PHASE- II

REVISED SERVICE PLAN ESTIMATE FOR GROUP HOUSING COLONY HAVING LICENCE NO.105 OF 2011,85 & 86 OF 2012 ON LAND ADMEASURING 21.04375 acres at SECTOR-112 & 113, GURGAON MANESAR URBAN COMPLEX (HARYANA)

AT
SECTOR-112 & 113, GURGAON MANESAR URBAN COMPLEX, HARYANA

Client

C.S.N. ESTATE PVT. LTD. ,
SH. NAVEEN S/o SH. S.P. GUPTA,
M/s A.N. BUILDWELL PVT. LTD. AND OTHERS

Architect

ARCOP ASSOCIATES (P) LTD
Plot No.- 36B, Sector–32, Gurgaon-122001

MEP Consultant

PARADISE CONSULTANTS
Plot No.-103, Pocket-1, Jasola, New Delhi -110025

PROPOSED GROUP HOUSING AT SECTOR-112 & 113, GURGAON (HARYANA)

PHASE- II

	DESIGN CALCULATION				
1	**Daily Domestic Water Requirement** Building Type A1, A2, B1, B2 to B5, B6, shopping C. bldg. N. School, P. School				
	Apartment			674	
	EWS (IN PHASE -1)			0	
	Service Personnel			108	
	Population @ 5 person per unit - Apartment			5	
	~~Population @ 2 person per unit - EWS~~			~~2~~	
	Population @ 2 person per unit - Service Personnel			2	
	Therefore population (Apartment)			3370	persons
	~~Therefore population (EWS)~~			~~0~~	~~persons~~
	Therefore population (Maintenance Personnel)			216	persons
	Total Population			**3586**	**persons**
			SAY	**3586**	**persons**
	Water requirement / person		@	172.5	lpd.
	Total Water requirement for apartmants			618585.00	lpd.
			or	**618.59**	**KLD (1)**
2	**Other Requirement**				
a.)	Nursery School				
	Plot Area	0.2 Acre			
	Total no. class	10	-	-	
	Student in one class	30	-	-	
	Total no. of student	300	15	4500.00	lit/day
	Staff 10% of total student	30	45	1350.00	lit/day
	Total Population	330	-	-	
	Therefore daily water requirement			5850.00	lit/day
				5.85	KLD
b.)	Primery School				
	Plot Area	1.0 Acre			
	Total no. class	29	-	-	
	Student in one class	30	-	-	
	Total no. of student	870	15	13050.00	lit/day
	Staff 10% of total student	87	45	3915.00	lit/day
	Total Population	957	-	-	
	Therefore daily water requirement			16965.00	lit/day
				16.97	KLD

c.)	No. of Community Building					
	Area:1332.932 Sqm. (Pop. @ 3 Sqm./per.)	445	45	20025.00	lit/day	
	Daily water requirement lumpsum			20025.00	lit/day	
	Therefore daily water requirement			20.03	KLD	
d.)	No. of Convenient Shopping					
	Area :207.888 Sqm. (Pop. @ 3 Sqm./per.)	70	-	-	Person	
	Fixed Population 10 %	7	45	315.00	lit/day	
	Floating Population 90 %	63	15	945.00	lit/day	
	Daily water requirement lumpsum			1260.00	lit/day	
	Therefore daily water requirement			1.26	KLD	
			Total	**44.10**	**KLD (2)**	
3	Total Daily Water Requirement (1+2)			**662.69**	**KLD**	
i)	Domestic Water Requirement @	65%		415.92	KLD	
	Nursery School & Primary School @	100%		22.82	KLD 438.74 KL	
			Say	**450.00**	**KLD**	
ii)	Flushing Water Requirement @	35%		223.95	KLD	
	Nursery School & Primary School @	0%		0.00	KLD	
			Say	**230.00**	**KLD**	
4	**Water usage from STP**					
a)	Area under Parks	2.51	acre			
	Daily water requirement		@	25000.00	lit/acre/day	
				~~62810.30~~	lit/day 62750	
				~~62.81~~	KLD	
				62.75		
b)	Area under Roads					
	Daily water requirement	Lumpsum	@	25000.00	lit/day	
				25.00	KLD	
				87.75		
c)	Under Road+ Parks **(a+b)**		**Total**	~~87.81~~	KLD	
			Say	**90.00**	**KLD**	
d)	**Total treated water requirement [3 (ii) + 4 (c)]**		317.75 KLD W	**320.00**	KLD	
	Total Daily Requirement [3 (i) + 4 (d)]			**770.00**	**KLD**	
			SAY	**770.00**	**KLD**	

5	**Underground Tank**					
	Daily fresh water requirement for domestic use			450.00	KL	
	Capacity of under ground tank					
	24 hours storage	450.00	x 24 / 24	450.00	KL	
	Fire Tank Capacity As/NBC Code 100 kl. But Proposed			500.00	KL	
			Total	**950**	**KL**	
	It is proposed to provide under ground tank of capacity **950 KL** which also includes **500 KL** capacity for fire fighting.					
	Both tanks 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				**500.00**	**KL**
	TOTAL UG STORAGE (DOMESTIC + FLUSHING + HORTICULTURE)				**770.00**	**KL**
	RAW WATER TANK				**200.00**	**KL**
	DOMESTIC WATER TANK				**250.00**	**KL**
	FLUSHING, HORTICULTURE & ROAD WASHING (PART OF STP)				**320.00**	**KL**
6	**DOMESTIC WATER PUMPS - LOCATED IN PUMP ROOM**					
a.)	**Domestic Water Transfer Pumps**					
i)	**For Tower-A1, A2 & Shopping**					
	Daily requirement for domestic use			=	135.75	KL
	Assuming 6 hours running 1 pumps working with 1 standby					
	Discharge/hour	135.75	/ 6 / 1	=	22.63	KL/HR
	Head of pump				377.08 (Pm	
	i) Suction lifts			=	Say 380 (Pm	m
	ii) Friction loss in M<main & specials			=	7.0	m
	iii) Residual head			=	5.0	m
	iv) Clear head			=	92.0	m
				=	104.0	m
					14.63	
	BHP of motor	22.63	x1000x104/4500x60x0.6		~~14.5~~	HP
			SAY	=	**15.0**	**HP**

ii)	**For Tower - B1 TO B6, Community Building, Nursery School & Primary School**					
	Daily requirement for domestic use			=	302.98	KL
	Assuming 6 hours running 2 pumps working with 1 standby					
	Discharge/hour	302.98	/ 6 / 2	=	25.25	KL/HR
	Head of pump				420.80 Lpm	
	i) Suction lifts			Say =	430 Lpm 0.0	m
	ii) Friction loss in M<main & specials			=	15.0	m
	iii) Residual head			=	5.0	m
	iv) Clear head			=	56.0	m
				=	76.0	m
					12.10	
	BHP of motor	25.25	x1000x76/4500x60x0.6		~~11.8~~	HP
			SAY	=	**12.5**	**HP**
7	**PUMPS FOR FIRE PROECTION**					
	Pump Description	**Location**	**Nos.**	**Discharge**	**Head**	**HP**
i)	**Diesel Driven Pump**	Pump Room	**2**	**4500**	**135.00**	
ii)	**Hydrant Pump**	Pump Room	**2**	**2850**	**135.00**	**150**
iii)	**Sprinkler Pump**	Pump Room	**2**	**2850**	**135.00**	**150**
iv)	**Jockey Pump**	Pump Room	**4**	**180**	**135.00**	**10**
v)	**Water Curtain Pump**	Pump Room	**1**	**2850**	**45.00**	**50**
	Capacity of Gen Set	Nos.	HP			
	Domestic Water Transfer Pumps	1	15.0	=	15	HP
	Domestic Water Transfer Pumps	2	12.5	=	25	HP
	Flushing water pump Fire Pump (Jockey)	10+2(7.5) 4	10.0	=	25 HP 40	HP
	Lighting			=	25	HP
					130 ~~105~~	HP
					145.47	
	or	130 ~~105~~	x0.746x1.50		~~117.50~~	KVA
	150		Say		150.00	KVA
	Requirement of ~~120~~ 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

C.S.N. ESTATE PVT. LTD. ,SH. NAVEEN S/O SH. S.P. GUPTA, M/S A.N. BUILDWELL PVT. LTD. AND OTHERS

	Amount (Lacs.)
	341.16
Sub Work - I Water Supply	~~321.55~~ ~~251.78~~
	150.35
Sub Work - II Sewerage	~~120.62~~
	143.12
Sub Work - III Storm Water Drainage	~~103.38~~
	193.66
Sub Work - IV Roads & Footpath	~~87.36~~
	46.68
Sub Work - V Street Lighting	~~46.23~~
	15.74
Sub Work - VI - Horticulture	~~19.94~~
	325.50
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)	~~150.40~~ ~~97.47~~ 1216.21 Lacs
Total	~~849.95~~ ~~726.75~~ Say Rs 1216.26 Lacs

(RU~~PEES SEVEN CRORE TWENTYSIX LACS SEVENTY FIVE THOUSAND ONLY~~)

C.S.N. ESTATE PVT. LTD. ,SH. NAVEEN S/O SH. S.P. GUPTA, M/S A.N. BUILDWELL PVT. LTD. AND OTHERS

C.S.N. Estate (P.) Limited New Delhi

Authorized Signatory

c.o. to final abstract of cost with service plan estimate of Ph.I attached

Paradise Consultants New Delhi

Manish Kr. Bagga, Architect
Co... Architecture
R... ...ation No. CA/95/18626

FINAL ABSTRACT OF REVISED COST

Description	Amount (Lacs.)
Sub work. 1 Head Works	73.75
Sub Head - (II) Pumping Machinery	~~129.05~~ ~~86.30~~ 96.00
Sub Head - (III) Distribution System Dom. + Flushing, Rising main	~~24.55~~ ~~21.84~~ 20.48 Lacs
Sub Head - (IV) Irrigation Scheme	~~13.37~~ 3.60 Lacs
Sub Head - (V) Fire Scheme	~~42.55~~ 28.47 Lacs
	222.30 Lacs
Total	~~209.52~~ ~~164.06~~ 6.67 Lacs
Add 3% Contingencies & PE. charges	~~6.29~~ ~~4.92~~
	228.97 Lacs
Total	~~215.81~~ ~~168.98~~
Add 49% Departmental Charges, price escalation, unforseen Adm. charges.	~~105.75~~ ~~82.80~~ 112.19 Lacs
Grand Total	~~321.56~~ ~~251.78~~ 341.16 Lacs
(CO to final abstract of cost) Say	~~327.55~~ ~~251.78~~

	Sub Work I				Water Supply
	Sub Head No. II				Pumping Machinery
S. No.	Description	Unit	Qty	Rate	Amount (in Lakhs)
1	Providing & installing electricity driven pumping set capable of delivering 380 LPM of water against a total head of 104 m complete with motor and other accessories (For Domestic - 15.0 HP).	Nos.	(1+1) 2	2.00 ~~165000.00~~	4.00 Lacs ~~3.30~~
2	Providing & installing electricity driven pumping set capable of delivering 430 LPM of water against a total head of 76 m complete with motor and other accessories (For Domestic - 12.5 HP).	Nos.	(2+1) 3	150000.00	4.50
2(a)	Flushing water Transfer Pump for Tower A1-A2, Shopp. (10.0 HP) — do — For Tower B1-B6, N. school, P. school (7.50 HP)		1+1 = 2 No	@ ₹ 1.50 La	3.00 Lacs
3	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear haed arrangements of following capacities.		1+1 = 2 No	@ ₹ 1.00 La	2.00 La
	1 No. - 120 KVA	Nos.	~~1~~	~~1400000.00~~	14.00
4	Providing & installing pumping set of following capacities for fire protection:			2.00	8.00
i)	180 LPM @ 135 M Head (10 HP)	Nos.	4	~~125000.00~~	~~5.00~~
ii)	2850 LPM @ 135 M Head (150 HP) Hydrant	Nos.	2	~~650000.00~~	15.0 ~~13.00~~
iii)	2850 LPM @ 135 M Head (150 HP) Sprinkler	Nos.	2	~~650000.00~~	15.0 ~~13.00~~
iv)	4500 LPM @ 135 M Head (DG Pump)	Nos.	2	~~1150000.00~~ 10.0	20.0 ~~23.00~~
v)	~~2850 LPM @ 45 M Head (50 HP) Water Curtain~~	~~Nos.~~	2	~~350000.00~~	~~7.00~~
5	Provision for making foundations & erection of pumping machinery.	LS	-	-	3.00 ~~4.50~~
6	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	2.50 Lacs ~~1.25~~
7	Provision for carriage for materials and other unforeseen items.	LS	-	-	2.00 La ~~0.75~~
	(C.O. to abstract of cost of Sub-work No.I)				~~86.30~~
				Say	~~86.30~~

~~8 Construction of UGT Capacity 450 KLD @ Rs 4500/- per KLD~~ ~~42.75~~

8. Power for Electric Service Connection, Fittings for boosting chamber, T.W. including cost of Transformer (L.S) 129.05 Lacs + 3.00 La = 96.00 La

	Sub Work I				Water Supply
	Sub Head No. II				Distribution System/Rising Main (Incl. of Flushing)
S. No.	Description CI/DI	Unit	Qty	Rate	Amount (Rs.)
1	Providing, laying, jointing & testing ~~G.I.~~ pipes including cost of excavation/clamping on basement complete as per ISI marked. (Note : Water supply pipes running at basement ceiling level)				
i)	~~50~~ mm dia	M	~~59~~	750.00	44250.00
ii)	~~65~~ mm dia	M	~~151~~	900.00	135900.00
iii)	~~80~~ mm dia	M	~~305~~	1050.00	320250.00
iv)	100 mm dia	M 915	~~359~~ 874	~~1450~~ 1575/-	~~520550.00~~ 1.42 Lacs ~~1267500~~ 11.44
v)	150 mm dia	M 90	~~104~~	~~1850.00~~ 1575/-	~~192400.00~~ 1.42 Lacs
2	Providing, fixing & Testing Sluice valves including cost of complete in all respects.				
i)	~~65 mm i/d~~	~~Nos.~~	~~1~~	~~9000.00~~	~~9000.00~~
ii)	~~80 mm i/d~~	~~Nos.~~	~~1~~	~~10500.00~~	~~10500.00~~
iii)	100 mm i/d	Nos.	3+3	12000.00	0.72 ~~12000.00~~ ~~36000~~
iv)	150 mm i/d	Nos.	2	15000.00	30000.00
3	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				
i)	150 mm i/d	Nos.	1	15000.00	15000.00
5	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	3	10000.00	30000.00
6	Providing and fixing indicating plates for sluice valve, air valve etc.	Nos.	7	1000.00	7000.00
7	Provision for carriage of material	LS	-	-	150000.00
8	Provision for cutting the roads and making to its original conditions.	LS	-	-	150000.00
9	Making water supply connection. on master Road	LS	-	-	1.00 Lacs ~~250000.00~~
10	Provision for rising main from HUDA water supply line to UG Tank.			1575/-	2.13 Lacs
i)	150 mm i/d (Connection From HUDA Line)	M	135	~~2250.00~~	~~303750.00~~
					~~2453450~~
	(C.O. to abstract of cost of Sub-work No.I)				~~2183600.00~~
				Say	~~21.84~~ Lacs
					~~20.75~~ 20.48 Lacs

	Sub Work I				**Water Supply**
	Sub Head No. III				**Irrigation**
S. No.	**Description**	**Unit**	**Qty**	**Rate**	**Amount (Rs.)**
1	Providing, laying, jointing & testing uPVC pipe line confirming to IS 4985 including cost of Excavation etc. complete in all respect.			350	1.49 Lacs
i)	25 OD uPVC pipe	M	425	~~800.00~~	~~340000.00~~
ii)	32 OD uPVC pipe	M	15	450 ~~800.00~~	0.07 ~~12000.00~~ Lacs
iii)	~~40 OD~~ uPVC pipe	M	~~55~~	~~800.00~~	~~44000.00~~
iv)	~~90 OD~~ uPVC pipe Connect to flushing line	M	~~1048~~	~~800.00~~	~~838400.00~~
2	Providing and fixing 20mm dia Irrigation hydrant valve complete in all respect.	Nos.	39	3500 ~~800.00~~	1.37 Lacs ~~31200.00~~
3	Providing & fixing valve 25mm dia	Nos.	39	400.00	15600.00
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	1600.00	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	-	-	30000.00
					3.60 Lacs
			Total		~~1337050.00~~
			Say		~~13.37 Lacs~~

	Sub Work I					
	Sub Head No. IV				**Fire Scheme**	
S. No.	**Description**	**Unit**	**Qty**	**Rate**	**Amount (Rs.)**	
1	Providing, laying, jointing & testing M.S. pipes for fire ring main including cost of Fittings & excavation complete (as per ISI marked) in all respect.					
a)	80 mm dia	M	497	1000.00	497000.00	
b)	100 mm dia	M	42	1650.00	~~69300.00~~	0.53 Lacs
c)	150 mm dia	M	1022 ~~265~~	1575 [~~2000.00~~	~~530000.00~~	16.10 Lacs
d)	~~250~~ mm dia	M	~~757~~	~~2650.00~~]	~~2006050.00~~	
2	Providing and fixing External Fire Hydrants complete with masonary chambers.	Nos.	28	15000.00	2.80 Lacs ~~420000.00~~	
3	Providing, fixing & Testing butter fly valve including cost of complete in all respects.					
~~a)~~	~~80 mm dia~~	~~Nos.~~	~~28~~	~~10000.00~~	~~280000.00~~	
b)	150 mm dia	Nos.	[4	~~20000.00~~ 15000	~~80000.00~~	0.90 Lacs
c)	~~250~~ mm dia	Nos.	2]	~~28000.00~~	~~56000.00~~	
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.					
i)	80 mm i/d	Nos.	28	5000.00	140000.00	
5	Providing and fixing Fire Brigade connection.					
i)	4 way inlet connection.	Nos.	3	15000.00	45000.00	
ii)	2 way withdrawl connection.	Nos.	1	10000.00	10000.00	
5	Provision for cutting of roads and carriage of materials etc. and other unforsean charges	LS	-	-	40000.00	
6	Provision for indication plates	Nos.	32	1000.00	32000.00	
7	Provision for carriage of material	LS	-	-	50000.00	
					28.47 Lacs	
			Total		~~**4255350.00**~~	
			Say		~~**42.55** Lacs~~	

	Sub Work II			Sewerage Scheme	
S. No.	**Description**	**Unit**	**Qty**	**Rate**	**Amount (Rs.)**
1	Providing, lowering, jointing, cutting salt glazed stone ware/RCC NP3 pipes and specials into trenches including cost of excavation, bed concrete lot of manholes complete.				
i)	**150 mm i/d (Internal Branch Line)**				
a)	Average depth 0.0 m to 1.5 m	M	~~129~~	~~1050.00~~	~~135450.00~~
ii)	**200 mm i/d**		205	1250/-	2.56 Lacs
a)	Average depth 1.5 m to 4.5 m	M	~~108~~	~~1500.00~~	~~162000.00~~
iii)	**250 mm i/d**				
a)	Average depth 1.5 m to 4.5 m	M	416	1800.00	748800.00
iv)	**300 mm i/d**				1.98 Lacs
a)	Average depth 1.5 m to 4.5 m	M	92	~~2000.00~~ 2150	~~184000.00~~
v)	**400 mm i/d**		5		0.11 Lacs
a)	Average depth 1.5 m to 4.5 m	M	~~2~~	2250.00	~~4500.00~~
2	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	100000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforsean charges	LS	-	-	100000.00
4	Provision for connection with HUDA on master Road	LS	-	-	100000.00
5	Cost of **570 Kld** Sewerage Treatment Plant. (Upto tertiary Level treatment)	LS	-	-	71.25 Lacs ~~6000000.00~~
6	Provision for CI / DI pipe 150 mm dia pipe from STP. To Huda Main Line.	M	100	1575/- ~~2250.00~~	1.58 Lacs ~~225000.00~~
7.	Prov. for vent pipe as per P.H. req. at suitable places complete in all respect				10.0 Lacs ~~7859750.00~~
					97.97 Lacs
	Add 3% contingencies on PE Charges				~~235792.5~~ 2.93 Lacs
					~~8095542.50~~ 100.90 Lacs
	Add 49% Deptt. Charges, price escalation, unforseen Admn. charges				49.45 Lacs ~~3966815.825~~
				Total	~~**12062358.33**~~ 150.35 Lacs
	(C.O. to abstract of cost of Sub-work No. 1)			**Say**	~~**120.62**~~ **Lacs**

	Sub Work - III			Storm Water Drain	
S. No.	Description	Unit	Qty	Rate	Amount (Rs.)
1	Providing, lowering, jointing, cutting RCC NP_3 pipes and specials into trenches including cost of excavation cost of manholes, ventilating chambers etc. complete in all respects.				
~~i)~~	~~150 mm i/d (In basement top filling level)~~				
a)	~~Average depth upto 1.5 m~~	~~M~~	~~550~~	~~1050.00~~	~~577500.00~~
i)	**250 mm i/d (In Virgin Earth)**				
a)	Average depth upto 1.5 m	~~M~~	~~450~~	~~1800.00~~	~~810000.00~~
(ii)	**400 mm i/d**		563	2500/-	14.08 lacs
a)	Average depth 1.5 m to 4.5 m	M	~~530~~	~~2250.00~~	~~1206000.00~~
~~iii)~~	**500 mm i/d**			3400/-	0.68 lacs
a)	Average depth 1.5 m to 4.5 m	M	20	~~2500.00~~	~~50000.00~~
3	Provision for Road Gully & Drain. pipe 300 mm dia	LS	-	-	500000.00
4	Provision for cutting of roads and carriage of materials etc. and other unforseen items.	LS	-	-	150000.00
5	Provision for disposal arrangements Recharge Pit.	Nos	12	150000.00 each	30 - ~~1800000.00~~
6	Provision for lighting, watching and temporary diversion of traffic.	LS	-	-	500000.00
7	Providing & installing submersible drainage pumping set capable of delivering 600 LPM of water against a total head of 15 m complete with motor and other accessories including the civil cost of (2.0x2.0x2.0) m drainage sump pit (For Sunken Garden Drainage Pump - 4.0 HP).	~~Set~~	~~2~~	~~400000.00~~	~~800000.00~~
		Prov. for temporary disposal arrangement till Hudco services are provided (L.S)			25.00 Lacs
8	Providing, laying, jointing & testing G.I. pipes including cost of excavation/clamping on basement complete as per ISI marked. (Note : Water supply pipes running at basement ceiling level)	Prov for timbering & shoring etc (L.S)			10.00 Lacs
a)	100 mm dia (Sunken Garden Drainage Sump Riser)	~~M~~	~~150~~	~~1450.00~~	~~217500.00~~

Contd —

9	Provision for connection with HUDA. on master Road (1.5)				2.0	
i)	~~500 mm i/d~~	M	~~50~~	~~2500.00~~	~~125000.00~~	
						93.26 Lacs
					6736000.00	2.80 Lacs
	Add 3% contingencies & PC charges				202080.00	
						96.06 Lacs
					6938080.00	
	Add 49% Deptt. Charges, unforseen, price escalation Admin. Charges				3399659.2	47.06 Lacs
			Total		10337739.20	143.12 Lacs
		SAY			103.38 Lacs	
	(C.O. to abstract of cost of Sub-work No. 1					

	Sub Work IV				Road Work
S. No.	**Description**	**Unit**	**Qty**	**Rate**	**Amount (Rs.)**
1	Provision for leveling & earth filling as per site condition ~~10.25 acre @ 125000/- acre~~	Acres	12.16875 ~~10.25~~	~~125000~~ 1.50 Lacs	~~1281250.00~~ 18.25 Lacs
2	Construction of road by:- 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) 3268.917 sqm. X 0.10 m - @ 950/ cum	Cu. mtr.	300 mm GSB 250 mm thick stone aggregate ~~326.9~~	~~950~~	~~310547.12~~
	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) 3268.917 sqm. X 0.10 m – 326.892 cum @ 950/ cum	Cu. mtr.	50 mm BM. 40 mm thick BC ~~326.9 x 2 = 653.80~~	~~950~~	~~62110~~ ~~310547.12~~
	iii) 25mm thick pre-mix carpet with seal coat ~~3268.917 sqm. @ 265/ sqm~~	Sq. mtr.	~~3268.9~~ 6357	~~265~~ 1200/-	~~866263.01~~ 76.28 Lacs
3	Provision for making pavement for parking beside building block by providing concrete pavement or tiles. 2573.90 sqm. @ 500/- sqm.	Sq. mtr.	2573.9	~~600~~/-	15.44 Lacs ~~1286930.00~~
4	Provision for ~~parking arrangement~~ Kerb & channel both side 1:1½:3 C.C Rmk ~~2573.90 sqm @ 500/- sqm~~	~~Sq. mtr.~~	2120 ~~2573.9~~	~~600~~/-	12.72 Lacs ~~1286930.00~~
5	Provision for Carriage of material & other unforseen items	LS.		~~250000.00~~	250000.00
6	Provision for traffic lighting and guide map / indicators	LS.		~~100000.00~~	100000.00
			Total		~~5692467.24~~ 126.19 Lacs
	Add 3% contingencies & PE Charges				~~170774.02~~ 3.79 Lacs
					~~5863241.25~~ 129.98 Lacs
			Total		~~58.63~~ Lacs 63.16 Lacs
	Add 49 % department charges, unforseen, price escalation	Admn. SAY			~~28.73~~ Lacs **~~87.36~~ Lacs** 193.66 Lacs

SAY ~~93.15~~ Lacs

	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 HVPN with CFL	per acre	12.1687S ~~17.212~~	2.50 Lacs ~~175000.00~~	30.42 Lacs ~~3012100.00~~	
	Add 3% contingencies etc PE. Charges				0.91 Lacs ~~90363.00~~	
	Total				31.33 Lacs ~~3102463.00~~	
	Add 49% Deptt. Charges, price escalation under seal, Admn. charges				15.35 Lacs ~~1520206.87~~	
			Total		46.68 Lacs ~~**4622670.00**~~	
		SAY			~~**46.23**~~	**Lacs**

	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) 10167.38 Sqm or		2.51	1.50 lacs	3.76 Lacs	
	~~10.25 acres @ Rs. 0.90 lacs / acre~~.	per acre	~~10.250~~	~~90000.00~~	~~922,500~~	
	500 trees @ Rs. ~~750/-~~ 1300/- each				~~375,000~~	6.50
					~~1297500.00~~	10.26 Lacs
	Add 3% contingency charges				~~38925.00~~	0.30 Lacs
				Total	~~1336425.00~~	
	Add 49% Deptt. Charges, price escalation, unforseen Adum. charges				~~654848.25~~	10.56 Lacs
				Total	~~1991273.25~~	5.18 Lacs
			say		~~19.91 Lacs~~	
						15.74 Lacs

Cost details

(i) Excavation = 60.00

(ii) Manure = 90.00

(iii) Tree plant = 150.00

(iv) Tree guard = 1000.00

1300.00

	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.					
	~~10.25~~ acres @ ~~5~~ lacs per acre	per acre	~~10.250~~ 12.16875	~~500000.00~~ 7.50 Lacs	~~5125000~~ 91.27 Lacs	
2	Provision for resurfacing & strengthening of road after five years of Ist phase ~~3268.917 sqm~~ @ ~~250/-~~ per sqm ~~+ 2573.9 = 5842.81~~	Sq. mtr.	~~5842.81~~ ~~3268.917~~ 8950	~~250~~ 600	~~817229.25~~ 53.70 Lacs	
3	Provision for resurfacing & strengthening of road after ten years of 2nd phase 3268.917 sqm @ 125/- per sqm	Sq. mtr.	~~5842.81~~ ~~3268.917~~ 8950	~~125~~ 750	~~408614.63~~ 67.13 Lacs	
				Total	~~6350843.875~~ 212.10 Lacs	
	Add 3% contingency & PE charges				~~190525.3163~~ 6.36 Lacs	
				Total	~~6541369.191~~ 218.46 Lacs	
	Add 49% Departmetal charges, price escalation unforseen, Admn.				~~3205270.904~~ 107.04 Lacs	
				Total	~~9746640.095~~ 325.50 Lacs	
			say		~~97.47 Lacs~~	

DOMESTIC WATER SUPPLY QUANTITY SHEET

S.No.	Line No	Length of Pipe	Dia of Pipe
		mtr.	mm.
1	***Pump Room*** *- DD1*	55.0	150 ~~80~~
2.	DD1 - DD2	96.0	150 ~~65~~
3.	***Pump Room*** *- D1*	78.0	150
4.	D1 - D2	26.0	150
5.	D2 - D3	34.0	100
6.	D3 - D4	46.0	100
7.	D4 - D5	22.0	100
8.	D2 - D6	45.0	100
9.	D6 - D7	54.0	100
10.	D7 - D8	31.0	100
11.	D8 - D4	38.0	100

FLUSHING WATER SUPPLY QUANTITY SHEET

1	***STP*** *- FF1*	55.0	150 ~~65~~
2.	FF1 - FF2	59.0	50
3.	***STP*** *- F1*	75.0	100
4.	F1 - F2	14.0	100
5.	F2 - F3	59.0	150 ~~80~~
6.	F3 - F4	28.0	150 ~~80~~
7.	F4 - F5	38.0	150 ~~80~~
8.	F2 - F6	45.0	150 ~~80~~
9.	F6 - F7	42.0	150 ~~80~~
10.	F7 - F5	38.0	150 ~~80~~
	F6 - F6A	41.6	150

S.No.	Line No	Length of Pipe	Dia of Pipe
		mtr.	mm.
		Length in (MTR)	**Pipe Dia (MM)**
Domestic & Flushing Water Supply line		59.0	50
Domestic & Flushing Water Supply line		151.0	65
Domestic & Flushing Water Supply line		305.0	80
Domestic & Flushing Water Supply line		359.0	100
Domestic & Flushing Water Supply line		104.0	150
Municipal Water Supply line		135.0	150
65 Dia Valve		[1 / 1 / 1] 3	Nos.
80 Dia Valve			Nos.
100 Dia Valve			Nos.
150 Dia Valve		[2 / 1] 3	Nos.
150 Dia Non Return Valve			Nos.
Air Valve		3	Nos.

	150 mm	100 mm
Dom water supply line =	90 m	421 m
Flushing water supply line	—	494 m
	90 m	915 m

Rising main 150 mm ϕ = 135 mh

IRRIGATION WATER SUPPLY QUANTITY SHEET

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	OD
1	***S.T.P***	G1	45.0	90
2.	G1	G1a	55.0	40
3.	G1a	G1b	15.0	32
4.	G1	G2	23.0	90
5.	G2	G3	253.0	90
6.	G3	G5	153.0	90
7.	G3	G4	139.0	90
8.	G4	G5	160.0	90
9.	G2	G5	275.0	90

Description	Length of Pipe (mtr.)	Dia of Pipe (mm)
Irrigation Water Supply line	**1048.0**	**90**
Irrigation Water Supply line	**55.0**	**40**
Irrigation Water Supply line	**15.0**	**32**
Irrigation Water Supply line	**425.0**	**25**
Garden Hydrant	**39**	**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	***U.G.T***	B1	25.0	150 ~~200~~
2.	B1	B2	16.0	150 ~~200~~
3.	B2	B2a	7.0	80
4.	B2	B3	84.0	150 ~~200~~
5.	B3	B4	4.0	150 ~~200~~
6.	B4	B4a	3.0	80
7.	B4	B5	36.0	150 ~~200~~
8.	B5	B5a	50.0	80
9.	B5	B6	9.0	150 ~~200~~
10.	B6	B6a	6.0	80
11.	B6	B7	69.0	150 ~~200~~
12.	B7	B7a	29.0	100
13.	B7a	B7b	25.0	80
14.	B7c	B7b	17.0	80
15.	B7	B8	38.0	150 ~~200~~
16.	B8	B8a	37.0	80
17.	B8	B9	13.0	150 ~~200~~
18.	B9	B9a	14.0	80
19.	B9	B10	51.0	150 ~~200~~
20.	B10	B10a	22.0	150
21.	B10a	B10b	33.0	80
22.	B10a	B10c	26.0	80
23.	B10a	B10d	18.0	80
24.	B3	B11	46.0	150 ~~200~~
25.	B11	B11a	6.0	80
26.	B11	B12	42.0	150 ~~200~~
27.	B12	B12a	6.0	80
28.	B12	B13	10.0	150 ~~200~~
29.	B13	B13a	53.0	80

S.No.	Line No		Length of Pipe	Dia of Pipe
-	From	To	mtr.	mm.
30.	B13	B14	26.0	150 ~~200~~
31.	B14	B14a	13.0	80
32.	B14	B10	45.0	150 ~~200~~
33.	***U.G.T***	BB1	25.0	150
34.	BB1	BB1a	9.0	150
35.	BB1a	BB1b	15.0	150
36.	BB1b	BB1c	36.0	80
37.	BB1b	BB1d	11.0	80
38.	BB1	BB2	30.0	150 ~~200~~
39.	BB2	BB2a	13.0	100
40.	BB2a	BB2b	40.0	80
41.	BB2	BB3	24.0	150 ~~200~~
42.	BB3	BB3a	24.0	80
43.	BB3	BB4	58.0	150 ~~200~~
44.	BB4	BB4a	6.0	80
45.	BB4	BB5	42.0	150 ~~200~~
46.	BB5	BB5a	2.0	80
47.	BB5	BB6	53.0	150 ~~200~~
48.	BB6	BB6a	21.0	150
49.	BB6a	BB6b	28.0	150
50.	BB6a	BB6c	11.0	80
51.	BB6	BB7	36.0	150 ~~200~~
52.	BB7	BB7a	37.0	80
53.	BB7	BB7b	16.0	80
54.	4 Way Fire Brigade inlet connection for U.G. Tank		45.0	150
55.	4 Way Fire Brigade inlet connection for zone-01 basement fire wet riser		10.0	150
56.	4 Way Fire Brigade inlet connection for zone-02 basement fire wet riser		45.0	150
57.	Fire Brigade Withdrawl Connection		45.0	150

S.No.	Line No		Length of Pipe	Dia of Pipe
-	From	To	mtr.	mm.
80 mm Dia Pipe			**497.0**	**mtr.**
100 mm Dia Pipe			**42.0**	**mtr.**
150 mm Dia Pipe			**265.0**	**mtr.**
~~200~~ 150 mm Dia Pipe			**757.0**	**mtr.**
			1022 m	
External Fire Hydrant			**28**	**Nos.**
80 Dia Valve			**28**	**Nos.**
150 Dia Valve			**4**	**Nos.**
~~200~~ 150 Dia Valve			**2** 6 Nos	**Nos.**
80 Dia Non Return Valve			**28**	**Nos.**

TITLE - SEWERAGE QUANTITY SHEET S.W. pipe

S.No.	Line No.		Length	Pipe Dia		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	~~98~~.0	250	0.250	2.05	2.57	2.31	166.12	0.0	98.0	0.0	0.0
2.	S2	S3	235.0	250	0.250	2.57	3.80	3.18	532.21	0.0	0.0	235.0	0.0
3.	S3a	S3	14.0	200	0.200	2.00	2.07	2.04	19.63	0.0	14.0	0.0	0.0
	S2a	S2											
4.	S3	S4	92.0	300	0.300	3.85	4.22	4.04	279.28	0.0	0.0	92.0	0.0
5.	S5	S6	94.0	200	0.200	2.20	2.87	2.54	159.93	0.0	94.0	0.0	0.0
6.	S6	S4	83.0	250	0.250	2.92	3.36	3.14	185.58	0.0	0.0	83.0	0.0
7.	S4	***STP.***	2.0	400	0.400	4.32	4.33	4.32	7.40	0.0	0.0	2.0	0.0
8.	***Branch Line***		129.0	150	0.150	0.60	1.00	0.80	78.05	129.0	0.0	0.0	0.0
Total			**747.0**						**1429.0**	**129.0**	**206.0**	**412.0**	**0.0**

Excavation Depth				
Description	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)	(4.5 - 6.0)
~~150 mm Dia pipe~~	~~129.0~~	~~0.0~~	~~0.0~~	~~0.0~~
200 mm Dia pipe	0.0	205 ~~108.0~~	0.0	0.0
250 mm Dia pipe	0.0	~~98~~.0	318.0	0.0
300 mm Dia pipe	0.0	0.0	92.0	0.0
400 mm Dia pipe	0.0	0.0	2.0	0.0
500 mm Dia pipe	0.0	0.0	0.0	0.0

say 5.0 mt

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
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
1	A1	A2	12.0	400	0.400	2.30	2.32	2.31	31.33	0.0	12.0	0.0
2.	A2	D.C.01	2.0	400	0.400	2.32	2.32	2.32	5.25	0.0	2.0	0.0
3.	D.C.01	***R.P.01***	5.0	400	0.400	2.32	2.33	2.33	13.14	0.0	5.0	0.0
4.	***R.P.01***	A3	3.0	400	0.400	2.30	2.31	2.30	7.81	0.0	3.0	0.0
5.	A3	A4	15 ~~23.0~~	400	0.400	2.31	2.35	2.33	60.39	0.0	23.0	0.0
6.	A4	D.C.02	7.0	400	0.400	2.35	2.36	2.35	18.56	0.0	7.0	0.0
7.	D.C.02	***R.P.02***	2.0	400	0.400	2.36	2.36	2.36	5.32	0.0	2.0	0.0
8.	***R.P.02***	A5	4.0	400	0.400	2.30	2.31	2.30	10.41	0.0	4.0	0.0
9.	A5	A6	44 ~~31.0~~	400	0.400	2.31	2.36	2.33	81.66	0.0	31.0	0.0
10.	A6	D.C.03	2.0	400	0.400	2.36	2.36	2.36	5.33	0.0	2.0	0.0
11.	D.C.03	***R.P.03***	2.0	400	0.400	2.36	2.37	2.37	5.33	0.0	2.0	0.0
12.	***R.P.03***	A7	10.0	400	0.400	2.30	2.32	2.31	26.09	0.0	10.0	0.0
13.	A7	A8	80 ~~77.0~~	400	0.400	2.32	2.45	2.39	206.75	0.0	77.0	0.0
14.	A8	D.C.04	4.0	400	0.400	2.45	2.46	2.46	11.02	0.0	4.0	0.0
15.	D.C.04	***R.P.04***	2.0	400	0.400	2.46	2.46	2.46	5.52	0.0	2.0	0.0
16.	***R.P.04***	***TO HUDA***	10.0	500	0.500	2.10	1.51	1.81	23.17	0.0	10.0	0.0
17.	A9	A10	66.0	400	0.400	2.30	2.42	2.36	175.42	0.0	66.0	0.0
18.	A10	D.C.05	2.0	400	0.400	2.42	2.42	2.42	5.44	0.0	2.0	0.0
19.	D.C.05	***R.P.05***	3.0	400	0.400	2.42	2.42	2.42	8.17	0.0	3.0	0.0
20.	***R.P.05***	A11	2.0	400	0.400	2.30	2.30	2.30	5.20	0.0	2.0	0.0
21.	A11	A12	24 ~~26.0~~	400	0.400	2.30	2.35	2.33	65.64	0.0	25.0	0.0
22.	A12	D.C.06	2.0	400	0.400	2.35	2.35	2.35	5.30	0.0	2.0	0.0
23.	D.C.06	***R.P.06***	5.0	400	0.400	2.35	2.36	2.36	13.28	0.0	5.0	0.0
24.	***R.P.06***	A13	2.0	400	0.400	2.30	2.30	2.30	5.20	0.0	2.0	0.0
25.	A13	A14	38.0	400	0.400	2.30	2.37	2.34	100.20	0.0	38.0	0.0
26.	A14	D.C.07	2.0	400	0.400	2.37	2.37	2.37	5.34	0.0	2.0	0.0
27.	D.C.07	***R.P.07***	5.0	400	0.400	2.37	2.38	2.38	13.39	0.0	5.0	0.0
28.	***R.P.07***	A15	2.0	400	0.400	2.30	2.30	2.30	5.20	0.0	2.0	0.0
29.	A15	A16	50.0	400	0.400	2.30	2.39	2.35	132.37	0.0	50.0	0.0
30.	A16	D.C.08	5.0	400	0.400	2.39	2.40	2.40	13.48	0.0	5.0	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
	From	To	(mtr.)	(mm)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(cum.)	(mtr.)	(mtr.)	(mtr.)
31.	D.C.08	***R.P.08***	4.0	400	0.400	2.40	2.41	2.40	10.81	0.0	4.0	0.0
32.	***R.P.08***	A17	2.0	400	0.400	2.30	2.30	2.30	5.20	0.0	2.0	0.0
33.	A17	A18	30.0	400	0.400	2.30	2.36	2.33	78.89	0.0	30.0	0.0
34.	A18	D.C.09	4.0	400	0.400	2.36	2.36	2.36	10.64	0.0	4.0	0.0
35.	D.C.09	***R.P.09***	2.0	400	0.400	2.36	2.37	2.36	5.33	0.0	2.0	0.0
36.	***R.P.09***	A19	4.0	400	0.400	2.30	2.31	2.30	10.41	0.0	4.0	0.0
37.	A19	A20	50.0	400	0.400	2.31	2.39	2.35	132.54	0.0	50.0	0.0
38.	A20	D.C.10	4.0	400	0.400	2.39	2.40	2.40	10.79	0.0	4.0	0.0
39.	A21	A22	15.0	400	0.400	2.30	2.33	2.31	39.20	0.0	15.0	0.0
40.	A22a	A22	17.0	400	0.400	2.30	2.33	2.31	44.45	0.0	17.0	0.0
41.	A22	D.C.10	5.0	400	0.400	2.33	2.34	2.33	13.17	0.0	5.0	0.0
42.	D.C.10	***R.P.10***	4.0	400	0.400	2.40	2.41	2.41	10.82	0.0	4.0	0.0
43.	***R.P.10***	***TO HUDA***	10.0	500	0.500	2.10	1.51	1.81	23.17	0.0	10.0	0.0
~~44.~~	~~Catch Basin Line~~		~~550.0~~	~~150~~	~~0.150~~	~~0.60~~	~~0.80~~	~~0.70~~	~~412.50~~	~~550.0~~	~~0.0~~	~~0.0~~
~~45.~~	~~Catch Basin Line~~		~~450.0~~	~~250~~	~~0.250~~	~~0.60~~	~~0.80~~	~~0.70~~	~~382.50~~	~~450.0~~	~~0.0~~	0.0
Total			**1556.0**						**2262.0**	**1000.0**	**556.0**	**0.0**

Please note that desilting chamber 11, 12 & recharge pit 11, 12 (D.C. & R.P.) is coming in N. School & P. School

Excavation Depth			
Description	(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)
~~150 mm Dia pipe~~	~~550.0~~	-	-
~~260 mm Dia pipe~~	~~450.0~~	-	-
400 mm Dia pipe	0.0	~~536.0~~ 563	0.0
500 mm Dia pipe	0.0	20.0	0.0

TITLE :- ROAD QUANTITY SHEET

AREA OF METALLED ROAD (A)

S.NO.	ROAD NO.	LENGTH (In Sq. Mt.)	WIDTH	TOTAL AREA (In Sq. Mt.)
1	1	6.309	6.0 4.200	~~26.498~~ 37.85
2.	2	0.957	6.0 ~~4.200~~	~~4.019~~ 5.74
3.	3	5.301	6.0 ~~4.200~~	~~22.264~~ 31.80
4.	4	1.438	4.200	~~6.040~~ 8.62
5.	5	4.019	4.200	~~16.880~~ 24.11
6.	6	8.538	4.200	~~35.860~~ 51.22
7.	7	27.168	4.200	~~114.106~~ 163.0
8.	8	12.116	4.200	~~50.887~~ 72.65
9.	9	30.103	4.200	~~126.433~~ 180.61
10.	10	15.078	4.200	~~63.328~~ 90.46
11.	11	9.334	4.200	~~39.203~~ 56.0
12.	12	7.692	4.200	~~32.306~~ 46.152
13.	13	15.551	4.200	~~65.314~~ 93.30
14.	14	36.682	4.200	~~154.064~~ 220.09
15.	15	6.808	4.200	~~28.594~~ 40.84
16.	16	7.780	4.200	~~32.676~~ 46.68
17.	17	47.327	4.200	~~198.773~~ 283.96
18.	18	15.080	4.200	~~63.336~~ 90.48
19.	19	33.482	4.200	~~140.624~~ 200.89
20.	20	26.832	4.200	~~112.694~~ 160.99
21.	21	53.008	4.200	~~222.634~~ 318.05
22.	22	15.080	4.200	~~63.336~~ 90.48
23.	23	178.915	4.200	~~751.443~~ 107.35
24.	24	55.163	4.200	~~231.685~~ 330.97
25.	25	46.730	4.200	~~196.266~~ 280.38
26.	26	23.705	4.200	~~99.561~~ 142.23
27.	27	1.207	4.200	~~5.069~~ 7.24
28.	28	7.181	4.200	~~30.160~~ 43.08
29.	29	1.267	6.0 ~~4.200~~	~~5.321~~ 7.60
30.	30	7.707	6.0 ~~4.200~~	~~32.369~~ 46.24
31.	31		6.0 ~~4.200~~	0.000
			TOTAL	~~2971.743~~ 3279.10
			ADD 10% FOR CURVES	~~297.174~~ 327.91
			TOTAL METALLED ROAD AREA (A)	~~3268.917~~ SQM 3607.01

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	71.053	4.500	319.739
2.	B	50.845	4.500	228.803
3.	C	3.906	4.500	17.577
4.	D	2.725	4.500	12.263
5.	E	5.918	4.500	26.631
6.	F	6.990	4.500	31.455
7.	G	19.232	4.500	86.544
8.	H	15.315	4.500	68.918
9.	J	34.135	6.000	204.810
10.	K	15.165	4.500	68.243
11.	L	16.440	4.500	73.980
12.	M	15.472	4.500	69.624
13.	N	19.126	4.500	86.067
14.	P	13.116	4.500	59.022
15.	Q	12.624	4.500	56.808
16.	R	12.950	4.500	58.275
17.	S	59.968	4.500	269.856
18.	T	4.435	4.500	19.958
19.	U	5.185	4.500	23.333
20.	V	14.289	4.500	64.301
21.	W	12.959	4.500	58.316
22.	X	2.866	4.500	12.897
23.	Y	1.083	4.500	4.874
24.	Z	2.351	4.500	10.580
25.	AA	6.276	4.500	28.242
26.	AB	12.339	4.500	55.526
27.	AC	12.960	4.500	58.320
28.	AD	13.450	4.500	60.525
29.	AE	4.706	4.500	21.177
30.	AF	12.960	4.500	58.320
31.	AG	27.753	4.500	124.889
32.	AH		4.500	0.000
33.	AJ			0.000
			TOTAL	**2339.873**
			ADD 10% FOR CURVES	**233.9873**
			TOTAL HARD PAVED AREA (B)	**2573.86 Sqm**

AREA UNDER CAR PARKING (C)	
NO. OF CARS ON SURFACE = ~~325~~ 247 NO.	
AREA UNDER CAR PARKING = 5 X 2.5 X ~~325~~ 247 = ~~4062.5~~ 3089.50 SQM	
TOTAL AREA UNDER CAR PARKING (C)	3975 SQM
TOTAL AREA OF ROADS = A + B + C = 3268.917 +2573.86 +~~4062.5~~ 3087.50 = ~~9905.27~~ 8930.27 SQM Say = 8950 Sqm	

Road + Parking area

3268.917 + 3087.50 = 6356.42

Say 6357 Sqm

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	klph.	klph.	lpm.	mtr.	mtr.	mtr.	m/sec	mm
1	**HUDA**	***UGT.***	55.22	82.84	1380.60	150.0	0.020	3.02	1.301	150

(Pump Riser Calculation Sheet)

Domestic Water Supply Riser Design Calculation For Tower A1, A2 & SHOPPING (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 terrace	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
Pump Room *- DD1*	6.285	**80**	0.039	55.0	5	2.75	57.75	2.243	2.243	1.250	104.00	101.76	-	-	-
DD1 - DD1a	3.106	**65**	0.029	2.0	5	0.10	2.10	0.061	2.304	0.936	101.76	99.45	7.45	92.00	Tower - A1
DD1 - DD2	3.178	**65**	0.030	96.0	5	4.80	100.80	3.045	5.288	0.957	101.76	96.47	4.47	92.00	Tower - A2 & Shopping
	Flow Rate			**6.285**	lps										
				377.1	**LPM**										
	(1 W + 1 S)			**380.0**	**LPM**										
	Maximum Building Height			92	m										
	Pump Head			**104.00**	m										
	Pump HP			14.5	HP										
	Say			**15.0**	**HP**										

Flushing Water Supply Riser Design Calculation For Tower - A1, A2 & SHOPPING (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 terrace	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 *- FF1*	3.421	**65**	0.035	55.0	5	2.75	57.75	2.000	2.000	1.030	104.00	102.00	-	-	-
FF1 - FF1a	1.745	**50**	0.036	38.0	5	1.90	39.90	1.426	3.425	0.888	102.00	98.58	6.58	92.00	Tower - A2 & Shopping
FF1 - FF2	1.676	**50**	0.033	59.0	5	2.95	61.95	2.053	4.053	0.853	102.00	97.95	5.95	92.00	Tower - A1
	Flow Rate			**3.421**	lps										
				205.3	**LPM**										
	(1 W + 1 S)			**210.0**	**LPM**										
	Maximum Building Height			92	m										
	Pump Head			**104.00**	m										
	Pump HP			7.9	HP										
	Say			**8.0**	**HP**										

Domestic Water Supply Riser Design Calculation For Tower B1 TO B6, COMMUNITY BUILDING, N. SCHOOL & P. SCHOOL (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 terrace	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
Pump Room *- D1*	14.027	**150**	0.008	78.0	5	3.90	81.90	0.659	0.659	0.793	76.00	75.34	-	-	-
D1 - D1a	2.519	**65**	0.020	1.0	5	0.05	1.05	0.021	0.679	0.759	75.34	74.66	18.66	56.00	Tower - B1 & Club
D1 - D2	11.538	**150**	0.006	26.0	5	1.30	27.30	0.153	0.811	0.653	75.34	74.53	-	-	-
D2 - D3	6.590	**100**	0.014	34.0	5	1.70	35.70	0.511	1.322	0.839	74.53	73.21	-	-	-
D3 - D3a	2.106	**50**	0.051	10.0	5	0.50	10.50	0.531	1.854	1.072	73.21	71.35	15.35	56.00	Tower - B2
D3 - D4	4.484	**100**	0.007	46.0	5	2.30	48.30	0.339	1.661	0.571	73.21	71.55	-	-	-
D4 - D5	2.377	**100**	0.002	22.0	5	1.10	23.10	0.050	1.711	0.303	71.55	69.84	-	-	-
D5 - D5a	2.106	**50**	0.051	1.0	5	0.05	1.05	0.053	1.764	1.072	69.84	68.07	12.07	56.00	Tower - B3
D5 - N. School	0.271	**40**	0.003	75.0	5	3.75	78.75	0.265	1.975	0.215	69.84	67.86	45.86 Used PRV	22.00	N. School
D2 - D6	9.160	**100**	0.026	45.0	5	2.25	47.25	1.244	2.055	1.166	74.53	72.47	-	-	-
D6 - D9	2.841	**65**	0.025	31.0	5	1.55	32.55	0.799	2.854	0.856	72.47	69.62	-	-	-
D9 - D9a	2.056	**50**	0.048	3.0	5	0.15	3.15	0.152	3.006	1.046	69.62	66.61	10.61	56.00	Tower - B6
D9 - P. School	0.785	**50**	0.008	90.0	5	4.50	94.50	0.770	3.624	0.400	69.62	66.00	36.00 Used PRV	30.00	P. School
D6 - D7	6.319	**100**	0.013	54.0	5	2.70	56.70	0.750	2.805	0.804	72.47	69.67	-	-	-
D7 - D7a	2.106	**50**	0.051	32.0	5	1.60	33.60	1.701	4.506	1.072	69.67	65.16	9.16	56.00	Tower - B5
D7 - D8	4.213	**100**	0.006	31.0	5	1.55	32.55	0.203	3.009	0.536	69.67	66.66	-	-	-
D8 - D8a	2.106	**50**	0.051	12.0	5	0.60	12.60	0.638	3.647	1.072	66.66	63.01	7.01	56.00	Tower - B4
D8 - D4	2.106	**100**	0.002	38.0	5	1.90	39.90	0.069	3.078	0.268	66.66	63.58	-	-	-
	Flow Rate			**14.027**	lps										
				841.6	**LPM**										
	(2 W + 1 S)			**420.8**	**LPM**										
	Maximum Building Height			56	m										
	Pump Head			**76.00**	m										
	Pump HP			11.8	HP										
	Say			**12.5**	**HP**										

Flushing Water Supply Riser Design Calculation For Tower - B1 TO B6 & COMMUNITY BUILDING (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 terrace	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 - F1	7.000	**100**	0.016	75.0	5	3.75	78.75	1.260	1.260	0.891	76.00	74.74	-	-	-
F1 - F1a	1.106	**40**	0.046	5.0	5	0.25	5.25	0.239	1.499	0.880	74.74	73.24	17.24	56.00	Tower - B6
F1 - F2	5.894	**100**	0.012	14.0	5	0.70	14.70	0.171	1.430	0.750	74.74	73.31	-	-	-
F2 - F3	4.537	**80**	0.021	59.0	5	2.95	61.95	1.316	2.746	0.902	73.31	70.56	-	-	-
F3 - F3a	1.134	**40**	0.048	14.0	5	0.70	14.70	0.701	3.447	0.902	70.56	67.12	11.12	56.00	Tower - B5
F3 - F4	3.403	**80**	0.012	28.0	5	1.40	29.40	0.367	3.113	0.677	70.56	67.45	-	-	-
F4 - F4a	1.134	**40**	0.048	32.0	5	1.60	33.60	1.602	4.715	0.902	67.45	62.74	6.74	56.00	Tower - B4
F4 - F5	2.269	**80**	0.006	38.0	5	1.90	39.90	0.235	3.348	0.451	67.45	64.10	-	-	-
F5 - F5a	1.134	**50**	0.016	46.0	5	2.30	48.30	0.777	4.125	0.577	64.10	59.98	3.98	56.00	Tower - B3
F2 - F6	3.625	**80**	0.014	45.0	5	2.25	47.25	0.662	2.093	0.721	73.31	71.22	-	-	-
F6 - F6a	1.356	**50**	0.022	47.0	5	2.35	49.35	1.106	3.198	0.690	71.22	68.02	12.02	56.00	Tower - B1 & Club
F6 - F7	2.269	**80**	0.006	42.0	5	2.10	44.10	0.260	2.352	0.451	71.22	68.86	-	-	-
F7 - F7a	1.134	**40**	0.048	26.0	5	1.30	27.30	1.302	3.654	0.902	68.86	65.21	9.21	56.00	Tower - B2
F7 - F5	1.134	**80**	0.002	38.0	5	1.90	39.90	0.065	2.417	0.226	68.86	66.45	-	-	-

Flow Rate	**7.000**	lps	
	420.0	**LPM**	
(1 W + 1 S)	**420.0**	**LPM**	
Maximum Building Height	56	m	
Pump Head	**76.00**	m	
Pump HP	11.8	HP	
Say	**12.5**	**HP**	

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	Velocity	Capacity of Pipe	FRL at Start	FSL at Start	Invert Levels at Start	FRL at End	FSL at End	Invert Levels at End	Manhole Start Depth	Manhole Start End	Average Depth
	From	To	(lps.)	80%	1000	(kld.)	(kld.)	(lps.)	(lps.)	(lps.)	(lps.)	(mtr.)	(mm)	(mm)	(mtr.)	(m/s) (v)	(lps.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1.	S1	S2	48300	38640	38.64	0.00	38.64	0.45	1.34	0.11	1.45	98.0	250	190	0.516	0.76	18.703	213.40	211.60	211.35	213.40	211.08	210.83	2.05	2.57	2.31
2.	S2	S3	184388	147510	147.51	38.64	186.15	2.15	6.46	0.54	7.00	235.0	250	190	1.237	0.76	18.703	213.40	211.08	210.83	213.40	209.85	209.60	2.57	3.80	3.18
3.	S3a	S3	71603	57282	57.28	0.00	57.28	0.66	1.99	0.17	2.15	14.0	200	190	0.074	0.66	10.315	213.40	211.60	211.40	213.40	211.53	211.33	2.00	2.07	2.04
4.	S3	S4	51578	41262	41.26	243.43	284.69	3.30	9.89	0.82	10.71	92.0	300	250	0.368	0.75	26.513	213.40	209.85	209.55	213.40	209.48	209.18	3.85	4.22	4.04
5.	S5	S6	156690	125352	125.35	0.00	125.35	1.45	4.35	0.36	4.72	94.0	200	140	0.671	0.76	12.017	213.40	211.40	211.20	213.40	210.73	210.53	2.20	2.87	2.54
6.	S6	S4	150128	120102	120.10	125.35	245.45	2.84	8.52	0.71	9.23	83.0	250	190	0.437	0.76	18.703	213.40	210.73	210.48	213.40	210.29	210.04	2.92	3.36	3.14
7.	S4	***STP.***	0	0	0.00	530.15	530.15	6.14	18.41	1.53	19.94	2.0	400	350	0.006	0.77	48.257	213.40	209.48	209.08	213.40	209.47	209.07	4.32	4.33	4.32

Formula Used:

Peak factor is considered as 3 times for population upto 20,000 persons & above 20,000 person peak factor is considered 2.5 times.

Velocity(m/s)=(1/n)x(A/P)^(2/3)*(1/slope)^.5

n=.013 for RCC pipe (Manning's Coefficient)

A=Area of x-section of pipe in sqm.

P =Wetted Perimeter in m

Capacity of pipe(lps) =Area of x-section of pipe in sqm x velocity in m/s x1000x1/2 (Sewers are designed to run half full)

Abbreviation Used:

IL=Invert level of pipe

FSL=Full supply level

FRL=Formation Road Level

CL=Connection Level

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 / Unit	Water Reuirement @ 172.5 Ltr/ day /Person	EWS / Service Apartment	Population @ 2 persons / Unit	Water Reuirement @ 172.5 Ltr/ day /Person	Amenity	Water Reuirement @ Lumsum / day	Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line)	Sewage Flow (Self Load on
			-	5	172.5	-	2	172.5	-			lpd.	kld.
	From	To	Unit	Nos.	lpd.	Unit	Nos.	lpd.	sqm.	lpd.	lpd.	80%	1000
1.	S1	S2	56	280	48300	0	0	0	-	0	48300	38640	38.64
2.	S2	S3	207	1035	178537.5	0	0	0	Nursary School	5850	184388	147510	147.51
3.	S3a	S3	49	245	42262.5	27	54	9315	Community Center	20025	71603	57282	57.28
4.	S3	S4	49	245	42262.5	27	54	9315	-	0	51578	41262	41.26
5.	S5	S6	162	810	139725	0	0	0	Primary School	16965	156690	125352	125.35
6.	S6	S4	151	755	130237.5	54	108	18630	Shopping	1260	150128	120102	120.10
7.	S4	*STP.*	0	0	0	0	0	0	-	0	0	0	0.00
			674.00	**3370.00**	**581325.00**	**108.00**	**216.00**	**37260.00**	**-**	**44100.00**	**662685.00**	**530148.00**	**530.15**

Tel : 2572449
Fax : 2564655
Website : www.huda.org.in
हरियाणा शहरी विकास प्राधिकरण Email : cencrhuda@ gmail.com

Haryana Urban Development Authority
Address: C-3, HUDA HQ Sector-6 Panchkula

C.E.II-No. 120467
Dated: 29/11/16
Annexure-A

SUB:- Approval of revised Service Plan /estimate for Group Housing Colony on the land measuring 21.04375 acres (License No. 105 of 2011 dated 11.2.2011, 85 & 86 of 2012 dated 29.8.2012) in Sec-112 & 113 Gurgaon Manesar Urban Complex being developed by M/S. CSN Estate Pvt. Ltd. New Delhi.

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.

C.E. No:

Dated:

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.

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.

28/11/16

Executive Engineer (W),
For Chief Engineer-II, HUDA,
Panchkula.

28/11/16

TITLE : HYDRAULIC STORM WATER DESIGN CHART

S.No.	Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																			Depth (mtr.)		Avg.
	From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
1.	A1	A2	12.0	3280.0	0.0	3280.0	3.42	400	570	0.60	75.63	0.02	213.40	211.50	211.10	213.40	211.48	211.08	2.30	2.32	2.31
2.	A2	D.C.01	2.0	130.0	3280.0	3410.0	3.55	400	570	0.60	75.63	0.00	213.40	211.48	211.08	213.40	211.48	211.08	2.32	2.32	2.32
3.	D.C.01	**R.P.01**	5.0	0.0	3410.0	3410.0	3.55	400	570	0.60	75.63	0.01	213.40	211.48	211.08	213.40	211.47	211.07	2.32	2.33	2.33
4.	**R.P.01**	A3	3.0	0.0	3410.0	3410.0	3.55	400	570	0.60	75.63	0.01	213.40	211.50	211.10	213.40	211.49	211.09	2.30	2.31	2.30
5.	A3	A4	23.0	1490.0	3410.0	4900.0	5.10	400	570	0.60	75.63	0.04	213.40	211.49	211.09	213.40	211.45	211.05	2.31	2.35	2.33
6.	A4	D.C.02	7.0	460.0	4900.0	5360.0	5.58	400	570	0.60	75.63	0.01	213.40	211.45	211.05	213.40	211.44	211.04	2.35	2.36	2.35
7.	D.C.02	**R.P.02**	2.0	0.0	5360.0	5360.0	5.58	400	570	0.60	75.63	0.00	213.40	211.44	211.04	213.40	211.44	211.04	2.36	2.36	2.36
8.	**R.P.02**	A5	4.0	0.0	5360.0	5360.0	5.58	400	570	0.60	75.63	0.01	213.40	211.50	211.10	213.40	211.49	211.09	2.30	2.31	2.30
9.	A5	A6	31.0	3760.0	5360.0	9120.0	9.50	400	570	0.60	75.63	0.05	213.40	211.49	211.09	213.40	211.44	211.04	2.31	2.36	2.33
10.	A6	D.C.03	2.0	130.0	9120.0	9250.0	9.64	400	570	0.60	75.63	0.00	213.40	211.44	211.04	213.40	211.44	211.04	2.36	2.36	2.36
11.	D.C.03	**R.P.03**	2.0	0.0	9250.0	9250.0	9.64	400	570	0.60	75.63	0.00	213.40	211.44	211.04	213.40	211.43	211.03	2.36	2.37	2.37
12.	**R.P.03**	A7	10.0	0.0	9250.0	9250.0	9.64	400	570	0.60	75.63	0.02	213.40	211.50	211.10	213.40	211.48	211.08	2.30	2.32	2.31
13.	A7	A8	77.0	4980.0	9250.0	14230.0	14.82	400	570	0.60	75.63	0.14	213.40	211.48	211.08	213.40	211.35	210.95	2.32	2.45	2.39
14.	A8	D.C.04	4.0	260.0	14230.0	14490.0	15.09	400	570	0.60	75.63	0.01	213.40	211.35	210.95	213.40	211.34	210.94	2.45	2.46	2.46
15.	D.C.04	**R.P.04**	2.0	3650.0	14490.0	18140.0	18.90	400	570	0.60	75.63	0.00	213.40	211.34	210.94	213.40	211.34	210.94	2.46	2.46	2.46
16.	**R.P.04**	***TO HUDA***	10.0	0.0	18140.0	18140.0	18.90	500	770	0.60	117.98	0.01	213.40	211.80	211.30	212.80	211.79	211.29	2.10	1.51	1.81
17.	A9	A10	66.0	3420.0	0.0	3420.0	3.56	400	570	0.60	75.63	0.12	213.40	211.50	211.10	213.40	211.38	210.98	2.30	2.42	2.36

S.No.	Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																			Depth (mtr.)		Avg.
	From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
18.	A10	D.C.05	2.0	130.0	3420.0	3550.0	3.70	400	570	0.60	75.63	0.00	213.40	211.38	210.98	213.40	211.38	210.98	2.42	2.42	2.42
19.	D.C.05	**R.P.05**	3.0	0.0	3550.0	3550.0	3.70	400	570	0.60	75.63	0.01	213.40	211.38	210.98	213.40	211.38	210.98	2.42	2.42	2.42
20.	**R.P.05**	A11	2.0	0.0	3550.0	3550.0	3.70	400	570	0.60	75.63	0.00	213.40	211.50	211.10	213.40	211.50	211.10	2.30	2.30	2.30
21.	A11	A12	25.0	1620.0	3550.0	5170.0	5.39	400	570	0.60	75.63	0.04	213.40	211.50	211.10	213.40	211.45	211.05	2.30	2.35	2.33
22.	A12	D.C.06	2.0	130.0	5170.0	5300.0	5.52	400	570	0.60	75.63	0.00	213.40	211.45	211.05	213.40	211.45	211.05	2.35	2.35	2.35
23.	D.C.06	**R.P.06**	5.0	0.0	5300.0	5300.0	5.52	400	570	0.60	75.63	0.01	213.40	211.45	211.05	213.40	211.44	211.04	2.35	2.36	2.36
24.	**R.P.06**	A13	2.0	0.0	5300.0	5300.0	5.52	400	570	0.60	75.63	0.00	213.40	211.50	211.10	213.40	211.50	211.10	2.30	2.30	2.30
25.	A13	A14	38.0	3960.0	5300.0	9260.0	9.65	400	570	0.60	75.63	0.07	213.40	211.50	211.10	213.40	211.43	211.03	2.30	2.37	2.34
26.	A14	D.C.07	2.0	130.0	9260.0	9390.0	9.78	400	570	0.60	75.63	0.00	213.40	211.43	211.03	213.40	211.43	211.03	2.37	2.37	2.37
27.	D.C.07	**R.P.07**	5.0	0.0	9390.0	9390.0	9.78	400	570	0.60	75.63	0.01	213.40	211.43	211.03	213.40	211.42	211.02	2.37	2.38	2.38
28.	**R.P.07**	A15	2.0	0.0	9390.0	9390.0	9.78	400	570	0.60	75.63	0.00	213.40	211.50	211.10	213.40	211.50	211.10	2.30	2.30	2.30
29.	A15	A16	50.0	3240.0	9390.0	12630.0	13.16	400	570	0.60	75.63	0.09	213.40	211.50	211.10	213.40	211.41	211.01	2.30	2.39	2.35
30.	A16	D.C.08	5.0	330.0	12630.0	12960.0	13.50	400	570	0.60	75.63	0.01	213.40	211.41	211.01	213.40	211.40	211.00	2.39	2.40	2.40
31.	D.C.08	**R.P.08**	4.0	0.0	12960.0	12960.0	13.50	400	570	0.60	75.63	0.01	213.40	211.40	211.00	213.40	211.39	210.99	2.40	2.41	2.40
32.	**R.P.08**	A17	2.0	0.0	12960.0	12960.0	13.50	400	570	0.60	75.63	0.00	213.40	211.50	211.10	213.40	211.50	211.10	2.30	2.30	2.30
33.	A17	A18	30.0	1590.0	12960.0	14550.0	15.16	400	570	0.60	75.63	0.05	213.40	211.50	211.10	213.40	211.44	211.04	2.30	2.36	2.33
34.	A18	D.C.09	4.0	260.0	14550.0	14810.0	15.43	400	570	0.60	75.63	0.01	213.40	211.44	211.04	213.40	211.44	211.04	2.36	2.36	2.36
35.	D.C.09	**R.P.09**	2.0	0.0	14810.0	14810.0	15.43	400	570	0.60	75.63	0.00	213.40	211.44	211.04	213.40	211.43	211.03	2.36	2.37	2.36

S.No.	Line No.		Length	Catchment Area (Sqm.)			Discharge @ 6.25 mm / hr rainfall	Pipe dia	Slope 1 in	Velocity m/sec.	Capacity of pipe	Fall in line	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
																			Depth (mtr.)		Avg.
	From	To	(mtr.)	Self	Progg.	Total	60% runoff (lps)	(mm)	(mm)	m/sec.	lps.	mtr.	FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth
36.	**R.P.09**	A19	4.0	0.0	14810.0	14810.0	15.43	400	570	0.60	75.63	0.01	213.40	211.50	211.10	213.40	211.49	211.09	2.30	2.31	2.30
37.	A19	A20	50.0	1490.0	14810.0	16300.0	16.98	400	570	0.60	75.63	0.09	213.40	211.49	211.09	213.40	211.41	211.01	2.31	2.39	2.35
38.	A20	D.C.10	4.0	260.0	16300.0	16560.0	17.25	400	570	0.60	75.63	0.01	213.40	211.41	211.01	213.40	211.40	211.00	2.39	2.40	2.40
39.	A21	A22	15.0	1420.0	0.0	1420.0	1.48	400	570	0.60	75.63	0.03	213.40	211.50	211.10	213.40	211.47	211.07	2.30	2.33	2.31
40.	A22a	A22	17.0	1250.0	0.0	1250.0	1.30	400	570	0.60	75.63	0.03	213.40	211.50	211.10	213.40	211.47	211.07	2.30	2.33	2.31
41.	A22	D.C.10	5.0	330.0	2670.0	3000.0	3.13	400	570	0.60	75.63	0.01	213.40	211.47	211.07	213.40	211.46	211.06	2.33	2.34	2.33
42.	D.C.10	**R.P.10**	4.0	0.0	19560.0	19560.0	20.38	400	570	0.60	75.63	0.01	213.40	211.40	211.00	213.40	211.39	210.99	2.40	2.41	2.41
43.	**R.P.10**	***TO HUDA***	10.0	0.0	19560.0	19560.0	20.38	500	770	0.60	117.98	0.01	213.40	211.80	211.30	212.80	211.79	211.29	2.10	1.51	1.81

Please note that desilting chamber 11, 12 & recharge pit 11, 12 (D.C. & R.P.) is coming in N. School & P. School

Formula Used:

Velocity(m/s)=(1/n)x(A/P)^(2/3)*(1/slope)^.5

n=.015 for RCC pipe (Manning's Coefficient)

A=Area of x-section of pipe in sqm.

P =Wetted Perimeter in m

Capacity of pipe(lps) =Area of x-section of pipe in sqm x velocity in m/s x1000x1/2(Storm water are designed to run full flow)

Abbreviation Used:

IL=Invert level of pipe

FSL=Full supply level

FRL=Formation Road Level

CL=Connection Level