DESIGN AND COST ESTIMATE
For
EXTERNAL DEVELOPMENT WORKS

(WATER SUPPLY, ROADS, SEWERAGE, STREET LIGHTING, STORM WATER DRAINAGE AND HORTICULTURE)

FOR PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE-HARSARU, SECTOR 88-A, FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

Submitted by

NEXT GENERATION PROJECTS PVT. LTD.

PROJECT REPORT /ESTIMATE FOR PROVIDING WATER SUPPLY, ROADS, SEWERAGE, STORM WATER DRAINAGE, STREET LIGHTING AND HORTICULTURE IN RESPECT OF 10.01875 ACRES AT VILLAGE-HARSARU, SECTOR 88-A, GURUGRAM.

REPORT

The Haryana Government has prepared a master plan for development of Gurugram Manesar Urban Complex. **Ms. NEXT GENERATION PROJECTS PVT. LTD.** has decided to develop a part of the area in this master plan and has named this part as 10.01875 Acres Residential plotted colony. This colony is located in sector 88-A of HSVP, Gurugram. License has already been granted for by D.T.C.P drawing No. -------- of -------- to be read with License ---------- -- DATED ------ . The brief details of the colony are as under:

WATER SUPPLY

1. SOURCE

The source of water supply in this area is tubewells at present as the underground water is potable and fit for human consumption. Moreover water is available at reasonable depth. The average yield of tubewell with 40-45 m strainers will be about 22500 litre per hour. The recharging of underground water table in this belt is stated to be good. However still we shall resort to rain water harvesting system to keep up the recharging system. The number of tube wells required for the above area has been worked out and the tubewells will be bored in tune with growth of demand to avoid absolence of the tubewells. The ultimate requirement of tubewells includes provisions of 10% stand by. Ultimately, water shall be supplied Haryana Shehri Vikas Pradhikaran, Gurugram.

It has been proposed to construct underground tanks of capacity as per attached details for domestic purpose. The underground tanks will be filled up from the HSVP riser and then pumped to the tanks of each plot proposed on the terrace of the building. Water supply system has been designed as per Hazen William's formula.

2. DESIGN

The scheme has been designed for approved population of 1040 persons. The rate of water supply per head per day has been taken as 172.5 litres (150 + 15 %) as per HSVP norms. In addition to above necessary provision of water for community area, shopping centres, parks etc. have been taken into account for calculating the maximum quantity of water requirement.

3. PUMP CHAMBERS AND PUMPING MACHINERY

It is proposed to equip each tubewell with an electrically driven set ejecto type or submersible pump capable of delivering of 22500 litre per hour. It is also proposed to equip required 1 No pumping set with stand by diesel engins/gen set engines for operation during failure of electricity.

4. UNDER GROUND STORAGE

Underground storage tank provision has been made for 150 KL capacity in two compartments, which caters for the Raw and Domestic requirement. In addition to this one no. Recycled water tank capacity of 110 KL shall be proposed in STP pump room to cater the Flushing and Horticulture demand.

5. BOOSTING STATION

The boosting station is being planned for catering to the above requirement.

6. DISTRIBUTION SYSTEM

The distribution system for this development has been designed to supply @ 112.125 litre per head her day for drinking water and 60.375 liter per head per day for flushing @ 3 times the average rate of flow on 'Hazen William' formula with C-100. Necessary provision for laying C.I. / D.I. pipes only conforming to relevant IS standards along with valves and specials has been made in this estimate. The minimum terminal head at any point in this system will be minimum 28.0 meters so that it can serve the 4 storied constructions envisaged in the plan. Minimum pipe diameter for distribution is kept as 100 mm dia.

7. RISING MAINS

Rising mains from HSVP water main or sector road to water works have also been proposed and provision has been made in this estimate.

8. SEWERAGE

The sewer lines have been designed for three times average D.W.F. in relation to water supply demand. It has been assumed that about 80% of the daily water requirement shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.50 ft/sec. self-cleaning velocity at ultimate peak discharge. Necessary provision for laying S.W.

sewer lines with required number of manholes has been made in the estimate.

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

STORM WATER DRAINAGE

The storm water drainage is being designed to carry 6.25mm rainfall per hour. Also suitable provisions are contemplated in our scheme to ensure better recharging of underground water table in the area R.C.C. Hume pipes drain with minimum 400mm dia is proposed in this area.

9. ROADS

The roads in the colony have been planned in such a way that minimum widths of the roads are 12m interlock Paver block pavement

10. STREET LIGHTING

The provision has been made on lump sum basis.

11. HORTICULTURE

The usual provision of road side plantation of tree guards has been made for all roads. The parks shall be developed by providing lawns etc.

12. SPECIFICATIONS

The work will be carried out in accordance with the standard specifications of P.H. Department as laid down by HSVP & Haryana Government.

13. RATES

Estimate for providing services in this pocket has been prepared on the recent market rates.

14. COST

The total cost of development works in the scheme including various P.H. & B & R Services works out to **Rs. 695.45 lacs** which include 3% contingencies and P.E. charges and 49 % Departmental charges also.

The cost per gross acre for this works out to **Rs. 69.41 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 where-so-ever indicated.

1. DESIGN CALCULATION

		Daily Water Requirement		
		Domestic	**Flushing**	
		@112.125 lpd	@60.375 lpd	
A)	**Plotted**			
	Plots = 77 nos.			
	Population @ 13.5 persons/plot = 1040			
	Daily Water Requirement	116554	62760	
B)	Commercial			
	(Area = 0.286Acre @ 25000 ltr/acre/far			
	=0.286 x 25000 x 1.75 = 12513 lpd			
	Domestic @ 55%, Flushing @ 45% =	6882	5631	
C)	Community Centre			
	(Area = 1.0044Acre @ 25000 ltr/acre/far			
	=1.0044 x 25000 x 1.75 = 43943 lpd			
	Domestic @55%, Flushing @ 45% =	24168	19774	
	Total	**147604 lpd**	**88165 lpd**	
	Say	**148 kld**	**89 kld**	**(1)**
E)	Green			
	(Area = 0.6914 Acre @ 25000 ltr/acre			
	= 0.6914 x 25000		17285 lpd	
	Total Green Area Requirement		**Say 18 kld**	**(2)**
F)	Road Washing			
	(Area = 2.51 @ 5000 ltr/acre)			
	= 2.49x5000		12450 lpd	
	Total Road washing requirement		**Say 13 kld**	**(3)**

Total Daily Water Demand (1) + (2) + (3) = 148 kld 120 kld

G) Tube well

Assuming working hours of tube wells		12 hours / day
Assuming discharge/hour of each tube well		22.50 KL/hours
Total Domestic water demand	=	148 KLD
No. of tube well required 148/12x22.5	=	0.54
Add 10% standby		0.05
Total	=	0.59
Say	**=**	**1 No.**

It is proposed to provide 1 no. tube well for cater the present and future requirement.

H) Pumping Machinery for Tube Well

Gross working load	= 45.0 m
Average fall in S.L.	= 3.0 m
Depression head	= 9.0 m
Friction loss in main	= 5.0 m

Total	= 62.0 m

With 60% efficiency

BHP = 22500x62x1

60x60x75x0.6 = 8.61 H.P.

SAY = 10 HP

I) Underground Water Tanks

Raw Water Tank

Water Requirement for Domestic Use = 148 kld

Capacity of Under Ground Tank @ half day req. = 148 / 2 = 74 cum

Say 75 cum

Domestic Water Tank

Water Requirement for Domestic Use = 148 kld

Capacity of Under Ground Tank @ half day req. = 148 / 2 = 74 cum

Say 75 cum

Flushing Water Tank in STP Room

Water Requirement for Flushing & Gardening Use = 107 kld

Capacity of Under Ground Tank @ One day req. = 107 cum

Say 110 cum

It is proposed to construct Raw water tank of capacity 75 KL, Domestic water tank of capacity 75 KL and Flushing water tank of 110 KL capacity.

J. BOOSTING MACHINERY

(1)	**PUMPS FOR DOMESTIC WATER SUPPLY**		
(i)	Potable Water Requirement Per Day	148	KL
(ii)	Pumping Duration Per Day	8	Hrs.
(iii)	Suction Lift	0	M.
(iv)	Clear Head Required	28	M
(v)	Residual Head	5	M
(vi)	Friction Head Loss	5	M
(vii)	Total Head Required	38	M
(viii)	No. of Pumps Working	1	No.
(ix)	Discharge of each Pump = 148 / 8 = 18.5 cum/hr = 308.33 lpm say 310 lpm each	310	LPM
(x)	Power Required of each pump (310 x 38 / 4500 x 0.60) = 4.36 HP, say 4.50 HP each	4.50	HP
It is proposed to provide 2 No. Pumps (1 Working + 1 Stand by of 4.50 HP each			
(2)	**PUMPS FOR FLUSHING WATER SUPPLY**		
(i)	Flushing Water Requirement Per Day	107	KL
(ii)	Pumping Duration Per Day	8	Hrs.

(iii)	Suction Lift	0	M.
(iv)	Clear Head Required	28	M
(v)	Residual Head	5	M
(vi)	Friction Head Loss	7	M
(vii)	Total Head Required	40	M
(viii)	No. of Pumps Working	1	No.
(ix)	Discharge of each Pump = 107 / 8 = 13.37 cum/hr = 222.92 lpm say 225 lpm each	225	LPM
(x)	Power Required of each pump (225 x 40 / 4500 x 0.60) = 3.33 HP, say 3.50 HP each	3.50	HP
It is proposed to provide 2 No. Pumps (1 Working + 1 Stand by of 3.50 HP each			

K) Capacity of DG Sets

H.P. of Tubewell Pump	10 x 1	=	10.0 H.P.
H.P. of Domestic Pump	4.5x 1	=	4.5 H.P.
H.P. of Flushing Pump	3.5x 1	=	3.5 H.P.
Total			18 H.P.
Or 18 x 0.746 x 1.50			20.14 KVA
For Lighting			5.00 KVA
Total			**25.14 KVA**
			Say 25 KVA

Requirement of 25 KVA capacity will be added in to the main D.G. set to provide stand by supply.

L) Capacity of Sewage Treatment Plant

Daily Domestic Water Requirement	**=**	148 kld	
Sewage Flow @ 80 %	=	118.40 kld	(1)

Daily Flushing Water Requirement	=	89 kld	
Sewage Flow @ 80 %	=	71.20 kld	(2)
Total Sewage Flow (1)+(2)	=	189.60 kld	
Add 10% marginal factor	=	18.96 kld	
Total	=	208.56 kld	
Capacity of Sewage Treatment Plant	**=**	**210 kld**	

FINAL ABSTRACT OF COST

		Amount (Rs. In Lakh)
Sub Work No. I	Water Supply	100.97
Sub Work No. II	Sewerage	50.20
Sub Work No. III	Storm Water Drainage	72.95
Sub Work No. IV	Road and Footpath	291.38
Sub Work No. V	Street Lighting	23.05
Sub Work No. VI	Horticulture Work	5.00
Sub Work No. VII	Maintenance charges for 10 years i/c resurfacing of roads after 1st 5 years & 2nd 5 years	151.90
	TOTAL	695.45

Devdopment cost per acre (10.01875) is coming out to be 695.45 / 10.01875 = 69.41 lakhs.

ABSTRACT OF COST (WATER SUPPLY)

Sub Work No. 1

	Amount (Lakh.)
Sub Head No. I Water Supply Head Works	27.45
Sub Head No. II Pumping Machinery	17.70
Sub Head No. III Rising Main From HSVP	2.40
Sub Head No. IV Distribution System	18.25
Total	65.80
P.E. & Contingency Charges @ 3 %	1.97
Total	67.77
Departmental, price escalation, unforeseen & adm. charges @ 49 %	33.20
Total	**100.97 Lakh**
Say	**100.97 Lakh**

(C.O. to final abstract of cost)

Sub Work I — **Water Supply**
Sub Head I — **Head Works**

		Unit	Amount (Lakh)
1	Boring and installing 21" i/d Tube wells with reverse / direct rotary rig complete with pipe and strainer to depth of about 120 m complete.		
	1 No. @ 10,00,000/- each	Each	10.00
2	Provision for construction of chamber as per standard design of PWD / HSVP of size 4.95 x 4.25 m for housing Tube wells.		
	1 No. @ 4,00,000/- each	Each	4.00
3	Provision for rising mains, connecting tubewells with water main C.I//D.I/ G.I.and bye-pass arrangements.		
	a) 100 mm dia - 20 M @ 1200/- per mtr	M	0.24
4	Construction of boosting chambers along with U.G. tanks & chambers complete in all respect.		
	75 Domestic + 75 Raw + 110 Flushing = 260 KL @ 4500/- per KL	KL	11.70
5	Provision for sluice valves (L.S.)		0.50
6	Provision for carriage of materials & other foreseen items (L.S.)		1.00
		Total	27.44
		Say	**27.45 Lakh**

(C.O. to abstract of cost of Sub - work No. 1)

Sub Work I — **Water Supply**
Sub Head II — **Pumping Machinery**

		Unit	Amount (Lakh)
1	Supply and installation of electrically driven Submersible Pumping sets in TWs complete with lowering pipes, submersible cables, control panels and other accessories on tube wells Discharge 22.5 kl/hr @ 60 m Head, with 10 HP motor.		
	1 No. @ 2,50,000/- each	Each	2.50
2	Supply and installation of electrically driven Pumping sets, complete including cost of control panels for boosting station.		
	a) Domestic Water Pumps (1 working + 1 stand by) capacity 4.50 H.P 2 Nos. @ 1,25,000/- each	Each	2.50
	b) Flushing Water Pumps (1 working + 1 stand by) Capacity 3.50 H.P. 2 Nos. @ 1,10,000/- each	Each	2.20
3	Provision for diesel engine generator set for stand by arrangements for T.W. / domestic water/ flushing water pump complete with gear head arrangement of 25 KVA capacities. L.S.	Each	3.00
4	Provision for Chlorination plant complete. (L.S.)	Each	1.00
5	Provision for making foundations & erection of pumping machinery. (L.S.)	L.S.	1.00
6	Provision for pipes, valves & specials inside boosting chamber (L.S.)	L.S.	1.50
7	Provision for electric services connection including electric fittings for boosting chambers etc. (including cost of transformer) (L.S.)	L.S.	3.00
8	Provision for carriage of materials & other foreseen items. (L.S.)		1.00
	Total		**17.70**

(C.O. to abstract of cost of Sub - work No. I)

Sub Work I
Sub Head III

Water Supply
Rising Mains From HSVP

		Unit	Amount (Lakh)
1	Providing, laying, jointing and testing pipe lines including cost of excavation complete in all respects. D.I. K-7 Pipe		
	a) 65 mm dia - 90 mtrs @ Rs. 900 /- per mtr	MTR.	0.81
2	Providing and fixing Butterfly / sluice valves including cost of surface boxes and masonary chambers etc. complete in all respects.		
	a) 65 mm dia - 1 No. @ Rs. 8000/- each	Each	0.08
3	Providing and fixing indicating plates for sluice valve and air valves.		
	1 No. @ Rs. 1000/- each	Each	0.01
4	Provision for making connection with HSVP main line on master road. (L.S.)	Each	1.00
5	Provision for cutting the roads and making good to its original conditions.	Each	0.50
	Total		2.40
	Say		**2.40 Lakh**

(C.O. to abstract of cost of Sub - work No. I)

Sub Work I — **Water Supply**
Sub Head IV — **Domestic and Flushing Distribution System**

		Unit	Amount (Lakh)
1	Providing, laying , jointing & testing C.I. / D.I. / G.I. pipe lines including fittings, valves, cost of excavation complete in all respects.		
	(i) 100 mm dia - 789 M @ Rs. 1250/- per mtr	M	9.86
	(ii) 150 mm dia - 0 M @ Rs. 1600/- per mtr	M	0.00
2	Providing, laying , jointing & testing PVC pipe lines including fittings, valves, cost of excavation complete in all respects.		
	(i) 75 OD - 269 M @ Rs. 550/- per mtr	M	1.48
	(ii) 90 OD - 459 M @ Rs. 650/- per mtr	M	2.98
	(iii) 110 OD - 72 M @ Rs. 950/- per mtr	M	0.68
	(iv) 160 OD - 0 M @ Rs. 1200/- per mtr	M	0.00
3	Provision and fixing fire hydrants complete with brick masonry chamber.		
	8 Nos. @ Rs. 10000/- each	Each	0.80
4	Providing and fixing Butterfly / Sluice valves including cost of brick masonry chambers complete in all respect.		
	(i) 80 mm dia - 0 No. @ 9500 /- each	Each	0.00
	(ii) 100 mm dia - 7 Nos. @ 12000/- each	Each	0.84
	(iii) 150 mm dia - 0 Nos. @ 16000/- each	Each	0.00
5	Providing and fixing indicating plates for sluice valve and air valves.		
	19 Nos. @ Rs. 1000/- each	Each	0.19
6	Providing and fixing Air valve / scour valve including the cost of brick masonry chamber.		
	4 No. @ Rs. 10000/- each	Each	0.40
7	Provision for cutting the roads and making good to its original conditions. (L.S.)	Each	0.50
8	Provision for carriage of materials & other foreseen items. (L.S.)	L.S.	0.50
	Total		18.24
	Say		**18.25 Lakh**

(C.O. to abstract of cost of Sub - work No. I)

Sub Work II		**Sewerage Scheme**	
		Unit	**Amount (Lakh)**
1	Providing, jointing, cutting & testing S.W. pipe Class 'A' and lowering into trenches including cost of excavation, bed concrete cost of manholes, erecting / fixing vent shafts as per norms etc. complete in all respects.		
	(i) 200 mm dia i/d S.W. Pipes		
	Av. Depth upto 2 m - 560 M @ Rs. 800/- per M	M	4.48
	Av. Depth upto 4 m - 229 M @ Rs. 950/- per M	M	2.18
2	Provision for providing oblique junctions / Lamp holes. (L.S.)	L.S.	1.00
3	Provision for timbering and shoring etc. (L.S.)	L.S.	0.50
4	Provision for making connection with HSVP sewer. (L.S.)	L.S.	1.50
5	Provision of Sewage Treatmet Plant. Capacity - 210 KLD @ Rs. 10500/- per KLD	L.S.	22.05
6	Provision for cutting roads and carriage of materials etc., and other unforeseen charges. L.S.	L.S.	1.00
	Total		32.71
	P.E. & Contingency Charges @ 3 %		0.98
	Total		33.69
	Departmental, price escalation, unforeseen & adm charges @ 49 %		16.51
	Total		50.19
	SAY		**50.20 Lakh**

(C.O. to final abstract of cost)

Sub Work III **Storm Water Drain**

		Unit	Amount (Lakh)
1	Providing, lowering, laying and jointing R.C.C.pipes class NP-3 and specials with cement joints in trenches including cost of manholes Chambers, excavation of trenches & manholes, back filling and disposal of surplus earth etc. complete in all respects.		
a)	(i) 400 mm dia pipe - Av. Depth upto 2 m = 767 M @ Rs. 1800/- per M	M	13.81
	(ii) 450 mm dia pipe - Av. Depth upto 2 m = 69 M @ Rs. 2500/- per M	M	1.73
2	Provision of lighting, watching and temporary diversion of traffic. L.S.	L.S.	1.00
3	Provision for timbering and shoring etc. L.S.	L.S.	0.50
4	Provision for road gullies with 250 mm dia pipe connection. L.S.	Each	3.50
5	Provision for rain water harvestng pits. 24 Nos. @ Rs. 1,00,000/- each	Each	24.00
6	Provision for cutting roads and carriage of materials etc., and other unforeseen charges. L.S.	L.S.	1.00
7	Provisimon for making connection with HSVP Storm on master road. L.S.	L.S.	2.00
	Total		47.53
	P.E. & Contingency Charges @ 3 %		1.43
	Total		48.96
	Departmental, price escalation, unforeseen & adm charges @ 49 %		23.99
	Total		72.95
	Say		**72.95 Lakh**

(C.O. to final abstract of cost)

Sub Work IV **ROAD WORK**

Amount (Rs.) lakh

1.	Provision for leveling and earth filling		
	As per site conditions.		
	2.49 Acres @ 14.0 lacs / Acre		34.86
2.	Providing and laying GSB 125 mm thick /		
	WMM 175 mm thick, Sand bed of 30 mm with paver		
	Block of 80 mm thick on it.		
	10113 sq m @ Rs 1400/- per sqm		141.58
3.	Providing for kerbs of M 20 Grade		
	(Kerb both side of roads)		
	Kerbs 843 m x 2 x Rs. 500/- per mtr		8.43
4.	Provision for guidemap and other unforeseen items L.S		0.50
5.	Provision for Plot indicators L.S		0.50
6.	Provision for demarcating burgees L.S		0.50
7.	Provision for traffic arrangement L.S		2.00
8.	Provision for making approach to each plot L.S		1.00
9.	Provision for carriage of material and unforeseen items		0.50
	Total		189.87 Lakh
	Add 3% Contingencies		5.69
		Total	195.56
	Add 49% Departmental charges		95.82
		Total	291.38
		Say	**Rs. 291.38 Lakh**

(C.O. to abstract of cost of Sub-work No. 4)

Sub Work V

STREET LIGHT

		Amount (Rs. In Lakh)
1.	Providing street lighting on internal Roads as per standard specification in 10.01875 acre area Rs. 1,50,000/ per acre = 10.01875 x 1,50,000/-	15.02
	Total	**15.02**
	P.E & contingency charges @3%	0.45
	Total	**15.47**
	Department escalation unforeseen and Administrator charges @ 49%	7.58
	Total	**23.05**
	SAY	**23.05 Lakh**

Sub Work VI **HORTICULTURE**

Amount (Rs. In Lakh)

1. Development of Lawn area

a) Trenching the ordinary soil up to depth of 60 em. Including removal and packing of serviceable material and disposing at a lead of 50 m and making up the trenched area to proper level by filling with earth mixed with manure including cost of imported earth and manure.

b) Rough dressing of trenched area.

c) Grassing with "doob grass" including watering and maintenance of lawns free from weeds and fit for moving rows 7.50 em in either direction including for hedges and grill and barbed wire fencing around park and green belts (as per HSVP Norms)

Area 0.6914 Acres Rs, 1,50,000/ per acre 1.03

2. Planting or trees with tree guards on Roads at 12m intervals

Lenght of 12 m wide Road = 843 M

No. of trees @12 m c/c 843 x 2/12 = 140 Nos.

Cost of the tree

Excavation Rs. 60/-

Manure Rs. 90/-

Tree plants Rs. 150/-

Tree guards Rs. 1300/-

Total cost of one tree = 1600/-

Total amount of trees = 140 x 1600 = 2.24

Total **3.27**

P.E & contingency charges @3%	0.09
Total	**3.36**
Department escalation unforeseen and Administrator charges @ 49%	1.64
Total	**5.0**
SAY	**5.0 Lakh**

Sub Work VII

MAINTENANCE CHARGES AND RESRURFACING OF ROADS

Amount (Rs. In Lakh)

2nd Phase after 5 yrs of Ist phase

1. Provision for maintenance charges for water supply, sewerage, storm water drainage, roads, streetlights, horticulture etc. complete including operation and establishment charges as per HSVP norms after completion and resurfacing of roads after 10 years 10.01875 acres @ Rs. 6.50 lacs per acre	65.12
2. Provision of roads after 1st five years of MTC of 15 % area of Paver block and its joints 1517 Sqm @ Rs. 900/- per sqm	13.65
3. Provision of roads after 10 years of MTC of 20 % area of Paver block and its joints 2022 Sqm @ Rs. 1000/- per sqm	20.22
Total	**98.99**
P.E & contingency charges @3%	2.96
Total	**101.95**
Department escalation unforeseen and Administrator charges @ 49%	49.95
Total	**151.90**
SAY	**151.90 Lakh**

DESIGN CALCULATIONS

FOR

DEVELOPMENT WORK

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TITLE : DAILY WATER REQUIREMENT CHART

DESCRIPTION	TOTAL	POPULATION	BASIS OF DAILY WATER REQUIREMENT	TOTAL DAILY WATER REQUIREMENT IN LTRS.	BASIS OF DAILY DOMESTIC WATER REQUIREMENT	DAILY DOMESTIC WATER REQUIREMENT	BASIS OF DAILY FLUSHING WATER REQUIREMENT	DAILY FLUSHING WATER REQUIREMENT
GENERAL PLOTS	77	@13.5 PERSON/PLOT 1039.5	@172.50 LTR / PERSON	179314	@112.125 LTR / PERSON	116554	@ 60.375 LTR / PERSON	62760
COMMERCIAL (1156.305 SQM.)	0.286		@ 25000 LTRS / ACRS. / FAR	12513	@ 55 % OF DWR	6882	@ 45 % OF DWR	5631
COMMUNITY CENTRE (4064.77 SQM.)	1.0044		@ 25000 LTRS / ACRS. / FAR	43943	@ 55 % OF DWR	24168	@ 45 % OF DWR	19774
			TOTAL (IN LTRS.)	235769	TOTAL (IN LTRS.)	147604	TOTAL (IN LTRS.)	88165
			SAY (KLD)	**237**	**SAY (KLD)**	**148**	**SAY (KLD)**	**89**
SEWAGE FLOW & STP CAPACITY								
SEWAGE FLOW @ 80 % OF DAILY WATER DEMAND								190
ADD 10% FOR MARGINAL FACTOR								19
TOTAL SEWAGE FLOW								209
CAPACITY OF SEWAGE TREATMENT PLANT (KLD)								**210**
RECYCLED WATER AVAILABLE FROM STP (KLD)								171
DAILY FLUSHING WATER REQUIREMENT (KLD)								89
RECYCLED WATER REQUIREMENT FOR GREEN AREA @ 25000 LTRS/ACRE = (0.6914 x 25000) = 17285 LTRS., SAY 18 KLD								18
RECYCLED WATER REQUIREMENT FOR ROAD WASHING @ 5000 LTRS/ACRE = 2.49X5000 = 12450, SAY 13 KLD								13
EXCESS RECYCLED WATER OVERFLOW TO HSVP SEWER (KLD)								51
UNDER GROUND WATER TANKS CAPACITY								
DOMESTIC WATER TANK @ 1 DAY STORAGE IN KL								**2 x 75 KL**
FLUSHING WATER TANK @ 1 DAY STORAGE IN KL								**1 x 110 KL**

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TITLE : LOAD ON DOMESTIC WATER SUPPLY LINES

Line No.	General Plots		Others Land		Total Population	Daily Domestic Water Requirement. @ 112.125 lpcd	Non Residential Load				Gross Water Requirement (Self Load on Line) LPD
	Nos.	Population @ 13.5 persons / Plot.	Area In Acres	Population			Area In Acres	Type of Building	Basis of Domestic Water Requirement LPD	Total Water Requirement. LPD	
		(a)		(b)	(c)=(a)+(b)	(d)				(e)	(f)=(d)+(e)
W1-W2	0	0		0	0	0					0
W2-W3	6	81		0	81	9082					9082
W2-W4	15	202.5		0	203	22705					22705
W4-W5	0	0		0	0	0	0.143	Commercial	13750	3441	3441
									13.75 KL/Acre/FAR		
W5-W6	9	121.5		0	122	13623	0.143	Commercial	13750	3441	41233
									13.75 KL/Acre/FAR		
							1.004	Community	13750	24168	
									13.75 KL/Acre/FAR		
W5-W8	8	108		0	108	12110					12110
W4-W7	20	270		0	270	30274					30274
W7-W8	7	94.5		0	95	10596					10596
W7-W9	12	162		0	162	18164					18164
	77				1039.5	116554				31050	**147604**

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

Title : Design of Domestic Water Supply Lines

S.N0	LINE NO.	SELF LOAD ON LINES	PREVIOUS LOAD ON LINES	TOTAL LOAD ON LINES	PEAK FACTOR	PEAK FLOW	FLOW RATE	FLOW RATE	LENGTH OF PIPE IN MTR.	INCLUDING FITTINGS @ 15 %	DIA OF PIPE	VALUE OF 'C'	HEAD LOSS MTR/ MTR	TOTAL HEAD LOSS	VELOCITY	ELEVATION AT START	HYDRAULIC LVL AT START	HEAD AT START	ELEVATION AT END	HYDRAULIC LVL AT END	HEAD AT END	REMARKS
		LPD	LPD	LPD		LPD	LPH	LPM	MTR.	MM	MM		MTR.	MTR.	M/SEC	MTR.	MTR.	MTR.	MTR.	MTR.	MTR.	
1	W1-W2	0	147604	147604	3	442813	18451	307.51	12	14	100	100	0.009	0.124	0.65	-6.100	31.90	**38.00**	-1.100	31.78	32.9	PUMP ROOM
2	W2-W3	9082	0	9082	3	27246	1135	18.92	45	52	100	100	0.000	0.003	0.04	-1.100	31.78	32.88	-1.100	31.77	32.9	AT GROUND
3	W2-W4	22705	115817	138522	3	415566	17315	288.59	133	153	100	100	0.008	1.221	0.61	-1.100	31.77	32.87	-1.100	30.55	31.7	AT GROUND
4	W4-W5	3441	53342	56783	3	170349	7098	118.30	57	66	100	100	0.002	0.100	0.25	-1.100	31.77	32.87	-1.100	31.67	32.8	AT GROUND
5	W5-W6	41233	0	41233	3	123698	5154	85.90	162	186	100	100	0.001	0.158	0.18	-1.100	31.67	32.77	-1.100	31.52	32.6	AT GROUND
6	W5-W8	12110	0	12110	3	36329	1514	25.23	105	121	100	100	0.000	0.011	0.05	-1.100	31.67	32.77	-1.100	31.66	32.8	AT GROUND
7	W4-W7	30274	28760	59034	3	177101	7379	122.99	93	107	100	100	0.002	0.176	0.26	-1.100	31.66	32.76	-1.100	31.49	32.6	AT GROUND
8	W7-W8	10596	0	10596	3	31787	1324	22.07	69	79	100	100	0.000	0.005	0.05	-1.100	31.66	32.76	-1.100	31.66	32.8	AT GROUND
9	W7-W9	18164	0	18164	3	54493	2271	37.84	113	130	100	100	0.000	0.024	0.08	-1.100	31.66	32.76	-1.100	31.63	32.7	AT GROUND

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TUBE WELL LINES

S.N0	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
		KLD	KLD	LPM	MTR.	MTR.	MTR.	M/SEC	MM
1	TUBE WELL - 1 TO U.G.T.	22.50	33.75	562.50	20	0.02747	0.55	1.19	100

DESIGN OF HSVP RISING MAIN

S.N0	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
		KLD	KLD	LPM	MTR.	MTR.	MTR.	M/SEC	MM
1	MAIN - U.G.T.	147.60	221.41	153.75	90	0.02027	1.82	0.77	65

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TITLE :- Domestic Water Supply (Material Statement)

S.N0	LINE NO.	LENGTH OF LINES	DIA OF RISER	PIPE DIA IN MM								VALVES ON LINES							
			MM	250	200	150	100	80	65	32	25	250	200	150	100	80	65	32	25
1	W1-W2	12	100	0	0	0	12	0	0	0	0				1				
2	W2-W3	45	100	0	0	0	45	0	0	0	0				1				
3	W2-W4	133	100	0	0	0	133	0	0	0	0				1				
4	W4-W5	57	100	0	0	0	57	0	0	0	0								
5	W5-W6	162	100	0	0	0	162	0	0	0	0				1				
6	W5-W8	105	100	0	0	0	105	0	0	0	0				1				
7	W4-W7	93	100	0	0	0	93	0	0	0	0								
8	W7-W8	69	100	0	0	0	69	0	0	0	0				1				
9	W7-W9	113	100	0	0	0	113	0	0	0	0				1				
TOTAL		**789**		**0**	**0**	**0**	**789**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**
TUBE WELL LINES																			
1	TUBE WELL - 1 TO U.G.T.	20	100	0	0	0	20	0	0	0	0				1				
DESIGN OF HSVP RISING MAIN																			
1	MAIN - U.G.T.	90	65	0	0	0	0	0	90	0	0						1		

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TITLE : LOAD ON FLUSHING WATER SUPPLY LINES

Line No.	General Plots		Others Land		Total Population	Daily Flushing Water Requirement. @ 60.375 lpcd	Non Residential Load				Gross Water Requirement (Self Load on Line) LPD
	Nos.	Population @ 13.5 persons / Plot.	Area In Acres	Population			Area In Acres	Type of Building	Basis of Flushing Water Requirement LPD	Total Water Requirement. LPD	
		(a)		(b)	(c)=(a)+(b)	(d)				(e)	(f)=(d)+(e)
F1-F2	0	0		0	0	0				0	0
F2-F3	17	229.5		0	230	13856	0.519	Green	25000	12964	26820
									25 KL / Acre		
F2-F4	4	54		0	54	3260	0.173	Green	25000	4321	7582
									25 KL / Acre		
F4-F5	0	0		0	0	0	0.143	Commercial	11250	2815	22589
									11.25 KL/Acre/FAR		
							1.004	Community	11250	19774	
									11.25 KL/Acre/FAR		
F5-F6	9	121.5		0	122	7336	0.143	Commercial	11250	2815	10151
									11.25 KL/Acre/FAR		
F5-F7	8	108		0	108	6521					6521
F4-F8	20	270		0	270	16301					16301
F8-F9	7	94.5		0	95	5705					5705
F8-F10	12	162		0	162	9781					9781
										Total	**105450**

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

Title : Design of Flushing Water Supply Lines

S.N0	LINE NO.	SELF LOAD ON LINES	PREVIOUS LOAD ON LINES	TOTAL LOAD ON LINES	PEAK FACTOR	PEAK FLOW	FLOW RATE	FLOW RATE	LENGTH OF PIPE IN MTR.	INCLUDING FITTINGS @ 15 %	DIA OF PIPE	VALUE OF 'C'	HEAD LOSS MTR/ MTR	TOTAL HEAD LOSS	VELOCITY	ELEVATION AT START	HYDRAULIC LVL AT START	HEAD AT START	ELEVATION AT END	HYDRAULIC LVL AT END	HEAD AT END	REMARKS
		LPD	LPD	LPD		LPD	LPH	LPM	MTR.	MM	MM		MTR.	MTR.	M/SEC	MTR.	MTR.	MTR.	MTR.	MTR.	MTR.	
1	F1-F2	0	105450	105450	3	316349	13181	219.69	40	46	100	120	0.003	0.158	0.47	-7.600	32.40	**40.00**	-1.100	32.24	33.34	PUMP ROOM
2	F2-F3	26820	0	26820	3	80459	3352	55.87	140	161	80	120	0.001	0.130	0.19	-1.100	32.24	33.34	-0.100	32.11	32.21	AT GROUND
3	F2-F4	7582	71048	78630	3	235889	9829	163.81	32	37	100	120	0.002	0.073	0.35	-1.100	32.24	33.34	-1.100	32.17	33.27	AT GROUND
4	F4-F5	22589	16671	39261	3	117782	4908	81.79	62	71	80	120	0.002	0.117	0.27	-1.100	32.17	33.27	-1.100	32.05	33.15	AT GROUND
5	F5-F6	10151	0	10151	3	30453	1269	21.15	150	173	80	120	0.000	0.023	0.07	-1.100	32.17	33.27	-1.100	32.15	33.25	AT GROUND
6	F5-F7	6521	0	6521	3	19562	815	13.58	88	101	65	120	0.000	0.016	0.07	-1.100	32.15	33.25	-1.100	32.13	33.23	AT GROUND
7	F4-F8	16301	15486	31787	3	95362	3973	66.22	107	123	80	120	0.001	0.136	0.22	-1.100	32.15	33.25	-1.100	32.01	33.11	AT GROUND
8	F8-F9	5705	0	5705	3	17116	713	11.89	71	82	65	120	0.000	0.010	0.06	-1.100	32.01	33.11	-1.100	32.00	33.10	AT GROUND
9	F8-F10	9781	0	9781	3	29342	1223	20.38	110	127	65	120	0.000	0.043	0.10	-1.100	32.01	33.11	-1.100	31.97	33.07	AT GROUND

PROJECT : PROPOSED LOCATION PLAN FOR LAND MEASURING 10.01875 ACRES AT VILLAGE - HARSARU, SECTOR-88A FOR M/S NEXT GENERATION PROJECTS PVT. LTD.

TITLE :- Flushing Water Supply (Material Statement)

S.N0	LINE NO.	LENGTH OF LINES	DIA OF RISER	PIPE DIA IN MM								VALVES ON LINES							
			MM	250	200	150	100	80	65	32	25	250	200	150	100	80	65	32	25
1	F1-F2	40	100	0	0	0	40	0	0	0	0								
2	F2-F3	140	80	0	0	0	0	140	0	0	0								
3	F2-F4	32	100	0	0	0	32	0	0	0	0								
4	F4-F5	62	80	0	0	0	0	62	0	0	0								
5	F5-F6	150	80	0	0	0	0	150	0	0	0								
6	F5-F7	88	65	0	0	0	0	0	88	0	0								
7	F4-F8	107	80	0	0	0	0	107	0	0	0								
8	F8-F9	71	65	0	0	0	0	0	71	0	0								
9	F8-F10	110	65	0	0	0	0	0	110	0	0								
TOTAL		**800**		**0**	**0**	**0**	**72**	**459**	**269**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TITLE : LOAD ON SEWAGE LINES

Name of Sewer Line	Plot (General)		Future Plots		Total Population	Daily Water Requirement @ 172.50 lpcd (LPD)	Non Residential Load				Gross Water Requirement (LPD)	Sewage Flow @ 80% of Gross Water Requirement (LPD)	Sewage Flow (Self Load on Line) KLD
	Nos.	Population @ 13.5 persons / Plot.	Nos.	Population @ 13.5 persons / Plot.			Area In Acres	Type of Building	Basis of Water Requirement LPD	Water Requirement LPD			
		(a)		(b)	(c) = (a) + (b)	(d) = (c) x 172.50							
S1-S2	9	121.5	0	0	121.5	20959	1.0044	Community	@ 25000 ltr / acrs. / FAR	43942.50	64901	51921	**51.92**
S2-S4		0	0	0	0	0	0.143	Commercial	@ 25000 ltr / acrs. / FAR	6256.25	6256	5005	**5.01**
S3-S4	8	108	0	0	108	18630					18630	14904	**14.90**
S4-S8		0	0	0	0	0	0.143	Commercial	@ 25000 ltr / acrs. / FAR	6256.25	6256	5005	**5.01**
S5-S7	11	148.5	0	0	148.5	25616					25616	20493	**20.49**
S6-S7	7	94.5	0	0	94.5	16301					16301	13041	**13.04**
S7-S8	20	270	0	0	270	46575					46575	37260	**37.26**
S8 - S10	4	54	0	0	54	9315					9315	7452	**7.45**
S9-S10	16	216	0	0	216	37260					37260	29808	**29.81**
S10-STP	2	27	0	0	27	4658					4658	3726	**3.73**
TOTAL	77	1039.5	0	0	1039.5	179314					235769	188615	188.62

SEWERAGE HYDRAULIC DESIGN

LINE NO.	SEWAGE FLOW	Previous Load	Progressive Discharge	Progressive Discharge (Peak)	Infilteration @ 500 L/KM/CM of Pipe Dia	Total Discharge	Total Discharge	Length of line	Dia of Pipe	Average Slope 1 IN	Fall in Line	Value of (n)	Velocity Flowing Full	Capacity of Pipe Flowing Full (Q)	Capacity of Pipe Flowing 1/2 flow (Q)	Levels at Start		Levels at End		Manhole Depth		Remarks
																Ground Lvl. at Start	Invert Lvl at Start	Ground lvl at End	Invert lvl at End	U/End	L/End	
	KLD	KLD	KLD	KLD	KLD	KLD	LPS	mtr	mm		mtr		m/sec	lps	lps	mtr	mtr	mtr	mtr			
S1-S2	51.92	0.000	51.92	155.76	1.22	156.98	1.82	122	200	190	0.64	0.013	0.76	23.80	11.90	-1.100	-2.350	-1.100	-2.992	1.25	1.89	
S2-S4	5.01	51.921	56.93	170.78	0.27	171.05	1.98	27	200	190	0.14	0.013	0.76	23.80	11.90	-1.100	-2.992	-1.100	-3.134	1.89	2.03	
S3-S4	14.90	0.000	14.90	44.71	0.85	45.56	0.53	85	200	190	0.45	0.013	0.76	23.80	11.90	-1.100	-2.350	-1.100	-2.797	1.25	1.70	
S4-S8	5.01	71.830	76.84	230.51	0.62	231.13	2.68	62	200	190	0.33	0.013	0.76	23.80	11.90	-1.100	-3.134	-1.100	-3.461	2.03	2.36	
S5-S7	20.49	0.000	20.49	61.48	1.17	62.65	0.73	117	200	190	0.62	0.013	0.76	23.80	11.90	-1.100	-2.350	-1.100	-2.966	1.25	1.87	
S6-S7	13.04	0.000	13.04	39.12	0.73	39.85	0.46	73	200	190	0.38	0.013	0.76	23.80	11.90	-1.100	-2.350	-1.100	-2.734	1.25	1.63	
S7-S8	37.26	33.534	70.79	212.38	1.02	213.40	2.47	102	200	190	0.54	0.013	0.76	23.80	11.90	-1.100	-2.966	-1.100	-3.503	1.87	2.40	
S8 - S10	7.45	147.629	155.08	465.24	0.34	465.58	5.39	34	200	190	0.18	0.013	0.76	23.80	11.90	-1.100	-3.503	-1.100	-3.682	2.40	2.58	
S9-S10	29.81	0.000	29.81	89.42	1.36	90.78	1.05	136	200	190	0.72	0.013	0.76	23.80	11.90	-1.100	-2.350	-1.100	-3.066	1.25	1.97	
S10-STP	3.73	184.889	188.62	565.85	0.31	566.16	6.55	31	200	190	0.16	0.013	0.76	23.80	11.90	-1.100	-3.682	-1.100	-3.845	2.58	2.74	

SEWERAGE QUANTITY SHEETS

Name of Sewer Line	Length of line	Dia of Pipe	Depth of Line			Line Depth Upto 2.0 Mtr				Line Depth 2.0 Mtr. to 4.0 Mtr				Line Depth 4.0 Mtr. to 6.0 Mtr				Line Depth 6.0 Mtr. to 8.0 Mtr			
	MTR	MM	U/End	L/End	Average Depth	200 Dia	250 Dia	300 Dia	400 Dia	200 Dia	250 Dia	300 Dia	400 Dia	200 Dia	250 Dia	300 Dia	400 Dia	200 Dia	250 Dia	300 Dia	400 Dia
S1-S2	122	200	1.25	1.89	1.57	122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2-S4	27	200	1.89	2.03	1.96	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S3-S4	85	200	1.25	1.70	1.47	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S4-S8	62	200	2.03	2.36	2.20	0	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0
S5-S7	117	200	1.25	1.87	1.56	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S6-S7	73	200	1.25	1.63	1.44	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S7-S8	102	200	1.87	2.40	2.13	0	0	0	0	102	0	0	0	0	0	0	0	0	0	0	0
S8 - S10	34	200	2.40	2.58	2.49	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0
S9-S10	136	200	1.25	1.97	1.61	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S10-STP	31	200	2.58	2.74	2.66	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0
TOTAL						**560**	**0**	**0**	**0**	**229**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TITLE : STORM WATER DRAIN HYDRAULIC DESIGN

S.No	Line From	Line To.	Length of Line in mtr.	Self Area in sq mtr.	Self Area (Hec)	Previous area in hec.	Total Area (Hec)	Rain Fall mm/hr	Discharge in lps	Pipe Dia in mm	Slope 1 in	Velocity m/sec.	Cap of pipe in lps.	Fall in line mtr.	Road level at Start	H.F.L at Start	Invert Level at Start	Road level at end	H.F.L at End	Invert Level at End	Depth at Start	Depth at End
1	D1	D3	187	10550	1.055	0.000	1.055	6.25	18.32	400	550	0.61	76.99	0.34	-1.100	-2.150	-2.550	-1.100	-2.490	-2.890	1.45	1.79
2	D2	D3	41	1565	0.157	0.000	0.157	6.25	2.72	400	550	0.61	76.99	0.07	-1.100	-2.150	-2.550	-1.100	-2.225	-2.625	1.45	1.52
3	D3	D5	88	4775	0.478	1.212	1.689	6.25	29.33	400	550	0.61	76.99	0.16	-1.100	-2.490	-2.890	-1.100	-2.650	-3.050	1.79	1.95
4	D4	D5	37	1365	0.137	0.000	0.137	6.25	2.37	400	550	0.61	76.99	0.07	-1.100	-2.150	-2.550	-1.100	-2.217	-2.617	1.45	1.52
5	D5	D7	50	1575	0.158	1.826	1.983	6.25	34.43	400	550	0.61	76.99	0.09	-1.100	-2.650	-3.050	-1.100	-2.741	-3.141	1.95	2.04
6	D6	D7	55	2655	0.266	0.000	0.266	6.25	4.61	400	550	0.61	76.99	0.10	-1.100	-2.150	-2.550	-1.100	-2.250	-2.650	1.45	1.55
7	D7	**OUTFALL-1**	2	760	0.076	2.249	2.325	6.25	40.36	400	550	0.61	76.99	0.00	-1.100	-2.741	-3.141	-1.100	-2.745	-3.145	2.04	2.04
8	D8	D9	189	11195	1.120	0.000	1.120	6.25	19.44	400	550	0.61	76.99	0.34	-1.100	-2.150	-2.550	-1.100	-2.494	-2.894	1.45	1.79
9	D9	D10	120	4205	0.421	1.120	1.540	6.25	26.74	400	550	0.61	76.99	0.22	-1.100	-2.494	-2.894	-1.100	-2.712	-3.112	1.79	2.01
10	D10	**OUTFALL-2**	67	1275	0.128	1.540	1.668	6.25	28.95	400	550	0.61	76.99	0.12	-1.100	-2.712	-3.112	-1.100	-2.834	-3.234	2.01	2.13

Title : Storm Water Drainage Qty Sheet

S.No	Line From	Line To	Length in mtr.	Pipe dia	Depth at Start	Depth at End	Average Depth	Pipe Upto 2mtr Depth					Pipe from 2 to 4 mtr Depth				
								400 Dia	450 Dia	500 Dia	600 Dia	700 Dia	400 Dia	450 Dia	500 Dia	600 Dia	700 Dia
1	D1	D3	187	400	1.45	1.79	1.62	187	0	0	0	0	0	0	0	0	0
2	D2	D3	41	400	1.45	1.52	1.49	41	0	0	0	0	0	0	0	0	0
3	D3	D5	88	400	1.79	1.95	1.87	88	0	0	0	0	0	0	0	0	0
4	D4	D5	37	400	1.45	1.52	1.48	37	0	0	0	0	0	0	0	0	0
5	D5	D7	50	400	1.95	2.04	2.00	50	0	0	0	0	0	0	0	0	0
6	D6	D7	55	400	1.45	1.55	1.50	55	0	0	0	0	0	0	0	0	0
7	D7	OUTFALL-1	2	400	2.04	2.04	2.04	0	0	0	0	0	2	0	0	0	0
8	D8	D9	189	400	1.45	1.79	1.62	189	0	0	0	0	0	0	0	0	0
9	D9	D10	120	400	1.79	2.01	1.90	120	0	0	0	0	0	0	0	0	0
9	D10	OUTFALL-2	67	400	2.01	2.13	2.07	0	0	0	0	0	67	0	0	0	0
TOTAL								**767**	**0**	**0**	**0**	**0**	**69**	**0**	**0**	**0**	**0**