REVISED

PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE AT SECTOR-83, VILLAGE KHIRKIDAULA GURGOAN (HARYANA)

Revised — **SERVICE PLAN ESTIMATE**
ON
PUBLIC HEALTH ENGINEERING SERVICES

Client

M/s LOGICAL DEVELOPER PVT. LTD. AND OTHER

COLLABRATION WITH M/s EMAAR MGF LAND LTD.

Architect

DESIGN FORUM INTERNATIONAL
K-47, KAILASH COLONY
NEW DELHI - 110048

Plumbing & Fire Suppression Consultant

PARADISE CONSULTANTS
G-76C, SHAHEEN BAGH NEAR KALINDI KUNJ, NEW DELHI - 110025

Revised

PROJECT REPORT / ESTIMATES FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF RESIDENTIAL PROJECT PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE, SECTOR-83, VILLAGE KHIRKIDAULA GURGOAN (HARYANA)

Gurgaon is located at 28°28'N 77°02'E28.47°N 77.03°E/28.47; 77.03. It has an average elevation of 220 metres (721 ft) Gurgaon district, comprising four blocks Pataudi, Sohna, Gurgaon and Farrukhnagar, was created on 15 August, 1979.On its north, it is bounded by the district of Rohtak and the Union Territory of Delhi. Faridabad district lies to its east. On its south, the district shares boundaries with the district of Mewat. To its west lies the district of Rewari and the State of Rajasthan. Gurgaon is situated between the Himalayas and Aravalis mountain ranges. It is surrounded on three sides by Haryana and to the east, across the river Yamuna by Uttar Pradesh. Its greatest length is around 13 miles and the greatest breadth is 17 miles. Delhi's altitude ranges between 213 to 305 meters above sea level.

Proposed Group Housing Scheme Measuring 21.90 Acre is a residential proposed between sector - 83, at Gurgoan for development by M/s Logical Developer Pvt. Ltd. and other Collabration with M/s Emaar Mgf. Land Ltd.

1 Water Supply Source

The source of water supply shall be HUDA water supply connection. It has been proposed to construct undergorund tanks of capacity as per attached detaileds for domestic and other purpose. The underground tanks will be filled up from the riser and then pumped to the overhead water tanks of each tower.

2 Pumping Equipments

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

3 Sewerage

This scheme is designed for sewer connecting to the proposed sewage treatment. The sewerage system has been marked on the respective plans.

The sewer lines have been designed for 3 times average DWR in relation to the water supply demand assuming that 80% fo the domestic water supply shall find its way into the proposed sewer SW pipe sewers have been proposed designed to run half full. The sewers have been designed on 2.50 ft. per second velocity ie. Self cleansing velocity. Necessary provisions for laying SW pipes manholes etc. has been made in this estimate.

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

4 Storm Water Drainage

The storm water drain is being designed to carry 6.25 mm rain fall per hour. Also suitable provisions are contemplated in our scheme to ensure better recharging of under ground water table in the area. RCC NP_3 pipe drain with minimum 400 mm dia is proposed in this area.

5 Roads

Cost of road has been taken in the estimate

6 **Street Lighting**

Provision for street lighting on surrounding area has been made.

7 **Horticulture**

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

8 **Specifications :**

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

9 **Rates**

Estimates for providing services in this site has been prepared on the recent market rates.

10 **Cost**

The total cost of development in this Project including various PH & B & R services works out to Rs. ~~1246.62~~ 1603.78 lacs which includes 3% contingency and PE charges and 49% departmental charges also. 2030.35

The cost per gross acre for this phase works out to Rs. ~~56.93~~ 73.23 92.34 Lacs/acre which covers the provision of services like water supply, sewerage, storm water drainage, roads, street lighting and plantations including plantations maintenance thereof as well as future expansion whatsoever indicated.

M/s Logical Developer Pvt.Ltd. and other
Collabration with M/s Emaar Mgf. Land Ltd.

Authorised Signatory

Paradise Consultants New Delhi

DESIGN FORUM INTERNATIONAL NEW DELHI

PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE, SECTOR-83, GURGOAN (HARYANA)

DESIGN CALCULATION

1	Daily Domestic Water Requirement				
	Apartment			1054	Nos
	EWS			206	Nos
	Maintenance Personnel / Service Apart.			109	Nos
	Population @ 5 person per unit - Apartment			5	
	Population @ 5 person per unit - EWS			5	
	Population @ 2 person per unit - Maintenance (service) Personnel			2	
	Therefore population (DU)			5270	persons
	Therefore population (EWS)			1030 ~~412~~	persons
	Therefore population (Maintenance Personnel)			218	persons
	Total Population (DU + EWS)			6518 ~~6900~~	persons
			SAY	6520 ~~6900~~	persons
	Water requirement for plots (General)		@	172.5	liter / head / day
				~~1124900~~ 1124355 ~~1017750.00~~	lpd
			or	~~1017.75~~ 1124.36	KLD (1)
2	Other Requirement				
a.)	Nursery School	1	@	10000	lit/day
	Therefore daily water requirement			10000	lit/day
				10	KLD
b.)	Primary School	1	@	20000	lit/day
	Therefore daily water requirement			20000	lit/day
				20	KLD
c.)	No. of Club / Community centre	1	@	25000	lit/day
	Therefore daily water requirement			25000	lit/day
				25	KLD
d.)	No. of Convenient Shopping	1	@	10000	lit/day
	Therefore daily water requirement			10000	lit/day
				10	KLD
			Total	70.00 ~~65.00~~	KLD (3)

3	Total Daily Water Requirement (1+2)			1189.70 1194.36 ~~1082.75~~ KLD	say 1195 KL
i)	Domestic Water Requirement @	65%		773.30 ~~703.79~~ KLD	776.75
			Say	775 ~~710.00~~ KLD	780.00 KL
ii)	Flushing Water Requirement @	35%		416.39 ~~378.96~~ KLD	418.00 KL
			Say	~~380.00~~ KLD	
				420	
4	**Water usage from STP**				
a)	Area under Parks	3.89	acre		
	Daily water requirement		@	25000	lit/acre/day
				97250.00	lit/day
				97.25	KLD
b)	Area under Roads				
	Daily water requirement		Lumpsum	5000 ~~25000~~	lit/acre/day
				5000 ~~25000~~	lit/day
		(15%)		15.00 ~~25~~	KLD
				112.25	
c)	Under Road+ Parks (a+b)		Total	~~122.25~~	KLD
			Say	~~123.00~~	KLD
				115.0	
d)	**Total treated water requirement [3 (ii) + c]**			543 ~~503.00~~	KLD
				535.0	
				1278 1315	
	Total Daily Requirement [3 (i) + d]			~~1213.00~~	KLD
				1280	
			SAY	~~1213.00~~	KLD
				1315	
5	**Underground Tank**				
	Daily fresh water requirement for domestic use			= 780 ~~775~~ ~~710.00~~	KLD
	Capacity of under ground tank				
	24 hours storage	775 ~~753.00~~ 780	x 24 / 24	=	775 780 ~~710.00~~ KLD
	Fire Tank Capacity As / IS Code 15105			= 77.5	~~75.00~~ KL
	But Proposed as/approved fire scheme			= 377.5	~~375.00~~ KL 375.0
				1152.5	
			Total		~~1085~~ KL
					1160 1155

	It is proposed to provide under ground tank of capacity ~~1085~~ 1160 1155 KL which also includes 375 KL capacity for fire fighting.					
	This tank will have Six compartments, two for fire, two for raw and the other two for domestic use. The water first enters the fire compartment, then over flows to the raw use compartment so that the water in the fire compartment shall remain fresh.					
	FIRE WATER TANK				375.00	KL
	TOTAL UG STORAGE (DOMESTIC + FLUSHING + HORTICULTURE)				1315 ~~1280~~ ~~1213.00~~	KL
	RAW WATER TANK				~~375~~ 390+ ~~355.00~~	KL
	DOMESTIC WATER TANK				~~375~~ 390+ ~~355.00~~	KL
	FLUSHING, HORTICULTURE & ROAD WASHING (PART OF STP)				~~543~~ ~~603.00~~ 535	KL
6	DOMESTIC WATER PUMPS - LOCATED IN PUMP ROOM					
	Domestic Water Transfer Pumps					
i)	Tower - 1, 8, 9, 10, 11, 12, Shopping & Schools					
	Daily requirement for domestic use			=	319.32	KL
	Assuming 6 hours running 2 pumps (with one standby)					
	Discharge/hour	319.32	/ 6 / 2	=	26.61 or 456 LPM	KL/HR
	Head of pump					
	i) Suction lifts			=	0.0	m
	ii) Friction loss in M<main & specials			=	7.0	m
	iii) Clear head			=	60.0	m
	iv) Residual head			=	5.0	m
				=	72.0	m
	BHP of motor	26.61	x1000x72/4500/60/0.60		11.8	HP
			SAY	=	12.5	HP

(ii) Flushing water Transfer Pump for Tower 1, 8 to 12, shopping, schools

Daily water requirement for flushing use = 176 KL

Assuming 6 HRS. running 2 pumps with one standby. 176/6x2 = 14.67 KLH or 244.50 LPM

Say 250 LPM

Head = 72 m

BHP of motor = $\frac{250 \times 72}{60 \times 75 \times 0.60}$ = 6.67 HP

Say = 7.50 HP

ii)	Tower - 2, 3, 4, 5, 6 & 7					
	Daily requirement for domestic use			=	338.27	KL
	Assuming 6 hours running 2 pumps (with one standby)					
	Discharge/hour	338.27	/ 6 / 2	=	28.19	KL/HR
	Head of pump				469.82 lpm	
	i) Suction lifts			say 470 lpm =	0.0	m
	ii) Friction loss in M<main & specials			=	4.0	m
	iii) Clear head			=	63.0	m
	iv) Residual head			=	5.0	m
				=	72.0	m
	BHP of motor	28.19	x1000x72/4500/60/0.60		12.5	HP
	(x) Flushing water Transfer Pump		SAY	=	12.5	HP
	(x) PL see offp.					
iii)	CLUB					
	Daily requirement for domestic use			=	16.25	KL
	Assuming 6 hours running 1 pumps (with one standby)					
	Discharge/hour	16.25	/ 6 / 1	=	2.71	KL/HR
	Head of pump				45.16 lpm	
	i) Suction lifts			say 50 lpm =	0.0	m
	ii) Friction loss in M<main & specials			=	1.0	m
	iii) Clear head			=	14.0	m
	iv) Residual head			=	5.0	m
				=	20.0	m
	BHP of motor	2.71	x1000x20/4500/60/0.60		0.3	HP
			SAY	=	1.0	HP

iv)	EWS					
	Daily requirement for domestic use			=	115.49 ~~46.19~~	KL
	Assuming 6 hours running 1 pumps (with one standby)					
	Discharge/hour	115.49 ~~46.19~~ / 6 / 1		=	19.25 ~~7.70~~	KL/HR
	Head of pump			say	320	m
	i) Suction lifts			=	0.0	m
	ii) Friction loss in M<main & specials			=	1.0	m
	iii) Clear head			=	41.0	m
	iv) Residual head			=	5.0	m
				=	47.0	m
	BHP of motor	19.25 ~~7.70~~ x1000x47/4500/60/0.60		SAY	5.58 ~~2.2~~	HP
(8)	Flushing water Transfer Pump PL. see Oppo.			=	~~3.0~~ 6.00	HP 7.50
7	PUMPS FOR FIRE PROECTION					

	Pump Description	Location	Nos.	Discharge	Head	HP
i)	Diesel Driven Pump	Pump Room	1	4500	105.00	-
ii)	Hydrant Pump	Pump Room	1	2280	105.00	100
iii)	Sprinkler Pump	Pump Room	1	2280	105.00	100
iv)	Jockey Pump	Pump Room	1	180	140.00	10
v)	Water Curtain Pump	Pump Room	1	2280	35.00	30

	Capacity of Gen Set	Nos.	HP			
a.)	Domestic water transfer pumps (Tower - 1, 7, 8, 9, 10, 11, 12, Shops & Schools) (Flushing water Transfer Pump)	2 Each	12.5 + 7.50	=	40.- ~~25~~ HP	
b.)	Domestic water transfer pumps (Tower - 2, 3, 4, 5, 6 & 7) Flushing water Transfer Pump	2 Each	12.5 + 7.50	=	40.- ~~25~~ HP	
c.)	Domestic water transfer pumps (Club) Flushing water Transfer Pump	1	1.0 + 1.-	=	2.- ~~1~~ HP	
d.)	Domestic water transfer pumps (EWS) Flushing water Transfer Pump	1	~~6.0~~ 7.50 + 3.-	=	10.50 ~~6~~ HP	
e.)	Fire Pump (Jockey)	1	10.0	=	10 HP	
f.)	Lighting			=	10.- 25 HP	
					~~92~~ ~~89~~ 112.50 HP	
	or	~~92~~ ~~89~~ 112.50	x0.746x1.50		102.95 ~~99.591~~ 125.88 KVA	
			Say		~~110~~ ~~100~~ 130 KVA	
	Requirement of ~~100~~ 110 130 KVA capacity will be added in to the main D.G. set to provide standby supply.					

Estimate for Providing In Internal Development works for Housing for

M/s Logical Developer Pvt.Ltd. and other Collabration with M/s Emaar Mgf. Land Ltd. At sector-83, Gurgoan (Haryana)

	Amount (Lacs.)
	Rs 478.55
Sub Work - I Water Supply	~~428.03~~ ~~371.27~~
	Rs 288.69
Sub Work - II Sewerage	~~226.90~~ ~~170.19~~
	Rs 238.56
Sub Work - III Storm Water Drainage	~~186.30~~ ~~131.77~~
	Rs 370.17
Sub Work - IV Roads & Footpath	~~307.04~~ ~~205.38~~
	Rs 84.02
Sub Work - V Street Lighting	~~42.01~~ ~~33.61~~
	Rs 13.96
Sub Work - VI - Horticulture	~~49.90~~ ~~44.06~~
Sub Work - VII - Maintenance of Services for 10 years including resurfacing of roads after 1st 5 years & II phase i.e. 10 years of maintenance (as per HUDA norms)	~~364.30~~ ~~290.34~~ Rs 546.30
Total	~~1603.78~~ ~~1246.62~~ 2020.25

Sixteen ~~Three~~ Seventy ~~Eight~~ say Rs 2020.25 Lacs

(RUPEES ~~TWELVE~~ CRORE ~~FORTY SIX~~ LACS ~~SIXTY TWO~~ THOUSAND ONLY)

M/s Logical Developer Pvt.Ltd. and other Collabration with M/s Emaar Mgf. Land Ltd. At sector-83, Gurgoan (Haryana)

2020.25

Cost Per Acre : 1603.78/21.90 = Rs. ~~73.23~~ Lacs Per Acre
92.24

Authorized Signatory

Director
Town & Country Planning
Haryana, Chandigarh

Paradise Consultants New Delhi

DESIGN FORUM INTERNATIONAL NEW DELHI

The Executive Engineer,
HUDA, Division No. II,
Gurgaon

Superintending Engineer
HUDA Circle No. 1,
Gurgaon

Addl. Chief Engineer
HUDA Gurugram

Checked subject to comments
In forwarding letter No. 19037
Dt. 11/10/2017 and notes
attached with the estimate

Superintending Engineer(HQ)
for Chief Engineer HUDA
Panchkula
11/10/17

FINAL ABSTRACT OF REVISED COST

			Amount (Lacs.)
			₹ 84.93
Sub Head - (I) Head Works			~~53.60~~ ~~45.55~~
			₹ 68.50
Sub Head - (II) Pumping Machinery			~~57.20~~ ~~48.50~~
			₹ 75.25
Sub Head - (III) Distribution System (Dom. + Flushing & Rising main)			~~71.10~~ ~~66.68~~
			₹ 6.14
Sub Head - (IV) Irrigation Scheme			~~18.47~~ ~~18.26~~
			₹ 77.6
Sub Head - (V) Fire Scheme			~~78.53~~ ~~77.92~~
			₹ 311.82 Lacs
Total			~~278.90~~ ~~241.92~~
			₹ 9.35 Lacs
Add 3% Contingencies eg PE Charges			~~8.37~~ ~~7.26~~
			₹ 321.17 Lacs
			~~287.27~~ ~~249.17~~
Add 49% Departmental Charges, price escalation, unforseen, Admn.			~~140.76~~ ~~122.10~~
			157.38 Lacs
		Total	~~428.03~~ ~~371.27~~
			478.55 Lacs
(CO to final abstract of cost)		Say	~~1. 428.03 Lacs~~ ~~371.27~~

	Sub Work I				**Water Supply**	
	Sub Head No. I				**Head Works**	
					Rs.(lakhs)	
1	Construction of boosting chambers of suitable size along with under ground tank of capacity 1085 KL pumping machinery ~~and generating set etc.~~ complete in all respects.					
	Details of boosting station				7.50 Lacs	
i)	construction of boosting chamber	(L.S)			~~6.00~~	
ii)	UG tank ~~1085~~ 1160 1155 KL capacity incl. 375 KL for fire fighting in two compartments @ 3500 / KL.				40.60 40.43 ~~32.55~~ Lacs	
2	Provision for carriage of material and other unforeseen items		(L.S)		2.00	
3	Provision for facilites staff for Maintenance		(L.S)		5.00	
	(C.O. to abstract of cost of Sub-work No.I)				53.60 ~~45.55~~ Lacs	
				~~Say~~ =	~~45.55~~ Lacs 53.60 Lacs.	

4) Prov. for 2 No. T.W. ~~and its~~ for drinking purposes, with permission of (CGWA) ~~Rising main~~ (tip ... sources are provided) (L.S) Rs 20.00 Lac

5) Rising main from T.W to U.G.T. and by pass arrangement (L.S) Rs 2.00 Lacs

6) Prov for chlorination plant (L.S) Rs 2.00 Lac

7) Prov for pumping machinery for T.W. complete in all respect (L.S) Rs 4.00 Lacs

8) Prov for pump chamber 1.50x1.50x4.50m for housing T.W (L.S) Rs 2.00

Rs 84.93 Lac

	Sub Work I				Water Supply
	Sub Head No. II				Pumping Machinery
					Amount (Rs.)
					(in Lakhs)
1 (i)	Providing & installing electricity driven pumping set capable of delivering 450 LPM of water against a total head of 72 m complete with motor and other accessories (For Domestic - 12.5 HP) For Towers 1, 2 & 12, Swimming Pool	Nos.	(2+1) 3	150000.00	4.50 ~~3.00~~
7.5 HP	HP Flushing Pump 250 LPM		2+1=3 Nos	1.00 Lac	3.00
(ii)	Providing & installing electricity driven pumping set capable of delivering 470 LPM of water against a total head of 72 m complete with motor and other accessories (For Domestic - 12.5 HP) For Towers 3 to 11	Nos.	(2+1) 3	1.50 120000.00	5.40 4.50 Less ~~3.00~~
7.5 HP	Flushing Water Transfer Pump 230 LPM		2+1=3 Nos	1.00	3.00 Less
(iii)	Providing & installing electricity driven pumping set capable of delivering 50 LPM of water against a total head of 20 m complete with motor and other accessories (For Domestic - 1.0 HP) For Community Centre	Nos.	(1+1) 2	25000.00	0.50
1.0	HP Flushing Water Transfer Pump 25 LPM		1+1=2 Nos	0.25 Lac	0.50 Less
(iv)	Providing & installing electricity driven pumping set capable of delivering ~~130~~ LPM of water against a total head of 51 m complete with motor and other accessories (For Domestic - ~~3.0~~ HP) For EWS	Nos.	(1+1) 2	1.00 ~~45000.00~~	2.00 Lac ~~0.90~~
3.0	HP Flushing Water Transfer Pump		(1+1)	0.50 Lac	1.00 Lac
2	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear head arrangements of following capacities.			~~15,00,000/-~~	15.00
	1 No. - ~~100~~ 130 KVA	Nos.	~~1~~ (1+1)	~~1000000.00~~	~~10.00~~ 10.00
3	Providing & installing pumping set of following capacities for fire protection:				
				2.00 Less	2.00 Less
i)	180 LPM @ 105 M Head (10 HP)	Nos.	1	120000.00	1.20
ii)	2280 LPM @ 105 M Head (100 HP) Hydrant	Nos.	1	7.50 Less 450000.00	~~4.50~~ 7.50 Less
iii)	2280 LPM @ 105 M Head (100 HP) Sprinkler	Nos.	1	7.50 Less 450000.00	~~4.50~~ 7.50 Less
iv)	4500 LPM @ 105 M Head (DG Pump)	Nos.	1	10.00 Less 850000.00	~~8.50~~ 10.00 Less
4	Provision for making foundations & erection of pumping machinery.	LS	-	-	2.50 ~~1.50~~
5	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	~~4.25~~ 3.00
6	Provision for electric services connection including electric fittings for ~~tubewells~~ boosting chambers complete.	LS	-	-	5.00 ~~3.00~~
9	Provision for carriage for materials and other unforeseen items.	LS	-	-	2.00 ~~0.75~~
	(C.O. to abstract of cost of Sub-work No.I)				~~57.20~~ ~~43.50~~ 68.50 Less
				Say	~~43.50~~ 57.20 Less.

	Sub Work I				Water Supply	
	Sub Head No. III				Distribution System/Rising Main	
					Amount (Rs.)	
S. No.	Description	Unit	Qty	Rate	Amount	
1	Providing, laying, jointing & testing G.I. pipes including cost of excavation complete as per ISI marked.					
i)	50 mm dia	M	301	650.00	195650.00	
ii)	65 mm dia	M	4198 920	850.00	1011560.00	782000
iii)	80 mm dia	M	132	950.00	125400.00	
iv)	100 mm dia	M 3386	933	1200.00	1119600.00	28.56
v)	150 mm dia	M	1211	1550.00	1877050.00	19.07
				1575/-		
2	Providing, fixing & Testing Ball valves including cost of complete in all respects.					
i)	50 mm dia	Nos.	2	2000.00	4000.00	
3 2	Providing, fixing & Testing Sluice valves including cost of complete in all respects.					
i)	65 mm i/d	Nos.	2	3500.00	7000.00	
ii)	100 mm i/d	Nos.	5 4	12000.00	0.60 12000.00	48000
iii)	150 mm i/d	Nos.	5 4	15000.00	0.75 60000.00	30000
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.			15000/-	15000/-	
i)	150 mm i/d	Nos.	1	20600.00	20500.00	
4	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	7	10000.00	70000.00	
5	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	18 8 16	1000.00	18000 8000.00	
6	Provision for carriage of material	LS	-	-	150000.00	
7	Provision for cutting the roads and making to its original conditions.	LS	-	-	150000.00	
8	Making water supply connection. on master	LS	-	-	250000.00 500000/-	1.00
						21.92 Lacs
9	Provision for rising main from Municipal to UG Tank		1347	1500/-	2020500/-	
i)	150 mm i/d (277+1070)=1347 mtr.	M	270	2250.00	607500.00	
	100 150			1575/-		
					7110200/-	75.25 Lacs
	(C.O. to abstract of cost of Sub-work No.I)				5668200.00	
				Say	56.68 Lacs	
					71.10 Lac.	

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work I				Irrigation
	Sub Head No. IV				Amount (Rs.)
S. No.	Description	Unit	Qty	Rate	Amount
1	Providing, laying, jointing & testing uPVC pipe line confirming to IS 4985 including cost of Excavation etc. complete in all respect.				
a)	25 mm dia Irrigation Hydrant Line	M	296	175.00	51800.00
b)	80 mm dia Connect to Flushing Line	M	2716	600.00	1629600.00
2	Providing and fixing 20mm dia Irrigation hydrant valve complete in all respect.	Nos.	74	800.00	59200.00
3	Providing & fixing valve 25mm dia	Nos.	74	400.00	29600.00
4	Providing, fixing & Testing Sluice valves including cost of complete in all respects.				
i)	80 mm i/d	Nos.	1	4750.00	4750.00
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	1	4500.00	4500.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	2	800.00	1600.00
7	Provision for carriage of materials etc. and other unforsean charges	LS	-	-	15000.00
8	Provision for cutting of roads & making good to its in original condition	LS	-	-	50000.00
				Total	1826050.00
				Say	18.26 Lacs

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work I				Fire Scheme
	Sub Head No. V				Amount (Rs.)
S. No.	Description	Unit	Qty	Rate	Amount
1	Providing, laying, jointing & testing M.S. pipes for fire ring main including cost of Fittings, Valves & excavation complete (as per ISI marked) in all respect.			2150/	6.32 Lacs
a)	200 mm dia	M	15	~~1950.00~~	29250.00
b)	150 mm dia	M	3305	1575/ ~~1500.00~~	~~4957500.00~~ 52.05 La
c)	80 mm dia	M	1068	~~950.00~~ 1000/-	~~1014600.00~~ 10.68 Lacs
2	Providing and fixing External Fire Hydrants complete with masonary chambers.	Nos.	57	10000.00	570000.00
3	Providing & fixing sluice valve.				
a)	200 mm dia	Nos.	1	18000.00	18000.00
b)	150 mm dia	Nos.	2	15000.00	30000.00
c)	~~80 mm dia~~	~~Nos.~~	~~57~~	~~10000.00~~	~~570000.00~~
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				5.70 La.
i)	80 mm i/d	Nos.	57	8000.00	~~456000.00~~
5	Provision for cutting of roads and carriage of materials etc. and other unforsean charges	LS	-	-	100000/- ~~40000.00~~
6	Provision for indication plates	Nos.	57	1000.00	57000.00
7	Provision for carriage of material	LS	-	-	50000.00
					~~7852350/-~~
				Total	~~7792350.00~~ 77.92 La
				Say	~~77.92 Lacs~~ 78.00 La

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work II				Sewerage Scheme
S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
1	Providing, lowering, jointing, cutting salt glazed stone ware pipes and specials into trenches including cost of excavation, bed concrete lot of manholes complete.				
i)	200 mm i/d (Internal Branch Line)			1200	199200/-
a)	Average depth 0.0 m to 1.5 m	M	166	900.00	157700.00
(i)	250 mm i/d			1700/-	14.21 lacs
a)	Average depth 1.5 m to 4.5 m	M	836	1500.00	1254000.00
b)	Average depth 4.5 m to 6.0 m	M	193	1600.00	308800.00
				1800/-	3.44 Lacs
ii)	300 mm i/d			2150/-	1.38 Lacs
a)	Average depth 4.5 m to 6.0 m	M	64	1800.00	115200.00
iii)	400 mm dia i/d			2700/-	9.13 lacs
a)	Average depth 4.5 m to 6.0 m	M	338	2150.00	726700.00
iv)	500 mm dia i/d		10	3350/-	0.34 Lacs
a)	Average depth 4.5 m to 6.0 m	M	6	2450.00	14700.00
2	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	5.00 Lacs 100000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforsean charges Vent Pipe etc	LS	-	-	10.00 Lacs 200000.00
4	Provision for connection with HUDA on master Road	LS	-	-	1.00 Lacs 300000.00
5	Cost of 900 Kld Sewerage Treatment Plant. 960 or 0.96 MLD (upto tertiary treatment)	LS	-	-	120.00 Lacs 9000000.00
6	Provision for CI / DI pipe 300 mm dia pipe from STP. To Huda Main Line on 60M road	M	1025 50	2500/- 2250.00	23.58 2562500/- 112500.00
					14781100/- 188.11 Lacs
				Total	11089600.00
					443433/- 5.64 Lacs
	Add 3% contingencies for PE Charges				332688
				15224533/-	11422200.00 193.75 Lacs
					94.94 Lacs
	Add 49% Deptt. Charges, price escalation unforseen, Admn. Charges.			7460021/-	5606921.12
				Total	17019209.12
					22684554/- 288.69 Lacs
	(C.O. to abstract of cost of Sub-work No. 1)			Say	170.19 Lacs
					226.90 Lacs

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work - III				Storm Water Drain
S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
1	Providing, lowering, jointing, cutting RCC NP2 pipes and specials into trenches including cost of excavation cost of manholes, ventilating chambers etc. complete in all respects.				
i)	150 mm i/d (Branch Line On Basment Top)				
a)	Average depth upto 1.5 m	M	50	1300.00	65000.00
ii)	250 mm i/d			1750	367500/- 3.68 La.
a)	Average depth upto 1.5 m	M	210	~~1300.00~~	~~273000.00~~
iii)	400 mm i/d			2600/-	54.15 4332000/-
a)	Average depth upto 1.5 m	M	2166	~~1700.00~~	~~3682200.00~~
b)	Average depth 1.5 m to 4.5 m	M	45	~~1800.00~~ 2700/-	~~81000.00~~ 99000/- 1.22 La.
iv)	500 mm i/d			2500/-	125000/- 1.70 La.
a)	Average depth upto 1.5 m	M	50	~~2000.00~~ 3400/-	~~100000.00~~
2	Provision for Road Gully & Drain pipe 300mm Ø	LS	-	-	1600000/- ~~500000.00~~
3	Provision for cutting of roads and carriage of materials etc. and other unforseen items	LS	-	-	200000/- ~~150000.00~~
4	Provision for disposal arrangements Recharge Pit. Services are provided till HUDA	(LS) Nos	~~21~~	150000.00	20.0 La. ~~3150000.00~~
5	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	500000.00
5(a)	Prov. for recharge pit complete in all respects				(LS) 20.0 La.
6	Provision for connection with HUDA.	L.S.		3400/	200000/-
a)	~~400~~ 300 mm i/d caking connection with HUDA line for overflow	M	~~50~~ 1050	~~2700.00~~	~~85000.00~~ ~~2100000~~/- 35.70
				Total	~~8566200.00~~ 155.43 12138500/-
	Add 3% contingencies as PE charges				~~257586.00~~ 4.66 364155/-
					~~8843786.00~~ 160.11 12502655/-
	Add 49% Deptt. Charges, price escalation unforseen, Admin.				~~4333455.14~~ 78.45 6126301/-
				Total	~~13177241.14~~ 238.56 La. 18628956/-
				SAY	~~131.77 Lacs~~ 186.30 Lacs.
	(C.O. to abstract of cost of Sub-work No. 1				

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work IV				Road Work
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Provision for leveling & earth filling as per site condition 21.9 acre @ 125000/acre	Acres	21.90	1.5 lac 125000	32.85 2737500.00
2	Construction of road by:- 300 mm thick GSB, 250 mm thick WMM, 50 mm thick B.M, 20 mm thick MS (Type-A) i) soling coat 100 mm thick (63-45) mm gauge compacted to 75 mm thick WBM conforming to MOT specification (table 400-6,grading no 2)- 8472.618 sqm X0.10 m = 847.261 cum say 848 cum @ 950/ cum	Cu. mtr.	848	950	805600.00
	ii) Wearing coat (top coat) 100 mm thick (53-22.4)mm gauge compacted to 75mm thick conforming to MOT specifications (table 400-6, grading no 3) 8472.618 sqm X0.10 m = 847.261 cum say 848 cum @ 950/ cum	1 acre Cu. mtr.	8473 848	1200/- 850/- 950	101.68 7202050/- 805600.00
	iii) 25mm thick pre-mix carpet with seal coat 8472.618 sqm. say 8473 sqm @ 265/ sqm	Sq. mtr.	8473	265	2245345.00
3	Provision for making approach and pavement to building block by providing concrete pavement or tiles. Etc. 9788.031 sqm. Say 9789 sqm @ 500/ sqm. 750/- Rate.	Sq. mtr.	9789	750/- 500	7341750/- 4894500.00
4	Provision for parking arrangement 2987.5 sqm.@ 500/sqm 750/- Rate. 3100	Sq. mtr.	3100 2987.5	750/- 500	2325000/- 1493750.00 23.25 lacs
5	Provision for Carriage of material & other unforseen, Items	LS.		200000.00	200000.00 5.00 lacs
6	Provision for traffic lighting and guide map/ indicators	LS.		200000.00	200000.00 5.00 lacs
			Total		13382295.00 2000630/- 241.30 lacs
	Add 3% contingencies & PE charges			600189/- 401468.85	7.24 lacs
				20606429/- 13763763.85	248.54 lacs
			Total		137.84 Lacs
	Add 49 % department charges, price escalation unforseen, Admin.	SAY		10097180/- 30703669/-	67.54 Lacs 205.38 Lacs 181.73 lacs 390.17 lacs

Say 307.04 lacs.

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount	
	Sub Work V				Street Lighting	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Supply, installation, testing and commissioning of Street Lighting GI Poles, Light Fixtures, Feeder Pillars, Cables & Wires including cable end terminations and Earthing Station etc. for Street Lighting on roads as per standard Specification of HPBV with CFL	per acre	21.90	~~100000.00~~ 2150 Lacs	~~2190000.00~~	54.75 Lacs
	Add 3% contingencies & PE. charges				~~65700.00~~	1.64 Lacs
	Total				2255700.00	56.39 Lacs
	Add 49% Deptt. Charges, price escalation, unforseen Admn.				~~1105293~~	27.63 Lacs
			Total		~~3360993.00~~	84.02 Lacs
		SAY			~~33.61~~ Lacs	

c.o to final abstract of cost

S. No.	Description	Unit	Qty	Rate	Amount (Rs.) Amount
	Sub Work VI				Horticulture
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Development of lawn area				
	a) Trenching the ordinary soil upto depth of 60 cm.Including removal & packing of serviceable material & disposing at a lead of 50 M and making up the trenched area to prope level by filling with earth mixed with manure befor & after flodding trench with water including cost of imported earth & manure.				
	b) Rough dressing of trenched area.				
	c) Grassing including watering & maintenance of lawns free from weeds & fit for mowing in rows including hedges, shrubs & green belts (as per HUDA Norms)				
	~~21.90 acres @ Rs. 9.00 lacs.~~				~~1,971,000~~
	~~1200~~ trees @ Rs. ~~750~~/- each				~~900,000~~
	Add 3% contingency charges				~~86130.00~~
				Total	2957130.00
	Add 49% Deptt. Charges				1448993.70
				Total	~~4406123.70~~
				say	~~44.06 Lacs~~

Green Area = 15756.92 Sqm or 3.90 Acres @ Rs 1.5 lacs/ Acre = 5.85 la

Road length = 1283.75M Say 1285 MTs

Tree @ 12m c/c = 1285/12 = 107.08

Both side = 2x107 = 214 Nos.

~~Bid proposed by firm 1200 trees in inside complex~~ Say 250 Trees

250 1300/- 325000/- 3.25 la

2871000.00 9.10 la

86130.00 0.27 la

3306300/- 10.47 la

1620887/- 5.13 la

~~4406638/-~~ 9.37 la

~~49.30 lacs~~ 4.59 la

c.o. to final abstract of cost 13.96 la

price escalation, unforseen, Admin. Charges

cost details

(i) Excavation = 60.00

(ii) manure = 90.00

(iii) Tree plant = 150.00

(iv) Tree guard = 1000.00

1300 L

S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
					Amount	
	Sub Work VII				Maintenance Charges & Resurfacing of Roads	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)	
1	Provision for maintenance charges for water supply, sewerage,storm water draienage, roads, street light, horticulture etc. complete including operation & establishments charges as per HUDA norms after completion & resurfacing of roads after 10 years or 1st phase.				164.25 lacs	
	21.90 acres @ ~~5~~ 7.50 lacs per acre				~~10950000~~	
2	Provision for resurfacing & strengthening of road after five years of Ist phase ~~21249 sqm @ 250/- per sqm~~ Black Top Area = 8473	Sq. mtr @ 600/- per Sqm	~~21249~~	~~250~~	5083800.00 ~~5312250.00~~	
	Conc./tile paved area = 12889 Sqm @ Rs. 250/- per Sqm				3222250.00	
3	Provision for resurfacing & strengthening of road after ten years of 2nd phase ~~21249 sqm @ 125/- per sqm~~	750 Sq. mtr.	~~21249~~	~~125~~	~~2656125.00~~	63.55
	Black Top Area = 8473 Sqm Rs. ~~300~~/- per Sqm				~~2541900.00~~	
	Conc./Tile Paved area = 12889 Sqm @ Rs. 350/-			Total	~~4933350.00~~ ~~18918375~~	45.11
					~~23731300.00~~	355.97 la
	Add 3% contingency & PE charges				~~567551.25~~ ~~7119394.00~~	10.68 la
				Total	~~19485926.25~~ 24443839.00	
	Add 49% Departmetal charges, price escalation, unforeseen, Admin		366.65 / 179.65 la		~~9548103.863~~ 11977187.00	
				Total	~~29034030.11~~ 36420426.00	
			say Rs 546.30 la		~~290.34~~ Lacs ~~Rs 364.20 lacs~~	

c. o. to final abstract of cost

DOMESTIC WATER SUPPLY QUANTITY SHEET			
S.No.	Line No	Length of Pipe	Dia of Pipe
-	From - To	mtr.	mm.
ZONE I	(Tower - 1, 8, 9, 10, 11, 12, Shopping & Schools)		
1	UGT. - DA1	53.00	150
2.	DA1 - DA2	34.00	150
3.	DA2 - DA3	55.00	150
4.	DA3 - DA4	44.00	150
5.	DA4 - DA4a	26.00	80
6.	DA4 - DA5	121.00	150
7.	DA5 - DA6	69.00	150
8.	DA1 - DA7	53.00	150
9.	DA7 - DA6	77.00	150
10.	DA6 - DA6a	106.00	80
11.	DA6a - DA6b	157.00	65
		150mm Ø = 506m	
ZONE II	(Tower 2, 3, 4, 5, 6, 7 & CLUB)	100mm Ø = 289m	
1	UGT. - DB1	33.00	150
2.	DB1 - DB2	21.00	150
3.	DB2 - DB3	107.00	150
4.	DB3 - DB4	76.00	150
5.	DB1 - DB8	26.00	150
6.	DB8 - DB7	42.00	150
7.	DB7 - DB6	53.00	150
8.	DB6 - DB5	12.00	150
9.	DB5 - DB4	19.00	150

ZONE III	CLUB		
1	UGT. - DD1	110.00	-65~100
ZONE IV	EWS		
1	UGT. - DC1	362.00	65~150

150 mm ϕ = 389 m
100 mm ϕ = 472 m

FLUSHING WATER SUPPLY QUANTITY SHEET

S.No.	Line No	Length of Pipe	Dia of Pipe
	From	mtr.	mm.
ZONE I	(Tower - 1, 8, 9, 10, 11, 12, Shopping & Schools)		
1	STP. - FA1	316.00	150
2.	FA1 - FA2	88.00	100
3.	FA2 - FA3	44.00	100
4.	FA3 - FA3a	28.00	66
5.	FA3 - FA4	121.00	100
6.	FA4 - FA5	73.00	100
7.	FA1 - FA6	53.00	100
8.	FA6 - FA5	77.00	100
9.	FA5 - FA5a	106.00	65
10.	FA5a - FA5b	157.00	65
ZONE II	(Tower 2, 3, 4, 5, 6, 7 & CLUB)		
1	STP. - FB1	65.00	100
2.	FB1 - FB2	57.00	100
3.	FB2 - FB3	28.00	100
4.	FB3 - FB4	53.00	100
5.	FB4 - FB5	42.00	100
6.	FB5 - FB6	49.00	100
7.	FB2 - FB7	76.00	100

150 mm ϕ = 316m
100 mm ϕ = 471m

8.	FB7 - FB6	107.00	100
ZONE III	CLUB		
1	FD1	200.00	150
ZONE IV	EWS		
1	FC1	101.00	150
municipal		100 mm Ø = 778.00	

TUBE WELL WATER SUPPLY QUANTITY SHEET

S.No	Line No	Length of Pipe	Dia of Pipe
-	From	mtr.	mm.
1	M1 - UGT.	~~270.0~~ 277	~~150~~

Description	Length in (MTR)	Pipe Dia (MM)
Domestic & Flushing Water Supply line	301.0	~~50~~ 100
Domestic & Flushing Water Supply line	920.0	~~65~~ 100
Domestic & Flushing Water Supply line	132.0 (2286 m)	~~80~~ 100
Domestic & Flushing Water Supply line	933.0	100
Domestic & Flushing Water Supply line	1211.0	150

Description	Length in (M)	Pipe Dia
Municipal Water Supply line	~~270.0~~ 1070	~~150~~ 150

Description	Qty.	Unit
50 Dia Valve	2	Nos.
65 Dia Valve	2 (5 Nos)	Nos.
100 Dia Valve	1	Nos.
150 Dia Valve	4 (5 Nos)	Nos.
150 Dia Non Return Valve	1	Nos.
Air Valve	7	Nos.

Domestic & Flushing Water supply

100 mm Ø = 2286 mtr

150 mm Ø = 1211 mtr

IRRIGATION WATER SUPPLY QUANTITY SHEET				
S.No.	Line No		Length of Pipe	Dia of Pipe
-	From	To	mtr.	mm.
1	STP.	G1	16.0	80.00
2.	G1	G2	49.0	80.00
3.	G2	G3	98.0	80.00
4.	G3	G3a	14.0	80.00
5.	G3a	G3b	232.0	80.00
6.	G3b	G4	239.0	80.00
7.	G3	G4	230.0	80.00
8.	G4	G5	134.0	80.00
9.	G5	G6	114.0	80.00
10.	G6	G7	108.0	80.00
11.	G7	G8	184.0	80.00
12.	G8	G14	142.0	80.00
13.	G1	G9	97.0	80.00
14.	G9	G9a	27.0	80.00
15.	G9a	G9b	74.0	80.00
16.	G9b	G9c	70.0	80.00
17.	G9c	G9a	105.0	80.00
18.	G9	G10	154.0	80.00
19.	G10	G11	97.0	80.00
20.	G11	G12	128.0	80.00
21.	G12	G13	137.0	80.00
22.	G13	G14	171.0	80.00
23.	G14	G7	96.0	80.00
24.	Garden Hydrant Connection Pipe		296.0	25.00

	Length in (M)	Pipe Dia
Irrigation Water Supply line	296.0	25
Irrigation Water Supply line	2716.0	80
Garden Hydrant	74	Nos.
80 Dia Valve	1	Nos.
Air Valve	1	Nos.

FIRE QUANTITY SHEET

S.No.	Line No		Length of Pipe	Dia of Pipe
-	From	To	mtr.	mm.
1	UGT	F1	15.0	200
2.	F1	F2	5.0	150
3.	F2	F3	165.0	150
4.	F3	F3a	86.0	150
5.	F3	F4	92.0	150
6.	F4	F4a	41.0	150
7.	F4a	F4b	88.0	150
8.	F4b	F4c	70.0	150
9.	F4a	F4c	92.0	150
10.	F4	F5	59.0	150
11.	F5	F5a	54.0	150
12.	F5	F6	148.0	150
13.	F6	F6a	69.0	150
14.	F6	F7	16.0	150
15.	F7	F7a	59.0	150
16.	F7	F8	93.0	150
17.	F8	F9	70.0	150
18.	F9	F9a	23.0	150
19.	F9a	F9b	59.0	150
20.	F9	F10	136.0	150
21.	F10	F10a	47.0	150
22.	F10	F11	58.0	150
23.	F11	F11a	33.0	150
24.	F11	F12	43.0	150
25.	F12	F12a	42.0	150
26.	F12	F13	73.0	150
27.	F13	F13a	36.0	150
28.	F13	F14	14.0	150
29.	F14	F14a	6.0	150
30.	F14a	F14b	49.0	150
31.	F14a	F14c	39.0	150
32.	F14	F15	78.0	150
33.	F15	F16	217.0	150
34.	F16	F16a	11.0	150
35.	F16a	F16b	21.0	80
36.	F16a	F16c	21.0	80
37.	F16	F17	161.0	150
38.	F17	F17a	53.0	150
39.	F17	F18	168.0	150

S.No.	Line No		Length of Pipe	Dia of Pipe
-	From	To	mtr.	mm.
40.	F18	F19	169.0	150
41.	F19	F19a	30.0	150
42.	F19	F1	53.0	150
43.	Fire Brigade Inlet Connection		250.0	150
44.	Fire Brigade Withwrawl Connection		250.0	150

Description	Qty.	Unit
80 mm Dia Pipe	1068.0	mtr.
150 mm Dia Pipe	3305.0	mtr.
200 mm Dia Pipe	15.0	mtr.

Description	Qty.	Unit
External Fire Hydrant (EFH)	57	Nos.
80 Dia Valve	57	Nos.
150 Dia Valve	2	Nos.
200 Dia Valve	1	Nos.
80 Dia Non Return Valve	57	Nos.

TITLE - SEWERAGE QUANTITY SHEET

S.No.	Line No.		Length	Dia of Pipe		Depth			Excavation Depth	EXCAVATION			
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5	4.5 - 6.0
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1.	S1	S2	28.0	250	0.250	2.40	2.25	2.32	47.75	0.0	28.0	0.0	0.0
2.	S2a	S2	6.5	250	0.250	2.40	2.43	2.42	11.48	0.0	6.5	0.0	0.0
3.	S2	S3	72.0	250	0.250	2.43	2.81	2.62	136.83	0.0	72.0	0.0	0.0
4.	S3	S4	122.0	250	0.250	2.81	3.76	3.28	284.23	0.0	0.0	122.0	0.0
5.	S4	S5	133.0	250	0.250	3.76	4.46	4.11	380.84	0.0	0.0	133.0	0.0
6.	S5	S6	64.0	300	0.300	4.46	4.71	4.58	218.77	0.0	0.0	0.0	64.0
7.	S6	S7	139.0	400	0.400	4.71	5.09	4.90	578.14	0.0	0.0	0.0	139.0
8.	S7	S8	180.0	400	0.400	5.09	5.67	5.38	817.95	0.0	0.0	0.0	180.0
9.	S8a	S8	62.0	250	0.250	2.00	2.33	2.16	99.27	0.0	62.0	0.0	0.0
10.	S8	S9	19.0	400	0.400	5.67	5.72	5.70	91.19	0.0	0.0	0.0	19.0
11.	S10	S11	52.0	250	0.250	2.40	2.67	2.54	95.89	0.0	52.0	0.0	0.0
12.	S11	S12	70.0	250	0.250	2.67	3.14	2.91	145.96	0.0	70.0	0.0	0.0
13.	S12	S13	84.0	250	0.250	3.14	3.58	3.36	200.01	0.0	0.0	84.0	0.0
14.	S13	S14	90.0	250	0.250	3.58	3.96	3.77	238.16	0.0	0.0	90.0	0.0
15.	S14	S15	116.0	250	0.250	3.96	4.57	4.26	344.06	0.0	0.0	116.0	0.0
16.	S15	S16	98.0	250	0.250	4.57	5.18	4.88	329.73	0.0	0.0	0.0	98.0
17.	S16	S9	95.0	250	0.250	5.18	5.68	5.43	354.09	0.0	0.0	0.0	95.0
18.	S9	S.T.P	6.0	500	0.500	5.72	5.74	5.73	32.57	0.0	0.0	0.0	6.0
~~19~~	~~Branch Line~~		~~166.0~~	~~250~~	~~0.150~~	~~1.00~~	~~1.50~~	~~1.25~~	~~141.52~~	~~166.0~~	~~0.0~~	~~0.0~~	~~0.0~~
Total			**1603.0**						**4549.0**	**166.0**	**291.0**	**545.0**	**601.0**

Excavation Depth				
	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)	(4.5 - 6.0)
~~300 mm Dia pipe~~	~~166.0~~	-	-	-
250 mm Dia pipe	0.0	291.0	545.0	193.0
300 mm Dia pipe	0.0	0.0	0.0	64.0
400 mm Dia pipe	0.0	0.0	0.0	338.0
500 mm Dia pipe	0.0	0.0	0.0	6.0

TITLE :- STORM WATER QUANTITY SHEET

S.No.	Line No.		Length	Size of Pipe		Depth			Excavation Depth	EXCAVATION		
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5
			(mtr.)	(mm)	(M)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
1.	A1	A2	59.0	400	0.400	1.20	1.21	1.21	88.81	59.0	0.0	0.0
2.	A2	D.C-01	5.0	400	0.400	1.21	1.22	1.21	7.57	5.0	0.0	0.0
3.	D.C-01	*R.P-01*	5.0	400	0.400	1.22	1.23	1.22	7.62	5.0	0.0	0.0
4.	*R.P-01*	A3	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
5.	A3	A4	117.0	400	0.400	1.21	1.71	1.46	206.08	117.0	0.0	0.0
6.	A4	D.C-02	5.0	400	0.400	1.71	1.72	1.72	10.09	0.0	5.0	0.0
7.	D.C-02	*R.P-02*	5.0	400	0.400	1.72	1.73	1.73	10.14	0.0	5.0	0.0
8.	*R.P-02*	A5	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
9.	A5	A6	87.0	400	0.400	1.21	1.36	1.29	137.90	87.0	0.0	0.0
10.	A6	D.C-03	5.0	400	0.400	1.36	1.37	1.37	8.33	5.0	0.0	0.0
11.	D.C-03	*R.P-03*	5.0	400	0.400	1.37	1.38	1.37	8.37	5.0	0.0	0.0
12.	*R.P-03*	A7	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
13.	A7	A8	51.0	400	0.400	1.21	1.30	1.25	79.23	51.0	0.0	0.0
14.	A8	D.C-04	5.0	400	0.400	1.30	1.31	1.30	8.01	5.0	0.0	0.0
15.	D.C-04	*R.P-04*	5.0	400	0.400	1.31	1.32	1.31	8.08	5.0	0.0	0.0
16.	*R.P-04*	A9	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
17.	A9	A10	23.0	400	0.400	1.21	1.25	1.23	35.17	23.0	0.0	0.0
18.	A10	D.C-05	5.0	400	0.400	1.25	1.26	1.25	7.77	5.0	0.0	0.0
19.	D.C-05	*R.P-05*	5.0	400	0.400	1.26	1.27	1.26	7.81	5.0	0.0	0.0
20.	*R.P-05*	A11	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
21.	A11	A12	78.0	400	0.400	1.21	1.35	1.28	123.02	78.0	0.0	0.0
22.	A12	D.C-06	5.0	400	0.400	1.35	1.35	1.35	8.25	5.0	0.0	0.0
23.	D.C-05	*R.P-06*	5.0	400	0.400	1.35	1.36	1.36	8.29	5.0	0.0	0.0
24.	*R.P-06*	A13	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
25.	A13	A14	66.0	400	0.400	1.21	1.32	1.27	103.40	66.0	0.0	0.0
26.	A14	D.C-07	10.0	400	0.400	1.32	1.34	1.33	16.33	10.0	0.0	0.0
27.	D.C-07	*R.P-07*	5.0	400	0.400	1.34	1.35	1.35	8.23	5.0	0.0	0.0
28.	*R.P-07*	A15	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
29.	A15	A16	35.0	400	0.400	1.21	1.27	1.24	53.88	35.0	0.0	0.0
30.	A16	D.C-08	10.0	400	0.400	1.27	1.29	1.28	15.79	10.0	0.0	0.0
31.	D.C-08	*R.P-08*	5.0	400	0.400	1.29	1.30	1.29	7.96	5.0	0.0	0.0
32.	*R.P-08*	A17	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
33.	A17	A18	27.0	400	0.400	1.21	1.26	1.23	41.38	27.0	0.0	0.0
34.	A18	D.C-10a	10.0	400	0.400	1.26	1.27	1.26	15.65	10.0	0.0	0.0
35.	D.C-10a	*R.P-10*	5.0	400	0.400	1.27	1.28	1.28	7.89	5.0	0.0	0.0
36.	A19	A20	133.0	400	0.400	1.20	1.43	1.32	215.02	133.0	0.0	0.0
37.	A20	D.C-09	5.0	400	0.400	1.43	1.44	1.44	8.69	5.0	0.0	0.0
38.	D.C-09	*R.P-09*	5.0	400	0.400	1.44	1.45	1.45	8.73	5.0	0.0	0.0
39.	*R.P-09*	A21	10.0	400	0.400	1.20	1.22	1.21	15.09	10.0	0.0	0.0
40.	A21	A22	45.0	400	0.400	1.22	1.20	1.21	67.82	45.0	0.0	0.0

S.No.	Line No.		Length	Size of Pipe		Depth			Excavation Depth	EXCAVATION		
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5
			(mtr.)	(mm)	(M)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
41.	A22	D.C-10	15.0	400	0.400	1.20	1.22	1.21	22.64	15.0	0.0	0.0
42.	D.C-10	*R.P-10*	5.0	400	0.400	1.22	1.23	1.23	7.64	5.0	0.0	0.0
43.	*R.P-10*	*Over Flow*	20.0	500	0.500	1.30	1.40	1.35	36.30	20.0	0.0	0.0
44.	B1	B2	77.0	400	0.400	1.20	1.24	1.22	116.85	77.0	0.0	0.0
45.	B2a	B2	30.0	400	0.400	1.20	1.25	1.23	45.79	30.0	0.0	0.0
46.	B2	B3	10.0	400	0.400	1.25	1.37	1.31	16.11	10.0	0.0	0.0
47.	B3a	B3	73.0	400	0.400	1.20	1.33	1.26	114.17	73.0	0.0	0.0
48.	B3	D.C-11	15.0	400	0.400	1.37	1.40	1.38	25.25	15.0	0.0	0.0
49.	D.C-11	*R.P-11*	5.0	400	0.400	1.40	1.41	1.40	8.50	5.0	0.0	0.0
50.	*R.P-11*	*Over Flow*	20.0	400	0.400	1.20	1.20	1.20	30.00	20.0	0.0	0.0
51.	C1	C2	105.0	400	0.400	1.20	1.48	1.34	172.42	105.0	0.0	0.0
52.	C2	*D.C-12*	30.0	400	0.400	1.48	1.54	1.51	54.32	0.0	30.0	0.0
53.	D.C-12	*R.P-12*	5.0	400	0.400	1.54	1.55	1.54	9.21	0.0	5.0	0.0
54.	*R.P-12*	C3	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
55.	C3	C4	75.0	400	0.400	1.21	1.34	1.27	118.09	75.0	0.0	0.0
56.	C4	*D.C-13*	5.0	400	0.400	1.34	1.35	1.34	8.22	5.0	0.0	0.0
57.	D.C-13	*R.P-13*	5.0	400	0.400	1.35	1.36	1.35	8.27	5.0	0.0	0.0
58.	*R.P-13*	C5	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
59.	C5	C6	101.0	400	0.400	1.21	1.29	1.25	156.28	101.0	0.0	0.0
60.	C6	*D.C-14*	5.0	400	0.400	1.29	1.29	1.29	7.95	5.0	0.0	0.0
61.	D.C-14	*R.P-14*	5.0	400	0.400	1.29	1.30	1.30	8.00	5.0	0.0	0.0
62.	*R.P-14*	C7	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
63.	C7	C8	85.0	400	0.400	1.21	1.46	1.33	138.63	85.0	0.0	0.0
64.	C8	*D.C-15*	5.0	400	0.400	1.46	1.47	1.46	8.81	5.0	0.0	0.0
65.	D.C-15	*R.P-15*	5.0	400	0.400	1.47	1.48	1.47	8.86	5.0	0.0	0.0
66.	*R.P-15*	C9	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
67.	C9	C10	47.0	400	0.400	1.21	1.29	1.25	72.85	47.0	0.0	0.0
68.	C10	*D.C-16*	5.0	400	0.400	1.19	1.20	1.20	7.48	5.0	0.0	0.0
69.	D.C-16	*R.P-16*	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
70.	*R.P-16*	C11	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
71.	C11	C12	35.0	400	0.400	1.21	1.27	1.24	53.88	35.0	0.0	0.0
72.	C12	*D.C-21*	5.0	400	0.400	1.27	1.28	1.27	7.87	5.0	0.0	0.0
73.	C13	C14	55.0	400	0.400	1.20	1.30	1.25	85.15	55.0	0.0	0.0
74.	C14	*D.C-17*	5.0	400	0.400	1.30	1.31	1.30	8.00	5.0	0.0	0.0
75.	D.C-17	*R.P-17*	5.0	400	0.400	1.31	1.31	1.31	8.05	5.0	0.0	0.0
76.	*R.P-17*	C15	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
77.	C15	C16	59.0	400	0.400	1.21	1.31	1.26	92.07	59.0	0.0	0.0
78.	C16	*D.C-18*	5.0	400	0.400	1.31	1.32	1.32	8.08	5.0	0.0	0.0
79.	D.C-18	*R.P-18*	5.0	400	0.400	1.32	1.33	1.33	8.13	5.0	0.0	0.0

S.No.	Line No.		Length	Size of Pipe		Depth			Excavation Depth	EXCAVATION		
						Start	End	Avg.		0.0 -1.5	1.5 - 3.0	3.0 - 4.5
			(mtr.)	(mm)	(M)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
80.	*R.P-18*	C17	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
81.	C17	C18	48.0	400	0.400	1.21	1.39	1.30	76.84	48.0	0.0	0.0
82.	C18a	C18	109.0	400	0.400	1.20	1.39	1.30	173.92	109.0	0.0	0.0
83.	C18	D.C-19	5.0	400	0.400	1.39	1.40	1.40	8.49	5.0	0.0	0.0
84.	D.C-19	*R.P-19*	5.0	400	0.400	1.40	1.41	1.41	8.53	5.0	0.0	0.0
85.	*R.P-19*	C19	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
86.	C19	C20	43.0	400	0.400	1.21	1.28	1.25	66.50	43.0	0.0	0.0
87.	C20	D.C-20	5.0	400	0.400	1.28	1.29	1.29	7.94	5.0	0.0	0.0
88.	D.C-20	*R.P-20*	5.0	400	0.400	1.29	1.30	1.30	7.99	5.0	0.0	0.0
89.	*R.P-20*	C21	5.0	400	0.400	1.20	1.21	1.20	7.52	5.0	0.0	0.0
90.	C21	C22	15.0	400	0.400	1.21	1.24	1.22	22.83	15.0	0.0	0.0
91.	C22a	C22	103.0	400	0.400	1.20	1.38	1.29	163.81	103.0	0.0	0.0
92.	C22	C23	30.0	400	0.400	1.38	1.43	1.41	51.21	30.0	0.0	0.0
93.	C23	D.C-21	5.0	500	0.500	1.43	1.44	1.44	9.55	5.0	0.0	0.0
94.	D.C-21	*R.P-21*	5.0	500	0.500	1.44	1.45	1.44	9.59	5.0	0.0	0.0
95.	*R.P-21*	*Over Flow*	20.0	500	0.500	1.30	1.40	1.35	36.30	20.0	0.0	0.0
96.	*Branch Line*		210.0	250	0.250	0.75	1.00	0.88	209.74	210.0	0.0	0.0
97.	*Branch Line*		50.0	150	0.150	0.45	0.60	0.53	30.94	50.0	0.0	0.0
Total			**2521.0**						**3851.0**	**2476.0**	**45.0**	**0.0**

Excavation Depth			
	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)
~~150 mm Dia pipe~~	~~50.0~~	-	-
250 mm Dia pipe	210.0	-	-
400 mm Dia pipe	2166.0	45.0	-
500 mm Dia pipe	50.0	-	-

TITLE :- SITE ROAD AREA CALCULATION

AREA OF METALLED ROAD (A)

S.NO.	ROAD NO.	LENGTH (In Sq. Mt.)	WIDTH	TOTAL AREA (In Sq. Mt.)
1	1	19.915	6	119.49
2	2	47.15	6	282.9
3	3	96.08	6	576.48
4	4	25.855	6	155.13
5	5	21.14	6	126.84
6	6	127.015	6	762.09
7	7	72.48	6	434.88
8	8	139.49	6	836.94
9	9	41.88	6	251.28
10	10	24.105	6	144.63
11	11	102.575	6	615.45
12	12	36.63	6	219.78
13	13	35.345	6	212.07
14	14	38.665	6	231.99
15	15	36.37	6	218.22
16	16	18.32	6	109.92
17	17	6.125	6	36.75
18	18	27.485	6	164.91
19	19	19.285	6	115.71
20	20	43.525	6	261.15
21	21	13.19	6	79.14
22	22	49.76	6	298.56
23	23	59.88	6	359.28
24	24	55.235	6	331.41
25	25	11.2	6	67.2
26	26	33.48	6	200.88
27	27	5.38	6	32.28
28	28	58.24	6	349.44
29	29	17.93	6	107.58
	Total-	1283.73 Sqm		
	TOTAL			7702.38
	ADD 10% FOR CURVES			770.238
TOTAL METALLED ROAD AREA (A)				8472.618 SQM

AREA OF HARD PAVED				(For Fire Tender Movement) (B)
S.NO.	ROAD NO.	LENGTH	WIDTH	TOTAL AREA
		(In Sq. Mt.)		(In Sq. Mt.)
1	A	8.8	6	52.8
2	B	21.75	6	130.5
3	C	60.15	6	360.9
4	D	27.81	6	166.86
5	E	21.715	6	130.29
6	F	97.74	6	586.44
7	G	61.77	6	370.62
8	H	21.65	6	129.9
9	I	3.4	6	20.4
10	J	9.22	6	55.32
11	K	12.925	6	77.55
12	L	18.4	6	110.4
13	M	131.675	6	790.05
14	N	63.07	6	378.42
15	O	21.3	6	127.8
16	P	13.05	6	78.3
17	Q	127.75	6	766.5
18	R	22.55	6	135.3
19	S	14.97	6	89.82
20	T	75.82	6	454.92
21	U	14.6	6	87.6
22	V	59.92	6	359.52
23	W	23.78	6	142.68
24	X	18.325	6	109.95
25	Y	54.495	6	326.97
26	Z	30.16	6	180.96
27	A1	36.285	6	217.71
28	B1	36.71	6	220.26
29	C1	41.105	6	246.63
30	D1	5.895	6	35.37
31	E1	24.55	6	147.3
32	F1	16.465	6	98.79
33	G1	26.91	6	161.46
34	H1	20.75	6	124.5
35	I1	60.45	6	362.7
36	J1	9.7	6	58.2
37	K1	21.5	6	129
38	L1	59.15	6	354.9
39	M1	13.7	6	82.2

40	N1	11.75	6	70.5
41	O1	39.8	6	238.8
42	P1	21.52	6	129.12
	TOTAL			8898.21
	ADD 10% FOR CURVES			889.821
TOTAL HARD PAVED AREA (B)				9788.031 SQM

AREA UNDER CAR PARKING (C)

NO. OF CARS ON SURFACE = 248 NO.

AREA UNDER CAR PARKING = 5 X 2.5 X 248 = 3100 SQM

TOTAL AREA UNDER CAR PARKING (C)	3100 SQM

TOTAL AREA OF ROADS = A + B + C = 8472.618 + 9788.031 + 3100 = 21360.649SQM

TITLE : MUNICIPAL WATER SUPPLY LINE DESIGN CHART

S.NO	Line No.		Average Demand	Peak Demand @ 1.5 Times	Flow Rate	Length of Pipe	Head Loss mtr./ mtr.	Total Head Loss	Velocity	Dia of Pipe
	From	To	ldph.	ldph.	lpm.	mtr.	mtr.	mtr.	m/sec	mm
1	HUDA	UGT.	58.65	87.97	1466.23	150.0	0.022	3.37	1.382	~~150~~ 100

(Pump Riser Calculation Sheet)

Domestic Water Supply Riser Design Calculation For Tower 1, 8, 9, 10, 11, 12, Shopping & Schools (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at Inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
UGT. - DA1	14.783	150	0.009	53.00	5	2.65	55.65	0.493	0.493	0.836	72.00	71.51	-	-	-
DA1 - DA2	10.278	150	0.005	34.00	5	1.70	35.70	0.161	0.655	0.581	71.51	70.85	-	-	-
DA2 - DA3	9.676	150	0.004	55.00	5	2.75	57.75	0.233	0.888	0.547	70.85	69.96	9.96	60.00	Tower - 10
DA3 - DA4	7.418	150	0.002	44.00	5	2.20	46.20	0.114	1.002	0.420	69.96	68.96	-	-	-
DA4 - DA4a	2.912	80	0.009	26.00	5	1.30	27.30	0.255	1.257	0.579	68.96	67.70	7.70	60.00	Tower - 01
													Used PRV For		Shopping & Schools
DA4 - DA5	4.506	150	0.001	121.00	5	6.05	127.05	0.125	1.127	0.255	68.96	67.83	7.83	60.00	Tower - 09
DA5 - DA6	4.506	150	0.001	69.00	5	3.45	72.45	0.071	1.328	0.255	67.83	66.51	-	-	-
DA1 - DA7	9.012	150	0.004	53.00	5	2.65	55.65	0.197	0.690	0.510	71.51	70.82	10.82	60.00	Tower - 08
DA7 - DA8	6.608	150	0.002	77.00	5	3.85	80.85	0.161	0.852	0.374	70.82	69.96	-	-	-
DA6 - DA6a	4.205	80	0.018	106.00	5	5.30	111.30	2.054	2.905	0.836	69.96	67.06	7.06	60.00	Tower - 11
DA6a - DA6b	2.102	65	0.014	157.00	5	7.85	164.85	2.317	5.222	0.633	69.96	64.74	4.74	60.00	Tower - 12
		Flow Rate		14.783	lps										
				887.0	LPM										
		(2 W + 1 S)		444.0	LPM										
		Say		450.0	LPM										
		Height Bulding		55	m										
		Pump Head		72.00	m										
		Pump HP		11.8	HP										
		Say		12.5	HP										

Flushing Water Supply Riser Design Calculation For Towers 1, 8, 9, 10, 11, 12, Shopping & Schools (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at Inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STP. - FA1	7.960	150	0.003	316.00	5	15.80	331.80	0.935	0.935	0.450	72.00	71.07	-	-	-
FA1 - FA2	5.048	100	0.009	88.00	5	4.40	92.40	0.807	1.741	0.642	71.07	69.32	9.32	60.00	Tower - 10
FA2 - FA3	3.832	100	0.005	44.00	5	2.20	46.20	0.242	1.983	0.488	69.32	67.34	-	-	-
FA3 - FA3a	1.406	65	0.007	28.00	5	1.40	29.40	0.198	2.179	0.423	67.34	65.16	5.16	60.00	Tower - 01
													Used PRV For		Shopping & Schools
FA3 - FA4	2.426	100	0.002	121.00	5	6.05	127.05	0.286	2.269	0.309	67.34	65.07	5.07	60.00	Tower - 09
FA4 - FA5	1.132	100	0.001	73.00	5	3.65	76.65	0.042	2.311	0.144	65.07	62.76	-	-	-
FA1 - FA6	4.852	100	0.008	53.00	5	2.65	55.65	0.452	1.386	0.617	71.07	69.68	9.68	60.00	Tower - 08
FA6 - FA5	3.558	100	0.005	77.00	5	3.85	80.85	0.369	1.755	0.453	69.68	67.92	-	-	-
FA5 - FA5a	2.284	65	0.016	106.00	5	5.30	111.30	1.794	3.550	0.682	67.92	64.37	4.37	60.00	Tower - 11
FA5a - FA5b	1.132	65	0.004	157.00	5	7.85	164.85	0.736	4.286	0.341	67.92	63.64	3.64	60.00	Tower - 12
		Flow Rate		7.960	lps										
				477.6	LPM										
		(1 W + 1 S)		480.0	LPM										
		Height Building		55	m										
		Pump Head		72.00	m										
		Pump HP		12.80	HP										
		SAY		15.00	HP										

Domestic Water Supply Riser Design Calculation For Tower 2, 3, 4, 5, 6 & 7 (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
UGT. - DB1	15.661	150	0.010	33.00	5	1.65	34.65	0.342	0.342	0.886	72.00	71.66	-	-	-
DB1 - DB2	10.153	150	0.004	21.00	5	1.05	22.05	0.097	0.439	0.574	71.66	71.22	11.22	60.00	Tower - 07
DB2 - DB3	7.895	150	0.003	107.00	5	5.35	112.35	0.312	0.751	0.447	71.22	70.47	10.47	60.00	Tower - 02
DB3 - DB4	5.637	150	0.001	76.00	5	3.80	79.80	0.119	0.869	0.319	70.47	69.60	8.60	63.00	Tower - 03
DB1 - DB8	13.403	150	0.007	26.00	5	1.30	27.30	0.202	0.543	0.758	71.66	71.11	11.11	60.00	Tower - 06
DB8 - DB7	11.025	150	0.005	42.00	5	2.10	44.10	0.227	0.771	0.624	71.11	70.34	10.34	60.00	Tower - 05
DB7 - DB6	8.648	150	0.003	53.00	5	2.65	55.65	0.183	0.953	0.489	70.34	69.39	9.39	60.00	Tower - 04
DB6 - DB5	6.390	150	0.002	12.00	5	0.60	12.60	0.024	0.977	0.361	69.39	68.41	53.41 Used PRV	15.00	Community Building
DB5 - DB4	5.637	150	0.001	19.00	5	0.95	19.95	0.030	1.007	0.319	68.41	67.41	-	-	-

Flow Rate	**15.661**	lps
	940.0	LPM
(2 W + 1 S)	470.0	LPM
Say	**470.0**	**LPM**
Height Building	58	m
Pump Head	**72.00**	m
Pump HP	12.5	HP
Say	**12.5**	**HP**

Flushing Water Supply Riser Design Calculation For Tower 2, 3, 4, 5, 6 & 7 (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STP. - FB1	8.433	100	0.023	65.00	5	3.25	68.25	1.541	1.541	1.073	72.00	70.46	7.46	63.00	Tower - 03
FB1 - FB2	6.208	100	0.013	57.00	5	2.85	59.85	0.766	2.307	0.790	70.46	68.15	53.15 Used PRV	15.00	Community Building
FB2 - FB3	4.992	100	0.009	28.00	5	1.40	29.40	0.251	2.559	0.635	68.15	65.59	5.59	60.00	Tower - 04
FB3 - FB4	3.776	100	0.005	53.00	5	2.65	55.65	0.284	2.843	0.481	65.59	62.75	2.75	60.00	Tower - 05
FB4 - FB5	2.496	100	0.002	42.00	5	2.10	44.10	0.104	1.646	0.318	70.46	68.81	8.81	60.00	Tower - 06
FB5 - FB6	1.216	100	0.001	49.00	5	2.45	51.45	0.032	1.678	0.155	68.81	67.14	7.14	60.00	Tower - 07
FB2 - FB7	2.432	100	0.002	76.00	5	3.80	79.80	0.180	1.858	0.309	67.14	65.28	5.28	60.00	Tower - 02
FB7 - FB6	1.216	100	0.001	107.00	5	5.35	112.35	0.070	1.928	0.155	65.28	63.35	-	-	-

Flow Rate	8.433	lps
	506.0	LPM
(2 W + 1 S)	253.0	LPM
Say	**260.0**	**LPM**
Height Building	58	m
Pump Head	**72.00**	m
Pump HP	6.7	HP
Say	**7.5**	**HP**

Domestic Water Supply Riser Design Calculation For CLUB

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
UGT. - DD1	0.752	65	0.002	110.00	5	5.50	115.50	0.242	0.242	0.227	20.00	19.76	5.76	14.00	CLUB
		Flow Rate		0.752	lps										
				45.1	LPM										
		(1 W + 1 S)		50.0											
		Height Building		9	m										
		Pump Head		20.00	m										
		Pump HP		0.3	HP										
		SAY		1.00	HP										

Flushing Water Supply Riser Design Calculation For CLUB

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STP. - FD1	0.405	50	0.002	200.00	5	10.00	210.00	0.502	0.502	0.206	20.00	19.50	5.50	14.00	CLUB
		Flow Rate		0.405	lps										
				24.3	LPM										
		(1 W + 1 S)		30.0											
		Height Building		9	m										
		Pump Head		20.00	m										
		Pump HP		0.22	HP										
		SAY		1.00	HP										

Domestic Water Supply Riser Design Calculation For EWS (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
UGT. - DC1	2.139	65	0.015	362.00	5	18.10	380.10	5.514	5.514	0.644	51.00	45.49	4.49	41.00	EWS
		Flow Rate		2.139	lps										
				128.3	LPM										
		(1 W + 1 S)		130.0											
		Height Building		36	m										
		Pump Head		51.00	m										
		Pump HP		2.4	HP										
		SAY		3.00	HP										

Flushing Water Supply Riser Design Calculation For EWS (Pumping Calculation for 6 hours)

Line No.	Probable demand (lps)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fitts (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available in basement ceiling level	Residual Head Available at Basement	Residual Head Available at inlet of tank	Tower Height From Pump Room To OHT	Building Name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STP. - FC1	1.152	50	0.017	101.00	5	5.05	106.05	1.754	1.754	0.588	51.00	49.25	8.25	41.00	EWS
		Flow Rate		1.152	lps										
				69.1	LPM										
		(1 W + 1 S)		70.0											
		Height Building		36	m										
		Pump Head		51.00	m										
		Pump HP		1.32	HP										
		SAY		2.00	HP										

PROJECT :- PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE, SECTOR-83, VILLAGE KHIRKIDAULA GURGOAN (HARYANA)

TITLE :- HYDRAULIC SEWAGE DESIGN CHART

S.No.	Line No.		Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line) LPD	Sewage Flow (Self Load on Line) KLD	Previous Load	Progressive Discharge	Progressive Discharge (Average)	Progressive Discharge (Peak)	Infiltration @ 25% Av. Discharge	Total Discharge	Length	Pipe Size	Slope(1 in)	Fall(m)	Velocity	Capacity of Pipe	Ground Levels at Start	Invert Levels at Start	Ground Levels at End	Invert Levels at End	Manhole Start Depth	Manhole Start End	Average Depth
	From	To	Lpd	80%	1000	kld.	kld.	lps.	lps.	lps.	lps.	(mtr.)	(mm)	(mm)	(mtr.)	(m/s)(v)	lps.	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1.	S1	S2	34500	27600	27.60	0.00	27.60	0.32	0.96	0.08	1.04	28.0	250	100	0.15	0.76	18.70	232.90	229.90	232.00	229.75	2.40	2.25	2.32
2.	S2a	S2	35363	28290	28.29	0.00	28.29	0.33	0.98	0.08	1.06	6.5	250	100	0.03	0.76	18.70	232.00	229.60	232.00	229.57	2.40	2.43	2.42
3.	S2	S3	0	0	0.00	55.89	55.89	0.65	1.94	0.16	2.10	72.0	250	100	0.36	0.76	18.70	232.00	229.57	232.00	229.19	2.43	2.81	2.62
4.	S3	S4	69863	55890	55.89	55.89	111.78	1.29	3.88	0.32	4.20	122.0	250	100	0.64	0.76	18.70	232.00	229.19	232.30	228.54	2.81	3.76	3.28
5.	S4	S5	159735	127788	127.79	111.78	239.57	2.77	8.32	0.69	9.01	133.0	250	100	0.70	0.76	18.70	232.30	228.54	232.30	227.84	3.76	4.46	4.11
6.	S5	S6	100035	80030	80.03	239.57	319.60	3.70	11.10	0.92	12.02	64.0	300	250	0.26	0.75	26.51	232.30	227.84	232.30	227.59	4.46	4.71	4.58
7.	S6	S7	156010	124808	124.81	319.60	444.01	5.16	15.49	1.29	16.78	139.0	400	370	0.38	0.75	46.93	232.30	227.59	232.30	227.21	4.71	5.09	4.90
8.	S7	S8	131790	105432	105.43	444.01	551.44	6.38	19.15	1.60	20.74	180.0	400	370	0.49	0.75	46.93	232.30	227.21	232.40	226.73	5.09	5.67	5.38
9.	S8a	S8	71070	56856	56.86	0.00	56.86	0.66	1.97	0.16	2.14	62.0	250	100	0.33	0.76	18.70	232.40	230.40	232.40	230.07	2.00	2.33	2.16
10.	S8	S9	0	0	0.00	608.29	608.29	7.04	21.12	1.76	22.88	19.0	400	370	0.05	0.75	46.93	232.40	229.73	232.40	226.68	5.67	5.72	5.70
11.	S10	S11	75038	60030	60.03	0.00	60.03	0.69	2.08	0.17	2.26	62.0	250	100	0.27	0.76	18.70	232.30	229.90	232.30	229.63	2.40	2.67	2.54
12.	S11	S12	0	0	0.00	60.03	60.03	0.69	2.08	0.17	2.26	70.0	250	100	0.37	0.76	18.70	232.30	229.63	232.40	229.26	2.67	3.14	2.91
13.	S12	S13	91753	73410	73.41	60.03	133.44	1.54	4.63	0.39	5.02	64.0	250	100	0.44	0.76	18.70	232.40	229.26	232.40	228.82	3.14	3.58	3.36
14.	S13	S14	10000	8000	8.00	133.44	141.44	1.64	4.91	0.41	5.32	60.0	250	100	0.47	0.76	18.70	232.40	228.82	232.30	228.34	3.58	3.96	3.77
15.	S14	S15	79038	60030	60.03	141.44	201.47	2.33	7.00	0.58	7.58	116.0	250	100	0.01	0.76	18.70	232.30	228.34	232.30	227.73	3.96	4.57	4.26
16.	S15	S16	58545	44436	44.44	201.47	245.91	2.85	8.54	0.71	9.25	98.0	250	100	0.52	0.76	18.70	232.30	227.73	232.40	227.22	4.57	5.18	4.88
17.	S16	S9	0	0	0.00	245.91	245.91	2.85	8.54	0.71	9.25	95.0	250	100	0.50	0.76	18.70	232.40	227.22	232.40	226.72	5.18	5.68	5.43
18.	S9	S.T.P	0	0	0.00	854.20	854.20	9.89	29.66	2.47	32.13	6.0	500	500	0.01	0.75	73.20	232.40	226.68	232.40	226.66	5.72	5.74	5.73

PROJECT : PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE, SECTOR-83, VILLAGE KHIRKIDAULA GURGOAN (HARYANA)

LOAD ON SEWAGE LINES

S.No.	Name of Sewer Line		Residential Sewage Load						Non Residential Sewage Load			Residential + Non Residential Load		
			Main Apartment	Population @ 5 persons / Apartment	Water Reuirement @ 172.5 Ltr/ day /Person	EWS	Population @ 2 persons / Unit	Water Reuirement @ 172.5 Ltr/ day /Person	Amenity	Population @ 1 persons in 10 sqm. Area	Water Reuirement	Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line)	Sewage Flow (Self Load on Line)
-	From	To	No. of unit	Nos.	lpd.	No. of unit	Nos.	lpd.	sqm.	Nos.	lpd.	lpd.	lpd.	kld.
-	-	-	-	5	172.5	-	2	172.5	-	10		-	80%	1000
1.	S1	S2	40	200	34500	0	0	0	0	0	0.00	34500	27600	27.60
2.	S2a	S2	41	205	35362.5	0	0	0	0	0	0.00	35363	28290	28.29
3.	S2	S3	0	0	0	0	0	0	0	0	0.00	0	0	0.00
4.	S3	S4	81	405	69862.5	0	0	0	0	0	0.00	69863	55890	55.89
5.	S4	S5	182	910	156975	8	16	2760	0	0	0.00	159735	127788	127.79
6.	S5	S6	87	435	75037.5	0	0	0	Club		25000.00	100038	80030	80.03
7.	S6	S7	180	900	155250	8	16	2760	0	0	0.00	158010	126408	126.41
8.	S7	S8	134	670	115575	47	94	16215	0	0	0.00	131790	105432	105.43
9.	S8a	S8	0	0	0	206	412	71070	0	0	0.00	71070	56856	56.86
10.	S8	S9	0	0	0	0	0	0	0	0	0.00	0	0	0.00
11.	S10	S11	87	435	75037.5	0	0	0	0	0	0.00	75038	60030	60.03
12.	S11	S12	0	0	0	0	0	0	0	0	0.00	0	0	0.00
13.	S12	S13	89	445	76762.5	0	0	0	Convenient Shopping+Nursery School		15000.00	91763	73410	73.41
14.	S13	S14	0	0	0	0	0	0	Primary School		10000.00	10000	8000	8.00
15.	S14	S15	87	435	75037.5	0	0	0	0	0	0.00	75038	60030	60.03
16.	S15	S16	46	230	39675	46	92	15870	0	0	0.00	55545	44436	44.44
17.	S16	S9	0	0	0	0	0	0	0	0	0.00	0	0	0.00
18.	S9	S.T.P	0	0	0	0	0	0	0	0	0.00	0	0	0.00
			1054.00	5270.00		315.00	630.00					1067750.00	854200.00	854.20

PROJECT : PROPOSED GROUP HOUSING SCHEME MEASURING 21.90 ACRE, SECTOR-93, VILLAGE KHIRKIDAULA GURGOAN (HARYANA)

TITLE :- HYDRAULIC STORM WATER DESIGN CHART

S.No	Line No.		Length	self area	Self Area	Previou s Area	Total Area	Rain Fall	Discharge @ 69.44	Pipe dia	Slope 1 in	Velocity	Cap of pipe in	Fall in line	Ground level at Start	H.F.L at Start	Invert Level at Start	Ground level at End	H.F.L at End	Invert Level at End	Manhole Depth			No. of Manhole	Manhole Type		
																					Depth at Start	Depth at End	Average Depth		910 Dia upto 1.67m Type-A	1220 Dia upto 2.29m Type-B	1520 Dia From 2.29 to 4.18m
			(mtr.)	Sqm.	(Hec)	(Hec)	(Hec)	(mm/hr)	(lps/Hec)	(mm)	(mm)	(m/sec.)	(lps.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	Each	Each	Each	Each
1.	A1	A2	66.0	2108.00	0.211	0.00	0.211	25	14.64	400	190	1.04	130.99	0.31	232.30	231.50	231.10	232.00	231.19	230.79	1.20	1.21	1.21	5	5	0	0
2.	A2	D.C-01	5.0	179.00	0.018	0.21	0.229	25	15.88	400	570	0.60	75.63	0.01	232.00	231.19	230.79	232.00	231.18	230.78	1.21	1.22	1.21	1	1	0	0
3.	D.C-01	R.P-01	5.0	0.00	0.000	0.23	0.229	25	15.88	400	570	0.60	75.63	0.01	232.00	231.18	230.78	232.00	231.17	230.77	1.22	1.23	1.22	0	0	0	0
4.	R.P-01	A3	5.0	0.00	0.000	0.11	0.114	25	7.94	400	570	0.60	75.63	0.01	232.00	231.20	230.80	232.00	231.19	230.79	1.20	1.21	1.20	0	0	0	0
5.	A3	A4	117.0	5429.00	0.543	0.11	0.657	25	45.64	400	570	0.60	75.63	0.21	232.00	231.19	230.79	232.30	230.99	230.59	1.21	1.71	1.46	8	8	0	0
6.	A4	D.C-02	5.0	179.00	0.018	0.66	0.675	25	46.86	400	570	0.60	75.63	0.01	232.30	230.99	230.59	232.30	230.98	230.58	1.71	1.72	1.72	1	0	1	0
7.	D.C-02	R.P-02	5.0	0.00	0.000	0.68	0.675	25	46.86	400	570	0.60	75.63	0.01	232.30	230.98	230.58	232.30	230.97	230.57	1.72	1.73	1.73	0	0	0	0
8.	R.P-02	A5	5.0	0.00	0.000	0.34	0.338	25	23.44	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
9.	A5	A6	87.0	3108.00	0.311	0.34	0.648	25	45.02	400	570	0.60	75.63	0.15	232.30	231.49	231.09	232.30	231.34	230.94	1.21	1.36	1.29	6	6	0	0
10.	A6	D.C-03	5.0	179.00	0.018	0.65	0.666	25	46.27	400	570	0.60	75.63	0.01	232.30	231.34	230.94	232.30	231.33	230.93	1.36	1.37	1.37	1	1	0	0
11.	D.C-03	R.P-03	5.0	0.00	0.000	0.67	0.666	25	46.27	400	570	0.60	75.63	0.01	232.30	231.33	230.93	232.30	231.32	230.92	1.37	1.38	1.37	0	0	0	0
12.	R.P-03	A7	5.0	0.00	0.000	0.33	0.333	25	23.13	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
13.	A7	A8	51.0	1822.00	0.182	0.33	0.515	25	35.79	400	570	0.60	75.63	0.09	232.30	231.49	231.09	232.30	231.40	231.00	1.21	1.30	1.25	3	3	0	0
14.	A8	D.C-04	5.0	179.00	0.018	0.52	0.533	25	37.03	400	570	0.60	75.63	0.01	232.30	231.40	231.00	232.30	231.39	230.99	1.30	1.31	1.30	1	1	0	0
15.	D.C-04	R.P-04	5.0	0.00	0.000	0.53	0.533	25	37.03	400	570	0.60	75.63	0.01	232.30	231.39	230.99	232.30	231.38	230.98	1.31	1.32	1.31	0	0	0	0
16.	R.P-04	A9	5.0	0.00	0.000	0.27	0.267	25	18.51	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
17.	A9	A10	23.0	2822.00	0.282	0.27	0.549	25	38.11	400	570	0.60	75.63	0.04	232.30	231.49	231.09	232.30	231.45	231.05	1.21	1.25	1.23	2	2	0	0
18.	A10	D.C-05	5.0	179.00	0.018	0.55	0.567	25	39.35	400	570	0.60	75.63	0.01	232.30	231.45	231.05	232.30	231.44	231.04	1.25	1.26	1.25	1	1	0	0
19.	D.C-05	R.P-05	5.0	0.00	0.000	0.57	0.567	25	39.35	400	570	0.60	75.63	0.01	232.30	231.44	231.04	232.30	231.43	231.03	1.26	1.27	1.26	0	0	0	0
20.	R.P-05	A11	5.0	0.00	0.000	0.28	0.283	25	19.68	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
21.	A11	A12	78.0	1766.00	0.179	0.28	0.462	25	32.08	400	570	0.60	75.63	0.14	232.30	231.49	231.09	232.30	231.35	230.95	1.21	1.35	1.28	5	5	0	0
22.	A12	D.C-06	5.0	179.00	0.018	0.46	0.480	25	33.32	400	570	0.60	75.63	0.01	232.30	231.35	230.95	232.30	231.35	230.95	1.35	1.35	1.35	1	1	0	0
23.	D.C-06	R.P-06	5.0	0.00	0.000	0.48	0.480	25	33.32	400	570	0.60	75.63	0.01	232.30	231.35	230.95	232.30	231.34	230.94	1.35	1.36	1.36	0	0	0	0
24.	R.P-06	A13	5.0	0.00	0.000	0.24	0.240	25	16.66	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
25.	A13	A14	66.0	2356.00	0.236	0.24	0.476	25	33.03	400	570	0.60	75.63	0.12	232.30	231.49	231.09	232.30	231.38	230.98	1.21	1.32	1.27	4	4	0	0
26.	A14	D.C-07	10.0	358.00	0.036	0.48	0.512	25	35.52	400	570	0.60	75.63	0.02	232.30	231.38	230.98	232.30	231.36	230.96	1.32	1.34	1.33	1	1	0	0
27.	D.C-07	R.P-07	5.0	0.00	0.000	0.51	0.512	25	35.52	400	570	0.60	75.63	0.01	232.30	231.36	230.96	232.30	231.35	230.95	1.34	1.35	1.35	0	0	0	0
28.	R.P-07	A15	5.0	0.00	0.000	0.26	0.256	25	17.76	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
29.	A15	A16	35.0	1250.00	0.125	0.26	0.381	25	26.44	400	570	0.60	75.63	0.06	232.30	231.49	231.09	232.30	231.43	231.03	1.21	1.27	1.24	2	2	0	0
30.	A16	D.C-08	10.0	3358.00	0.336	0.38	0.717	25	49.76	400	570	0.60	75.63	0.02	232.30	231.43	231.03	232.30	231.41	231.01	1.27	1.29	1.28	1	1	0	0
31.	D.C-08	R.P-08	5.0	0.00	0.000	0.72	0.717	25	49.76	400	570	0.60	75.63	0.01	232.30	231.41	231.01	232.30	231.40	231.00	1.29	1.30	1.29	0	0	0	0
32.	R.P-08	A17	5.0	0.00	0.000	0.36	0.358	25	24.88	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
33.	A17	A18	27.0	965.00	0.097	0.36	0.455	25	31.58	400	570	0.60	75.63	0.05	232.30	231.49	231.09	232.30	231.44	231.04	1.21	1.26	1.23	2	2	0	0
34.	A18	D.C-10a	10.0	358.00	0.036	0.45	0.491	25	34.07	400	570	0.60	75.63	0.02	232.30	231.44	231.04	232.30	231.43	231.03	1.26	1.27	1.26	1	1	0	0
35.	D.C-10a	R.P-10	5.0	0.00	0.000	0.49	0.491	25	34.07	400	570	0.60	75.63	0.01	232.30	231.43	231.03	232.30	231.42	231.02	1.27	1.28	1.28	0	0	0	0
36.	A18	A20	133.0	3250.00	0.325	0.00	0.325	25	22.57	400	570	0.60	75.63	0.23	232.40	231.60	231.20	232.40	231.37	230.97	1.20	1.43	1.32	7	7	0	0

S.No	Line No.		Length	self area	Self Area	Previous Area	Total Area	Rain Fall	Discharge @ 69.44	Pipe dia	Slope 1 in	Velocity	Cap of pipe in	Fall in line	Ground level at Start	H.F.L at Start	Invert Level at Start	Ground level at End	H.F.L at End	Invert Level at End	Depth at Start	Depth at End	Average Depth	No. of Manhole	910 Dia upto 1.67m Type-A	1220 Dia upto 2.29m Type-B	1520 Dia From 2.29 to 4.18m
37.	A20	D.C-09	5.0	179.00	0.018	0.33	0.343	25	23.81	400	570	0.60	75.63	0.01	232.40	231.37	230.97	232.40	231.38	230.98	1.43	1.44	1.44	1	1	0	0
38.	D.C-09	R.P-09	5.0	0.00	0.000	0.34	0.343	25	23.81	400	570	0.60	75.63	0.01	232.40	231.36	230.96	232.40	231.35	230.95	1.44	1.45	1.45	0	0	0	0
39.	R.P-09	A21	10.0	0.00	0.000	0.17	0.171	25	11.91	400	570	0.60	75.63	0.02	232.40	231.60	231.20	232.40	231.38	231.18	1.20	1.22	1.21	0	0	0	0
40.	A21	A22	46.0	1608.00	0.161	0.17	0.332	25	23.07	400	570	0.60	75.63	0.06	232.40	231.56	231.16	232.30	231.50	231.10	1.22	1.20	1.21	3	3	0	0
41.	A22	D.C-10	15.0	536.00	0.054	0.33	0.386	25	26.79	400	570	0.60	75.63	0.02	232.30	231.50	231.10	232.30	231.48	231.08	1.20	1.22	1.21	1	1	0	0
42.	D.C-10	R.P-10	5.0	0.00	0.000	0.39	0.386	25	26.79	400	570	0.60	75.63	0.01	232.30	231.48	231.08	232.30	231.47	231.07	1.22	1.23	1.23	0	0	0	0
43.	R.P-10	Over Flow	20.0	0.00	0.000	0.44	0.438	25	30.43	500	50	2.36	462.97	0.40	232.30	231.50	231.00	232.00	231.10	230.60	1.30	1.40	1.35	0	0	0	0
44.	B1	B2	77.0	2350.00	0.226	0.00	0.226	25	15.62	400	570	0.60	75.63	0.14	232.40	231.60	231.20	232.30	231.46	231.06	1.20	1.24	1.22	4	4	0	0
45.	B2a	B2	30.0	1072.00	0.107	0.00	0.107	25	7.44	400	570	0.60	75.63	0.05	232.30	231.50	231.10	232.30	231.45	231.05	1.20	1.25	1.23	2	2	0	0
46.	B2	B3	10.0	358.00	0.036	0.33	0.369	25	25.55	400	570	0.60	75.63	0.02	232.30	231.45	231.05	232.40	231.43	231.03	1.25	1.37	1.31	1	1	0	0
47.	B3a	B3	73.0	2108.00	0.211	0.00	0.211	25	14.64	400	570	0.60	75.63	0.13	232.40	231.60	231.20	232.40	231.47	231.07	1.20	1.33	1.26	5	5	0	0
48.	B3	D.C-11	15.0	536.00	0.054	0.58	0.632	25	43.91	400	570	0.60	75.63	0.03	232.40	231.43	231.03	232.40	231.40	231.00	1.37	1.40	1.38	1	1	0	0
49.	D.C-11	R.P-11	5.0	0.00	0.000	0.63	0.632	25	43.91	400	570	0.60	75.63	0.01	232.40	231.40	231.00	232.40	231.39	230.99	1.40	1.41	1.40	0	0	0	0
50.	R.P-11	Over Flow	20.0	0.00	0.000	0.32	0.316	25	21.95	400	50	2.03	266.34	0.40	232.40	231.60	231.20	232.00	231.20	230.80	1.20	1.20	1.20	0	0	0	0
51.	C1	C2	105.0	3790.00	0.375	0.00	0.375	25	26.04	400	570	0.60	75.63	0.18	232.30	231.50	231.10	232.40	231.32	230.92	1.20	1.48	1.34	7	7	0	0
52.	C2	D.C-12	30.0	1072.00	0.107	0.38	0.482	25	33.46	400	570	0.60	75.63	0.05	232.40	231.32	230.92	232.40	231.26	230.86	1.48	1.54	1.51	1	1	0	0
53.	D.C-12	R.P-12	5.0	0.00	0.000	0.48	0.482	25	33.46	400	570	0.60	75.63	0.01	232.40	231.26	230.86	232.40	231.25	230.85	1.54	1.55	1.54	0	0	0	0
54.	R.P-12	C3	5.0	0.00	0.000	0.24	0.241	25	16.74	400	570	0.60	75.63	0.01	232.40	231.60	231.20	232.40	231.59	231.19	1.20	1.21	1.20	0	0	0	0
55.	C3	C4	75.0	2679.00	0.268	0.24	0.509	25	35.34	400	570	0.60	75.63	0.13	232.40	231.59	231.19	232.40	231.46	231.06	1.21	1.34	1.27	5	5	0	0
56.	C4	D.C-13	5.0	179.00	0.018	0.51	0.527	25	36.59	400	570	0.60	75.63	0.01	232.40	231.46	231.06	232.40	231.45	231.05	1.34	1.35	1.34	1	1	0	0
57.	D.C-13	R.P-13	5.0	0.00	0.000	0.53	0.527	25	36.59	400	570	0.60	75.63	0.01	232.40	231.45	231.05	232.40	231.44	231.04	1.35	1.36	1.35	0	0	0	0
58.	R.P-13	C5	5.0	0.00	0.000	0.26	0.263	25	18.29	400	570	0.60	75.63	0.01	232.40	231.60	231.20	232.40	231.59	231.19	1.20	1.21	1.20	0	0	0	0
59.	C5	C6	101.0	3608.00	0.361	0.26	0.624	25	43.35	400	570	0.60	75.63	0.18	232.40	231.59	231.19	232.30	231.41	231.01	1.21	1.29	1.25	6	6	0	0
60.	C6	D.C-14	5.0	179.00	0.018	0.62	0.642	25	44.59	400	570	0.60	75.63	0.01	232.30	231.41	231.01	232.30	231.41	231.01	1.29	1.29	1.29	1	1	0	0
61.	D.C-14	R.P-14	5.0	0.00	0.000	0.64	0.642	25	44.59	400	570	0.60	75.63	0.01	232.30	231.41	231.01	232.30	231.40	231.00	1.29	1.30	1.30	0	0	0	0
62.	R.P-14	C7	5.0	0.00	0.000	0.32	0.321	25	22.30	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
63.	C7	C8	85.0	3036.00	0.304	0.32	0.625	25	43.38	400	570	0.60	75.63	0.15	232.30	231.49	231.09	232.40	231.34	230.94	1.21	1.46	1.33	5	5	0	0
64.	C8	D.C-15	5.0	3379.00	0.338	0.62	0.963	25	66.84	400	570	0.60	75.63	0.01	232.40	231.34	230.94	232.40	231.33	230.93	1.46	1.47	1.46	1	1	0	0
65.	D.C-15	R.P-15	5.0	0.00	0.000	0.96	0.963	25	66.84	400	570	0.60	75.63	0.01	232.40	231.33	230.93	232.40	231.32	230.92	1.47	1.48	1.47	0	0	0	0
66.	R.P-15	C9	5.0	0.00	0.000	0.48	0.481	25	33.42	400	570	0.60	75.63	0.01	232.40	231.60	231.20	232.40	231.59	231.19	1.20	1.21	1.20	0	0	0	0
67.	C9	C10	47.0	1679.00	0.168	0.48	0.649	25	45.08	400	570	0.60	75.63	0.08	232.40	231.59	231.19	232.40	231.51	231.11	1.21	1.29	1.25	3	3	0	0
68.	C10	D.C-16	5.0	179.00	0.018	0.65	0.667	25	46.32	400	570	0.60	75.63	0.01	232.30	231.51	231.11	232.30	231.50	231.10	1.19	1.20	1.20	1	1	0	0
69.	D.C-16	R.P-16	5.0	0.00	0.000	0.67	0.667	25	46.32	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
70.	R.P-16	C11	5.0	0.00	0.000	0.33	0.334	25	23.18	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
71.	C11	C12	35.0	1250.00	0.125	0.33	0.459	25	31.84	400	570	0.60	75.63	0.06	232.30	231.49	231.09	232.30	231.43	231.03	1.21	1.27	1.24	2	2	0	0
72.	C12	D.C-23	5.0	179.00	0.018	0.46	0.478	25	33.08	400	570	0.60	75.63	0.01	232.30	231.43	231.03	232.30	231.42	231.02	1.27	1.28	1.27	1	1	0	0
73.	C13	C14	55.0	1965.00	0.197	0.00	0.197	25	13.64	400	570	0.60	75.63	0.10	232.50	231.50	231.10	232.30	231.40	231.00	1.20	1.30	1.25	5	5	0	0
74.	C14	D.C-17	5.0	179.00	0.018	0.20	0.214	25	14.89	400	570	0.60	75.63	0.01	232.50	231.40	231.00	232.30	231.39	230.99	1.30	1.31	1.30	1	1	0	0

हरियाणा शहरी विकास प्राधिकरण
Haryana Urban
Development Authority

Tel : 0172-2570982
Toll Free No. : 1800-180-3030
Website : www.huda.org.in
Email : cencrhuda@ gmail.com
Address : C-3, HUDA HQ Sector-6
Panchkula

C.E.I-No.
Dated:
Annexure-

SUB:- Approval of revised Service Plan/ estimate for Group Housing Colony on the land measuring 21.90 acres (License No. 108 of 2010 dated 18.12.2010) in Sec- 83, Gurugram being developed by M/S. Logical Developers Pvt. Ltd. and others in collaboration with Emaar MGF land 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.

S.No	Line No		Length	self area	Self Area	Previous Area	Total Area	Rain Fall	Discharge @ 69.44	Pipe dia	Slope 1 in	Velocity	Cap of pipe in	Fall in line	Ground level at Start	H.F.L at Start	Invert Level at Start	Ground level at End	H.F.L at End	Invert Level at End	Depth at Start	Depth at End	Average Depth	No. of Manhole	910 Dia upto 1.67m Type-A	1220 Dia upto 2.25m Type-B	1520 Dia From 2.25 to 4.15m
75.	D.C-17	R.P-17	5.0	0.00	0.000	0.21	0.214	25	14.89	400	570	0.60	75.63	0.01	232.30	231.39	230.99	232.30	231.39	230.99	1.31	1.31	1.31	0	0	0	0
76.	R.P-17	C15	5.0	0.00	0.000	0.11	0.107	25	7.44	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
77.	C15	C16	59.0	2106.00	0.211	0.11	0.318	25	22.08	400	570	0.60	75.63	0.10	232.30	231.49	231.09	232.30	231.39	230.99	1.21	1.31	1.26	4	4	0	0
78.	C16	D.C-18	5.0	178.00	0.018	0.32	0.336	25	23.32	400	570	0.60	75.63	0.01	232.30	231.39	230.99	232.30	231.38	230.98	1.31	1.32	1.32	1	1	0	0
79.	D.C-18	R.P-18	5.0	0.00	0.000	0.34	0.336	25	23.32	400	570	0.60	75.63	0.01	232.30	231.38	230.98	232.30	231.37	230.97	1.32	1.33	1.33	0	0	0	0
80.	R.P-18	C17	5.0	0.00	0.000	0.17	0.168	25	11.66	400	570	0.60	75.63	0.01	232.30	231.50	231.10	232.30	231.49	231.09	1.20	1.21	1.20	0	0	0	0
81.	C17	C18	48.0	1715.00	0.172	0.17	0.339	25	23.57	400	570	0.60	75.63	0.06	232.30	231.49	231.09	232.40	231.41	231.01	1.21	1.39	1.30	4	4	0	0
82.	C18a	C18	106.0	3693.00	0.369	0.00	0.369	25	27.03	400	570	0.60	75.63	0.19	232.40	231.60	231.20	232.40	231.41	231.01	1.20	1.39	1.30	8	8	0	0
83.	C18	D.C-19	5.0	179.00	0.018	0.73	0.747	25	51.85	400	570	0.60	75.63	0.01	232.40	231.41	231.01	232.40	231.40	231.00	1.39	1.40	1.40	1	1	0	0
84.	D.C-19	R.P-19	5.0	0.00	0.000	0.75	0.747	25	51.85	400	570	0.60	75.63	0.01	232.40	231.40	231.00	232.40	231.39	230.99	1.40	1.41	1.41	0	0	0	0
85.	R.P-19	C19	5.0	0.00	0.000	0.37	0.373	25	25.92	400	570	0.60	75.63	0.01	232.40	231.60	231.20	232.40	231.59	231.19	1.20	1.21	1.20	0	0	0	0
86.	C19	C20	43.0	1536.00	0.154	0.37	0.527	25	36.59	400	570	0.60	75.63	0.08	232.40	231.59	231.19	232.40	231.52	231.12	1.21	1.28	1.25	3	3	0	0
87.	C20	D.C-20	5.0	179.00	0.018	0.53	0.545	25	37.83	400	570	0.60	75.63	0.01	232.40	231.52	231.12	232.40	231.51	231.11	1.28	1.29	1.29	1	1	0	0
88.	D.C-20	R.P-20	5.0	0.00	0.000	0.54	0.545	25	37.83	400	570	0.60	75.63	0.01	232.40	231.51	231.11	232.40	231.50	231.10	1.29	1.30	1.30	0	0	0	0
89.	R.P-20	C21	5.0	0.00	0.000	0.27	0.272	25	18.93	400	570	0.60	75.63	0.01	232.40	231.60	231.20	232.40	231.59	231.19	1.20	1.21	1.20	0	0	0	0
90.	C21	C22	15.0	535.00	0.054	0.27	0.326	25	22.64	400	570	0.60	75.63	0.03	232.40	231.59	231.19	232.40	231.56	231.16	1.21	1.24	1.22	1	1	0	0
91.	C22a	C22	103.0	3679.00	0.368	0.00	0.368	25	25.55	400	570	0.60	75.63	0.18	232.40	231.60	231.20	232.40	231.42	231.02	1.20	1.38	1.29	8	8	0	0
92.	C22	C23	30.0	1072.00	0.107	0.69	0.901	25	55.63	400	570	0.60	75.63	0.05	232.40	231.42	231.02	232.40	231.37	230.97	1.38	1.43	1.41	2	2	0	0
93.	C23	D.C-21	5.0	3429.00	0.343	0.80	1.144	25	79.44	500	770	0.60	117.98	0.01	232.30	231.37	230.97	232.30	231.36	230.66	1.43	1.44	1.44	1	1	0	0
94.	D.C-21	R.P-21	5.0	0.00	0.000	1.62	1.620	25	112.52	500	770	0.60	117.98	0.01	232.30	231.36	230.66	232.30	231.35	230.65	1.44	1.45	1.44	0	0	0	0
95.	R.P-21	Over Flow	20.0	0.00	0.000	0.81	0.810	25	56.26	500	80	2.99	462.57	0.40	232.30	231.50	231.00	232.00	231.10	230.60	1.30	1.40	1.35	0	0	0	0