH41-MH42	495	0.12	2.76	2.88	1.16	24.25	20.22	400	570	5	0.60	75.63	0.01	231.80	229.87	229.85	1.93	1.95	1.94
46	MH42-MH43	0	0.00	2.88	2.88	1.16	25.25	20.22	400	570	13	0.60	75.63	0.02	231.80	229.85	229.82	1.95	1.98	1.97
47	MH43-RW PIT 5	525	0.13	2.88	3.01	1.22	26.25	21.14	400	570	5	0.60	75.63	0.01	231.80	229.82	229.80	1.98	2.00	1.99
48	RW PIT 5-MH50	0	0.00	3.01	3.01	1.22	27.25	21.14	400	570	2	0.60	75.63	0.00	231.28	229.82	229.80	1.46	1.48	1.47
49	MH44-MH45	0	0.00	3.01	3.01	1.22	28.25	21.14	400	570	13	0.60	75.63	0.02	231.44	229.91	229.88	1.53	1.56	1.55
50	MH45-MH46	560	0.14	3.01	3.15	1.27	29.25	22.13	400	570	23	0.60	75.63	0.04	231.44	229.88	229.83	1.56	1.61	1.58
51	MH46-MH47	0	0.00	3.15	3.15	1.27	30.25	22.13	400	570	18	0.60	75.63	0.03	231.51	229.83	229.73	1.68	1.78	1.73
52	MH47-MH48	565	0.14	3.15	3.29	1.33	31.25	23.12	400	570	14	0.60	75.63	0.02	231.51	229.79	229.76	1.72	1.75	1.74
53	MH48-MH49	0	0.00	3.29	3.29	1.33	32.25	23.12	400	570	12	0.60	75.63	0.02	231.80	229.76	229.73	2.04	2.07	2.06
54	MH49-MH50	0	0.00	3.29	3.29	1.33	33.25	23.12	400	570	9	0.60	75.63	0.02	231.28	229.73	229.71	1.55	1.57	1.56
55	MH50-MH57	0	0.00	3.29	3.29	1.33	34.25	23.12	400	570	8	0.60	75.63	0.01	231.28	229.71	229.69	1.57	1.59	1.58
56	MH51-MH52	0	0.00	3.29	3.29	1.33	35.25	23.12	400	570	8	0.60	75.63	0.01	231.50	229.16	229.14	2.34	2.36	2.35
57	MH52-MH53	0	0.00	3.29	3.29	1.33	36.25	23.12	400	570	11	0.60	75.63	0.02	231.50	229.14	229.12	2.36	2.38	2.37
58	MH53-MH54	0	0.00	3.29	3.29	1.33	37.25	23.12	400	570	8	0.60	75.63	0.01	231.50	229.12	229.10	2.38	2.40	2.39
59	MH54-MH55	0	0.00	3.29	3.29	1.33	38.25	23.12	400	570	10	0.60	75.63	0.02	231.50	229.10	229.08	2.40	2.42	2.41
60	MH55-MH56	0	0.00	3.29	3.29	1.33	39.25	23.12	400	570	10	0.60	75.63	0.02	231.39	229.08	229.06	2.31	2.33	2.32
61	MH56-MH57	0	0.00	3.29	3.29	1.33	40.25	23.12	400	570	8	0.60	75.63	0.01	231.39	229.06	229.04	2.33	2.35	2.34
62	MH57-MH58	0	0.00	3.29	3.29	1.33	41.25	23.12	400	570	11	0.60	75.63	0.02	231.28	229.69	229.67	1.59	1.61	1.60
63	MH58-MH59	316	0.08	3.29	3.37	1.36	42.25	23.67	400	570	8	0.60	75.63	0.01	231.32	229.67	229.65	1.65	1.67	1.66
64	MH59-MH75	0	0.00	3.37	3.37	1.36	43.25	23.67	400	570	8	0.60	75.63	0.01	231.12	229.65	229.63	1.47	1.49	1.48
65	MH60-MH61	615	0.15	3.37	3.52	1.43	44.25	24.75	400	570	12	0.60	75.63	0.02	231.48	230.75	230.72	0.73	0.76	0.74
66	MH61-MH62	0	0.00	3.52	3.52	1.43	45.25	24.75	400	570	9	0.60	75.63	0.02	231.48	230.72	230.70	0.76	0.78	0.77
67	MH62-MH63	0	0.00	3.52	3.52	1.43	46.25	24.75	400	570	13	0.60	75.63	0.02	231.54	230.70	230.67	0.84	0.87	0.86
68	MH63-MH64	0	0.00	3.52	3.52	1.43	47.25	24.75	400	570	3	0.60	75.63	0.01	231.54	230.67	230.66	0.87	0.88	0.88
69	MH64-MH65	0	0.00	3.52	3.52	1.43	48.25	24.75	400	570	21	0.60	75.63	0.04	231.54	230.66	230.62	0.88	0.92	0.90
70	MH65-MH67	0	0.00	3.52	3.52	1.43	49.25	24.75	400	570	16	0.60	75.63	0.03	231.37	230.62	230.59	0.75	0.78	0.77
71	MH66-MH67	670	0.17	3.52	3.69	1.49	50.25	25.93	400	570	16	0.60	75.63	0.03	232.42	230.95	230.92	1.47	1.50	1.49
72	MH67-MH68	2635	0.66	3.69	4.35	1.76	51.25	30.56	400	570	22	0.60	75.63	0.04	231.37	230.59	230.55	0.78	0.82	0.80
73	MH68-RW PIT 12	0	0.00	4.35	4.35	1.76	52.25	30.56	400	570	10	0.60	75.63	0.02	231.37	230.55	230.54	0.82	0.83	0.83
74	RW PIT 12-MH74	0	0.00	4.35	4.35	1.76	53.25	30.56	400	570	4	0.60	75.63	0.01	231.37	230.55	230.54	0.82	0.83	0.83
75	MH69-MH73	0	0.00	4.35	4.35	1.76	54.25	30.56	400	570	10	0.60	75.63	0.02	231.37	230.95	230.93	0.42	0.44	0.43
76	MH70-MH71	0	0.00	4.35	4.35	1.76	55.25	30.56	400	570	6	0.60	75.63	0.01	231.37	230.95	230.91	0.42	0.46	0.44
77	MH71-MH72	0	0.00	4.35	4.35	1.76	56.25	30.56	400	570	8	0.60	75.63	0.01	231.37	230.91	230.89	0.46	0.48	0.47
78	MH72-MH73	0	0.00	4.35	4.35	1.76	57.25	30.56	400	570	10	0.60	75.63	0.02	231.37	230.89	230.88	0.48	0.49	0.49
79	MH73-MH74	0	0.00	4.35	4.35	1.76	58.25	30.56	400	570	5	0.60	75.63	0.01	231.37	230.88	230.83	0.49	0.54	0.52
80	MH74-MH75	1350	0.34	4.35	4.69	1.90	59.25	32.93	400	570	28	0.60	75.63	0.05	231.37	230.83	229.63	0.54	1.74	1.14

STORM WATER LINE

Annexure-III

S.NO	LINE NO.	Self Area (m2)	Self Area (Acre)	Branch Area (Acre)	Total Area (Acre)	Total Area (Hec)	Rain Fall mm/hr	Discharge @17.36 lps/Hec	SIZES	SLOPE	LENGTH	Velocity m/sec.	Cap of pipe in lps.	Fall in line mtr.	Ground Level	Invert Level		Depth		
																Start	End	Start	End	Average
											M				M	M	M	M	M	M
1	MH1-MH2	223	0.06	0	0.06	0.02	6.25	0.39	400	570	14	0.60	75.63	0.02	231.66	230.14	230.11	1.52	1.55	1.54
2	MH2-MH3	298	0.07	0.06	0.13	0.05	6.25	0.91	400	570	16	0.60	75.63	0.03	231.66	230.11	230.08	1.55	1.58	1.56
3	MH3-MH4	280	0.07	0.13	0.20	0.08	6.25	1.41	400	570	17	0.60	75.63	0.03	231.54	230.08	230.05	1.46	1.49	1.47
4	MH4-RW PIT 1	145	0.04	0.20	0.24	0.10	6.25	1.66	400	570	3	0.60	75.63	0.01	231.54	230.05	230.05	1.49	1.49	1.49
5	RW PIT 1-MH5	0	0.00	0.24	0.24	0.10	6.25	1.66	400	570	4	0.60	75.63	0.01	231.54	230.05	230.05	1.49	1.49	1.49
6	MH5-MH6	237	0.06	0.00	0.06	0.02	6.25	0.42	400	570	19	0.60	75.63	0.03	231.54	230.02	229.98	1.52	1.56	1.54
7	MH6-MH7	297	0.07	0.06	0.13	0.05	6.25	0.94	400	570	24	0.60	75.63	0.04	231.54	229.98	229.93	1.56	1.61	1.58
8	MH7-MH8	234	0.06	0.13	0.19	0.08	6.25	1.35	400	570	22	0.60	75.63	0.04	231.42	229.93	229.89	1.49	1.53	1.51
9	MH8-MH18	214	0.05	0.19	0.25	0.10	6.25	1.72	400	570	10	0.60	75.63	0.02	231.32	229.89	229.87	1.43	1.45	1.44
10	MH9-MH10	0	0.00	0.25	0.25	0.10	6.25	1.72	400	570	11	0.60	75.63	0.02	231.54	230.04	230.02	1.50	1.52	1.51
11	MH10-MH11	585	0.15	0.25	0.39	0.16	6.25	2.75	400	570	3	0.60	75.63	0.01	231.54	230.02	230.01	1.52	1.53	1.52
12	MH11-MH12	0	0.00	0.39	0.39	0.16	6.25	2.75	400	570	7	0.60	75.63	0.01	231.54	230.01	230.00	1.53	1.54	1.54
13	MH12-MH13	0	0.00	0.39	0.39	0.16	6.25	2.75	400	570	8	0.60	75.63	0.01	231.54	230.00	229.98	1.54	1.56	1.55
14	MH13-MH14	0	0.00	0.00	0.00	0.00	6.25	0.00	400	570	4	0.60	75.63	0.01	231.54	229.98	229.97	1.56	1.57	1.57
15	MH14-MH15	652	0.16	0.00	0.16	0.07	6.25	1.14	400	570	9	0.60	75.63	0.02	231.54	229.97	229.95	1.57	1.59	1.58
16	MH15-MH16	0	0.00	0.16	0.16	0.07	6.25	1.14	400	570	10	0.60	75.63	0.02	231.54	229.95	229.93	1.59	1.61	1.60
17	MH16-MH17	609	0.15	0.16	0.32	0.13	6.25	2.21	400	570	11	0.60	75.63	0.02	231.32	229.93	229.91	1.39	1.41	1.40
18	MH17-MH18	0	0.00	0.32	0.32	0.13	6.25	2.21	400	570	10	0.60	75.63	0.02	231.32	229.91	229.87	1.41	1.45	1.43
19	MH18-RW PIT 2	175	0.04	0.32	0.36	0.15	6.25	2.52	400	570	4	0.60	75.63	0.01	231.32	229.87	229.86	1.45	1.46	1.45
20	RW PIT 2-MH19	0	0.00	0.36	0.36	0.15	6.25	2.52	400	570	1	0.60	75.63	0.00	231.32	229.87	229.86	1.45	1.46	1.45
21	MH19-MH20	152	0.04	0.36	0.40	0.16	6.25	2.79	400	570	17	0.60	75.63	0.03	231.32	229.82	229.79	1.50	1.53	1.52
22	MH20-MH21	352	0.09	0.40	0.49	0.20	6.25	3.41	400	570	6	0.60	75.63	0.01	231.32	229.79	229.77	1.53	1.55	1.54
23	MH21-MH22	0	0.00	0.00	0.00	0.00	6.25	0.00	400	570	11	0.60	75.63	0.02	231.32	229.77	229.75	1.55	1.57	1.56
24	MH22-MH23	264	0.07	0.00	0.07	0.03	6.25	0.46	400	570	6	0.60	75.63	0.01	231.40	229.75	229.74	1.65	1.66	1.66
25	MH23-MH30	0	0.00	0.07	0.07	0.03	6.25	0.46	400	570	6	0.60	75.63	0.01	231.40	229.74	229.73	1.66	1.67	1.67
26	MH24-MH25	860	0.22	0.07	0.28	0.11	6.25	1.97	400	570	15	0.60	75.63	0.03	231.58	230.14	230.11	1.44	1.47	1.46
27	MH25-MH26	588	0.15	0.28	0.43	0.17	6.25	3.01	400	570	8	0.60	75.63	0.01	231.55	230.11	230.09	1.44	1.46	1.45
28	MH26-MH27	0	0.00	0.43	0.43	0.17	7.25	3.01	400	570	8	0.60	75.63	0.01	231.55	230.09	230.07	1.46	1.48	1.47
29	MH27-MH28	534	0.13	0.43	0.56	0.23	8.25	3.94	400	570	14	0.60	75.63	0.02	231.55	230.07	230.04	1.48	1.51	1.50
30	MH28-MH29	453	0.11	0.56	0.67	0.27	9.25	4.74	400	570	22	0.60	75.63	0.04	231.55	230.04	230.00	1.51	1.55	1.53
31	MH29-MH30	0	0.00	0.67	0.67	0.27	10.25	4.74	400	570	14	0.60	75.63	0.02	231.40	230.00	229.97	1.40	1.43	1.42
32	MH30-MH31	265	0.07	0.67	0.74	0.30	11.25	5.20	400	570	10	0.60	75.63	0.02	231.40	229.73	229.71	1.67	1.69	1.68
33	MH31-RW PIT 3	2821	0.71	0.74	1.45	0.59	12.25	10.16	400	570	7	0.60	75.63	0.01	231.43	229.71	229.70	1.72	1.73	1.73
34	RW PIT 3-MH33	0	0.00	1.45	1.45	0.59	13.25	10.16	400	570	3	0.60	75.63	0.01	231.43	229.71	229.70	1.72	1.73	1.73
35	MH32-MH33	0	0.00	1.45	1.45	0.59	14.25	10.16	400	570	7	0.60	75.63	0.01	231.39	229.51	229.49	1.88	1.90	1.89

81	MH75-DRAIN PIPE EXIT TO	375	0.09	4.69	4.78	1.93	60.25	33.58	400	570	11	0.60	75.63	0.02	232.12	229.63	229.60	2.49	2.52	2.51
82	MH76-MH77	0	0.00	4.78	4.78	1.93	61.25	33.58	400	570	18	0.60	75.63	0.03	231.66	230.18	230.14	1.48	1.52	1.50
83	MH77-RW PIT 6	441	0.11	4.78	4.89	1.98	62.25	34.36	400	570	3	0.60	75.63	0.01	231.66	230.14	230.13	1.52	1.53	1.53
84	RW PIT 6-MH78	0	0.00	4.89	4.89	1.98	63.25	34.36	400	570	3	0.60	75.63	0.01	231.87	230.14	230.13	1.73	1.74	1.74
85	MH78-MH79	825	0.21	4.89	5.10	2.06	64.25	35.81	400	570	13	0.60	75.63	0.02	231.87	230.18	230.15	1.69	1.72	1.71
86	MH79-MH106	430	0.11	5.10	5.21	2.11	65.25	36.56	400	570	20	0.60	75.63	0.04	231.87	230.15	230.11	1.72	1.76	1.74
87	MH80-MH81	0	0.00	5.21	5.21	2.11	66.25	36.56	400	570	3	0.60	75.63	0.01	231.59	230.29	230.28	1.30	1.31	1.31
88	MH81-MH82	0	0.00	5.21	5.21	2.11	67.25	36.56	400	570	11	0.60	75.63	0.02	231.59	230.28	230.27	1.31	1.32	1.32
89	MH82-MH83	0	0.00	5.21	5.21	2.11	68.25	36.56	400	570	5	0.60	75.63	0.01	231.59	230.27	230.26	1.32	1.33	1.33
90	MH83-MH86	0	0.00	5.21	5.21	2.11	69.25	36.56	400	570	9	0.60	75.63	0.02	231.59	230.26	230.24	1.33	1.35	1.34
91	MH84-MH85	0	0.00	5.21	5.21	2.11	70.25	36.56	400	570	21	0.60	75.63	0.04	232.00	230.77	230.76	1.23	1.24	1.24
92	MH85-MH86	0	0.00	5.21	5.21	2.11	71.25	36.56	400	570	21	0.60	75.63	0.04	232.00	230.76	230.73	1.24	1.27	1.26
93	MH86-MH87	780	0.20	5.21	5.40	2.19	72.25	37.93	400	570	9	0.60	75.63	0.02	231.59	230.24	230.22	1.35	1.37	1.36
94	MH87-MH93	0	0.00	5.40	5.40	2.19	73.25	37.93	400	570	10	0.60	75.63	0.02	231.59	230.22	230.20	1.37	1.39	1.38
95	MH88-MH89	0	0.00	5.40	5.40	2.19	74.25	37.93	400	570	7	0.60	75.63	0.01	232.00	230.77	230.76	1.23	1.24	1.24
96	MH89-MH90	0	0.00	5.40	5.40	2.19	75.25	37.93	400	570	13	0.60	75.63	0.02	232.00	230.76	230.73	1.24	1.27	1.26
97	MH90-MH92	0	0.00	5.40	5.40	2.19	76.25	37.93	400	570	8	0.60	75.63	0.01	231.59	230.76	230.75	0.83	0.84	0.84
98	MH91-MH92	0	0.00	5.40	5.40	2.19	77.25	37.93	400	570	9	0.60	75.63	0.02	231.59	230.76	230.74	0.83	0.85	0.84
99	MH92-MH93	2444	0.61	5.40	6.01	2.43	78.25	42.22	400	570	8	0.60	75.63	0.01	231.59	230.74	230.72	0.85	0.87	0.86
100	MH93-MH94	595	0.15	6.01	6.16	2.49	79.25	43.27	400	570	10	0.60	75.63	0.02	231.76	230.18	230.16	1.58	1.60	1.59
101	MH94-MH100	0	0.00	6.16	6.16	2.49	80.25	43.27	400	570	8	0.60	75.63	0.01	231.76	230.16	230.14	1.60	1.62	1.61
102	MH95-MH96	0	0.00	6.16	6.16	2.49	81.25	43.27	400	570	7	0.60	75.63	0.01	232.00	230.77	230.76	1.23	1.24	1.24
103	MH96-MH100	0	0.00	6.16	6.16	2.49	82.25	43.27	400	570	13	0.60	75.63	0.02	232.00	230.76	230.73	1.24	1.27	1.26
104	MH97-MH98	860	0.22	6.16	6.38	2.58	83.25	44.78	400	570	23	0.60	75.63	0.04	231.55	230.75	230.74	0.80	0.81	0.81
105	MH98-MH99	0	0.00	6.38	6.38	2.58	84.25	44.78	400	570	7	0.60	75.63	0.01	231.76	230.74	230.73	1.02	1.03	1.02
106	MH99-MH100	825	0.21	6.38	6.58	2.66	85.25	46.23	400	570	12	0.60	75.63	0.02	231.76	230.73	230.72	1.03	1.04	1.04
107	MH100-MH101	551	0.14	6.58	6.72	2.72	86.25	47.20	400	570	9	0.60	75.63	0.02	231.76	230.14	230.12	1.62	1.64	1.63
108	MH101-MH104	0	0.00	6.72	6.72	2.72	87.25	47.20	400	570	7	0.60	75.63	0.01	231.76	230.14	230.12	1.62	1.64	1.63
109	MH102-MH103	0	0.00	6.72	6.72	2.72	88.25	47.20	400	570	7	0.60	75.63	0.01	232.00	230.77	230.76	1.23	1.24	1.24
110	MH103-MH104	0	0.00	6.72	6.72	2.72	89.25	47.20	400	570	13	0.60	75.63	0.02	232.00	230.76	230.73	1.24	1.27	1.26
111	MH104-MH105	760	0.19	6.72	6.91	2.80	90.25	48.53	400	570	10	0.60	75.63	0.02	231.76	230.12	230.10	1.64	1.66	1.65
112	MH105-MH106	0	0.00	6.91	6.91	2.80	91.25	48.53	400	570	20	0.60	75.63	0.04	231.87	230.10	230.06	1.77	1.81	1.79
113	MH106-MH107	0	0.00	6.91	6.91	2.80	92.25	48.53	400	570	16	0.60	75.63	0.03	231.87	230.06	230.03	1.81	1.84	1.83
114	MH107-MH108	0	0.00	6.91	6.91	2.80	93.25	48.53	400	570	7	0.60	75.63	0.01	231.87	230.03	230.01	1.84	1.86	1.85
115	MH108-RW PIT 7	765	0.19	6.91	7.10	2.87	94.25	49.87	400	570	3	0.60	75.63	0.01	231.87	230.01	230.00	1.86	1.87	1.87
116	RW PIT 7-MH109	130	0.03	7.10	7.13	2.89	95.25	50.10	400	570	3	0.60	75.63	0.01	231.87	230.01	230.00	1.86	1.87	1.87
117	MH109-MH110	0	0.00	7.13	7.13	2.89	96.25	50.10	400	570	19	0.60	75.63	0.03	231.96	230.39	230.35	1.57	1.61	1.59
118	MH110-MH111	0	0.00	7.13	7.13	2.89	97.25	50.10	400	570	24	0.60	75.63	0.04	231.96	230.35	230.31	1.61	1.65	1.63
119	MH111-RW PIT 8	125	0.03	7.13	7.16	2.90	98.25	50.32	400	570	5	0.60	75.63	0.01	231.87	230.31	230.30	1.56	1.57	1.57
120	RW PIT 8-MH112	0	0.00	7.16	7.16	2.90	99.25	50.32	400	570	8	0.60	75.63	0.01	231.87	230.31	230.30	1.56	1.57	1.57
121	MH112-MH113	0	0.00	7.16	7.16	2.90	100.25	50.32	400	570	12	0.60	75.63	0.02	231.78	230.39	230.36	1.39	1.42	1.41
122	MH113-MH114	0	0.00	7.16	7.16	2.90	101.25	50.32	400	570	12	0.60	75.63	0.02	231.78	230.36	230.33	1.42	1.45	1.43
123	MH114-MH115	0	0.00	7.16	7.16	2.90	102.25	50.32	400	570	9	0.60	75.63	0.02	231.78	230.33	230.31	1.45	1.47	1.46
124	MH115-MH122	795	0.20	7.16	7.36	2.98	103.25	51.72	400	570	10	0.60	75.63	0.02	231.78	230.31	230.29	1.47	1.49	1.48

125	MH116-MH117	1045	0.26	7.36	7.62	3.08	104.25	53.55	400	570	15	0.60	75.63	0.03	231.54	229.15	229.12	2.39	2.42	2.40
126	MH117-MH118	0	0.00	7.62	7.62	3.08	105.25	53.55	400	570	16	0.60	75.63	0.03	231.54	229.12	229.09	2.42	2.45	2.43
127	MH118-MH122	0	0.00	7.62	7.62	3.08	106.25	53.55	400	570	6	0.60	75.63	0.01	231.69	229.09	229.02	2.60	2.67	2.63
128	MH119-MH120	0	0.00	7.62	7.62	3.08	107.25	53.55	400	570	10	0.60	75.63	0.02	231.55	230.08	230.06	1.47	1.49	1.48
129	MH120-MH121	0	0.00	7.62	7.62	3.08	108.25	53.55	400	570	7	0.60	75.63	0.01	231.55	230.06	230.04	1.49	1.51	1.50
130	MH121-MH122	0	0.00	7.62	7.62	3.08	109.25	53.55	400	570	10	0.60	75.63	0.02	231.69	230.04	230.02	1.65	1.67	1.66
131	MH122-RW PIT 9	1370	0.34	7.62	7.97	3.22	110.25	55.96	400	570	7	0.60	75.63	0.01	231.69	229.70	229.69	1.99	2.00	2.00
132	RW PIT 9-MH123	0	0.00	7.97	7.97	3.22	111.25	55.96	400	570	3	0.60	75.63	0.01	232.00	229.70	229.69	2.30	2.31	2.31
133	MH123-MH124	0	0.00	7.97	7.97	3.22	112.25	55.96	400	570	8	0.60	75.63	0.01	232.00	230.19	230.17	1.81	1.83	1.82
134	MH124-MH125	0	0.00	7.97	7.97	3.22	113.25	55.96	400	570	18	0.60	75.63	0.03	232.00	230.17	230.13	1.83	1.87	1.85
135	MH125-MH126	975	0.24	7.97	8.21	3.32	114.25	57.67	400	570	28	0.60	75.63	0.05	232.00	230.13	230.08	1.87	1.92	1.90
136	MH126-RW PIT 1	0	0.00	8.21	8.21	3.32	115.25	57.67	400	570	3	0.60	75.63	0.01	232.90	230.08	230.07	2.82	2.83	2.83
137	RW PIT 10-MH12	0	0.00	8.21	8.21	3.32	116.25	57.67	400	570	2	0.60	75.63	0.00	232.90	230.08	230.07	2.82	2.83	2.83
138	MH127-MH128	0	0.00	8.21	8.21	3.32	117.25	57.67	400	570	14	0.60	75.63	0.02	232.90	231.15	231.12	1.75	1.78	1.77
139	MH128-MH130	1130	0.28	8.21	8.49	3.44	118.25	59.65	400	570	5	0.60	75.63	0.01	232.90	231.12	231.10	1.78	1.80	1.79
140	MH129-MH130	0	0.00	8.49	8.49	3.44	119.25	59.65	400	570	21	0.60	75.63	0.04	232.90	231.15	231.11	1.75	1.79	1.77
141	MH130-MH131	0	0.00	8.49	8.49	3.44	120.25	59.65	400	570	12	0.60	75.63	0.02	232.90	231.10	231.08	1.80	1.82	1.81
142	MH131-MH132	165	0.04	8.49	8.53	3.45	121.25	59.94	400	570	15	0.60	75.63	0.03	232.90	231.08	231.05	1.82	1.85	1.83
143	MH132-MH133	0	0.00	8.53	8.53	3.45	122.25	59.94	400	570	13	0.60	75.63	0.02	232.90	231.05	231.02	1.85	1.88	1.86
144	MH133-MH134	225	0.06	8.53	8.59	3.48	123.25	60.34	400	570	13	0.60	75.63	0.02	232.90	231.02	230.99	1.88	1.91	1.90
145	MH134-MH143	0	0.00	8.59	8.59	3.48	124.25	60.34	400	570	20	0.60	75.63	0.04	232.90	230.99	230.95	1.91	1.95	1.93
146	MH135-MH136	0	0.00	8.59	8.59	3.48	125.25	60.34	400	570	8	0.60	75.63	0.01	232.00	230.19	230.17	1.81	1.83	1.82
147	MH136-MH137	0	0.00	8.59	8.59	3.48	126.25	60.34	400	570	5	0.60	75.63	0.01	232.00	230.17	230.15	1.83	1.85	1.84
148	MH137-MH138	0	0.00	8.59	8.59	3.48	127.25	60.34	400	570	11	0.60	75.63	0.02	232.65	230.15	230.13	2.50	2.52	2.51
149	MH138-MH139	0	0.00	8.59	8.59	3.48	128.25	60.34	400	570	10	0.60	75.63	0.02	232.65	230.13	230.11	2.52	2.54	2.53
150	MH139-MH140	0	0.00	8.59	8.59	3.48	129.25	60.34	400	570	8	0.60	75.63	0.01	232.65	230.11	230.09	2.54	2.56	2.55
151	MH140-MH141	0	0.00	8.59	8.59	3.48	130.25	60.34	400	570	6	0.60	75.63	0.01	232.90	230.09	230.07	2.81	2.83	2.82
152	MH141-MH142	2335	0.58	8.59	9.17	3.71	131.25	64.44	400	570	10	0.60	75.63	0.02	232.90	230.07	230.05	2.83	2.85	2.84
153	MH142-MH143	1615	0.40	9.17	9.58	3.88	132.25	67.27	400	570	27	0.60	75.63	0.05	232.90	230.05	230.00	2.85	2.90	2.88
154	MH143-RW PIT 1	720	0.18	9.58	9.76	3.95	133.25	68.54	400	570	5	0.60	75.63	0.01	232.90	230.00	229.02	2.90	3.88	3.39
155	RW PIT 11-144	0	0.00	9.76	9.76	3.95	134.25	68.54	400	570	4	0.60	75.63	0.01	232.90	230.00	229.02	2.90	3.88	3.39
156	MH144-DRAIN PIPE EXIT TO	0	0.00	9.76	9.76	3.95	135.25	68.54	400	570	8	0.60	75.63	0.01	232.52	230.95	230.95	1.57	1.57	1.57

WATER SUPPLY CALCULATION — **Annexure-IV**

TOTAL FAR: 87899.644 sqm

TOTAL POPULATION: 3701 persons

S.No.	Name of Line	POPULATION TO BE SERVED (Nos.)			Water requirement in kL	Discharge/hour	Size of pipe	Loss of head	Total loss of head	Length of pipe	Ground Level	Ground Level	Hydraulic level	Hydraulic level	Head available
		Self	Branch	Total	@155.25 lit/per/day	@6 hours pumping	(mm)	m/m	(m)	(metres)	V/End	L/End	V/End	L/End	(metres)
Material Statement for Domestic Water															
1	UG TANK TO D1	0	0	832	129168	21528.00	100	0.001	0.007	5	232.00	232.00	422.00	421.99	189.99
2	D1 - D2	0	0	832	129168	21528.00	100	0.001	0.021	15	232.00	232.00	422.00	421.98	189.98
3	D2 - D3	0	0	832	129168	21528.00	100	0.001	0.007	5	232.00	232.90	422.00	421.99	189.09
4	D3 - D4	0	832	832	129168	21528.00	100	0.001	0.112	79	232.90	232.90	422.90	422.79	189.89
5	D3 - D4 - BLG. - A	72	0	72	11178	1863.00	50	0.004	0.130	31	232.90	232.90	422.90	422.77	189.87
6	D4 - D5	0	0	760	117990	19665.00	100	0.001	0.077	52	232.90	232.45	422.90	422.82	190.37
7	D5 - D6	0	760	760	117990	19665.00	100	0.001	0.204	137	232.45	232.09	422.45	422.25	190.16
8	D5 - D6 - BLG. - B1	24	0	24	3726	621.00	50	0.008	0.661	87	232.00	231.48	422.00	421.34	189.86
9	D5 - D6 - BLG. - B2	24	0	24	3726	621.00	50	0.008	0.668	88	232.00	231.48	422.00	421.33	189.85
10	D6 - D7	0	0	712	110538	18423.00	100	0.002	0.011	7	232.09	232.12	422.09	422.08	189.96
11	D7 - D8	0	712	712	110538	18423.00	100	0.002	0.040	26	232.12	231.32	422.12	422.08	190.76
12	D7 - D8 - BLG. - B3	24	0	24	3726	621.00	50	0.008	0.122	16	232.00	231.39	422.00	421.88	190.49
13	D8 - D9	0	688	556	86319	14386.50	100	0.002	0.055	31	231.32	231.28	421.32	421.27	189.99
14	D9 - D10 - EWS	132	0	132	20493	3415.50	100	0.004	0.345	90	231.28	231.41	421.28	420.94	189.53
15	D10 - D11	0	556	556	86319	14386.50	100	0.002	0.157	89	231.41	231.18	421.41	421.25	190.07
16	D10 - D11 - BLG.- W	42	0	42	6520.5	1086.75	50	0.006	0.241	43	232.00	232.10	422.00	421.76	189.66
17	D10 - D11 - BLG.- W	40	0	40	6210	1035.00	50	0.006	0.242	42	232.00	232.10	422.00	421.76	189.66
18	D10 - D11 - BLG.- W	40	0	40	6210	1035.00	50	0.006	0.288	50	232.00	232.10	422.00	421.71	189.61
19	D11 - D12	0	0	434	67378.5	11229.75	100	0.002	0.135	67	231.18	231.40	421.18	421.05	189.65
20	D12 - D13	0	0	434	67378.5	11229.75	100	0.002	0.121	60	231.40	231.32	421.40	421.28	189.96
21	D13 - D14	0	434	434	67378.5	11229.75	100	0.002	0.226	112	231.32	231.54	421.32	421.09	189.55
22	D13 - D14 - BLG.- N	38	0	38	5899.5	983.25	50	0.006	0.166	28	232.00	232.00	422.00	421.83	189.83
23	D13 - D14 - BLG.- N	38	0	38	5899.5	983.25	50	0.006	0.154	26	232.00	232.00	422.00	421.85	189.85
24	D13 - D14 - BLG.- N	38	0	38	5899.5	983.25	50	0.006	0.154	26	232.00	232.00	422.00	421.85	189.85
25	D13 - D14 - BLG.- N	38	0	38	5899.5	983.25	50	0.006	0.154	26	232.00	232.00	422.00	421.85	189.85
26	D14 - D15	0	282	282	43780.5	7296.75	100	0.003	0.308	121	231.54	231.87	421.54	421.23	189.36
27	D14 - D15 - BLG.- E	42	0	42	6520.5	1086.75	50	0.006	0.118	21	232.00	232.15	422.00	421.88	189.73
28	D14 - D15 - BLG.- E	40	0	40	6210	1035.00	50	0.006	0.127	22	232.00	232.15	422.00	421.87	189.72
29	D14 - D15 - BLG.- E	40	0	40	6210	1035.00	50	0.006	0.138	24	232.00	232.15	422.00	421.86	189.71
30	D15 - D16	0	0	160	24840	4140.00	100	0.003	0.204	59	231.87	231.96	421.87	421.67	189.71
31	D16 - D17	0	160	160	24840	4140.00	100	0.003	0.390	113	231.96	231.69	421.96	421.57	189.88
32	D16 - D17 - BLG.- S	160	0	160	24840	4140.00	50	0.003	0.038	14	232.00	232.20	422.00	421.96	189.76
33	D17 - D3	0	0	160	24840	4140.00	100	0.003	0.066	19	231.69	232.00	421.69	421.62	189.62
Material Statement for Flushing Water															
1	UG TANK TO D1	0	0	832	129168	21528.00	100	0.001	0.007	5	232.00	232.00	422.00	421.99	189.99
2	F1 - F2	0	0	832	129168	21528.00	100	0.001	0.021	15	232.00	232.00	422.00	421.98	189.98
3	F2 - F3	0	0	832	129168	21528.00	100	0.001	0.007	5	232.00	232.90	422.00	421.99	189.09
4	F3 - F4	0	832	832	129168	21528.00	100	0.001	0.112	79	232.90	232.90	422.90	422.79	189.89
5	F3 - F4 - BLG. - A	72	0	72	11178	1863.00	40	0.004	0.121	31	232.90	232.90	422.90	422.78	189.88
6	F4 - F5	0	0	760	117990	19665.00	100	0.001	0.077	52	232.90	232.45	422.90	422.82	190.37
7	F5 - F6	0	760	760	117990	19665.00	100	0.001	0.201	135	232.45	232.09	422.45	422.25	190.16
8	F5 - F6 - BLG. - B1	24	0	24	3726	621.00	40	0.007	0.599	85	232.00	231.48	422.00	421.40	189.92
9	F5 - F6 - BLG. - B2	24	0	24	3726	621.00	40	0.007	0.599	85	232.00	231.48	422.00	421.40	189.92
10	F6 - F7	0	0	712	110538	18423.00	100	0.002	0.011	7	232.09	232.12	422.09	422.08	189.96
11	F7 - F8	0	712	712	110538	18423.00	100	0.002	0.040	26	232.12	231.32	422.12	422.08	190.76

12	F7 - F8 - BLG. - B3	24	0	24	3726	621.00	40	0.007	0.113	16	232.00	231.39	422.00	421.89	190.50
13	F8 - F9	0	688	556	86319	14386.50	100	0.002	0.055	31	231.32	231.28	421.32	421.27	189.99
14	D9 - D10 - EWS	132	0	132	20493	3415.50	100	0.004	0.345	90	231.28	231.41	421.28	420.94	189.53
15	F10 - F11	0	556	556	86319	14386.50	100	0.002	0.153	87	231.41	231.18	421.41	421.26	190.08
16	F10 - F11 - BLG.- W	42	0	42	6520.5	1086.75	40	0.005	0.208	40	232.00	232.10	422.00	421.79	189.69
17	F10 - F11 - BLG.- W	40	0	40	6210	1035.00	40	0.005	0.224	42	232.00	232.10	422.00	421.78	189.68
18	F10 - F11 - BLG.- W	40	0	40	6210	1035.00	40	0.005	0.267	50	232.00	232.10	422.00	421.73	189.63
19	F11 - F12	0	0	434	67378.5	11229.75	100	0.002	0.133	66	231.18	231.40	421.18	421.05	189.65
20	F12 - F13	0	0	434	67378.5	11229.75	100	0.002	0.121	60	231.40	231.32	421.40	421.28	189.96
21	F13 - F14	0	434	434	67378.5	11229.75	100	0.002	0.226	112	231.32	231.54	421.32	421.09	189.55
22	F13 - F14 - BLG.- N	38	0	38	5899.5	983.25	40	0.005	0.154	28	232.00	232.00	422.00	421.85	189.85
23	F13 - F14 - BLG.- N	38	0	38	5899.5	983.25	40	0.005	0.143	26	232.00	232.00	422.00	421.86	189.86
24	F13 - F14 - BLG.- N	38	0	38	5899.5	983.25	40	0.005	0.143	26	232.00	232.00	422.00	421.86	189.86
25	F13 - F14 - BLG.- N	38	0	38	5899.5	983.25	40	0.005	0.143	26	232.00	232.00	422.00	421.86	189.86
26	F14 - F15	0	282	282	43780.5	7296.75	100	0.003	0.308	121	231.54	231.87	421.54	421.23	189.36
27	F14 - F15 - BLG.- E	42	0	42	6520.5	1086.75	40	0.005	0.104	20	232.00	232.15	422.00	421.90	189.75
28	F14 - F15 - BLG.- E	40	0	40	6210	1035.00	40	0.005	0.118	22	232.00	232.15	422.00	421.88	189.73
29	F14 - F15 - BLG.- E	40	0	40	6210	1035.00	40	0.005	0.128	24	232.00	232.15	422.00	421.87	189.72
30	F15 - F16	0	0	160	24840	4140.00	100	0.003	0.204	59	231.87	231.96	421.87	421.67	189.71
31	F16 - F17	0	160	160	24840	4140.00	100	0.003	0.383	111	231.96	231.69	421.96	421.58	189.89
32	F16 - F17 - BLG.- S	160	0	160	24840	4140.00	40	0.003	0.035	14	232.00	232.20	422.00	421.96	189.76
33	F17 - F3	0	0	160	24840	4140.00	100	0.003	0.066	19	231.69	232.00	421.69	421.62	189.62
	MUNICIPAL LINE														
1	M1 TO M2	0	0	0	0	0	100	0.000	0.000	86	232.00	232.00	422.00	422.00	190.00
2	M2 TO UG TANK	0	0	0	0	0	100	0.000	0.000	5	232.00	232.00	422.00	422.00	190.00
	BOREWELL LINE														
1	BW1 TO BW1A	0	0	0	0	0	100	0.000	0.000	60	232.00	232.00	422.00	422.00	190.00
2	BW1A TO BW1B	0	0	0	0	0	100	0.000	0.000	53	232.00	232.00	422.00	422.00	190.00
3	BW1B TO BWIC	0	0	0	0	0	100	0.000	0.000	6	232.00	232.00	422.00	422.00	190.00
4	BW1C TO BW1D	0	0	0	0	0	100	0.000	0.000	10	232.00	232.00	422.00	422.00	190.00
5	BW1D TO UG TANK	0	0	0	0	0	100	0.000	0.000	5	232.00	232.00	422.00	422.00	190.00
6	BW1C TO BW1E	0	0	0	0	0	100	0.000	0.000	4	232.00	232.00	422.00	422.00	190.00
7	BW1E TO FIRE TANK	0	0	0	0	0	100	0.000	0.000	6	232.00	232.00	422.00	422.00	190.00

VATIKA LIFESTYLE HOUSING AT SEC-83, GURGAON

Annexure - I

TOTAL AREA 12.83 Acres 51921.085 sqm

TOTAL FAR 87399.644 sqm

GREEN AREA 20.00%

BUILDING USAGE DETAILS AND WATER CALCULATIONS

S.No.	Floor lvl.	Type of use	No. of DUs	Population density	Expected population	Water requirement per person in lpd (As/HUDA norms)	Total Water consumption in lpd	Flow to sewer (%)	Flow to sewer (lpd)	REMARKS
1a	Residential apartments	Residential	663	@5 persons/DU	3315	135	447,525	90	402,773	
1b	Domestic servants rooms	Residential	70	@2 per qrt.	140	135	18,900	90	17,010	
2	EWS	Residential	123	@2 per qtr.	246	135	33,210	90	29,889	
3	Club and Facilities	Assembly	1	Assumed population@15% of total population	534	45	24,030	90	21,627	
4	Workers/support staff		1	Assumed populaion	50	45	2,250	90	2,025	
5	Visitors		1	Assumed population@10% of total population	356	15	5,340	90	4,806	
6	Evaporation losses make-up for water bodies/swimming pool etc.		1000 sqm	Assumed 5 mm /day/sqm surface area	1000	5	5,000	0	0	
7	Convenient Shopping	Mercantile	261 sqm	@3 sqm/person (visitors)	87					
				Shop works@10% population	9	45	405	90.00	365	
				Shoppers@90% population	78	15	1,170	90.00	1,053	
A	**SUBTOTAL A**						**537,830**		**479,548**	

B	Garden irrigation @ 5 lit/sqm/day (Assumed subject to confirmation from Landscape Architect)-20% green area assumed	9345.91		5	46,730		0

C **Additional water usage**

	Add for equipment backwash @ 30 min for 8 hours operation (1 shift, backwash period 30 min)	33,614	100	33,614
	DG cooling tower make-up (Assumed subject to confirmation from Elect. Engineer)-4000 lphx 6 hrs	24,000	0	0
	DG air washers make-up (Assumed subject to confirmation from HVAC Engineer)-2000 lphx6 hours	12,000	0	0
	Club house air washer (Assumed subject to confirmation from HVAC Engineer)-50 lphx12 hours	600		
	SUBTOTAL C	**70,214**		**33,614**
10	**GRAND TOTAL (A+B+C)**	**654,774**		**513,162**

11 **WATER BALANCE CALCULATIONS**

DAILY WATER DEMAND FOR DOMESTIC PURPOSES [A] **537,830 litres**

DAILY SEWAGE INFLUENT LOAD TO STP **513,162 litres**

LIKELY RECOVERY FROM STP @90%	461,846 litres
USE OF RECYLED WATER IN GARDEN IRRIGATION	46,730 litres
USE OF RECYLED WATER IN FLUSHING (@33% OF DOMESTIC WATER UNDER A ONLY)	177,484 litres
USE OF RECYCLEED WATER FOR EVAPORATIVE COOLING ETC.	36,600 litres ,
NET USE OF RECYLED STP WATER	260,813 litres
EXCESS STP RECYCLED TREATED WATER TO BE DISCHARGED IN EXTERNAL SEWER	**201,032**
EXCESS STP RECYCLED TREATED WATER TO BE DISCHARGED IN EXTERNAL STORMWATER DRAIN DURING RAINS	**247,762**
NET DAILY FRESH WATER DEMAND [POTABLE WATER]	**393,960**

12 **PROVISION FOR WATER STORAGE TANKS [capacities in kL]**

TANK NOMENCALTURE

Underground water tanks

Daily water demand in litres——————>

FIRE TANK	As per NBC	250 kLD
RAW WATER	=	105 kLD
FILTERED WATER (DOMESTIC)		265 kLD
RECYLED STP WATER TANK		200 kLD
RECYCLED SOFT WATER TANK		50 kLD

GROSS WATER STORAGE VOLUME PROVIDED[LESS FIRE TANK]	**620 kLD**

13 **CAPACITY OF STP PROPOSED**

Expected maximum daily influent load	513,162 litres/day
Add for 10% extra emergency loading as per EIA norms	51316 litres/day
Net expected maximum daily influent loading	**564477.875 litres/day**
Net reuse of recycled water in flushing, irrigation and DG make-up	260,813 litres/day
Recommended capacity of STP	318,772 litres/day
SAY	**360 kLD**
Daily discharge in Vatika INX sewer	194,390 litres/day