

**PROPOSED RESIDENTIAL PLOTTED COLONY UNDER DDJAY
MEASURING 20.589 ACRES
AT SECTOR-37D GURGAON**

**ESTIMATE
FOR
PROVIDING WATER SUPPLY, SEWERAGE, STORM WATER DRAINAGE,
ROADS, HORTICULTURE, STREET LIGHTING &
FIRE SERVICE
IN
PLOTTED COLONY BEING DEVELOPED
BY
M/S SIGNATURE GLOBAL DEVELOPERS PVT. LTD.**

MARCH 2021

**SERVICES CONSULTANTS:
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ESTIMATE FOR PROVIDING EXTERNAL DEVELOPMENT WORK IN RESIDENTIAL PLOTTED COLONY MEASURING 20.589 ACRES (LICENSE NO. 08 OF 2021 DATED 05/03/2021) IN SECTOR-37D, GURGAON BEING DEVELOPED BY SIGNATURE GLOBAL DEVELOPERS PVT. LTD.

1. INTRODUCTION

Gurgaon Town is an important town of Haryana State situated on Delhi – Jaipur Highway at a distance of approximately 30 Kms. from Delhi. Being in the National Capital Region, the town has fast developing tendency and potential. Further it has also started sharing the growing industrial load of Delhi and Faridabad. In order to relieve the growing pressure of population in Delhi, it has been decided by the Haryana Govt. to establish various sectors in Gurgaon. Keeping in view, the above facts, a residential plotted colony under DDJAY has been planned on total plot area measuring 20.589 Acres (LIC No. 08 of 2021 dated 05/03/2021), in Sector-37D, Gurgaon.

2. WATER SUPPLY

At present the source of water supply in this area is tubewell as the underground water is potable. Provision of 2 Nos. tubewells has been made within the boundary limits of this residential plotted colony for initial stage and the tubewell will be abundant as & when sufficient canal-based water supply is provided from HUDA. The installation of tubewell will be as approval from competent authority. It has been proposed to construct 1 no underground tank of capacity 500 KL, for domestic purposes and 250 KL as static storage for fire-fighting purposes. The underground tanks will be filled up from the proposed 02 nos. tubewells.

3. DESIGN

The scheme has been designed for approximately 5832 persons considering 18 persons for each plot. The rate of water supply has been taken as 155.25 litres per capita per day (lpcd). Besides the above necessary provisions of water for area under open spaces and green belts @25 KL per acre has also been included. Additional requirements of water for community building, commercial building and vegetable booth have also been taken into account.

3.1 UNDER GROUND STORAGE, PUMP CHAMBERS & PUMPING MACHINERY

It has been proposed to install a pumping station next to underground tank. At pumping station, there would be two pumping systems each comprising two pumps, one working and one standby. The provision for Diesel Generating set as a stand-by source of power in case of any electricity failure has also been made. Provision is also made for chlorination of water before distribution.

3.2 DISTRIBUTIONS SYSTEM

The Distribution System for this development area has been designed @ 18 persons per plot with water supply @ 155.25 litre/head/day @ 3.0 times, the average rate of flow on 'Hazen William' formula with C-100 necessary provision for laying C.I. pipes conforming to relevant ISI standards along with valves and specials has been made in this estimate.

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MEMBER'S SERVICE
GURGAON

3.3 RISING MAIN

Rising mains from HUDA water main on sector road to water works have also been designed and provision for 150mm i/d C.I. Pipeline has been made in the estimate.

4. SEWERAGE SCHEME

The sewerage network of the additional plotted development shall be connected to the proposed Sewage Treatment plant (STP). The treated effluent will be used for landscape irrigation. Surplus effluent will be discharged into the sewerage system being planned by HUDA on the Sector Road.

The sewerage system has been designed for 3 times of average DWF. It has been assumed that 75% of domestic water supply shall find its way into the proposed sewer. All the sewer upto 400 mm dia. have been designed to run half-full. Necessary design statement for the entire sewerage system has been prepared and attached. Sewer lines have been designed for a minimum self cleansing velocity of 0.75 M/sec. S.W. pipes will be used for sewer lines. All the manholes and related appurtenances shall be constructed as per standard design.

5. STORM WATER DRAINAGE

The design rainfall intensity has been considered as 1/4" per hour for the proposed development. The average co-efficient of run-off has been considered as 0.5 for the proposed development. Pipe drains formed of minimum 400 mm dia R.C.C. NP3 pipe has been proposed for the storm water drainage. Road Gully Chambers will collect the storm water from the surface and discharge into the manholes through 300 mm dia. R.C.C. NP3 pipes. The internal storm water drains shall be connected to the proposed storm water drainage system of the surrounding plotted development, which ultimately gets connected to peripheral departmental storm water drainage system on sector road. The velocity of water in the pipe has been considered as a minimum of 0.60 M/sec. all the pipes are considered as running full. Necessary design statement for the entire storm water drainage system has been prepared and attached.

6. SPECIFICATIONS

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

7. RATE

The estimate has been based on the present market rates with escalation.

8. COST

The total cost of the scheme, including cost of all services works out of Rs. 1278.03 lacs including 3% contingencies and 49% Departmental Charges.

M. Bahi
NEW DELHI
18/01/2018

**REPORT ON DESIGN CALCULATION FOR RESIDENTIAL PLOTTED COLONY AREA
MEASURING 20.589 ACRES AT SECTOR-37D, GURGAON**

A. DAILY REQUIREMENT OF WATER

I. a) RESIDENTIAL BUILDINGS

Total No. of Plots	=	324
Population @ 18 person for Plot,		
Total population	=	324 x 18
	=	5832 persons
Total water requirement @ 155.25 lpcd	=	5832 x 155.25
	=	9,05,418 litres/day
	=	905 KL/Day

II. WATER REQUIREMENT FOR OTHER BUILDINGS

a) Commercial Building		
0.824 Acre @ 25 KL/Acre	=	20 KL/Day
b) Community Building		
2.061 Acre @ 25 KL/Acre	=	50 KL/Day
c) Vegetable Booth- 1No.@ 1KL/Day	=	1 KL/day

TOTAL FOR II	=	71 KL/Day
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III. AREA UNDER PARK

1.576 Acre @ 25 KL/Day	=	40 KL/Day
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IV. AREA UNDER ROADS

4.02 Acre @ 5 KL/Acre	=	20 KL/Day
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V. FIRE FIGHTING REQUIREMENT

Water requirement for fire fighting	=	100 x /P
Where, 'P' is population in 100.		
Hence, fire fighting requirement	=	100/5.832
	=	241.50 KL/Day
	Say	250 KL/Day
Hence, total daily requirement	=	I + II + III + IV
	=	905 + 71 + 40 + 20
	=	1036 KL/Day

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B. TUBEWELL

Assumed discharge of each tubewell	=	18 KL/Hour
Total No. of tubewell required considering 16 hours of pumping every day	=	$\frac{1036}{18 \times 16}$
	=	3.60
Add 10% standby	=	0.36
Total	=	3.96 i.e, 4 Nos.

Provide 4 nos. of tubewell with a discharge Capacity of 18 KL/Hour.

Since, the water is to be supplied by HUDA through canal filtration scheme, till that time, it is proposed to install 2 nos. tubewells. More tubewells will be installed if required till the HUDA water supply scheme start functioning.

C. PUMPING MACHINERY FOR TUBEWELL

Since the water supply is from canal filtration to be provided by HUDA. We will provide tubewells commencing with increase in population till HUDA supply is available in near future. We will be providing, therefore 2 no. of tubewells for domestic use and if required additional tubewells will be bored subsequently.

Av. Spring Level	=	35.00 M
Av. Fall in S.L.	=	3.00 M
Depression Head	=	6.00 M
Friction loss in main	=	3.00 M

Total = 47.00 M,

Motor Rating for the Tubewell pump is calculated as follows.

$$\frac{18,000 \times 47.00 \times 1}{60 \times 60 \times 0.6 \times 75}$$

$$= 5.22$$

Say 7.50 BHP (commercial)

Hence, provide one submersible clear water pump with a flow of 18 cum/hr. at 47.00 M head and the motor rating should be 7.50 HP.

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NEW DELHI

D. PUMPING MACHINERY FOR BOOSTING WATER

It is proposed a ring main on the periphery of the plotted development. The details of pumping machinery for plotted development is given as below:

I) FOR FRESH WATER SUPPLY:

Pumping Machinery for Plotted Development

Daily demand for Apartment Buildings = 976,000 litres

Fresh water demand for Apartment Buildings = $\frac{2}{3}^{\text{rd}}$ of total domestic water demand
= 650,667 litres

i) Pumping rate assuming 8 hours of pumping per day

$$= \frac{650,667}{8 \times 60 \times 60}$$
$$= 22.59 \text{ litres per second.}$$

ii) Pumping head

a) Suction head = 0.0 M (positive suction)
b) Static head = 5.0 M
c) Residual head = 22.0 M (Minimum residual pressures at ferrule points for four storey Building)

d) Frictional head loss = 18.0 M

Total = 45.0 M

Hence, provide three pumps (2W+1S) with a discharge of 11.30 litres per second at 45.0 M head of each pump

BHP of Motor = $\frac{45 \times 11.30}{0.6 \times 0.9 \times 76.04}$

Say = 12.38
= 12.50 B.H.P

II) FOR RECYCLED WATER SUPPLY FOR FLUSHING:

Pumping Machinery for Plotted Development

Daily demand for Apartment Buildings = 976,000 litres

Fresh water demand for Apartment Buildings = $\frac{1}{3}^{\text{rd}}$ of total domestic water demand
= 325,333 litres

iii) Pumping rate assuming 8 hours of pumping per day

$$= \frac{325,333}{8 \times 60 \times 60}$$

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$$= 11.30 \text{ litres per second.}$$

iv) Pumping head

a) Suction head = 0.0 M (positive suction)

b) Static head = 4.0 M

c) Residual head = 22.0 M (Minimum residual pressures at ferrule points for four storey Building)

d) Frictional head loss = 18.0 M

Total = 45.0 M

Hence, provide two pumps (1W+1S) with a discharge of 11.30 litres per second at 45.0 M head of each pump

BHP of Motor = $\frac{45 \times 11.30}{0.6 \times 0.9 \times 76.04}$

= 12.38

Say = 12.50 B.H.P

E. UNDERGROUND TANK

Total daily domestic water requirement = 976 KL

Water Requirement for Fire Fighting = 250 KL*

= 1226 KL

Say = 1230 KL

*100 x Sq. root (Population in thousand) = 100 x Square. root (5.832)
= 242 KL,
Say 250 KL

Overall capacity of underground tanks taking 18 hours storage for freshwater requirement
651X18/24 = 488 KL

Say 500 KL

It is proposed to construct UGT of 500 KL (Domestic) and 250 KL (Fire) for the residential plotted colony of 20.589 Acre.

F. Design of Rising Mains for UG Tanks from Colony Supply Main:

Daily requirement = 976 KL

Requirement @ 1.2 times assuming the
reservoir will be filled in 16 hrs. = 1171 KL

M. Bahadur
ENGINEER'S SERVICE
PUNJAB
INDIA

Loss of head per 1000 M for 1171 KL in 150 MM i/d pipe	=	16.27 M
Length of rising main (From HUDA rising main to UGR)	=	150 M
Add equivalent length for fittings	=	30 M
Total head loss in 180 M	=	2.93 M



RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON

FINAL ABSTRACT OF COST

SUB WORK NO. I	WATER SUPPLY	Rs. 223.01 LACS
SUB WORK NO. II	SEWERAGE	Rs. 194.03 LACS
SUB WORK NO. III	STORM WATER DRAIN	Rs. 97.26 LACS
SUB WORK NO. IV	ROAD & FOOTPATHS	Rs. 317.82 LACS
SUB WORK NO. V	STREET LIGHTING	Rs. 31.60 LACS
SUB WORK NO. VI	HORTICULTURE	Rs. 6.62 LACS
SUB WORK NO. VII	MAINTENANCE CHARGES for 10 years including resurfacing of roads after 1 st 5 years & 2 nd 5 years m/c. (as per HUDA norms)	Rs. 407.69 LACS <u>Rs. 1278.03 LACS</u>

Development Cost per Acre = $1278.03 / 20.589 = \text{Rs. } 62.07 \text{ Lac per Gross Acre}$

Submitted for audit

[Signature]
Executive Engineer
HSVP Division No. I,
Gurgaon



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

ABSTRACT OF COST OF SUB-WORK NO. I (WATER SUPPLY)

SUB HEAD NO. I	HEAD WORKS	Rs.	47.00 Lacs
SUB HEAD NO. II	PUMPING MACHINERY	Rs.	24.00 Lacs
SUB HEAD NO. III	DISTRIBUTION SYSTEM FOR FRESH WATER SUPPLY	Rs.	41.58 Lacs
SUB HEAD NO. IV	DISTRIBUTION SYSTEM FOR FLUSHING WATER SUPPLY	Rs.	28.71 Lacs
SUB HEAD NO. V	RISING MAIN	Rs.	4.02 Lacs

Rs. 145.31 Lacs

ADD : 3% Contingencies & P.E. Charges

Rs. 4.36 Lacs

Rs. 149.67 Lacs

ADD : 49% Departmental Charges, price
escalation, unforeseen, administration
charges

Rs. 73.34 Lacs

Rs. 223.01 Lacs

(TOTAL C.O TO SUMMARY)

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**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I SUB HEAD NO. I		WATER SUPPLY HEAD WORKS AMOUNT (RS.)			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Boring and installing 510 mm i/d tubewells with reverse rotary rig complete with pipe and strainer to depth of about 80m complete in all respect	2	No.	4,00,000	8,00,000/-
2.	Construction of boundary wall, gate around the tubewells site and water works etc.	2	No.	50,000	1,00,000/-
3.	Provision of footpath hedges and lawns at Water Works / Tubewells site	L.S			1,00,000/-
4.	Construction of Chowkidar Quarters, completed with P.H. services and electricity fittings etc.	L.S			1,00,000/-
5.	Provision for rising mains, connecting tubewells with water main and Bye-Pass arrangements	L.S.			1,00,000/-
6.	Construction of 1 No. Boosting arrangement and underground tank of total 750 KL capacity	750	KL	3000	22,50,000/-
7.	Construction of Boosting Chamber of Suitable size	L.S.			4,00,000/-
8.	Boosting Machinery				
	i) 3 Nos. 11.30 LPS at 45 mtrs head- 12.5 BHP (For Fresh Water supply)	3	No.	1,50,000	4,50,000/-
	ii) 2 Nos. 11.30 LPS at 45 mtrs head- 12.5 BHP (For Recycled Water supply)	2	No.	1,50,000	3,00,000/-
9.	Provision for Carriage for material and other unforeseen items	LS			1,00,000/-
Rs.					47,00,000/-
Say					47.00 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

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NEW DELHI

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I		WATER SUPPLY			
SUB HEAD NO. II		PUMPING MACHINERY			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing and installing electrical driven submersible pumping set capable of delivering about 18 KL water per hour against a total head of 47 mtrs. Complete with motor and other accessories complete in all respects	2	No.	2,00,000	4,00,000/-
NOTE: The power supply to the submersible tubewell pumps and the booster pumps is to be provided from two sources one from the electric substation and another from the standby diesel generators being provided in the Colony for the essential services.					
2.	Provision for 100 KVA DG Set as standby	L.S.			14,00,000/-
3.	Providing for chlorination plant complete in all respect	1	No	100,000	1,00,000/-
4.	Provision for making foundations and erection of pumping machinery.	L.S		50,000	50,000/-
5.	Provision for pipes valves and specials inside the pump chamber and boosting chambers	L.S		100,000	1,00,000/-
6.	Provision for electric services connection including electric fittings for tubewells chambers and boosting chamber etc. Including cost of transformer	L.S.			3,00,000/-
7.	Provision for carriage of materials and other unforeseen items.	L.S.			50,000/-

Rs. 24,00,000/-

Say 24.00 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

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**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I		WATER SUPPLY			
SUB WORK NO. III		DISTRIBUTION SYSTEM FOR FRESH WATER SUPPLY			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, laying, jointing and testing C.I./ D.I. lines including cost of excavation, specials etc. complete in all respect				
	C.I. PIPE				
	100 mm i/d	2635	M	1200	31,62,000/-
	150 mm i/d	205	M	1575	3,22,875/-
2.	Providing and fixing sluice valve including cost of surface boxes & masonry chambers etc. complete				
	100 mm i/d	20	No.	10,000	2,00,000/-
	150 mm i/d	3	No.	15,000	45,000/-
3.	Providing and fixing scour valves and including cost of bricks masonry chamber	23	No.	10,000	2,30,000/-
4.	Providing and fixing indicating plates for sluice valves and air valves	23	No.	1000	23,000/-
5.	Provision for carriage of material	LS			50,000/-
6.	Provision for cutting of roads & making good to its original conditions	L.S.			50,000/-
7.	Provision for fire hydrant including cost of brick masonry chamber complete in all respect.	L.S.			75,000/-

Rs. 41,57,875/-

Say 41.58 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

M. B. Singh
NEW DELHI

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I

WATER SUPPLY

SUB WORK NO. IV

**DISTRIBUTION SYSTEM
FOR FLUSHING WATER SUPPLY**

S.No.	Description	Qty.	Unit	Rate	Amount
1	Providing, laying, jointing and testing C.I./ D.I. lines including cost of excavation, specials etc. complete in all respect				
	D.I. PIPE				
	80 mm i/d	2130	M	1000	21,30,000/-
	100 mm i/d	165	M	1200	1,98,000/-
2.	Providing and fixing sluice valve including cost of surface boxes & masonry chambers etc. complete				
	80 mm i/d	20	No.	8,000	1,60,000/-
	100 mm i/d	3	No.	10,000	30,000/-
3.	Providing and fixing scour valves and including cost of bricks masonry chamber	23	No.	10,000	2,30,000/-
4.	Providing and fixing indicating plates for sluice valves and air valves	23	No.	1000	23,000/-
5.	Provision for carriage of material	LS			50,000/-
6.	Provision for cutting of roads & making good to its original conditions	L.S.			50,000/-

Rs. 28,71,000/-

Say 28.71 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

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**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. I

WATER SUPPLY

SUB HEAD NO. V

RISING MAIN FROM HUDA

S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, laying, jointing and testing C.I. Pipes including cost of excavation complete				
	150 mm i/d	150	M	1575	2,36,250/-
2.	Providing and fixing sluice valves including cost of surface boxes and masonry chambers, indication plates etc. complete				
	150 mm i/d	1	No.	15000	15,000/-
3.	Providing and fixing indicating plates with sluice valves	1	No.	1000	1,000/-
4.	Provision for carriage of materials.	L.S.			50,000/-
5.	Provision for cutting of roads and making good of its original conditions	L.S.			50,000/-
6.	Provision for connection from HUDA Main	L.S.			50,000/-

Rs. 4,02,250/-

Say Rs. 4.02 Lacs

(C.O. TO ABSTRACT OF COST SUB WORK NO. I)

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NEW DELHI
10/11/2011

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. II		SEWERAGE (INTERNAL SEWER)			
S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing, lowering, jointing & cutting salt glazed stone ware pipe and spls. Into trenches including cost of excavation, bed concrete, cost of manholes, etc. complete in all respect.				
i)	200 mm dia i/d S.W. pipes Av. Depth upto 2 M	1615	M	1400	22,61,000/-
ii)	200 mm dia i/d S.W. pipes Av. Depth 2 M to 4 M	495	M	1600	7,92,000/-
iii)	250 mm dia i/d S.W. pipes Av. Depth 2 M to 4 M	125	M	2200	2,75,000/-
iv)	350 mm dia i/d S.W. pipes Av. Depth 2 M to 4 M	25	M	3000	75,000/-
2.	Provision for providing oblique junction etc.	L.S.			40,000/-
3.	Provision for temporary timbering etc.	L.S.			50,000/-
4.	Provision for lighting watching etc.	L.S.			50,000/-
5.	Provision for cutting the road and carriage of materials etc. and other unforeseen charges, vent pipe etc.	L.S.			50,000/-
6.	Provision for making connection with existing lines	L.S.			50,000/-
7.	Provision for 740 KLD STP	L.S.			90,00,000/-
				Rs.	126,43,000/-
Add 3% Contingencies & P.E. Charges				Rs.	3,79,290/-
				Rs.	130,22,290/-
Add 49% Departmental Charges, price, Escalation, unforeseen, administration charges				Rs.	63,80,922/-
				Rs.	194,03,212/-
				Say 194.03 Lacs	

(C.O. TO FINAL ABSTRACT OF COST)

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NEW DELHI

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

STORM WATER R.C.C. PIPE DRAIN

SUB WORK NO. III

**STORM WATER DRAIN
RCC PIPE DRAIN**

S.No.	Description	Qty.	Unit	Rate	Amount
1.	Providing lowering, cutting and jointing salt glazed RCC NP3 pipes and specials into trenches, including cost of excavation, bed concrete cost of manholes etc. complete in all respects				
	a) 400 mm dia i/e R.C.C. Pipe AV. Depth Upto 2 M	2245	M	1750	39,28,750/-
2.	Provision for road gullies with pipe connection	L.S.			1,00,000/-
3.	Rain Water Harvesting Pit for 20.589 acres@ 1.00 lac per acre				20,58,900/-
3.	Provision for lighting, watching and temporary diversion	L.S.			1,00,000/-
4.	Provision for cutting of roads and carriage of materials etc. and other unforeseen items	L.S.			1,00,000/-
5.	Provision for making connection with existing system	LS.			50,000/-
				Rs.	63,37,650/-
	Add 3% contingencies & P.E. Charges			Rs.	1,90,130/-
				Rs.	65,27,780/-
	Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges				
				Rs.	31,98,612/-
				Rs.	97,26,392/-

Say Rs. 97.26 Lacs

(C.O. TO FINAL ABSTRACT OF COST)

M. Sahni


**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. IV

ROADS AND FOOTPATHS

AMOUNT (RS.)

1.	Provision for leveling and earth filling as per site conditions 20.589 Acres @ 100000/- per acre	Rs. 20,58,900/-
2.	GSB =300 MM stone aggregate 250 mm 50 mm thick...BM..... 20 mm thick M.S.S.. 16270 sq. m. @ Rs 1000/- per sq. m.	Rs. 162,70,000/-
3.	Providing for Kerbs & Channels of C. Conc. 1 : 2 ½ : 5 with base concrete and pointing etc. 4360 @ Rs. 500/-	Rs 21,80,000/-
4.	Provision for cement concrete pavement 1:2:4 with base concrete 1:8:16 complete in all respects L.S.	Rs. 50,000/-
5.	Provision for Indicator Board, Guide Map & making parking arrangements	Rs. 50,000/-
6.	Provision for demarcation burji, carriage of material and unforeseen items	Rs. 1,00,000/-
		Rs. 207,08,900/-
	ADD : 3% Contingencies & P.E. Charges	Rs. 6,21,267/-
		Rs. 213,30,167/-
	Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges	Rs. 104,51,782/-
		Rs. 317,81,949/-

Say Rs. 317.82 Lacs

(C.O. TO FINAL ABSTRACT OF COST)

Ms. [Signature]
ENGINEERING
NEW DELHI
PUNJAB

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. V

STREET LIGHTING

AMOUNT (RS.)

Providing street lighting with underground on roads as per
standard H.S.E.B. Specifications

Total Area: 20.589 Acres

20.589 acres @ Rs. 100,000/- per acre

Rs. 20,58,900/-

ADD: 3% contingencies & P.E. Charges

Rs. 61,767/-

Rs. 21,20,667/-

Add 49% Departmental Charges, price,
Escalation, unforeseen, administration
Charges

Rs. 10,39,127/-

Rs. 31,59,794/-

Say Rs. 31.60 Lacs

(C. O. TO FINAL ABSTRACT OF COST)

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NEW DELHI

**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. VI

ESTIMATE FOR DEVELOPMENT OF LAWNS & PLANTATION OF ROAD SIDE TREES

AMOUNT (RS.)

1. Development of Lawn Areas

a) Trenching the ordinary soil upto depth of 60 cm including removal and stacking of serviceable material and disposing of by spreading and levelling within a lead of 50 m and making up the trenched area of proper levels by filling with earth or earth mixed with manure before and after flooding trench with water including cost of imported earth and manure

b) Rough dressing of turfed area.

c) Grassing with 'Doob Grass' including watering and maintenance of lawns for 30 days till the grass forms a thick lawn free from weeds and fit for moving in rows 7.5 cm apart in either direction including provision for hedges and barbed wire, fencing around park

1.576 acres organized green @ Rs. 100,000/-
per acre

Rs. 1,57,600/-

2. Providing tree guards and planting trees along road at 12 M interval

No. of Trees = 365 Nos.

Cost analysis of planting trees:

- Excavation	:	Rs.	30.00
- Manure	:	Rs.	60.00
- Tree Planting	:	Rs.	60.00
- Tree Guards	:	Rs.	600.00

Total	Rs.	750.00
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365 Nos. @ Rs. 750/- each

Rs. 2,73,750/-

Add 3% contingencies & P.E. Charges

Rs. 4,31,350/-

Rs. 12,941/-

Rs. 4,44,291/-

Add 49% Departmental Charges, price, Escalation, unforeseen, administration Charges

Rs. 2,17,702/-

TOTAL

Rs. 6,61,993/-

Say Rs. 6.62 Lacs

(C.O. TO FINAL ABSTRACT OF COST)



**RESIDENTIAL PLOTTED COLONY AREA MEASURING 20.589 ACRES AT SECTOR-37D,
GURGAON**

SUB WORK NO. VII

MAINTENANCE OF SERVICES

AMOUNT (RS.)

1.	Provision for maintenance charges for water supply, sewerage, drainage, roads, street-light, horticulture etc. complete including operation and establishment charges as per HUDA norms after completion		
	20.589 acres @ Rs. 5,00,000/- per acre	Rs.	102,94,500/-
2.	Provision for resurfacing of roads after five years of Ist Phase		
	16270 sq.m @ Rs.400/- per sq.m.	Rs.	65,08,000/-
3.	IInd Phase after five years of Ist Phase		
	One layer of 10mm thick 53 to 22.4 mm guage complete of 75 mm thick WBM specification and aggregate to MOT specification, Table 500-9 and Table 400-6, Grading Number 3 with 20 mm thick pre-mix carpet.		
	16270 sq. m. @ Rs. 600/- per sq.m.	Rs.	97,62,000/-
		Rs.	265,64,500/-
	Add: Contingencies @ 3%	Rs.	7,96,935/-
		Rs.	273,61,435/-
	Add: Departmental Charges @ 49%	Rs.	134,07,103/-
		Rs.	407,68,538/-
		Say 407.69 Lacs	

(C.O. TO FINAL ABSTRACT OF COST)



DESIGN STATEMENT — SEWERAGE
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 20.589 ACRES

S.NO.	SEWER LINE MARKED AS	NO OF PLOT SERVED	POPULATION AS PER PLOT	DISCHARGE 15.25 LTRS PER HEAD/DAY IN KLD	ADDITIONAL DISCHARGE FROM COMMUNITY COMMERCIAL & V/B IN KLD	TOTAL DISCHARGE IN KLD	PEAK DISCHARGE IN CUSECS 75% OF 3 TIMES	SIZE OF SEWER IN MM	DESIGN VELOCITY IN FT/SEC.	DESIGN DISCHARGE IN CUSECS	LENGTH OF SEWER IN MTS	GRADIENT	FALL IN LINE	IN GROUND INFORMATION LEVEL	INVERT LEVEL	DEPTH OF LINE	AVG. DEPTH	REMARKS									
		SELF	BRANCH	TOTAL										UPPER END	LOWER END	UPPER END	LOWER END										
1	2																										
1	N1.1 - N1	4		4		7	11.18	0	11.18	9	10	0.01	200	12	2.50	13	14	15	16	17	18	19	20	21	22	23	24
2	N1.2 - N1	0		0		0	0.00	20	20.00	20	20	0.02	200	2.50	0.330	47	1/190	0.25	100.30	100.30	99.40	99.15	0.90	1.15	1.02		
3	N1 - N2	48		52		936	145.31	20	165.31	20	200	0.15	200	2.50	0.330	198	1/190	1.04	100.30	100.30	99.15	98.11	1.15	2.19	1.67		
4	N2.1 - N2	4		4		72	11.18		11.18	20	200	0.01	200	2.50	0.330	19	1/190	0.10	100.30	100.30	99.40	99.30	0.90	1.00	0.95	CL	
5	N2 - N3	33		56		1602	248.71	20	268.71	20	200	0.25	200	2.50	0.330	177	1/190	0.93	100.30	100.30	98.11	97.18	2.19	3.12	2.66		
6	N3 - N15	0		89		1602	248.71	20	268.71	20	200	0.25	200	2.50	0.330	50	1/190	0.26	100.30	100.30	97.18	96.92	3.12	3.38	3.25	CL	
7	N4.1 - N4	6		6		108	16.77	0	16.77	0	200	0.02	200	2.50	0.330	36	1/190	0.19	100.30	100.30	99.40	99.21	0.90	1.09	0.99	CL	
8	N4.2 - N4	13		13		234	36.33	1	37.33	0.03	200	0.03	200	2.50	0.330	64	1/190	0.34	100.30	100.30	99.40	99.06	0.90	1.24	1.07		
9	N4 - N15	19		38		684	106.19	1	107.19	0.10	200	0.10	200	2.50	0.330	77	1/190	0.41	100.30	100.30	99.06	98.66	1.24	1.64	1.44	CL	
10	N5 - N16	15		15		270	41.92	0	41.92	0.04	200	0.04	200	2.50	0.330	82	1/190	0.43	100.30	100.30	99.40	98.97	0.90	1.33	1.12	CL	
11	N6.1 - N6	34		34		612	95.01	0	95.01	0.09	200	0.09	200	2.50	0.330	120	1/190	0.63	100.30	100.30	99.40	98.77	0.90	1.63	1.22		
12	N6.2 - N6	13		13		234	36.33		36.33	0.03	200	0.03	200	2.50	0.330	96	1/190	0.51	100.30	100.30	99.40	98.89	0.90	1.41	1.15	CL	
13	N6 - N7	5		52		936	145.31	0	145.31	0.13	200	0.13	200	2.50	0.330	50	1/190	0.26	100.30	100.30	98.77	98.51	1.53	1.79	1.66		
14	N7.1 - N7	4		4		72	11.18	0	11.18	0.01	200	0.01	200	2.50	0.330	30	1/190	0.16	100.30	100.30	99.40	99.24	0.90	1.06	0.98	CL	
15	N7 - N8	34		90		1620	251.51	0	251.51	0.23	200	0.23	200	2.50	0.330	162	1/190	0.85	100.30	100.30	98.51	97.65	1.79	2.65	2.22		
16	N8.1 - N8	32		32		576	89.42	0	89.42	0.08	200	0.08	200	2.50	0.330	258	1/190	1.36	100.30	100.30	99.40	98.04	0.90	2.26	1.58	CL	

M. K. Singh
 PROJECT ENGINEER
 SEWERAGE DIVISION
 GURGAON
 HARYANA

S.NO.	SEWER LINE MARKED AS	NO OF PLOT SERVED			POPULATION AS PER PLOT	DISCHARGE IN KLD	ADDITIONAL DISCHARGE	TOTAL DISCHARGE IN KLD	PEAK DISCHARGE IN CUSECS	SIZE OF SEWER IN MM	DESIGNED VELOCITY IN FT/SEC.	DESIGNED DISCHARGE IN CUSECS	LENGTH OF SEWER IN MTS	GRADIENT	FALL LINE	IN GROUND/FORMATION LEVEL			INVERT LEVEL		DEPTH OF LINE		AVG. DEPTH	REMARKS
		SELF	BRANCH	TOTAL												UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END			
1	2				6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
17	N8 - N9	5	122	127	2286	354.90	0	354.90	0.326	200	2.50	0.330	40	1/190	0.21	100.30	100.30	97.65	97.44	2.65	2.86	2.75		
18	N9.1 - N9	17		17	306	47.51	0	47.51	0.04	200	2.50	0.330	150	1/190	0.79	100.30	100.30	99.40	98.61	0.90	1.69	1.29	CL	
19	N9 - N14	0	144	144	2592	402.41	0	402.41	0.37	250	2.50	0.530	46	1/200	0.23	100.30	100.30	97.39	97.16	2.91	3.14	3.02		
20	N10.1 - N10	10		10	180	27.95		27.95	0.03	200	2.50	0.330	30	1/190	0.16	100.30	100.30	99.40	99.24	0.90	1.06	0.98	CL	
21	N10.2 - N10	0		0	0	0.00	50	50.00	0.05	200	2.50	0.330	52	1/190	0.27	100.30	100.30	99.40	99.13	0.90	1.17	1.04		
22	N10 - N11	0	10	10	180	27.95	50	77.95	0.07	200	2.50	0.330	49	1/190	0.26	100.30	100.30	99.13	98.87	1.17	1.43	1.30		
23	N11.1 - N11	9	0	9	162	25.15	0	25.15	0.02	200	2.50	0.330	27	1/190	0.14	100.30	100.30	99.40	99.26	0.90	1.04	0.97	CL	
24	N11 - N12	0	19	19	342	53.10	50	103.10	0.09	200	2.50	0.330	49	1/190	0.26	100.30	100.30	98.87	98.61	1.43	1.69	1.56		
25	N12.1 - N12	8		8	144	22.36	0	22.36	0.02	200	2.50	0.330	24	1/190	0.13	100.30	100.30	99.40	99.27	0.90	1.03	0.96	CL	
26	N12 - N13	0	27	27	486	75.45	50	125.45	0.12	200	2.50	0.330	44	1/190	0.23	100.30	100.30	98.61	98.38	1.69	1.92	1.81		
27	N13.1 - N13	4		4	72	11.18	0	11.18	0.01	200	2.50	0.330	23	1/190	0.12	100.30	100.30	99.40	99.28	0.90	1.02	0.96	CL	
28	N13 - N14	7	31	38	684	106.19	50	156.19	0.14	200	2.50	0.330	66	1/190	0.35	100.30	100.30	98.38	98.03	1.92	2.27	2.09	CL	
29	N14 - N15	0	182	182	3276	508.60	50	558.60	0.51	250	2.50	0.530	76	1/200	0.38	100.30	100.30	97.16	96.78	3.14	3.52	3.33		
30	N15 - N16	0	309	309	5562	863.50	71	934.50	0.86	350	2.50	1.250	12	1/400	0.03	100.30	100.30	96.68	96.65	3.62	3.65	3.63		
31	N16 - STP	0	324	324	5632	905.42	71	976.42	0.90	350	2.50	1.250	12	1/400	0.03	100.30	100.30	96.65	96.62	3.65	3.68	3.66		

MS

ENGINEERING SERVICE

DESIGN STATEMENT — STORM WATER DRAINAGE
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 20.589 ACRES

S.NO.	DRAIN LINE MARKED AS	LENGTH OF DRAIN IN Metre	AREA TO BE SERVED			DISCHARGE @ 1/4" PE OF DRAIN IN MM	SIZE/ITY OF DRAIN IN MM	DESIGNED VELOCITY IN FT/SEC	DESIGNED DISCHARGE IN CUSECS	GRADIENT	FALL IN METERS	GROUND/FORMATION LEVEL			BED LEVELS			DEPTH OF LINE			AVG. DEPTH	REMARK S
			SELF ACRE	BRANCH ACRE	TOTAL ACRE							UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
1	N1.1-N1.4	120	1.45	0.00	1.45	0.18	400	2.50	2.75	1/570	0.21	100.30	100.30	99.30	99.09	1.00	1.21	1.11				
2	N1.2-N1.4	96	0.59	0.00	0.59	0.07	400	2.50	2.75	1/570	0.17	100.30	100.30	99.30	99.13	1.00	1.17	1.08	CL			
3	N1.4-N1	15	0.16	2.04	2.20	0.28	400	2.50	2.75	1/570	0.03	100.30	100.30	99.09	99.06	1.21	1.24	1.22				
4	N1.3-N1	90	2.09	0.00	2.09	0.26	400	2.50	2.75	1/570	0.16	100.30	100.30	99.30	99.14	1.00	1.16	1.08	CL			
5	N1-OUTFALL	20	0.05	4.29	4.34	0.55	400	2.50	2.75	1/570	0.04	100.30	100.30	99.06	99.03	1.24	1.27	1.25				
6	N2.1-N2	172	0.86	0.00	0.86	0.11	400	2.50	2.75	1/570	0.30	100.30	100.30	99.30	99.00	1.00	1.30	1.15				
7	N2.2-N2	144	1.48	0.00	1.48	0.19	400	2.50	2.75	1/570	0.25	100.30	100.30	99.30	99.05	1.00	1.25	1.13	CL			
8	N2-OUTFALL	20	0.05	2.34	2.39	0.30	400	2.50	2.75	1/570	0.04	100.30	100.30	99.00	98.96	1.30	1.34	1.32				
9	N3-N8	360	2.88	0.00	2.88	0.36	400	2.50	2.75	1/570	0.63	100.30	100.30	99.30	98.67	1.00	1.63	1.32				
10	N4.1-N4	30	0.41	0.00	0.41	0.05	400	2.50	2.75	1/570	0.05	100.30	100.30	99.30	99.25	1.00	1.05	1.03				
11	N4-N5	50	0.08	0.41	0.49	0.06	400	2.50	4.20	1/570	0.09	100.30	100.30	99.25	99.16	1.05	1.14	1.10				
12	N5.1-N5	27	0.32	0.00	0.32	0.04	400	2.50	2.75	1/570	0.05	100.30	100.30	99.30	99.25	1.00	1.05	1.02	CL			
13	N5-N6	49	0.05	0.81	0.86	0.11	400	2.50	2.75	1/570	0.09	100.30	100.30	99.16	99.07	1.14	1.23	1.18				
14	N6.1-N6	24	0.32	0.00	0.32	0.04	400	2.50	2.75	1/570	0.04	100.30	100.30	99.30	99.26	1.00	1.04	1.02	CL			
15	N6-N7	44	0.02	1.18	1.20	0.15	400	2.50	2.75	1/570	0.08	100.30	100.30	99.07	99.00	1.23	1.30	1.26				
16	N7.1-N7	23	0.25	0.00	0.25	0.03	400	2.50	2.75	1/570	0.04	100.30	100.30	99.30	99.26	1.00	1.04	1.02	CL			
17	N7-N8	66	0.28	1.45	1.73	0.22	400	2.50	2.75	1/570	0.12	100.30	100.30	99.00	98.88	1.30	1.42	1.36	CL			
18	N8-N15	27	0.11	4.61	4.72	0.59	400	2.50	2.75	1/570	0.05	100.30	100.30	98.67	98.62	1.63	1.68	1.66	CL			
19	N9.1-N9	18	0.27	0.00	0.27	0.03	400	2.50	2.75	1/570	0.03	100.30	100.30	99.30	99.27	1.00	1.03	1.02	CL			
20	N9.2-N9	47	1.00	0.00	1.00	0.13	400	2.50	2.75	1/570	0.08	100.30	100.30	99.30	99.22	1.00	1.08	1.04				

MR. Bhat

S.NO.	DRAIN LINE MARKED AS	LENGTH OF DRAIN IN Metre	AREA TO BE SERVED		DISCHARGE @ 1/4" PE OF DRAIN IN MM RUNOFF COF. CUSECS	SIZE OF DRAIN IN MM	DESIGNED VELOCITY IN FT/SEC	DESIGNED DISCHARGE IN CUSECS	GRADIENT	FALL IN METERS	GROUND/FORMATION LEVEL		BED LEVELS	DEPTH OF LINE		AVG. DEPTH S	REMARK	
21	N9-N10	198	2.32	1.27	3.59	400	2.50	2.75	1/570	0.35	100.30	100.30	99.22	98.87	1.08	1.43	1.26	
22	N10.1-N10	20	0.26	0.00	0.26	400	2.50	2.75	1/570	0.04	100.30	100.30	99.30	99.26	1.00	1.04	1.02	CL
23	N10-N11	190	1.74	3.85	5.59	400	2.50	4.20	1/570	0.33	100.30	100.30	98.87	98.54	1.43	1.76	1.60	
24	N11-N14	50	0.32	5.59	5.91	400	2.50	2.75	1/570	0.09	100.30	100.30	98.54	98.45	1.76	1.85	1.81	
25	N12-N14	92	0.67	0.00	0.67	400	2.50	2.75	1/570	0.16	100.30	100.30	99.30	99.14	1.00	1.16	1.08	CL
26	N13.1-N13	37	0.34	0.00	0.34	400	2.50	2.75	1/570	0.06	100.30	100.30	99.30	99.24	1.00	1.06	1.03	CL
27	N13.2-N13	64	0.79	0.00	0.79	400	2.50	2.75	1/570	0.11	100.30	100.30	99.30	99.19	1.00	1.11	1.06	
28	N13-N14	77	0.82	1.13	1.95	400	2.50	2.75	1/570	0.14	100.30	100.30	99.19	99.05	1.11	1.25	1.18	CL
29	N14-N15	48	0.24	8.53	8.77	400	2.50	2.75	1/570	0.08	100.30	100.30	98.45	98.36	1.85	1.94	1.89	
30	N15-OUTFALL	25	0.05	13.49	13.54	400	2.50	2.75	1/570	0.04	100.30	100.30	98.36	98.32	1.94	1.98	1.96	

MSah

INSPECTION SERVICE
NEW DELHI

DESIGN STATEMENT— FRESH WATER SUPPLY
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 20.589 ACRES

HYDRAULIC STATEMENT FOR FRESH WATER SUPPLY

S.NO.	LINE	NO OF PLOT SERVED			POPULATI ON ON 18 PERSON/ P LOT	REQUIRE MENT 15525 LTS PER HEAD PER DAY IN KLD	REQUIRE MENT OF COMMUNIT Y, COMMERCIAL & V.B. IN KLD	TOTAL REQUIRE MENT IN KLD	TOTAL FRESH WATER REQUIRE MENT (2/3RD OF Total Water Require ment (KLD)	PEAK REQUIRE MENT 3 TIMES	SIZE OF PIPE MM	LENGTH OF PIPE IN MTS.	LOSS OF HEAD IN 1000 MTS.	LOSS OF HEAD IN 1000 MTS.	HYDRAULIC LEVELS	GROUNDIF ORMATION LEVEL AT LOWER END	TERMINAL LEVEL AT LOWER END	REMARKS	
		SELF	BRANCH	TOTAL											UPPER END	LOWER END			
1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19
1	2-1	34	---	34	612	95.01	0	95.01	63.34	190.03	100	135	1.90	0.26	134.68	134.42	100.00	34.42	
2	2.1-2	13	---	13	234	36.33		36.33	24.22	72.66	100	90	0.32	0.03	134.68	134.65	100.00	34.65	
3	2-3	5	47	52	936	145.31		145.31	96.88	290.63	100	57	4.18	0.24	134.92	134.68	100.00	34.68	
4	3.1-3	4		4	72	11.18		11.18	7.45	22.36	100	37	0.04	0.00	134.92	134.91	100.00	34.91	
5	3-4	34	56	90	1620	251.51		251.51	167.67	503.01	100	160	11.53	1.84	136.76	134.92	100.00	34.92	
6	4.1-4	31		31	558	86.63		86.63	57.75	173.26	100	260	1.60	0.42	136.76	136.35	100.00	36.35	
7	9-4	6	121	127	2286	354.90		354.90	236.60	709.80	100	44	21.86	0.96	137.72	136.76	100.00	36.76	
8	5.2-5	Commun.		0	0	0.00	50	50.00	33.33	100.00	100	53	0.58	0.03	137.29	137.26	100.00	37.26	
9	5.1-5	10	---	10	180	27.95		27.95	18.63	55.89	100	35	0.20	0.01	137.29	137.29	100.00	37.29	
10	5-6	0	10	10	180	27.95	50	77.95	51.96	155.89	100	52	1.32	0.07	137.36	137.29	100.00	37.29	
11	6.1-6	9	---	9	162	25.15		25.15	16.77	50.30	100	35	0.16	0.01	137.36	137.36	100.00	37.36	
12	6-7	0	19	19	342	53.10	50	103.10	68.73	206.19	100	50	2.21	0.11	137.47	137.36	100.00	37.36	
13	7.1-7	8	---	8	144	22.36	0	22.36	14.90	44.71	100	30	0.13	0.00	137.47	137.47	100.00	37.47	
14	7-8	0	27	27	486	75.45	50	125.45	83.63	250.90	100	46	3.18	0.15	137.62	137.47	100.00	37.47	
15	8.1-8	4		4	72	11.18		11.18	7.45	22.36	100	25	0.04	0.00	137.62	137.62	100.00	37.62	
16	8.2-8	7		7	126	19.56		19.56	13.04	39.12	100	55	0.10	0.01	137.62	137.61	100.00	37.61	
17	8-9	0	38	38	684	106.19	50	156.19	104.13	312.38	100	22	4.78	0.11	137.72	137.62	100.00	37.62	
18	9.1-9	17		17	306	47.51		47.51	31.67	95.01	100	150	0.53	0.08	137.72	137.64	100.00	37.64	

M. Sanyal

19	9-14	0	182 Commun.	182 Commun.	3276	508.60	50	558.60	372.40	1117.20	150	130	7.04	0.92	138.64	137.72	100.00	37.72	
20	10.1-10	Commer.	0	0	0	0.00	20	20.00	13.33	40.00	100	50	0.11	0.01	134.57	134.57	100.00	34.57	
21	10.2-10	4	—	4	72	11.18		11.18	7.45	22.36	100	27	0.04	0.00	134.57	134.57	100.00	34.57	
22	10-11	48	4	52	936	145.31	20	165.31	110.21	330.63	100	200	5.31	1.06	135.64	134.57	100.00	34.57	
23	11.1-11	4	—	4	72	11.18		11.18	7.45	22.36	100	25	0.04	0.00	135.64	135.64	100.00	35.64	
24	11-12	33	56	89	1602	248.71	20	268.71	179.14	537.42	100	180	13.05	2.35	137.99	135.64	100.00	35.64	
25	13.2-13	14 V.B.	—	14 V.B.	252	39.12	1	40.12	26.75	80.25	100	65	0.37	0.02	138.45	138.43	100.00	38.43	
26	13.1-13	5	—	5	90	13.97		13.97	9.32	27.95	100	40	0.06	0.00	138.45	138.45	100.00	38.45	
27	13-14	19	19 V.B.	38 V.B.	684	106.19	1	107.19	71.46	214.38	100	80	2.34	0.19	138.64	138.45	100.00	38.45	
28	12-14	0	89 Commer.	89 Commer.	1602	248.71	20	268.71	179.14	537.42	100	50	13.05	0.65	138.64	137.99	100.00	37.99	
29	14-15	8	309 Commer. + V.B. + Commun.	317 Commer. + V.B. + Commun.	5706	885.86	71	956.86	637.90	1913.71	150	56	19.03	1.07	139.70	138.64	100.00	38.64	
30	15.1-15	7		7	126	19.56		19.56	13.04	39.12	100	42	0.10	0.00	139.70	139.70	100.00	39.70	
31	PLANT ROOM-15	0	324 Commer. + V.B. + Commun.	324 Commer. + V.B. + Commun.	5832	905.42	71	976.42	650.95	1952.84	150	15	19.75	0.30	140.00	139.70	100.00	39.70	

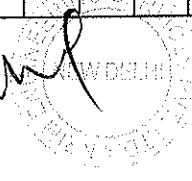
M. B. B.

ENGINEERING SERVICE
NEW YORK
JAN 19 1960

DESIGN STATEMENT— FRESH WATER SUPPLY
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D, GURGAON - AREA MEASURING 20.589 ACRES

HYDRAULIC STATEMENT FOR RECYCLED (FLUSHING) WATER WATER SUPPLY

S.NO.	LINE	NO OF PLOT SERVED			POPULATION ON PLOT	REQUIREMENT OF 155.25 LTRS PER PLOT	REQUIREMENT OF COMMUNITY, COMMERCIAL & V.B. IN KLD	TOTAL REQUIREMENT IN KLD	TOTAL FRESH REQUIREMENT (1/3RD OF Total Water Requirement. (KLD)	PEAK REQUIREMENT (3 TIMES	SIZE OF PIPE MM	LENGTH OF PIPE IN MTS.	LOSS OF HEAD IN MTS. 1000 MTS.	TOTAL HEAD LOSS IN MTS.	HYDRAULIC LEVELS	GROUND FORMATION LEVEL AT LOWER END	TERMINAL LEVEL AT LOWER END	REMARKS	
		SELF	BRANCH	TOTAL											UPPER END	LOWER END			
1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19
1	2-1	34	—	34	612	95.01	0	95.01	31.67	95.01	80	135	1.56	0.21	132.35	132.14	100.00	32.14	
2	2.1-2	13	—	13	234	36.33		36.33	12.11	36.33	80	90	0.26	0.02	132.35	132.33	100.00	32.33	
3	2-3	5	47	52	936	145.31		145.31	48.44	145.31	80	57	3.43	0.20	132.55	132.35	100.00	32.35	
4	3.1-3	4		4	72	11.18		11.18	3.73	11.18	80	37	0.03	0.00	132.55	132.54	100.00	32.54	
5	3-4	34	56	90	1620	251.51		251.51	83.84	251.51	80	160	9.46	1.51	134.06	132.55	100.00	32.55	
6	4.1-4	31		31	558	86.63		86.63	28.88	86.63	80	260	1.32	0.34	134.06	133.72	100.00	33.72	
7	9-4	6	121	127	2286	354.90		354.90	118.30	354.90	80	44	17.92	0.79	134.85	134.06	100.00	34.06	
8	5.2-5	Commun.			0	0	0.00	50	50.00	16.67	50.00	80	53	0.48	0.03	134.49	134.47	100.00	34.47
9	5.1-5	10	—	10	180	27.95		27.95	9.32	27.95	80	35	0.16	0.01	134.49	134.49	100.00	34.49	
10	5-6	0	10	10	180	27.95	50	77.95	25.98	77.95	80	52	1.08	0.06	134.55	134.49	100.00	34.49	
11	6.1-6	9	—	9	162	25.15		25.15	8.38	25.15	80	35	0.13	0.00	134.55	134.55	100.00	34.55	

M. Banerjee


12	6-7	0	19	19	342	53.10	50	103.10	34.37	103.10	80	50	1.81	0.09	134.64	134.55	100.00	34.55	
13	7.1-7	8	—	8	144	22.36	0	22.36	7.45	22.36	80	30	0.11	0.00	134.64	134.64	100.00	34.64	
14	7-8	0	27	27	486	75.45	50	125.45	41.82	125.45	80	46	2.61	0.12	134.76	134.64	100.00	34.64	
15	8.1-8	4	—	4	72	11.18	—	11.18	3.73	11.18	80	25	0.03	0.00	134.76	134.76	100.00	34.76	
16	8.2-8	7	—	7	126	19.56	—	19.56	6.52	19.56	80	55	0.08	0.00	134.76	134.76	100.00	34.76	
17	8-9	0	38	38	684	106.19	50	156.19	52.06	156.19	80	22	3.92	0.09	134.85	134.76	100.00	34.76	
18	9.1-9	17	—	17	306	47.51	—	47.51	15.84	47.51	80	150	0.43	0.06	134.85	134.78	100.00	34.78	
19	9-14	0	182	182	3276	508.60	50	558.60	186.20	558.60	100	130	14.01	1.82	136.67	134.85	100.00	34.85	
20	10.1-10	—	—	0	0	0.00	20	20.00	6.67	20.00	80	50	0.09	0.00	133.34	133.33	100.00	33.33	
21	10.2-10	4	—	4	72	11.18	—	11.18	3.73	11.18	80	27	0.03	0.00	133.34	133.34	100.00	33.34	
22	10-11	48	4	52	936	145.31	20	165.31	55.10	165.31	80	200	4.35	0.87	134.21	133.34	100.00	33.34	
23	11.1-11	4	—	4	72	11.18	—	11.18	3.73	11.18	80	25	0.03	0.00	134.21	134.21	100.00	34.21	
24	11-12	33	56	89	1602	248.71	20	268.71	89.57	268.71	80	180	10.70	1.93	136.13	134.21	100.00	34.21	
25	13.2-13	14	—	14	252	39.12	1	40.12	13.37	40.12	80	65	0.30	0.02	136.52	136.50	100.00	36.50	
26	13.1-13	5	—	5	90	13.97	—	13.97	4.66	13.97	80	40	0.05	0.00	136.52	136.51	100.00	36.51	
27	13-14	19	19	38	684	106.19	1	107.19	35.73	107.19	80	80	1.92	0.15	136.67	136.52	100.00	36.52	
28	12-14	0	89	89	1602	248.71	20	268.71	89.57	268.71	80	50	10.70	0.54	136.67	136.13	100.00	36.13	
29	14-15	0	309	309	5562	863.50	71	934.50	311.50	934.50	100	15	36.27	0.54	137.21	136.67	100.00	36.67	
30	15.1-15	15	—	15	270	41.92	—	41.92	13.97	41.92	80	75	0.34	0.03	137.21	137.19	100.00	37.19	
31	STP-15	0	324	324	5832	905.42	71	976.42	325.47	976.42	100	20	39.35	0.79	138.00	137.21	100.00	37.21	STP Plant Room at 93.0

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MATERIAL DETAIL — SEWERAGE
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 20.589 ACRES

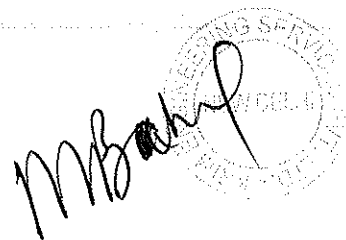
S.NO.	SEWER LINE MARKED AS	SIZE OF SEWER LINE IN MM	LENGTH OF SEWER LINE IN MTS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.			
					200MM DIA		250MM DIA	350MM DIA
					0-2M	2-4M	2-4M	2-4M
1	N1.1 - N1	200	18	0.95	18			
2	N1.2 - N1	200	47	1.02	47			
3	N1 - N2	200	198	1.67	198			
4	N2.1 - N2	200	19	0.95	19			
5	N2 - N3	200	177	2.66		177		
6	N3 - N15	200	50	3.25		50		
7	N4.1 - N4	200	36	0.99	36			
8	N4.2 - N4	200	64	1.07	64			
9	N4 - N15	200	77	1.44	77			
10	N5 - N16	200	82	1.12	82			
11	N6.1 - N6	200	120	1.22	120			
12	N6.2 - N6	200	96	1.15	96			
13	N6 - N7	200	50	1.66	50			
14	N7.1 - N7	200	30	0.98	30			
15	N7 - N8	200	162	2.22		162		
16	N8.1 - N8	200	258	1.58	258			
17	N8 - N9	200	40	2.75		40		
18	N9.1 - N9	200	150	1.29	150			
19	N9 - N14	250	46	3.02			46	
20	N10.1 - N10	200	30	0.98	30			
21	N10.2 - N10	200	52	1.04	52			
22	N10 - N11	200	49	1.30	49			
23	N11.1 - N11	200	27	0.97	27			
24	N11 - N12	200	49	1.56	49			
25	N12.1 - N12	200	24	0.96	24			
26	N12 - N13	200	44	1.81	44			
27	N13.1 - N13	200	23	0.96	23			

M. Sahil



S.NO.	SEWER LINE MARKED AS	SIZE OF SEWER LINE IN MM	LENGTH OF SEWER LINE IN MTRS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.			
					200MM DIA		250MM DIA	350MM DIA
					0-2M	2-4M	2-4M	2-4M
28	N13 - N14	200	66	2.09		66		
29	N14 - N15	250	76	3.33			76	
30	N15 - N16	350	12	3.63				12
31	N16 - STP	350	12	3.66				12
32	STP - OUTFALL	200	70	1.00	70			
TOTAL LENGTHS (in MTRS.)					1613	495	122	24

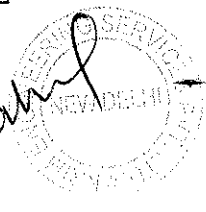
Say Say
 1615 495 Say 125 Say 25
 Meter Meter Meter Meter



**MATERIAL DETAIL — STORM WATER DRAINAGE
FOR SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D, GURGAON -
AREA MEASURING 20.589 ACRES**

S.NO	DRAIN LINE MARKED AS	SIZE OF DRAIN LINE IN MM	LENGTH OF DRAIN LINE IN MTS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.	
					400MM DIA	
					0-2M	2-4M
1	N1.1-N1.4	400	120	1.11	120	
2	N1.2-N1.4	400	96	1.08	96	
3	N1.4-N1	400	15	1.22	15	
4	N1.3-N1	400	90	1.08	90	
5	N1-OUTFALL	400	20	1.25	20	
6	N2.1-N2	400	172	1.15	172	
7	N2.2-N2	400	144	1.13	144	
8	N2-OUTFALL	400	20	1.32	20	
9	N3-N8	400	360	1.32	360	
10	N4.1-N4	400	30	1.03	30	
11	N4-N5	400	50	1.10	50	
12	N5.1-N5	400	27	1.02	27	
13	N5-N6	400	49	1.18	49	
14	N6.1-N6	400	24	1.02	24	
15	N6-N7	400	44	1.26	44	
16	N7.1-N7	400	23	1.02	23	
17	N7-N8	400	66	1.36	66	
18	N8-N15	400	27	1.66	27	
19	N9.1-N9	400	18	1.02	18	

MBan



S.NO	DRAIN LINE MARKED AS	SIZE OF DRAIN LINE IN MM	LENGTH OF DRAIN LINE IN MTS.	AVG. DEPTH	LENGTH OF LINE IN MTRS.	
20	N9.2-N9	400	47	1.04	47	
21	N9-N10	400	198	1.26	198	
22	N10.1-N10	400	20	1.02	20	
23	N10-N11	400	190	1.60	190	
24	N11-N14	400	50	1.81	50	
25	N12-N14	400	92	1.08	92	
26	N13.1-N13	400	37	1.03	37	
27	N13.2-N13	400	64	1.06	64	
28	N13-N14	400	77	1.18	77	
29	N14-N15	400	48	1.89	48	
30	N15-OUTFALL	400	25	1.96	25	
	TOTAL LENGTHS				2243	

Say 2245 Meter

MS



MATERIAL STATEMENT FOR FRESH WATER SUPPLY PIPES
— SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 20.589 ACRES

S.NO.	LINE MARKED AS	SIZE PIPE MM	OF IN	LENGTH OF PIPE IN MTRS.	LENGTH OF LINE IN MTRS.	
					100MM DIA	150MM DIA
1	2-1	100		135	135	
2	2.1-2	100		90	90	
3	2-3	100		57	57	
4	3.1 - 3	100		37	37	
5	3 - 4	100		160	160	
6	4.1-4	100		260	260	
7	9-4	100		44	44	
8	5.2 -5	100		53	53	
9	5.1 -5	100		35	35	
10	5 -6	100		52	52	
11	6.1 -6	100		35	35	
12	6 -7	100		50	50	
13	7.1 -7	100		30	30	
14	7 -8	100		46	46	
15	8.1 -8	100		25	25	
16	8.2 - 8	100		55	55	
17	8 -9	100		22	22	
18	9.1 -9	100		150	150	
19	9 -14	150		130		130
20	10.1 -10	100		50	50	
21	10.2 -10	100		27	27	
22	10 -11	100		200	200	
23	11.1 -11	100		25	25	
24	11 -12	100		180	180	
25	13.2 -13	100		65	65	
26	13.1 -13	100		40	40	

M. Ravi


27	13 -14	100	80	80	
28	12 - 14	100	50	50	
29	14 -15	150	56		56
30	15.1 -15	100	42	42	
31	PLANT ROOM- 15	150	15		15
FROM TUBEWELLS				540	
TOTAL LENGTHS				2635	201

Say, 205
Meter

150 mm Dia Water Supply Line from HUDA mains

150 M

MBam



**MATERIAL STATEMENT FOR FOR RECYCLED (FLUSHING)
WATER SUPPLY PIPES
— SIGNATURE GLOBAL PVT. LTD. AT SECTOR-37D,
GURGAON - AREA MEASURING 20.589 ACRES**

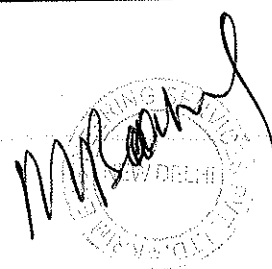
S.NO.	LINE MARKED AS	SIZE PIPE MM	OF IN	LENGTH OF PIPE MTS.	LENGTH OF LINE IN MTRS.	
					80MM DIA	100MM DIA
1	2-1	80		135	135	
2	2.1-2	80		90	90	
3	2-3	80		57	57	
4	3.1 - 3	80		37	37	
5	3 - 4	80		160	160	
6	4.1-4	80		260	260	
7	9-4	80		44	44	
8	5.2 -5	80		53	53	
9	5.1 -5	80		35	35	
10	5 -6	80		52	52	
11	6.1 -6	80		35	35	
12	6 -7	80		50	50	
13	7.1 -7	80		30	30	
14	7 -8	80		46	46	
15	8.1 -8	80		25	25	
16	8.2 - 8	80		55	55	
17	8 -9	80		22	22	
18	9.1 -9	80		150	150	
19	9 -14	100		130		130
20	10.1 -10	80		50	50	
21	10.2 -10	80		27	27	
22	10 -11	80		200	200	
23	11.1 -11	80		25	25	
24	11 -12	80		180	180	
25	13.2 -13	80		65	65	

MS

ENGINEERING SERVICE
NEW DELHI

**MATERIAL STATEMENT FOR ROAD — SIGNATURE GLOBAL PVT. LTD. AT
SECTOR-37D, GURGAON - AREA MEASURING 20.589 ACRES**

S.NO.	ROAD	LENGTH OF ROAD IN METERS		REMARKS
		9 M WIDE	24 M WIDE	
1	(1)	165		
2	(2)	95		
3	(3)	150		
4	(4)	30		
5	(5)	325		
6	(6)	452		
7	(7)	65		
8	(8)	73		
9	(9)	20		
10	(10)	45		
11	(11)	117		
12	(12)	35		
13	(13)	32		
14	(14)	30		
15	(15)	27		
16	(16)		131	
17	(17)		281	
TOTAL		1661	412	
Add 5% for curves		83.05	20.6	
TOTAL LENGTHS		1744	433	



Road Width (M)	Length in M (6 M wide)	Mettalled width (M)	Mettalled width (Sq.m)	kerb & Channels Fixing QTY.	No. of Trees
9 m wide road	1744	6	10464.3	two side 3488	291
24 m wide road	433	13.4	5796.84	two side 866	72
		Total	16261.14	4354	363

Say 16270 sq.m

Say 4360

Say 365

Handwritten signature and official stamp of the District Engineer, District of Delhi.