

Directorate of Town & Country Planning, Haryana

AayojnaBhawan, Plot No. 3, Block-A, Madhya Marg, Sector 18A, Chandigarh.

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Regd.
To

✓ Sh. Satpal Singh-Bhopal Singh Ss/o Sh. Surta,
Sh. Praveen Kumar-Sh. Lokesh Kumar Ss/o Sh. Rajkumar Singh
and Sh. Ravinder Raghav S/o Sh. Narender Singh
In collaboration with Ekaakshara Builders,
LLP Unit 303, Suncity Success Tower,
Sector-65, Gurugram-122005

Memo No. LC-5621/JE(DS)/2025/ 32466 Dated: 20-08-2025

Subject: Approval of Service Plan Estimate for Affordable Plotted Colony (DDJAY-2016) over an area measuring 11.0875 acres under licence no. 118 of 2025 dated 14.07.2025 in the revenue estate of village Sohna, Sector-5, Sohna -Ekaakshara Builders LLP.

Reference:- Chief Administrator, HSVP, Panchkula office memo no. 260910 dated 08.08.2025 on the subject cited matter

The service plan estimates for aforesaid colony have been checked and corrected wherever necessary by Chief Administrator, HSVP, Panchkula and are hereby approved subject to the following terms & conditions:

1. That you will abide by all the conditions and notes mentioned in the Service Plan Estimates of the subject cited colony contained in the Chief Administrator, HSVP, Panchkula office memo dated 08.08.2025.
2. That you will have to pay the proportionate cost to the External Development Charges for setting up of an Affordable Plotted Colony (DDJAY) for the services like water supply, sewerage, storm water drainage, roads, bridges, community building, street lighting, horticulture and maintenance thereof etc. on gross acreage basis as and when determined by HSVP. These charges will be modifiable as and when approved by the authority/State Govt. and will be binding upon the colonizer.
3. The category wise area shown on the plans and proposed density of population thereof has been treated to be correct for the purpose of services only.
4. That you shall be responsible for maintenance and upkeep of all roads, open spaces, public parks and public health services for a period of five years from the date of issue of the completion certificate under rule 16 unless earlier relieved of this responsibility and there upon to transfer all such roads, open spaces, public parks and public health services free of cost to the Government or the local authority, as the case may be.
5. The wiring system of street lighting will be under ground and the specifications of the street lighting fixture etc. will be as per relevant standard of HVPNL. LED lamps shall be provided to meet the requirement of HVPNL and as well environment.
6. It is made clear that appropriate provision for fire-fighting arrangement as required in the NBC/ISI should also be provided by you and fire safety certificate should also be obtained from the competent authority before undertaking any construction. You shall be sole responsible for fire safety arrangement.

7. All technical notes and comments incorporated in the estimates in two sheets will also apply. A copy of these is also appended as Annexure-A.
8. That you shall execute the development works as per Environmental Clearance and comply with the provisions of Environment Protection Act, 1986, Air (Prevention and Control of Pollution of Act 1981) and Water (Prevention and Control of Pollution of 1974). In case of any violation of the provisions of said statutes, you shall be liable for penal action by Haryana State Pollution Controlled Board or any other Authority Administering the said Acts.

A copy of the approved service plan/estimates is enclosed herewith. You are requested to supply three additional copies of the approved service plan/ estimates to the Chief Administrator, HSVP Panchkula under intimation to this office.

DA/As Above.


(Sunena)

District Town Planner (HQ)
For Director, Town & Country Planning,
Haryana, Chandigarh. 

Endst. No. LC-5621/JE(DS)/2025/

Dated:

A copy is forwarded to the Chief Administrator, HSVP, Panchkula with reference to his memo No. CA-HSVP/CE-I/II/SE(HQ)/EE(M)/SDE(G)/2025/260910 dated 08.08.2025 for information and necessary action please.

(Sunena)

District Town Planner (HQ)
For Director, Town & Country Planning,
Haryana, Chandigarh.

**PROPOSED AFFORDABLE PLOTTED
COLONY UNDERDEEN DAYAL JAN AWAS
YOJANA (DDJAY) ON LAND
ADMEASURING 11.0875 ACRES SITUATED
IN REVENUE ESTATE OF VILLAGE SOHNA
AT
SOHNA, SECTOR-5, GURUGRAM
(HARYANA)**

**SERVICE PLAN ESTIMATE
FOR
PUBLIC HEALTH ENGINEERING SERVICES WORK**

Client

**SATPAL SINGH, BHOPAL SINGH BOTH
S/o SH. SURTA, PRAVEEN KUMAR, LOKESH
KUMAR BOTH S/o SH. RAJKUMAR SINGH,
RAVINDER RAGHAV S/o SH. NARENDER S
INGH IN COLLABORATION WITH M/s E
KAAKSHARA BUILDERS LLP.**

**MEP SERVICES CONSULTANT
PARADISE CONSULTANTS**

PLOT 129, POCKET 2, BASEMENT, JASOLA VIHAR, NEW DELHI - 110 025

PROJECT REPORT / ESTIMATES FOR PROVIDING INTERNAL SERVICES e.g. WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE ETC. IN RESPECT OF PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJNA (DDJAY) OVER AN AREA MEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM

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

PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND MEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM. DEVELOPED BY SATPAL SINGH, BHOPAL SINGH BOTH S/o SH. SURTA, PRAVEEN KUMAR, LOKESH KUMAR BOTH S/o SH. RAJKUMAR SINGH, RAVINDER RAGHAV S/o SH. NARENDER SINGH IN COLLABORATION WITH M/s EKAASHARA BUILDERS LLP

1 Water Supply

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

i.) Source

The source of water supply in this area is tubewells as the underground water is sweet and fit for human consumption, moreover, the water is available at reasonable depth. The average yield of tubewell with 60'-80' strainer will be about 26000 lph 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 tubewells required for the above area has been worked out to 02 Nos and the tubewells will be bored in tune with growth of demand to avoid absence of the tubewells.

ii.) Design

The scheme has been designed for population of 2754 persons in 11.0875 Acre. The rate of water supply per head per day has been taken assumed as 172.5 litres per head per day as per HUDA norms. In addition to above necessary provision of water for Community building, Commercial building, parks etc. have been taken into account for calculating the maximum number of tubewell water required.

iii.) Pumping Equipments

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

iv.) Under Ground Storage

Underground storage tank provision has been made, which caters for the present and a lot of future requirement as well as fire fighting requirement. The water for domestic water compartment shall overflow from the fire compartment so that the water in the fire compartment also remains fresh.

v.) **Boosting Station**

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

vi.) **Distribution System**

The distribution systems for this development are has been designed to supply @ 172.5 Litres per head per day @ 3 times the average rate of flow on 'Hazen Willima' formula with C-100. Necessary provision for laying 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 about 21.00 metres so that it can serve the S+4 stories construction envisaged in the plan. Minimum pipe diameters for distribution are kept as 100 dia.

vii.) **Rising Mains**

Rising mains from HUDA water main on sector road to water works have also been designed and provision for D.I. pipe line (dia as/design) has been made in this estimate.

2 **Sewerage**

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

The sewer lines have been designed for 3 times average DWR in relation to the water supply demand assuming that 80% fo the domestic water supply shall find its way into the proposed sewer SW pipe sewers have been proposed designed to run half full. The sewers have been designed on 0.75 mtr. per second velocity ie. Self cleansing velocity. Necessary provisions for laying SW pipes manholes etc. has been made in this estimate.

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

3 **Storm Water Drainage**

The storm water drain is being designed to carry 35 mm rain fall per hour. Also suitable provisions are contemplated in our scheme to ensure better recharging of under ground water table in the area. RCC NP 3 pipe drain with minimum 400 mm dia is proposed in this area.

4 **Roads**

Cost of road has been taken in the estimate.

5 **Street Lighting**

Provision for street lighting on surrounding area has been made.

5 **Horticulture**

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

7 Specifications :

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

8 Rates

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

9 Cost

The total cost of development in this Project including various PH & B & R services works out to **Rs. 1151.80** ~~1169.515~~ lacs which includes 3% contingency and PE charges and 49% departmental charges also.

The cost per gross acre for this phase works out to **Rs. 103.88** ~~105.57~~ Lacs/acre which covers the provision of services like water supply, sewerage, storm water drainage, roads, street lighting and plantations including plantations maintenance thereof as well as future expansion whatsoever indicated.

SATPAL SINGH, BHOPAL SINGH BOTH S/o SH. SURTA,
PRAVEEN KUMAR, LOKESH KUMAR BOTH S/o SH.
RAJKUMAR SINGH, RAVINDER RAGHAV S/o SH.
NARENDER SINGH IN COLLABORATION WITH M/s
EKAASHARA BUILDERS LLP

Authorised Signatory



**PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY)
ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA,
TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.**

DESIGN CALCULATION

1 Plots

Total No. of Plots	153 Nos.
Population per plot	18.0 persons
Therefore population	2754 persons
SAY	2754 persons

Water requirement for plots (General) @ 172.50 Lpd.

Water requirement for plots (General) Domestic @ 70 % Flushing @ 30 %
@ 113.00 59.30 Lpd.
120.75 51.75
332.55 142.52
or 311.20 142.52
332.55 142.52
276.00 persons

2 Visitors @ 10%

Water requirement @ 15.00 Lpd.

Water requirement Domestic Flushing
@ 5.00 10.00 Lpd.
1380 2760 Lpd.
or 1.38 2.76 Kld.

3 COMMERCIAL (0.225 ACRES) + 0.213 Acres = 0.439 acres

Total Population

Staff @ 10%

Visitors @ 90%

Per Person Water Requirement

Staff

Visitors

Daily Water Requirement

Staff

Visitors

@ 3200 Ltr/Acre

therefor Daily Req. = 14048 Ltr

11.552 sq.m
304
30
273
7.73 Kld
Domestic Flushing
25.00 20.00 Lpd.
5.00 10.00 Lpd.
1567.33 607.70 Lpd.
4101.98 2734.66 Lpd.
2.13 3.34 Kld.



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

4	COMMERCIAL (0.213 ACRES)	865.950	sq.m		
		@		3	sq.m/per
	Total Population	289			
	Staff @ 10%	29	-	-	Person
	Visitors @ 90%	260	-	-	Person
	Per Person Water Requirement		Domestic	Flushing	
	Staff	45.00	25.00	20.00	Lpd.
	Visitors	15.00	5.00	10.00	Lpd.
	Daily Water Requirement				
	Staff	1298.93	721.63	577.30	Lpd.
	Visitors	3896.78	1298.93	2597.85	Lpd.
			2.02	3.18	Kld.
5	COMMUNITY (1.109 ACRES)	4487.55	sq.m		
		@		1.8	sq.m/per
	Population	2493			
	Staff @ 10%	249	-	-	Person
	Visitors @ 90%	2244	-	-	Person
	Per Person Water Requirement		Domestic	Flushing	
	Staff	45.00	25.00	20.00	Lpd.
	Visitors	15.00	5.00	10.00	Lpd.
	Daily Water Requirement				
	Staff	11218.87	6232.71	4986.17	Lpd.
	Visitors	33656.62	11218.87	22437.75	Lpd.
			17.45	27.42	Kld.
6	Filter Backwash (Assumed Lumsum)	@	20.00	0.00	Kld.
7	Total water Requirement (1+2+3+4+5)	Total	354.18	200.56	Kld.
			377.73	176.26	
8	GREEN AREA	5305.43	Sq.m		
	Daily water requirement	@	-	5305.429	Sqm.
			-	6.00	Ltr./Sqm.
			-	32734.5	Lpd.
			-	31832.57	Lpd.
			-	31832.57	Lpd.
			0.00	31.83	Kld.
				32.73	Kld.
				or 14.15	Kld.
I	Total Daily Requirement				
	a) For Domestic+Flushing use (1+2+3+4)		354.18	200.56	Kld.
			377.73	176.26	
	b) Green Area		0.00	31.83	Kld.
				46.88	
	Total Daily Requirement		377.73	232.40	Kld.
		SAY	360.00	240.00	Kld.
			280	225	Kld.

Road area out of 11.0875 acre = 2.83 Acre

@ 5m Ltr/Acre = 14150 Ltr



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

II Tubewell			
Assuming working hours of tubewells			10 Hours
Assuming discharge/hour of each tubewell			26 KL/Hours
Total domestic demand			254.18 Kld.
No. of tubewells required	354.18 / 26 / 10	380 Say	1.46 380 2.00 Nos.
III Pumping machinery for tubewell			
Gross working load	=		45.00 Mtr.
Average fall in SL	=		3.05 Mtr.
Depression head	=		6.10 Mtr.
Friction loss in main	=		2.50 Mtr.
	=		56.65 Mtr.
Say	=		60.00 Mtr.
BHP = $26000 \times 60 \times 1 / 60 / 60 / 75 / 0.6$	=		9.63 HP
With 60% efficiency	Say		10.00 HP
IV Underground Tank			
Daily requirement for domestic use	=		354.18 Kld.
Capacity of under ground tank			380 Kld.
14 hours storage $(25 \times 33) 58\%$. say 60%.	354.18 $\times 16 / 24$	228.00	236.12 Kld.
Cap. of UGT = $230 + 60 = 290$ Kld.	Say		230.00 Kld.
Daily requirement for Flushing use	=		232.40 Kld.
Capacity of under ground tank			225.00 Kld.
14 hours storage	232.40 $\times 16 / 24$	155.00	154.93 Kld.
Say			150.00 Kld.
Fire Tank Capacity as per SP35 IS Code $100 \sqrt{P} = 100 \sqrt{1.566} \times 1/3$	=		82.98 KLD
	2.754		60.00 KLD
Say			60.00 KLD
TOTAL (Dom. + Fire)			350.00 KLD



It is proposed to provide under ground tank of capacity **350 KL** which also includes **90 KL** capacity for fire fighting.

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.

It is proposed to provide the under ground tank of following capacity :

Capacity of Fire Water Tank-01	30.0	45.00 Kld.
Capacity of Fire Water Tank-02	30.0	45.00 Kld.
Capacity of Raw Water Tank-01	57.5	65.00 Kld.
Capacity of Raw Water Tank-02	57.5	65.00 Kld.
Capacity of Domestic Water Tank-01	57.5	65.00 Kld.
Capacity of Domestic Water Tank-02	57.5	65.00 Kld.
Capacity of Flushing Water Tank-01 (Location at STP)	75.0	80.00 Kld.
Capacity of Flushing Water Tank-02 (Location at STP)	75.0	80.00 Kld.
		UGT

V BOOSTING MACHINERY (Domestic)

UG. Tank

Daily requirement for domestic use

Assuming 8 hours pumping

Discharge/hour

Head of pump

i) Suction lifts

ii) Friction loss in M<main & specials

iii) Clear head

iv) Residual head

2 pumps (with one standby)

334.18 / 8 / 2 =

357.17

357.33

334.18 Kld.

20.80 KL/Hours

22.35 or 372.63 Ltr

say 375 Ltr

0.0 Mtr.

5.0 Mtr.

35.0 Mtr.

5.0 Mtr.

45.0 Mtr.

BHP of motor

$\frac{375 \times 45}{60 \times 75 \times 0.60}$

6.25

5.00 HP

7.50

6.00 HP

Daily requirement for flushing use

Assuming 8 hours pumping

Discharge/hour

Head of pump

i) Suction lifts

ii) Friction loss in M<main & specials

iii) Clear head

iv) Residual head

1 pump (with one standby)

200.56 / 8 / 1 =

225.0

200.56 Kld.

225.0

200.56

25.07 KL/Hours

28.12

0.0 Mtr.

5.0 Mtr.

35.0 Mtr.

5.0 Mtr.

45.0 Mtr.

BHP of motor

$\frac{475 \times 45}{60 \times 75 \times 0.60}$

7.91

6.96 HP

10.0

7.0 HP



Gen Set	Nos.	HP	
Pumps for UG. Tank (Domestic)	2	6.0 7.50	15.0 12 HP
Pumps for UG. Tank (Flushing)	1	2.0 10.0	10.07 HP
Tubewell	2	10.0	20 HP
Lighting		=	20 HP
			64 HP
			55.0
	or	55.0 64 x 0.746 x 1.5	61.54 74.62 KVA
		Say	80.00 KVA
			63.0
VI Sewage Treatment Plant Capacity (STP.)			
Gross Domestic+Flushing water requirement / day			553.99 554.75 Kld.
Sewage flow (80% domestic)			443.19 443.80 Kld.
Proposed STP. Capacity			22.16 465.35 STP say 465 lacs
			Add 5% for marginal factor



Estimate for Providing in Internal Development works for

SATPAL SINGH, BHOPAL SINGH BOTH S/o SH. SURTA, PRAVEEN KUMAR, LOKESH KUMAR BOTH S/o SH. RAJKUMAR SINGH, RAVINDER RAGHAV S/o SH. NARENDER SINGH IN COLLABORATION WITH M/s EKAASHARA BUILDERS LLP

Description	Amount (Lacs.)
Sub Work - I Water Supply Scheme	251.99
Sub Work - II Sewerage Scheme	161.40
Sub Work - III Storm Water Drainage Scheme	128.17
Sub Work - IV Roads & Footpath	261.13
Sub Work - V Street Lighting	42.54
Sub Work - VI - Horticulture	11.46
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)	295.10

Total 1151.79

say 1151.80

(RUPEES ELEVEN CRORES FIFTY ONE LACS EIGHTY THOUSAND ONLY)

COST PER ACRE

103.88 Lacs

SATPAL SINGH, BHOPAL SINGH BOTH S/o SH. SURTA, PRAVEEN KUMAR, LOKESH KUMAR BOTH S/o SH. RAJKUMAR SINGH, RAVINDER RAGHAV S/o SH. NARENDER SINGH IN COLLABORATION WITH M/s EKAASHARA BUILDERS LLP



Authorized Signatory

Superintending Engineer,
HSVP Circle-I, Gurugram

Executive Engineer
HSVP Division No. VI
Gurugram

08/08/2025 260910

Director
Town & Country Planning
Haryana



हरियाणा शहरी विकास प्राधिकरण

HARYANA SHEHARI
VIKAS PRADHIKARAN

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Toll Free No. : 1800-180-3030
Website : www.hsvp.in
Email : cencrhuda@gmail.com

Address: C-3, HSVP, HQ Sector-6
Panchkula

C.E.I-No. 960910
Dated: 08/04/2025
Annexure-A

SUB:-

Approval of service plan estimates of Affordable Residential Plotted Colony (DDJAY-2016) developed under License no. 118 of 2025 dated 14.07.2025 on an area measuring 11.0875 acres situated in the revenue estate of Village Sohna, Sector-5, Sohna, District-Gurugram, Haryana being developed by M/s Ekaakshara Builders LLP.

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 HSVP and further shall also confirm to such directions, as issued by Chief Engineer, HSVP from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HSVP. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HSVP 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/ HSVP. All link connections with the State Government/ HSVP system and services will be done by the colonizer. If necessary extra tube-wells shall also be installed to meet extra demand of water beyond the provision according to EDC deposited.
6. Structural design & drawings of all the structures, such as pump chamber, boosting chamber, RCC OHSR underground tanks quarters, manholes chamber, sections of RCC pipes sewer and SW pipes, sewer, ventilating shafts for sewerage and Masonry Ventilation Chamber for Chamber for storm water drainage, temporary disposal/ arrangement etc. will be as per relevant I.S codes and PWD specifications; colonizer himself will be responsible for structural stability of all structures.
7. Potability of water will be checked and confirmed and the tube-wells will be put into operation after getting chemical analysis of water tested.



हरियाणा शहरी विकास प्राधिकरण

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Email : cencrhuda@gmail.com

Address: C-3, HSVP, HQ Sector-6
Panchkula

8. Only D.I pipes will be used in water supply and flushing system, UPVC/ HDPE pipe for irrigation purposes.
9. A minimum 100 & 150mm i/d/D.I (K-7), 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 HSVP. If needed, the same may be sought by the colonizer from concerned Executive Engineer of HSVP.
11. The developer may be directed to get the Sewage Treatment Plant (STP) got designed from a Govt. Institute like IIT, NIT etc. so as to ensure that the technology adopted by him is appropriate. He must take this action before construction of STP and submit documentary proof for the same at the time of grant of occupation certificate. The efficacy of such STP shall be checked randomly by the concerned Regional Officer of HSPCB.
12. 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. If needed, the same may be sought by the colonizer from concerned Executive Engineer of HSVP
13. The specifications for various roads will be followed as per IRC/MORTH specifications.
14. The wiring system of street lighting and specifications of street lighting fixture will be as per relevant standards.
15. This shall confirm to such other conditions as are incorporated in the approved estimate and the letter of approval.


Executive Engineer (M),
For Chief Administrator, HSVP,
Panchkula

FINAL ABSTRACT OF REVISED COST

Description	Amount (Lacs.) Rs. in lacs
Sub Head - (I) Head Works	81.75 41.75
Sub Head - (II) Pumping Machinery	28.50 24.55
Sub Head - (III) Distribution System (Domestic + Flushing) + Rising main	49.81 61.33
Sub Head - (IV) Irrigation Scheme	2.05 11.95
Sub Head - (V) Fire Scheme Hydrants	2.08 2.58
	<u>164.19</u>
Total	142.16
Add 3% Contingencies	4.93 4.26
	<u>169.12</u>
Total	146.43
Add 49% Departmental Charges	82.87 71.75
	<u>251.99</u>
Grand Total	218.17
(CO to final abstract of cost)	Say ₹ 251.99 lacs 218.17



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work I Sub Head No. I				Water Supply Head Works	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount Rs. (lacs)
1	Boring and installing 510 mm i/d tubewells with reverse/direct rotary rig complete with pipe strainer to a depth of about 80 m. complete.	Nos.	2	1500000.00	30.00
2	Constructing pump chambers as per standard design of PWD PH/HUDA of size 1.50x1.50 m.	Nos.	2	100000.00	2.00
3	Construction of boosting chambers of suitable size along with under ground tank & pumping machinery and generating set etc. complete in all respects.				
	Details of boosting station				
i)	construction of boosting chambers	Nos.	1	300000.00	4.00
ii)	construction of UG tank (Dom.+ Fire) <i>290kl incl. 60kl for fire and 150kl cap. for flushing water tank near STP separately</i>	KL	<i>250</i> 450 KL	<i>45000.00</i> 55000	<i>15.75</i> 24.75 lacs
4	Provision for carriage of material and other unforeseen items.	LS	-	-	<i>1.50</i> 1.50
<i>5</i>	<i>boundary wall around T.W. and W. works (L.S.)</i>	IS	-	-	<i>3.00</i>
<i>6</i>	<i>Prov. for footpath, Hedges & lawn etc. at T.W. (L.S.)</i>	IS	-	-	<i>1.50</i>
	(C.O. to abstract of cost of Sub-work No.I)				<i>15.75</i>
<i>7</i>	<i>Prov. for staff etc. of mtc. staff 2 No 3500' (L.S.)</i>			Say	<i>41.75</i> 41.75 Lacs
					<i>81.75</i> 81.75 lacs



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work I Sub Head No. II		Water Supply Pumping Machinery			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (in Lakhs)
1	Providing and installing electricity driven electro or submersible pumping set capable of delivering about 26 KL water per hour against a total head of 60 M complete with motor and other accessories. (10.0 HP)	Nos.	2	200000.00	4.00
2	Providing & installing electricity driven pumping set capable of delivering 375 LPM of water against a total head of 45 m complete with motor and other accessories (For Domestic - 6.0 HP). 7.5	Nos. each	(2+1) 3	150000.00	4.50 / 1.50 4.35
3	Providing & installing electricity driven pumping set capable of delivering 420 LPM of water against a total head of 45 m complete with motor and other accessories (For Flushing - 7.0 HP).	Nos.	(1+1) 2	150000.00	3.00 / 1.50 3.20
4	Provision for diesel engine generator set each for standby Arrangements for booster pump complete with gear haed arrangements of following capacities.				
i)	60 KVA	KVA	60 KVA	10000.00	8.00 9.0
5	Provision for cheap pressure type chlorination plant complete.	Nos.	1	100000.00	1.00
6	Provision for making foundations & erection of pumping machinery.	LS	-	-	2.00
7	Provision for pipes, valves & specials inside the pump chamber.	LS	-	-	1.00
8	Provision for electric services connection including electric fittings for tubewells chambers complete including cost of transformer.	LS	-	-	1.00 2.50
9	Provision for carriage for materials and other unforeseen items.	LS	-	-	1.00
(C.O. to abstract of cost of Sub-work No.I)				Total	28.50 / 1.50 24.55
				Say	24.55 28.50 / 1.50



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work I Sub Head No. III		Water Supply Distribution System/Rising Main			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, laying, jointing & testing D.I. K-7 pipes including cost of excavation complete as per ISI marked. (For Domestic, Flushing & Tube Well water supply line)				
	1020 + 1130 + 141				
i)	100 mm dia	M	2291m	14751	33.79 lac
	150 mm dia	m	135m	20401	2.75 lac
2	Providing, fixing & Testing butterfly valves including cost of complete in all respects.				
i)	100 mm i/d	Nos.	8 No	12000.00	168000.00
	150 mm i/d		2 No.	150001	0.96 lac
3	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				
i)	100 mm i/d	Nos.	3	14000.00	42000.00
4	Providing and fixing air valves and scour valves including cost of complete in all respects.	Nos.	10	10000.00	100000.00
5	Providing and fixing indicating plates for butterfly valve, air valve etc.	Nos.	23	2000.00	27000.00
6	Provision for carriage of material & other unshown	LS	-	-	200000.00
7	Provision for cutting the roads and making to its original conditions.	LS	-	-	200000.00
8	Making water supply connection. with main	LS	-	(6.5)	200000.00
9	Provision for rising main from HUDA water supply line to UG Tank.				
i)	100 mm dia DI K-7 Pipe	M	280	1475	4.13
				1250.00	350000.00
(C.O. to abstract of cost of Sub-work No.I)				Total	49.81 lac
				Say	6133250.00
					61.33 Lacs
					49.81 lac



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work I		Water Supply			
Sub Head No. IV		Irrigation Scheme			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, laying, jointing & testing uPVC pipe line confirming to IS 4985 including cost of Excavation etc. complete in all respect. (Note:- <u>For garden hydrants tapoff from flushing water supply line</u>)				
i)	25 OD	M	0	(L.S.) 240.00	0.25 0.00
ii)	40 OD	M	0	450.00	0.00
iii)	75 OD	M	0	750.00	0.00
iv)	90 OD	M	997	1050.00	1046850.00
2	Providing and fixing 20 mm PVC RQRC hydrant valve with PVC lid and PVC Keys for hydrant valve complete in all respect.	Nos.	21	5000.00	1.05 lacs 73500.00
3	Provision for carriage of materials etc. and other unforeseen charges.	LS	-	-	50000.00
4	Provision for cutting of roads & making good to its in original condition.	LS	-	-	25000.00
Total					1195350.00 2.05 lacs
Say					8 2.05 11.95 Lacs



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work I					
Sub Head No. V		Fire Scheme / Fire Hydrants			
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)	150 mm dia (For fire brigade withdrawl)	M	31	20401 2000.00	0.63 62000.00
3	Providing, fixing & Testing butter fly valve including cost of complete in all respects.				
a)	150 mm dia	Nos.	1	20000.00 15000	20000.00 0.15
4	Providing, fixing & Testing Non Return valves (NRV) including cost of complete in all respects.				
i)	150 mm i/d	Nos.	1	22500.00 14000	22500.00 0.14
5	Providing and fixing Fire Brigade connection.				
i)	2 way withdrawl connection.	Nos.	1	10000.00	10000.00
5	Provision for cutting of roads and carriage of materials etc. and other unforeseen charges <i>making good to its in original condition</i>	LS	-	-	50000.00
6	Provision for indication plates.	Nos.	3	2000.00	6000.00
7	Provision for carriage of material.	LS	-	-	50000.00
8	Provision for cutting of roads & making good to its in original condition.	LS	-	-	50000.00
Total					257500.00
Say					2.58 Lacs



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work II		Sewerage Scheme			
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing, lowering, jointing, cutting RCC NP₃ / DWC and specials into trenches including cost of excavation, bed concrete lot of manholes complete.				
i)	200 mm i/d				
a)	Average depth 0.0 m to 1.5 m	M	259	1700.00	440300.00
b)	Average depth 1.5 m to 4.5 m	M	646	2000.00	1317840.00
					12.92 lacs
i)	250 mm i/d				
a)	Average depth 1.5 m to 4.5 m	M	110	2400.00	264000.00
2	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	200000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforeseen charges.	LS	-	-	300000.00
4	Provision for connection with HUDA.	LS	-	-	200000.00
5	Cost of 500 ⁴⁶⁵ Kld Sewerage Treatment Plant. (Note: The STP cost is inclusive of civil & electromechanical part)	LS ^{KL}	500 ⁴⁶⁵	16000.00	744000.00
6	Provision for CI / DI pipe from STP. To Huda Main Line. (Over Flow pipe)				
i)	150 mm dia pipe.	M	15	2040	30625.00
				1575.00	23625.00
7	Provision for vent pipe as per P.H. Rep at suitable places				3.50 lacs
	Add 3% contingencies				10345765.00
	Add 49% Depts. Charges				105.17
					310372.95
					10656137.95
					3.15
					108.32
					5221507.596
					15877645.55
					53.08
					161.40
	(C.O. to abstract of cost of Sub-work No. 1)			Total	158.78 Lacs
				Say	



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work - III		Storm Water Drain			
S. No.	Description	Unit	Qty	Rate (Rs.)	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)	400 mm i/d				
a)	Average depth upto 1.5 m	M	929	2500.00	2322500.00
b)	Average depth 1.5 m to 4.5 m	M	0	2600.00	0.00
ii)	500 mm i/d				
a)	Average depth upto 1.5 m	M	55	3200.00	176000.00
b)	Average depth 1.5 m to 4.5 m	M	133	3400.00	455800.00 4.52
2	Provision for Road Gully & Drain. <i>pipe 300mm</i>	LS	-	-	300000.00
3	Provision for cutting of roads and carriage of materials etc. and other unforeseen items	LS	-	-	2,50000.00
4	Provision for disposal arrangements Recharge Pit.	Nos	10 Nos	350000.00	35.0 lacs 1250000.00
5	Provision for lighting, watching and temporary diversion of traffic	LS	-	-	100000.00
6	Provision for connection with HUDA.			(L.S.)	2.00 lacs
i)	500 mm i/d (Average depth 1.5 m to 4.5 m)	M	20	3400.00	68000.00
7)	<i>Provision for temporary disposal arrangements till HWP services are provided (L.S.)</i>				10.00 lacs
	Add 3% contingencies				83.51 lacs 4717000.00 141510.00
	Add 49% Deptt. Charges				2.51 lacs 4858510.00 2380669.90
					86.02 lacs 42.15 lacs
				Total	7239179.90
				SAY	72.39 Lacs 128.17 lacs
(C.O. to abstract of cost of Sub-work No. 1					



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work IV			Road Work		
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Provision for leveling & earth filling as per site condition 11.0875 acre @ 150000/acre	Acres	11.0875	150000 1.75 lacs	1663125.00 19.58 lacs
2	Construction of road by:- i) Providing GSB 200 mm thick. ii) 250 mm thick W.M.M. stone aggregate. iii) 50 mm thick BDM iv) 30 mm thick BC complete in all respect.	Sq. mtr.	11451.0 6545	1200 1750	13741200.00 114.54 lacs
3	Provision for making approach and pavement to building block by providing concrete pavement or tiles etc. metalled pavement in Comm. area 1-2. 50% of the area 0.213 ACS x 4047 = 862.28 Sqm	Sq. mtr.	3436.00 431 Sqm	1750	2577000.00 7.54 lacs
4	Provision for parking arrangement. demarcation Burge	LS.	-	-	100000.00
5	Provision for kerb stone with complete specification.	mtr.	2494.0 2500	700	1496400.00 17.50 lacs
6	Provision for Carriage of material as other unforeseen LS. Item (-L.S)	LS.	-	-	50000.00 5.00 lacs
7	Provision for traffic lighting and guide map/ indicators	LS.	-	-	500000.00
Total					19727725.00 170.16 lacs
Add 3% contingencies					591831.75 5.10 lacs
Total					20319556.75 175.26 lacs
Add 49 % department charges					203.20 85.87 lacs
SAY					302.76 261.13 lacs



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work V				Street Lighting	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Providing street lighting on internal roads as per standard specifications of HVPNL with CFL	per acre	11.0875	250000.00	2771875.00
	Add 3% contingencies				83156.25
				Total	2855031.25
	Add 49% Deptt. Charges				1398965.31
				Total	4253997.00
				SAY	₹ 42.54 Lacs

C.O. to final abstract of cost



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

Sub Work VI		Horticulture			
S. No.	Description	Unit	Qty	Rate (Rs.)	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 proper level by filling with earth mixed with manure before & after flooding 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)				
	11.0875 acres @ Rs. 0.5 lacs.	per acre	11.0875	50000.00	554,375
	75 trees @ Rs. 1300/- each				97,500
	a) <u>Planting of trees with Tsaigard on roads both side at 40' interval</u>				<u>4.85 lacs</u>
	<u>Length of road 1250 x 2 / 12 = 208.33</u>				<u>651875.00</u>
	<u>Say 210 Nos @ Rs. 2310/-</u>				<u>7.47 lacs</u>
	Add 3% contingency charges				<u>49556.25</u>
				Total	<u>671431.25</u>
	Add 49% Depts. Charges				<u>0.22 lacs</u>
				Total	<u>329001.31</u>
				Total	<u>1000432.56</u>
				Say	<u>10.00 Lacs</u>
					<u>11.46 lacs</u>



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5, GURUGRAM (HARYANA)

Sub Work VII				Maintenance Charges & Resurfacing of Roads	
S. No.	Description	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Provision for maintenance charges for water supply, sewerage, storm water drainage, 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.				
	11.0875 acres @ 7.5 lacs per acre	per acre	11.0875	750000.00 8.00 lacs	8315625 88.70 lacs
2	Provision for resurfacing & strengthening of road (with 50mm thick BM + 50 mm thick BC) after five years of 1st phase @ 600/- per sqm	Sq. mtr.	6545 11451.0 + (Comm) 431 6976 sqm	600 660	6870600.00 46.04 lacs
3	Provision for resurfacing & strengthening of road (with 50mm thick BM + 50 mm thick BC) after ten years of 2 nd phase @ 750/- per sqm	Sq. mtr.	6545 11451.0 + (Comm) 431 6976	750 825	8588250.00 57.55 lacs
	Add 3% contingency & PE charges			Total	23774475.00 192.29 lacs
					5.76 lacs
					24487709.25
	Add 49% Departmental charges			Total	11998977.53 97.05 lacs
				Total	36486686.78 295.10 lacs
		say			364.87 Lacs



PROJECT : PROPOSED RESIDENTIAL PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY)
OVER AN AREA MEASURING 5.0 ACRES IN THE REVENUE ESTATE OF VILLAGE BADHA IN SECTOR-89 &
VILLAGE HAYATPUR IN SECTOR-93, GURUGRAM

MATERIAL OF DOMESTIC					DIA IN mm	DIA IN mm
SL NO	LINE NO		LENGTH OF PIPE	SIZE OF RISER PIPE IN MM Dia	100	150
1	UGT	1	25	100	25	35
2	1	2	42	100	42	42
3	2	2A	130	100	130	
4	2	3	55	100	55	55
5	3	3A	265	100	265	
6	3	4	54	100	54	
7	4	4A	105	100	105	
8	4	5	52	100	52	
9	5	5A	47	100	47	
10	5	6	25	100	25	
11	6	6A	30	100	30	
12	6	6B	44	100	44	
13	1	7	17	100	17	
14	7	7A	52	100	52	
15	7	8	47	100	47	
16	8	8A	52	100	52	
17	8	9	47	100	47	
18	9	9A	52	100	52	
			1141		1019m	132m
	SAY		1150 Mtr.		Say 1020m	Say 135m

PROJECT : PROPOSED RESIDENTIAL PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY) OVER AN AREA MEASURING 5.0 ACRES IN THE REVENUE ESTATE OF VILLAGE BADHA IN SECTOR-89 & VILLAGE HAYATPUR IN SECTOR-93, GURUGRAM

MATERIAL OF FLUSHING					DIA IN mm
SL NO	LINE NO		LENGTH OF PIPE	SIZE OF RISER PIPE IN MM Dia	100
1	STP/Flu. Tank	1	5	100	5
2	1	2	29	100	29
3	2	2A	22	100	22
4	2	2B	50	100	50
5	1	1A	50	100	50
6	1	3	51	100	51
7	3	3A	112	100	112
8	3	4	54	100	54
9	4	4A	300	100	300
10	4	5	54	100	54
11	5	5A	137	100	137
12	5	6	31	100	31
13	6	6A	46	100	46
14	6	7	47	100	47
15	7	7A	46	100	46
16	7	8	47	100	47
17	8	8A	46	100	46
		TOTAL	1127	MTR.	
		SAY	1130	MTR.	

WATER SUPPLY QUANTITY SHEET				
DOMESTIC WATER SUPPLY QUANTITY SHEET				
S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
1	U.G.T	D1	40.0	150
2	D1	D2	24.0	100
3	D2	D3	18.0	100
4	D3	D4	48.0	100
5	D4	D5	7.0	100
6	D5	D6	47.0	100
7	D6	D7	7.0	100
8	D7	D8	46.0	100
9	D8	D9	18.0	100
10	D9	D10	48.0	100
11	D3	D20	110.0	100
12	D20	D20a	7.0	100
13	D20a	D21a	33.0	100
14	D20	D21	33.0	100
15	D21	D21a	7.0	100
16	D21	D22	9.0	100
17	D22	D23	54.0	100
18	D23	D24	16.0	100
19	D24	D25	7.0	100
20	D25	D23a	63.0	100
21	D23	D23a	41.0	100
22	D22	D4a	48.0	100
23	D4a	D5a	7.0	100
24	D4a	D4	152.0	100



S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
25.	D5a	D5	152.0	100
26.	D6	D6a	120.0	100
27.	D7	D7a	120.0	100
28.	D6a	D7a	7.0	100
29.	D9	D9a	41.0	100
30.	D10	D9a	7.0	100
31.	D2	D14	14.0	100
32.	D14	D15	7.0	100
33.	D15	D16	41.0	100
34.	D16	D17	7.0	100
35.	D17	D18	41.0	100
36.	D18	D12	7.0	100
37.	D12	D11	8.0	100
38.	D1	D11	89.0	100
39.	D14	D14a	52.0	100
40.	D15	D15a	52.0	100
41.	D16	D16a	52.0	100
42.	D17	D17a	52.0	100
43.	D18	D19	52.0	100
44.	D19	D13	7.0	100
45.	D12	D13	52.0	100
46.	D14a	D15a	7.0	100
47.	D16a	D17a	7.0	100



S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
FLUSHING WATER SUPPLY QUANTITY SHEET				
1	S.T.P	F1	3.0	100
2	F1	F2	6.0	100
3	F2	F3	46.0	100
4	F3	F4	7.0	100
5	F4	F5	47.0	100
6	F5	F6	7.0	100
7	F6	F7	48.0	100
8	F7	F8	18.0	100
9	F8	F9	14.0	100
10	F9	F10	7.0	100
11	F10	F11	41.0	100
12	F11	F12	7.0	100
13	F12	F13	41.0	100
14	F13	F14	7.0	100
15	F2	F15	18.0	100
16	F15	F16	48.0	100
17	F16	F15a	7.0	100
18	F15	F15a	41.0	100
19	F3	F3a	120.0	100
20	F3a	F4a	7.0	100
21	F4	F4a	120.0	100
22	F5	F17	152.0	100
23	F17	F18	7.0	100
24	F6	F18	152.0	100
25	F18	F19	48.0	100
26	F19	F20	53.0	100
27	F20	F21	16.0	100
28	F21	F22	7.0	100



S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
29.	F22	F20a	63.0	100
30.	F20	F20a	41.0	100
31.	F7	F7a	110.0	100
32.	F7a	F7b	34.0	100
33.	F7b	F19	9.0	100
34.	F7b	F7c	7.0	100
35.	F7a	F7c	40.0	100
36.	F8	F14	120.0	100
37.	F9	F9a	52.0	100
38.	F10	F10a	52.0	100
39.	F11	F11a	52.0	100
40.	F12	F12a	52.0	100
41.	F13	F13a	52.0	100
42.	F14	F14a	52.0	100
43.	F9a	F10a	7.0	100
44.	F11a	F12a	7.0	100
45.	F13a	F14a	7.0	100

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mtr.
TUBE WELL WATER SUPPLY QUANTITY SHEET				
1	TUBE WELL - 01	TI	120.0	100
2	TUBE WELL - 02	TI	21.0	100
3	T1	UGT	35.0	150
HUDA WATER SUPPLY QUANTITY SHEET				
1	MUNICIPAL LINE	UGT	280.0	100
Description			Length in (MTR)	Pipe Dia (MM)
Domestic & Tube Well Water Supply line			4117	100
Domestic & Tube Well Water Supply line			75	150
Description			Length in (MTR)	Pipe Dia (MM)
Municipal Water Supply line			280.0	100
100 Dia Valve			14	Nos.
100 Dia Non Return Valve			3	Nos.
Air Valve			10	Nos.



TITLE - SEWERAGE QUANTITY SHEET												
S.No.	Line No.		Length	Pipe Dia		Depth			EXCAVATION			
	From	To		(mm)	(mtr.)	Start	End	Avg.	0.0 - 1.5	1.5 - 3.0	3.0 - 4.5	4.5 - 6.0
-			(mtr.)			(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1	S1	S2	47.0	200	0.200	1.10	1.44	1.27	47.0	0.0	0.0	0.0
2	S2	S3	45.2	200	0.200	1.44	1.76	1.60	0.0	45.2	0.0	0.0
3	S3a	S3	47.0	200	0.200	1.10	1.44	1.27	47.0	0.0	0.0	0.0
4	S3	S4	14.0	200	0.200	1.76	1.86	1.81	0.0	14.0	0.0	0.0
5	S4a	S4	48.7	200	0.200	1.10	1.45	1.27	48.7	0.0	0.0	0.0
6	S4	S5	20.0	200	0.200	1.86	2.00	1.93	0.0	20.0	0.0	0.0
7	S5a	S5	139.0	200	0.200	1.10	2.09	1.60	0.0	139.0	0.0	0.0
8	S5	S6	54.0	200	0.200	2.09	2.48	2.29	0.0	54.0	0.0	0.0
9	S9	S10	40.5	200	0.200	0.90	1.39	1.15	40.5	0.0	0.0	0.0
10	S10a	S10	10.0	200	0.200	1.10	1.17	1.14	10.0	0.0	0.0	0.0
11	S10	S11	111.0	200	0.200	1.39	2.18	1.79	0.0	111.0	0.0	0.0
12	S11	S6	148.0	200	0.200	2.18	3.24	2.71	0.0	148.0	0.0	0.0
13	S6	S7	54.0	250	0.250	3.29	3.57	3.43	0.0	0.0	54.0	0.0
14	S7a	S7	114.0	200	0.200	1.10	1.91	1.51	0.0	114.0	0.0	0.0
15	S7	S8	51.0	250	0.250	3.57	3.84	3.71	0.0	0.0	51.0	0.0
16	S8a	S8	53.0	200	0.200	1.10	1.48	1.29	53.0	0.0	0.0	0.0
17	S8b	S8	12.0	200	0.200	1.10	1.19	1.14	12.0	0.0	0.0	0.0
18	S8	STP	5.0	250	0.250	3.84	3.87	3.86	0.0	0.0	5.0	0.0
Total			1014.0						259.0	646.0	110.0	0.0



PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5, GURUGRAM (HARYANA)

S.No.	Line No.		Length	Pipe Dia		Depth			EXCAVATION			
	From	To		(mm)	(mtr.)	Start	End	Avg.	0.0 - 1.5	1.5 - 3.0	3.0 - 4.5	4.5 - 6.0
-			(mtr.)			(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
Excavation Depth												
Description			(0.0 - 1.5)	(1.5 - 3.0)	(3.0 - 4.5)							
200 mm Dia pipe			259.0	646.0	0.0							
250 mm Dia pipe			0.0	0.0	110.0							



TITLE : STORM WATER QUANTITY SHEET											
S.No.	Line No.		Length	Size of Pipe		Depth			EXCAVATION		
	From	To		(mm)	(mtr.)	Start	End	Avg.	0.0 - 1.5	1.5 - 3.0	3.0 - 4.5
-			(mtr.)			(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)	(mtr.)
1.	A1	A2	56.0	400	0.400	1.20	1.30	1.25	56.0	0.0	0.0
2.	A2	A3	48.0	400	0.400	1.30	1.38	1.34	48.0	0.0	0.0
3.	A3a	A3	54.0	400	0.400	1.20	1.29	1.25	54.0	0.0	0.0
4.	A3	A4	18.0	400	0.400	1.38	1.41	1.40	18.0	0.0	0.0
5.	A4	D.C.01	7.0	400	0.400	1.41	1.43	1.42	7.0	0.0	0.0
6.	D.C.01	R.P.01	1.0	400	0.400	1.43	1.43	1.43	1.0	0.0	0.0
7.	R.P.01	A5	7.0	400	0.400	1.20	1.21	1.21	7.0	0.0	0.0
8.	A5	A6	19.0	400	0.400	1.21	1.25	1.23	19.0	0.0	0.0
9.	A6a	A6	55.0	400	0.400	1.20	1.30	1.25	55.0	0.0	0.0
10.	A6	A7	27.0	400	0.400	1.30	1.34	1.32	27.0	0.0	0.0
11.	A7a	A7	42.0	400	0.400	1.20	1.27	1.24	42.0	0.0	0.0
12.	A7b	A7	133.0	400	0.400	1.20	1.43	1.32	133.0	0.0	0.0
13.	A7	A8	26.0	500	0.500	1.53	1.57	1.55	0.0	26.0	0.0
14.	A8	D.C.02	2.5	500	0.500	1.57	1.57	1.57	0.0	2.5	0.0
15.	D.C.02	R.P.02	2.0	500	0.500	1.57	1.57	1.57	0.0	2.0	0.0
	R.P.02	A9	2.5	500	0.500	1.30	1.30	1.30	2.5	0.0	0.0
	A9	A10	20.0	500	0.500	1.30	1.33	1.32	20.0	0.0	0.0
	A17a	A17	33.0	400	0.400	1.20	1.26	1.23	33.0	0.0	0.0
	A16	A17	20.0	400	0.400	1.20	1.24	1.22	20.0	0.0	0.0
	A17	A18	72.0	400	0.400	1.26	1.38	1.32	72.0	0.0	0.0
	A18	D.C.03	4.0	400	0.400	1.38	1.39	1.39	4.0	0.0	0.0
	D.C.03	R.P.03	2.0	400	0.400	1.39	1.39	1.39	2.0	0.0	0.0
	R.P.03	A19	4.5	400	0.400	1.20	1.21	1.20	4.5	0.0	0.0
	A19	A20	18.0	400	0.400	1.21	1.24	1.22	18.0	0.0	0.0
	A20	A10	134.0	400	0.400	1.24	1.47	1.36	134.0	0.0	0.0
	A10	A11	26.0	500	0.500	1.57	1.61	1.59	0.0	26.0	0.0
	A11	D.C.04	2.0	500	0.500	1.61	1.61	1.61	0.0	2.0	0.0
	D.C.04	R.P.04	2.0	500	0.500	1.61	1.61	1.61	0.0	2.0	0.0
	R.P.04	A12	2.5	500	0.500	1.30	1.30	1.30	2.5	0.0	0.0

S.No.	Line No.		Length	Size of Pipe		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.)	(mtr.)	(mtr.)	(mtr.)	
	A12	A13	20.0	500	0.500	1.30	1.33	1.32	20.0	0.0	0.0	
	A13a	A13	109.0	400	0.400	1.20	1.39	1.30	109.0	0.0	0.0	
	A13	A14	50.5	500	0.500	1.49	1.56	1.52	0.0	50.5	0.0	
	A14a	A14	46.5	400	0.400	1.20	1.28	1.24	46.5	0.0	0.0	
	A14b	A14	19.0	400	0.400	1.20	1.23	1.22	19.0	0.0	0.0	
	A14	A15	10.0	500	0.500	1.56	1.57	1.56	0.0	10.0	0.0	
	A15	D.C.05	9.0	500	0.500	1.57	1.58	1.57	0.0	9.0	0.0	
	D.C.05	R.P.05	2.5	500	0.500	1.58	1.58	1.58	0.0	2.5	0.0	
16.	R.P.05	Over Flow To External	10.0	500	0.500	1.30	1.31	1.31	10.0	0.0	0.0	
Total			1117.0						984.0	133.0	0.0	
Excavation Depth												
Description			(0.0 - 1.5)	(1.5 - 3.0)								(3.0 - 4.5)
400 mm Dia pipe			929.0	0.0								0.0
500 mm Dia pipe			55.0	132.5								0.0



PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.

GARDEN IRRIGATION WATER SUPPLY QUANTITY SHEET

S.No.	Line No		Length of Pipe	Dia of Pipe
	From	To	mtr.	mm
1	STP	G1	42.0	90
2	G1	G1a	50.0	90
3	G1	G2	54.0	90
4	G2	G2a	110.0	90
5	G2	G3	54.0	90
6	G3	G3a	136.0	90
7	G3a	G3b	77.0	90
8	G3	G4	29.0	90
9	G4	G4a	88.0	90
10	G4a	G6	69.0	90
11	G4	G5	16.0	90
12	G5	G5a	66.0	90
13	G5	G6	31.0	90
14	G6	G7	7.0	90
15	G7	G7a	60.0	90
16	G7	G8	50.0	90
17	G8	G8a	58.0	90
Description			Length in (MTR)	Pipe Dia (OD)
Garden Irrigation Water Supply line			997.0	90
Garden Irrigation Water Supply line			0.0	75
Garden Irrigation Water Supply line			0.0	32
Garden Irrigation Water Supply line			0.0	25
Garden Irrigation Water Supply line			0.0	20
Garden Hydrant			21.0	Nos.
65 Dia Valve			0.0	Nos.
80 Dia Valve			0.0	Nos.
Air Valve			0	Nos.

PROPOSED AFFORDABLE PLOTTED COLONY OVER 11.0875 ACRES UNDER DEEN DAYAL JAN AWAS YOJNA IN SOHNA SECTOR-5,
GURUGRAM (HARYANA)

TITLE : ROAD QUANTITY SHEET				
AREA OF METALLED ROAD				
S.NO.	ROAD NO.	LENGTH (In Rm. Mt.)	WIDTH (In Rm. Mt.)	TOTAL AREA (In Sq. Mt.)
1	R-1	52.00	5.50 10.00	286.00 520.00
2.	R-1a	161.00	5.50 10.00	886.00 1610.00
3.	R-2	43.00	5.50 9.00	236.50 387.00
4.	R-3	110.00	5.50 9.00	605 990.00
5.	R-4	144.00	5.50 9.00	792 1296.00
6.	R-5	136.00	5.50 9.00	748 1224.00
7.	R-6	136.00	5.50 9.00	748 1224.00
8.	R-7	57.00	5.50 9.00	313.50 513.00
9.	R-7a	52.00	5.50 9.00	286.00 468.00
10.	R-8	86.00	5.50 9.00	473.00 774.00
11.	R-9	52.00	5.50 9.00	286.00 468.00
12.	R-10	52.00	5.50 9.00	286.00 468.00
13.	R-11	52.00	5.50 9.00	286.00 468.00
TOTAL		1133.00	-	6231.50 10410.00
ADD 10% FOR CURVES		113.3	-	311.60 1041.00
TOTAL		1246.30	-	6543.60 11451.00
SAY		1247.00	-	6545.00 11451.00
1250.00				



<u>PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDERDEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.</u>											
<u>TITLE : HYDRAULIC DESIGN CHART FOR MUNICIPAL WATER SUPPLY CONNECTION LINE FROM HUDA</u>											
S.No	Line No.		Average Demand		Peak Demand @ 1.5 Times	Flow Rate	Pipe Length	Head Loss	Total Head Loss	Velocity	Pipe Dia
	From	To	kld.	kl/hr.							
1	HUDA	UGT.	354.18	16.1	24.1	402.5	275.0	mtr./ mtr.	4.06	0.854	100
Note : HUDA supply line calculation has been done as / 22 hours.											



PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDERDEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.										
S.No.	Line No.		Average Demand	Peak Demand @ 1.5 Times	Flow Rate	Length	Head Loss	Total Head Loss	Velocity	Pipe Dia
	From	To								
-			klph.	lph.	lpm.	mtr.	mtr./ mtr.	mtr.	m/sec	mm
1	Tube Well -01	T1	26.00	39.00	650.00	120.0	0.036	4.31	1.379	100
2	Tube Well - 02	T1	26.00	39.00	650.00	21.0	0.036	0.75	1.379	100
3	T1	UGT	52.00	78.00	1300.00	35.0	0.018	0.63	1.225	150



PROJECT : PROPOSED RESIDENTIAL PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY) OVER AN AREA MEASURING 5.0 ACRES IN THE REVENUE ESTATE OF VILLAGE BADHA IN SECTOR-89 & VILLAGE HAYATPUR IN SECTOR-93, GURUGRAM

TITLE :- DOMESTIC WATER SUPPLY HYDRAULIC CHART FOR RING LINES.

S.NO	Line No		PLOTS (GENERAL)			Water Requirement for Non Residential Plots.						Gross Water Requirement (Load on Line)	Average Demand	Peak Demand @ 2.5 Times	Flow Rate	Length of Pipe	Head Loss Mtr/ Mtr	Total Head Loss	Velocity	Dia of Pipe Required	Dia of Pipe	Ground LVL at start	Hydraulic LVL at start	Head at start	Ground LVL at End	Hydraulic LVL at End	Head at End
	From	To	Nos.	Population @ 18 persons / Plot	Water Requirement @ 120.75 Ltr/ head / day	Area in Acre if Community Building & Commercial	TYPE OF BUILDING	Basis of Water Requirement in LPD	Branch	Total Water Requirement in LPD																	
				18	120.75																						
1	UGT	1	0	0	0		PLOTS	0	359677	359677	360	899	624	25	0.0179	0.45	1.324	102.986	100	202.98	247.98	45.00	201.975	247.53	45.553		
2	1	2	0	0	0		PLOTS	0	261870	261870	262	655	455	42	0.0099	0.42	0.984	87.875	100	201.975	247.53	45.55	201.975	247.11	45.136		
3	2	2A	21	378	45644	1.109	PLOTS & Community	18021	0	68095	68	170	118	130	0.0008	0.11	0.251	44.811	100	201.975	247.11	45.14	201.975	247	45.029		
						0.213	PLOTS & Commercial	4430																			
4	2	3	0	0	0		PLOTS	0	193775	193775	194	484	336	55	0.0057	0.31	0.713	75.591	100	201.975	247.11	45.14	201.975	246.80	44.823		
5	3	3A	56	1008	121716		PLOTS	121716	0	121716	122	304	211	265	0.0024	0.64	0.448	59.910	100	201.975	246.8	44.82	201.975	246.16	44.186		
6	3	4	0	0	0		PLOTS	0	72059	72059	72	180	125	54	0.0009	0.05	0.265	46.096	100	201.975	246.8	44.82	201.975	246.75	44.774		
7	4	4A	20	360	43470		PLOTS	43470	0	43470	43	109	75	105	0.0004	0.04	0.160	35.803	100	201.975	246.75	44.77	201.975	246.71	44.736		
8	4	5	0	0	0		PLOTS	0	28589	28589	29	71	50	52	0.0002	0.01	0.105	29.035	100	201.975	246.71	44.74	201.975	246.70	44.728		
9	5	5A	6	108	13041		PLOTS	13041	0	13041	13	33	23	47	0.0000	0.00	0.048	19.610	100	201.975	246.7	44.73	201.975	246.70	44.726		
10	5	6	0	0	0		PLOTS	0	15548	15548	16	39	27	25	0.0001	0.00	0.057	21.412	100	201.975	246.7	44.73	201.975	246.70	44.727		
11	6	6A	0	0	0	0.225	PLOTS & Commercial	4680	0	4680	5	12	8	30	0.0000	0.00	0.017	11.748	100	201.975	246.7	44.73	201.975	246.70	44.728		
12	6	6B	5	90	10868		PLOTS	10868	0	10868	11	27	19	44	0.0000	0.00	0.040	17.901	100	201.975	246.7	44.73	201.975	246.70	44.727		
13	1	7	0	0	0		PLOTS	0	97808	97808	98	245	170	17	0.0016	0.03	0.360	53.704	100	201.975	246.7	44.73	201.975	246.66	44.701		
14	7	7A	12	216	26082		PLOTS	26082	0	26082	26	65	45	52	0.0001	0.01	0.096	27.733	100	201.975	246.7	44.73	201.975	246.70	44.721		
15	7	8	3	54	6521		PLOTS	6521	65205	71726	72	179	125	47	0.0009	0.04	0.264	45.990	100	201.975	246.7	44.73	201.975	246.66	44.685		
16	8	8A	14	252	30429		PLOTS	30429	0	30429	30	76	53	52	0.0002	0.01	0.112	29.955	100	201.975	246.7	44.73	201.975	246.69	44.718		
17	8	9	0	0	0		PLOTS	0	34776	34776	35	87	60	47	0.0002	0.01	0.128	32.023	100	201.975	246.7	44.73	201.975	246.69	44.717		
18	9	9A	16	288	34776		PLOTS	34776	0	34776	35	87	60	52	0.0002	0.01	0.128	32.023	100	201.975	246.7	44.73	201.975	246.69	44.716		

PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.

(Pump Riser Calculation Sheet)																				
Domestic Water Supply Design Calculation For Plots, Commercial, Community Building																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
S. No.	Line No.	Plot	Population	LPCD	Visitors @10 %	Non Residential	Total Demand	Probable demand (lps)	Probable demand (cum/hr)	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 at ground level	Residual Head Available at Ground LVL
1	U.G.7	D1	0	0	0	0	0	11.603	41.77	100	0.034	40	5	2.00	42.00	1.436	1.436	1.477	45.00	43.56
2	D1	D2	0	0	0.0	0	0	10.752	38.71	100	0.030	24	5	1.20	25.20	0.748	2.184	1.368	43.56	42.82
3	D2	D3	0	0	0.0	0	0	8.411	30.28	100	0.019	18	5	0.90	18.90	0.356	2.540	1.070	42.82	42.46
4	D3	D4	0	0	0.0	0	0	4.969	17.89	100	0.007	48	5	2.40	50.40	0.358	2.898	0.632	42.46	42.10
5	D4	D5	0	0	0.0	0	0	3.337	12.01	100	0.003	7	5	0.35	7.35	0.025	2.923	0.425	42.10	42.08
6	D5	D6	0	0	0.0	0	0	2.273	8.18	100	0.002	47	5	2.35	49.35	0.082	3.005	0.289	42.08	41.99
7	D6	D7	0	0	0.0	0	0	1.280	4.81	100	0.001	7	5	0.35	7.35	0.004	3.009	0.163	41.99	41.99
8	D7	D8	0	0	0.0	2127	2127	0.854	3.07	100	0.000	46	5	2.30	48.30	0.013	3.022	0.109	41.99	41.98
9	D8	D9	1	18	2034	0	2043	0.780	2.81	100	0.000	18	5	0.90	18.90	0.004	3.027	0.099	41.98	41.97
10	D9	D10	5	90	10170	0	10215	0.355	1.28	100	0.000	48	5	2.40	50.40	0.003	3.030	0.045	41.97	41.97
11	D9	D9a	5	90	10170	0	10215	0.355	1.28	100	0.000	41	5	2.05	43.05	0.002	3.029	0.045	41.97	41.97
12	D3	D20	13	234	28442	117.0	46031	3.443	12.39	100	0.004	110	5	5.50	115.50	0.418	2.956	0.438	42.48	42.04
13	D20	D20a	0	0	0	0	0	0.284	1.02	100	0.000	7	5	0.35	7.35	0.000	2.956	0.036	42.04	42.04
14	D20a	D21a	4	72	8136	36.0	8172	0.284	1.02	100	0.000	33	5	1.65	34.65	0.001	2.957	0.036	42.04	42.04
15	D20	D21	4	72	8136	36.0	8172	1.561	5.62	100	0.001	33	5	1.65	34.65	0.029	2.984	0.199	42.04	42.02
16	D21	D22	0	0	0	0	0	1.277	4.80	100	0.001	9	5	0.45	9.45	0.005	2.990	0.162	42.02	42.01
17	D22	D23	6	108	12264	54.0	12258	1.277	4.80	100	0.001	54	5	2.70	56.70	0.033	3.022	0.162	42.01	41.98
18	D23	D24	0	0	0	0	0	0.000	0.00	100	0.000	16	5	0.80	16.80	0.000	3.022	0.000	41.98	41.98
19	D23	D23a	4	72	8136	36.0	8172	0.851	3.06	100	0.000	41	5	2.05	43.05	0.012	3.034	0.108	41.98	41.97
20	D23a	D25	8	144	16272	72.0	16344	0.568	2.04	100	0.000	63	5	3.15	66.15	0.008	3.043	0.072	41.97	41.96
21	D4	D4a	17	306	34578	153.0	34731	1.632	5.87	100	0.001	152	5	7.60	159.60	0.144	3.042	0.208	42.08	41.93
22	D4a	D22	6	108	12204	54.0	12258	0.426	1.53	100	0.000	48	5	2.40	50.40	0.004	3.046	0.054	41.93	41.93
23	D5	D5a	15	270	30510	135.0	30645	1.064	3.83	100	0.000	152	5	7.60	159.60	0.065	2.988	0.135	42.08	42.01
24	D6	D6a	14	252	28476	126.0	28602	0.993	3.58	100	0.000	120	5	6.00	126.00	0.045	3.050	0.126	41.99	41.95
25	D7	D7a	6	108	12264	54.0	12258	0.426	1.53	100	0.000	120	5	6.00	126.00	0.009	3.019	0.054	41.99	41.98



S. No.	Line No.	Plot	Population	LPCD	Visitors @10 %	Non Residential	Total Demand	Probable demand (lps)	Probable demand (cum/hr)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fits (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available at ground level	Residual Head Available at Ground LVL
26.	D2	D14	18	113	5	0	0	2.341	8.43	100	0.002	14	5	0.70	14.70	0.026	2.209	0.298	42.82	42.79
27.	D14	D15	0	0	0.0	0	0	1.986	7.15	100	0.001	7	5	0.35	7.35	0.010	2.219	0.253	42.75	42.78
28.	D15	D16	0	0	0.0	0	0	1.490	5.36	100	0.001	41	5	2.05	43.05	0.033	2.252	0.190	42.78	42.75
29.	D16	D17	0	0	0.0	0	0	0.993	3.58	100	0.000	7	5	0.35	7.35	0.003	2.255	0.126	42.75	42.75
30.	D17	D18	0	0	0.0	0	0	0.497	1.79	100	0.000	41	5	2.05	43.05	0.004	2.259	0.063	42.75	42.74
31.	D14	D14a	90	10170	45.0	0	10215	0.355	1.28	100	0.000	52	5	2.60	54.60	0.003	2.212	0.045	42.79	42.79
32.	D15	D15a	126	14238	63.0	0	14301	0.497	1.79	100	0.000	52	5	2.60	54.60	0.005	2.224	0.063	42.78	42.78
33.	D16	D16a	126	14238	63.0	0	14301	0.497	1.79	100	0.000	52	5	2.60	54.60	0.005	2.257	0.063	42.75	42.74
34.	D17	D17a	126	14238	63.0	0	14301	0.497	1.79	100	0.000	52	5	2.60	54.60	0.005	2.260	0.063	42.75	42.74
35.	D18	D19	126	14238	63.0	0	14301	0.497	1.79	100	0.000	52	5	2.60	54.60	0.005	2.264	0.063	42.74	42.74
36.	D1	D11	54	6102	27.0	0	6129	0.851	3.06	100	0.000	89	5	4.45	93.45	0.025	1.461	0.108	43.56	43.54
37.	D11	D12	18	2034	9.0	0	2043	0.071	0.26	100	0.000	8	5	0.40	8.40	0.000	1.461	0.009	43.54	43.54
38.	D12	D13	144	16272	72.0	0	16344	0.568	2.04	100	0.000	52	5	2.60	54.60	0.007	1.468	0.072	43.54	43.53

Flow Rate

11,603 lps

or

696.2 LPM

No. of Pumps (2 W + 1 S)

348.1 LPM

Say

350.0 LPM

Maximum Building Height

21 m

Pump Head

45.00 m

Pump Hp

5.80 HP

Say

6.00 HP



S. No.	Line No.	Plot	Population	LPCD	Visitors @10 %	Non Residential	Total Demand	Probable demand (lps)	Probable demand (cum/hr)	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 at ground level	Residual Head Available at Ground LVL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
S. No.	Line No.	Plot	Population	LPCD	Visitors @10 %	Non Residential	Total Demand	Probable demand (lps)	Probable demand (cum/hr)	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 at ground level	Residual Head Available at Ground LVL
1	STP	F1	0	0	0.0	3342.4	3342.36	6.660	24.70	100	0.013	2.0	5	0.10	2.10	0.027	0.027	0.873	45.00	44.97
2	F1	F2	0	0	0.0	0.0	0	6.744	24.28	100	0.013	5.0	5	0.25	5.25	0.066	0.093	0.856	44.97	44.91
3	F2	F3	0	0	0.0	0.0	0	6.360	22.90	100	0.011	46.0	5	2.30	48.30	0.542	0.635	0.809	44.91	44.36
4	F3	F4	0	0	0.0	0.0	0	6.133	22.08	100	0.010	7.0	5	0.35	7.35	0.077	0.712	0.780	44.36	44.29
5	F4	F5	0	0	0.0	0.0	0	5.604	20.17	100	0.009	47.0	5	2.35	49.35	0.438	1.150	0.713	44.29	43.85
6	F5	F6	0	0	0.0	0.0	0	5.075	18.27	100	0.007	7.0	5	0.35	7.35	0.054	1.205	0.646	43.85	43.80
7	F6	F7	0	0	0.0	0.0	0	4.167	15.00	100	0.005	48.0	5	2.40	50.40	0.259	1.463	0.530	43.80	43.54
8	F7	F8	0	0	0.0	0.0	0	1.630	5.87	100	0.001	18.0	5	0.90	18.90	0.017	1.480	0.207	43.54	43.52
9	F8	F9	0	0	0.0	0.0	0	1.248	4.49	100	0.001	14.0	5	0.70	14.70	0.008	1.488	0.159	43.52	43.51
10	F9	F10	0	0	0.0	0.0	0	1.059	3.81	100	0.000	7.0	5	0.35	7.35	0.003	1.491	0.135	43.51	43.51
11	F10	F11	0	0	0.0	0.0	0	0.794	2.86	100	0.000	41.0	5	2.05	43.05	0.010	1.502	0.101	43.51	43.50
12	F11	F12	0	0	0.0	0.0	0	0.529	1.91	100	0.000	7.0	5	0.35	7.35	0.001	1.502	0.067	43.50	43.50
13	F12	F13	0	0	0.0	0.0	0	0.265	0.95	100	0.000	41.0	5	2.05	43.05	0.001	1.504	0.034	43.50	43.50
14	F8	F14	3	3213	54.0	0.0	3267	0.382	1.38	100	0.000	89.0	5	4.45	93.45	0.006	1.486	0.049	43.52	43.51
15	F14	F14a	9	9639	162.0	0.0	9801	0.269	0.97	100	0.000	59.0	5	2.95	61.95	0.002	1.488	0.034	43.51	43.51
16	F2	F15	2	2142	36.0	0.0	2178	0.384	1.38	100	0.000	17.0	5	0.85	17.85	0.001	0.094	0.049	44.91	44.91
17	F15	F16	5	5355	90.0	0.0	5445	0.189	0.68	100	0.000	48.0	5	2.40	50.40	0.001	0.095	0.024	44.91	44.91
18	F15	F15a	4	4284	72.0	0.0	4356	0.119	0.43	100	0.000	41.0	5	2.05	43.05	0.000	0.094	0.015	44.91	44.91
19	F3	F3a	6	6426	108.0	0.0	6534	0.227	0.82	100	0.000	120.0	5	6.00	126.00	0.003	0.638	0.029	44.36	44.36
20	F4	F4a	14	14994	252.0	0.0	15246	0.529	1.91	100	0.000	120.0	5	6.00	126.00	0.014	1.165	0.067	44.29	44.27
21	F5	F17	14	14994	252.0	0.0	15246	0.529	1.91	100	0.000	152.0	5	7.60	159.60	0.018	1.168	0.067	43.85	43.83
22	F6	F18	17	18207	306.0	0.0	18513	0.908	3.27	100	0.000	152.0	5	7.60	159.80	0.049	1.253	0.115	43.80	43.75



S. No.	Line No.	Plot	Population	LPCD	Visitors @10 %	Non Resident	Total Demand	Probable demand (lps)	Probable demand (cum/hr)	Assumed pipe dia. (mm)	Head loss (mtr./mtr.)	Pipe length (mtr.)	Eq. Length fits (%)	Eq. Length (mtr.)	Total length (mtr.)	Head loss line (mtr.)	Head loss prog (mtr.)	Velocity (m/sec)	Pump Head Available at ground level	Residual Head Available at Ground LVL
23.	F18	7	125	113	126.0	0.0	7623	0.263	0.95	100	0.000	48.0	5	2.40	50.40	0.002	1.255	0.034	43.75	43.75
24.	F7	13	234	13923	234.0	30599.1	44756	2.537	9.13	100	0.002	110.0	5	5.50	115.50	0.236	1.700	0.323	43.54	43.30
25.	F7a	4	72	4284	72.0	0.0	4356	0.832	2.99	100	0.000	33.0	5	1.65	34.65	0.009	1.709	0.106	43.30	43.29
26.	F7a	4	72	4284	72.0	0.0	4356	0.151	0.54	100	0.000	40.0	5	2.00	42.00	0.000	1.700	0.019	43.30	43.30
27.	F7b	0	0	0	0.0	0.0	0	0.681	2.45	100	0.000	9.0	5	0.45	9.45	0.002	1.710	0.087	43.29	43.29
28.	F19	6	108	6426	108.0	0.0	6534	0.681	2.45	100	0.000	54.0	5	2.70	56.70	0.010	1.721	0.087	43.29	43.28
29.	F20	4	72	4284	72.0	0.0	4356	0.454	1.63	100	0.000	40.0	5	2.00	42.00	0.004	1.724	0.058	43.28	43.28
30.	F20a	8	144	8568	144.0	0.0	8712	0.303	1.09	100	0.000	63.0	5	3.15	66.15	0.003	1.727	0.038	43.28	43.27
31.	F20	0	0	0	0.0	0.0	0	0.000	0.00	100	0.000	16.0	5	0.80	16.80	0.000	1.721	0.000	43.28	43.28
32.	F9	5	90	5355	90.0	0.0	5445	0.189	0.68	100	0.000	52.0	5	2.60	54.60	0.001	1.492	0.024	43.51	43.51
33.	F10	7	126	7497	126.0	0.0	7623	0.265	0.95	100	0.000	52.0	5	2.60	54.60	0.002	1.503	0.034	43.50	43.50
34.	F11	7	126	7497	126.0	0.0	7623	0.265	0.95	100	0.000	52.0	5	2.60	54.60	0.002	1.503	0.034	43.50	43.50
35.	F12	7	126	7497	126.0	0.0	7623	0.265	0.95	100	0.000	52.0	5	2.60	54.60	0.002	1.504	0.034	43.50	43.50
36.	F13	7	126	7497	126.0	0.0	7623	0.265	0.95	100	0.000	52.0	5	2.60	54.60	0.002	1.506	0.034	43.50	43.49

Flow Rate

6,860 lps

or

411.6 LPM

No. of Pumps (1 W + 1 S)

411.6 LPM

Say

420.0 LPM

Maximum Building Height

21 m

Pump Head

45.00 m

Pump HP

6.9 HP

Say

7.0 HP



PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JIAN AWAS YOJANA (DDIA) ON LAND ADMEASURING 11.9875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.

TITLE : HYDRAULIC SEWAGE DESIGN CHART

S.No.	Line No.		Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line) L.P.D	Sewage Flow (Self Load on Line) K.L.D	Previous Load kld	Progressive Discharge (Average)	Progressive Discharge (Peak)	Infiltration @ 25% Av. Discharge	Total Discharge	Length (mtr.)	Pipe Size dia (mm)	Slope (1 in)	Fall (mtr.)	Velocity (m/s) (v)	Capacity of Pipe (lps)	Levels at start (mtr)				Levels at End (mtr)				Manhole Start Depth (mtr)	Manhole End Depth (mtr)	Average Depth (mtr)
	From	To															FRL	FSL	IL	FRL	FSL	IL	FRL	FSL			
1.	S1	S2	49680	39744	39.74	0.00	39.74	1.38	0.12	1.50	47.0	200	140	0.34	0.76	24.03	202.505	201.605	201.405	202.505	201.269	201.069	1.10	1.44	1.27		
2.	S2	S3	0	0	0.00	39.74	39.74	1.38	0.12	1.50	45.0	200	140	0.32	0.76	24.03	202.505	201.269	201.069	202.505	200.948	200.748	1.44	1.76	1.60		
3.	S3a	S3	43470	34776	34.78	0.00	34.78	1.21	0.10	1.31	47.0	200	140	0.34	0.76	24.03	202.505	201.605	201.405	202.505	201.269	201.069	1.10	1.44	1.27		
4.	S3	S4	9315	7452	7.45	74.52	81.97	2.85	0.24	3.08	14.0	200	140	0.10	0.76	24.03	202.505	200.948	200.748	202.505	201.269	201.069	1.10	1.44	1.27		
5.	S4a	S4	37260	29808	29.81	0.00	29.81	1.04	0.09	1.12	48.7	200	140	0.35	0.76	24.03	202.505	201.605	201.405	202.505	201.257	201.057	1.10	1.45	1.27		
6.	S4	S5	0	0	0.00	111.78	111.78	3.88	0.32	4.20	30.0	200	140	0.21	0.76	24.03	202.505	200.848	200.648	202.505	200.634	200.434	1.86	2.07	1.96		
7.	S5a	S5	115276	92221	92.22	0.00	92.22	3.20	0.27	3.47	139.0	200	140	0.99	0.76	24.03	202.505	201.605	201.405	202.505	200.612	200.412	1.10	2.09	1.60		
8.	S5	S6	0	0	0.00	204.00	204.00	7.08	0.59	7.67	54.0	200	140	0.39	0.76	24.03	202.505	200.612	200.412	202.505	200.226	200.026	2.09	2.48	2.29		
9.	S9	S10	31080	24840	24.84	0.00	24.84	0.86	0.07	0.93	40.5	200	140	0.29	0.76	24.03	202.505	201.605	201.604	202.505	201.316	201.116	0.90	1.39	1.15		
10.	S10a	S10	6210	4968	4.97	0.00	4.97	0.17	0.01	0.19	10.0	200	140	0.07	0.76	24.03	202.505	201.605	201.405	202.505	201.534	201.334	1.10	1.17	1.14		
11.	S10	S11	40365	32292	32.29	29.81	62.10	2.16	0.18	2.34	111.0	200	140	0.79	0.76	24.03	202.505	201.316	201.116	202.505	200.523	200.323	1.39	2.18	1.79		
12.	S11	S6	96255	77004	77.00	62.10	139.10	4.83	0.40	5.23	148.0	200	140	1.06	0.76	24.03	202.505	200.523	200.323	202.505	199.466	199.266	2.18	3.24	2.71		
13.	S6	S7	0	0	0.00	343.10	343.10	11.91	0.99	12.91	54.0	250	190	0.28	0.76	37.41	202.505	199.466	199.216	202.505	199.182	198.932	3.29	3.57	3.43		
14.	S7a	S7	62100	49680	49.68	0.00	49.68	1.73	0.14	1.87	114.0	200	140	0.81	0.76	24.03	202.505	201.605	201.405	202.505	200.791	200.591	1.10	1.91	1.51		
15.	S7	S8	0	0	0.00	392.78	392.78	13.64	1.14	14.77	51.0	250	190	0.27	0.76	37.41	202.505	199.182	198.932	202.505	198.913	198.663	3.57	3.84	3.71		
16.	S8a	S8	34155	27324	27.32	0.00	27.32	0.95	0.08	1.03	54.0	200	140	0.39	0.76	24.03	202.505	201.605	201.405	202.505	201.219	201.019	1.10	1.49	1.29		
17.	S8b	S8	5469	4375	4.38	0.00	4.38	0.15	0.01	0.16	12.0	200	140	0.09	0.76	24.03	202.505	201.605	201.405	202.505	201.519	201.319	1.10	1.19	1.14		
18.	S8	STP	0	0	0.00	424.48	424.48	14.74	1.25	15.97	5.0	250	190	0.03	0.76	37.41	202.505	198.913	198.663	202.505	198.897	198.637	3.84	3.87	3.86		

Formula Used:

Formula Used: Velocity (m/s) = $(1/n) \times (A/P)^{2/3} \times (1/\text{slope})^{1/3}$

n=0.01 for DVC, ECO drain 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 x 1000x1/2 (Sewerage system are designed to run half flow)

Abbreviation Used:
IL= Invert level of pipe
FSL= Full supply level
FRL= Formation Road Level
CL= Connection Level



PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAIN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.

LOAD ON SEWAGE LINES

Residential Sewage Load													
S.No.	Name of Sewer Line		Plots	Population for apartment @ 18 persons / Unit	Water Requirement @ 172.5 ltr/ day /Person	EWS	Population @ 5 persons / Unit	Water Requirement @ 172.5 ltr/ day /Person	Non Residential Load		Residential + Non Residential Load		
	From	To							Amenity	Water Requirement @ Lumpsum/day	Gross Water Requirement (Load on Line)	Sewage Flow (Self Load on Line)	Sewage Flow (Self Load on Line)
-			Unit	18	172.5	Unit	5	172.5	-	Lumpsum	lpd.	lpd.	kld.
1.	S1	S2	16	288	49680	0	0	0	-	0.00	49680	39744	39.74
2.	S2	S3	0	0	0	0	0	0	-	0.00	0	0	0.00
3.	S3a	S3	14	252	43470	0	0	0	-	0.00	43470	34776	34.78
4.	S3	S4	3	54	9315	0	0	0	-	0.00	9315	7452	7.45
5.	S4a	S4	12	216	37260	0	0	0	-	0.00	37260	29808	29.81
6.	S4	S5	0	0	0	0	0	0	-	0.00	0	0	0.00
7.	S5a	S5	21	378	65205	0	0	0	COMMUNITY/ COMMERCIAL	50071.19	115276	92221	92.22
8.	S5	S6	0	0	0	0	0	0					
9.	S9	S10	10	180	31050	0	0	0	-	0.00	0	0	0.00
10.	S10a	S10	2	36	6210	0	0	0	-	0.00	31050	24840	24.84
11.	S10	S11	13	234	40365	0	0	0	-	0.00	6210	4968	4.97
12.	S11	S6	31	558	96255	0	0	0	-	0.00	40365	32292	32.29
13.	S6	S7	0	0	0	0	0	0	-	0.00	96255	77004	77.00
14.	S7a	S7	20	360	62100	0	0	0	-	0.00	0	0	0.00
15.	S7	S8	0	0	0	0	0	0	-	0.00	62100	49680	49.68
16.	S8a	S8	11	198	34155	0	0	0	-	0.00	0	0	0.00
17.	S8b	S8	0	0	0	0	0	0	COMMERCIAL	5469.31	34155	27324	27.32
18.	S8	STP	0	0	0	0	0	0					
				2754	475065	0	0	0	-	55540.50	530605.50	424484.40	424.48



PROJECT : PROPOSED AFFORDABLE PLOTTED COLONY UNDERDEEN DAYAL JAN AWAS YOJANA (DDJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUE ESTATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM.

TITLE : HYDRAULIC STORM WATER DESIGN CHART

S.No.	Line No.		Length (mtr.)	Catchment Area (Sq.m.)			Discharge @ 35 mm/hr rainfall (lps)	Pipe dia (mm)	Slope 1 in (mm)	Velocity m/sec.	Capacity of pipe lps.	Fall in line mtr.	Levels at start (mtr.)				Levels at End (mtr.)				Manhole Depth			
	From	To		Self	Progg.	Total							FRL.	FSL.	IL	FRL.	FSL.	IL	FRL.	FSL.	IL	Depth (mtr.)		Avg.
																						Start	End	
1.	A1	A2	56.0	2408.7	0.0	2408.7	14.05	400	570	0.60	75.63	0.10	202.505	201.305	200.905	202.505	201.207	200.807	1.60	1.70	1.65			
2.	A2	A3	48.0	399.2	2408.7	2807.8	16.38	400	570	0.60	75.63	0.08	202.505	201.207	200.807	202.505	201.123	200.723	1.70	1.78	1.74			
3.	A3a	A3	54.0	2444.9	0.0	2444.9	14.26	400	570	0.60	75.63	0.09	202.505	201.305	200.905	202.505	201.210	200.810	1.60	1.69	1.65			
4.	A3	A4	18.0	605.0	5252.7	5857.7	34.17	400	570	0.60	75.63	0.03	202.505	201.123	200.723	202.505	201.091	200.691	1.78	1.81	1.80			
5.	A4	D.C.01	7.0	31.9	5857.7	5889.6	34.36	400	570	0.60	75.63	0.01	202.505	201.091	200.691	202.505	201.079	200.679	1.81	1.83	1.82			
6.	D.C.01	R.P.01	1.0	70.0	5889.6	5959.6	34.76	400	570	0.60	75.63	0.00	202.505	201.079	200.679	202.505	201.077	200.677	1.83	1.83	1.83			
7.	R.P.01	A5	7.0	0.0	2979.8	2979.8	17.38	400	570	0.60	75.63	0.01	202.505	201.305	200.905	202.505	201.293	200.893	1.60	1.61	1.61			
8.	A5	A6	19.0	185.2	2979.8	3165.0	18.46	400	570	0.60	75.63	0.03	202.505	201.293	200.893	202.505	201.259	200.859	1.61	1.65	1.63			
9.	A6a	A6	55.0	2133.5	0.0	2133.5	12.45	400	570	0.60	75.63	0.10	202.505	201.305	200.905	202.505	201.209	200.809	1.60	1.70	1.65			
10.	A6	A7	27.0	446.0	5298.4	5744.4	33.51	400	570	0.60	75.63	0.05	202.505	201.209	200.809	202.505	201.161	200.761	1.70	1.74	1.72			
11.	A7a	A7	42.0	1297.3	0.0	1297.3	7.57	400	570	0.60	75.63	0.07	202.505	201.305	200.905	202.505	201.231	200.831	1.60	1.67	1.64			
12.	A7b	A7	133.0	10248.1	0.0	10248.1	59.78	400	570	0.60	75.63	0.23	202.505	201.305	200.905	202.505	201.072	200.672	1.60	1.83	1.72			
13.	A7	A8	26.0	328.2	17289.8	17618.0	102.77	500	780	0.60	117.22	0.03	202.505	201.072	200.572	202.505	201.038	200.538	1.93	1.97	1.95			
14.	A8	D.C.02	2.5	34.2	17618.0	17652.2	102.97	500	780	0.60	117.22	0.00	202.505	201.038	200.538	202.505	201.035	200.535	1.97	1.97	1.97			
15.	D.C.02	R.P.02	2.0	70.0	17652.2	17722.2	103.38	500	780	0.60	117.22	0.00	202.505	201.035	200.535	202.505	201.033	200.533	1.97	1.97	1.97			
16.	R.P.02	A9	2.5	0.0	8861.1	8861.1	51.69	500	780	0.60	117.22	0.00	202.505	201.305	200.805	202.505	201.302	200.802	1.70	1.70	1.70			
17.	A9	A10	36.0	8861.1	9098.5	9098.5	53.07	500	780	0.60	117.22	0.03	202.505	201.302	200.802	202.505	201.276	200.776	1.70	1.73	1.72			

Ekaakashara B

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S.No.	Line No.		Length (mtr.)	Catchment Area (Sq.m.)			Discharge @ 35 mm/hr rainfall (lps)	Pipe dia (mm)	Slope 1 m (mm)	Velocity m/sec	Capacity of pipe lps	Fall in line mtr.	Levels at start (mtr.)				Levels at End (mtr.)				Manhole Depth	
	From	To		Self	Progg.	Total							FRL	FSL	IL	FRL	FSL	IL	Start	End	Depth	Avg.
18.	A17a	A17	33.0	1687.8	0.0	1687.8	9.85	400	570	0.60	75.63	0.06	202.505	201.305	200.905	202.505	201.247	200.847	1.60	1.66	1.63	
19.	A16	A17	20.0	575.8	0.0	575.8	3.36	400	570	0.60	75.63	0.04	202.505	201.305	200.905	202.505	201.270	200.870	1.60	1.64	1.62	
20.	A17	A18	72.0	1619.3	2263.6	3882.9	22.65	400	570	0.60	75.63	0.13	202.505	201.247	200.847	202.505	201.121	200.721	1.66	1.78	1.72	
21.	A18	D.C.03	4.0	185.9	3882.9	4068.8	23.73	400	570	0.60	75.63	0.01	202.505	201.121	200.721	202.505	201.114	200.714	1.78	1.79	1.79	
22.	D.C.03	R.P.03	2.0	70.0	4068.8	4138.8	24.14	400	570	0.60	75.63	0.00	202.505	201.114	200.714	202.505	201.110	200.710	1.79	1.79	1.79	
23.	R.P.03	A19	4.5	0.0	2069.4	2069.4	12.07	400	570	0.60	75.63	0.01	202.505	201.305	200.905	202.505	201.297	200.897	1.60	1.61	1.60	
24.	A19	A20	18.0	756.6	2069.4	2826.0	16.49	400	570	0.60	75.63	0.03	202.505	201.297	200.897	202.505	201.266	200.866	1.61	1.64	1.62	
25.	A20	A10	134.0	6660.6	2826.0	9486.6	55.34	400	570	0.60	75.63	0.24	202.505	201.266	200.866	202.505	201.030	200.630	1.64	1.87	1.76	
26.	A10	A11	26.0	255.5	18585.1	18840.6	109.90	500	780	0.60	117.22	0.03	202.505	201.030	200.530	202.505	200.997	200.497	1.97	2.01	1.99	
27.	A11	D.C.04	2.0	35.3	0.0	35.3	0.21	500	780	0.60	117.22	0.00	202.505	200.997	200.497	202.505	200.995	200.495	2.01	2.01	2.01	
28.	D.C.04	R.P.04	2.0	70.0	35.3	105.3	0.61	500	780	0.60	117.22	0.00	202.505	200.995	200.495	202.505	200.992	200.492	2.01	2.01	2.01	
29.	R.P.04	A12	2.5	0.0	52.6	52.6	0.31	500	780	0.60	117.22	0.00	202.505	201.305	200.805	202.505	201.302	200.802	1.70	1.70	1.70	
30.	A12	A13	20.0	132.1	52.6	184.7	1.08	500	780	0.60	117.22	0.03	202.505	201.302	200.802	202.505	201.276	200.776	1.70	1.73	1.72	
31.	A13a	A13	109.0	4510.9	0.0	4510.9	26.31	400	570	0.60	75.63	0.19	202.505	201.305	200.905	202.505	201.114	200.714	1.60	1.79	1.70	
32.	A13	A14	50.5	447.0	4695.6	5142.6	30.00	500	780	0.60	117.22	0.06	202.505	201.114	200.614	202.505	201.049	200.549	1.89	1.96	1.92	
33.	A14a	A14	46.5	2262.9	0.0	2262.9	13.20	400	570	0.60	75.63	0.08	202.505	201.305	200.905	202.505	201.223	200.823	1.60	1.68	1.64	
34.	A14b	A14	19.0	1232.9	0.0	1232.9	7.19	400	570	0.60	75.63	0.03	202.505	201.305	200.905	202.505	201.272	200.872	1.60	1.63	1.62	
35.	A14	A15	10.0	288.0	8638.4	8926.4	52.07	500	780	0.60	117.22	0.01	202.505	201.049	200.549	202.505	201.036	200.536	1.96	1.97	1.96	
36.	A15	D.C.05		79.9	0.0	79.9	0.47	500	780	0.60	117.22	0.01	202.505	201.036	200.536	202.505	201.025	200.525	1.97	1.98	1.97	



S.No.	Line No.		Length (mtr.)	Catchment Area (Sq.m.)			Discharge @ 35 mm/hr rainfall (lps)	Pipe dia (mm)	Slope 1 in (mm)	Velocity m/sec.	Capacity of pipe lps.	Fall in line mtr.	Levels at start (mtr.)			Levels at End (mtr.)			Manhole Depth		
	From	To		Self	Proge	Total							FRL	FSL	IL	FRL	FSL	IL	Start	End	Avg.
37.	D.C.05	R.P.05	2.5	90.0	79.9	169.9	0.99	500	780	0.60	117.22	0.00	202.505	201.025	200.525	202.505	201.021	200.521	1.98	1.98	1.98
38.	R.P.05	Over Flow To External	10.0	0.0	84.9	84.9	0.50	500	780	0.60	117.22	0.01	202.505	201.305	200.805	202.505	201.292	200.792	1.70	1.71	1.71

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



LAYOUT PLAN FOR SETTING UP AFFORDABLE PLOTTED COLONY UNDER DEEN DAYAL JAIN AWAS Yojana (DOJAY) ON LAND ADMEASURING 11.0875 ACRES SITUATED IN REVENUJE STATE OF VILLAGE SOHNA, TEHSIL SOHNA, SECTOR - 5, SOHNA, DISTRICT GURUGRAM, DEVELOPED BY SATPAL SINGH, BHOPAL SINGH BOTH S/O SH. SURTA, PRAVEEN KUMAR, ANKESH KUMAR BOTH S/O SH. RAJKUMAR SINGH, RAVINDER RAGHAW S/O SH. NARENDER SINGH IN COLLABORATION WITH M/s EKKAASHRA BUILDERS LLP.

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STORM LAYOUT

Author's Signature

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