INTERNAL DEVELOPMENT DESIGN REPORT AND COST ESTIMATE FOR RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM.

REPORT

Gurugram town of Haryana State is situated on Delhi - Jaipur National Highway No.8 at a distance of 38 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. In order to relieve the growing pressure of population in National Capital of Delhi, it has been decided by the Haryana Government to establish various Sectors along with infrastructure facilities in Gurugram. This report is for **Residential Group Housing colony under transit oriented development (TOD) policy for mix land use colony (70% Residential+30%Commercial) Measuring 4.85 Acres (License No. 110 of 2013 Dated 27.12.2013) in Sector - 28, Gurugram for SILVERGLADES INFRASTRUCTURE Pvt. Ltd.**

WATER SUPPLY SOURCE

At present the source of water supply in this area is borewell. It may be noted that HUDA is laying main water trunk lines in the vicinity of the development to supply potable water to the PROPOSED SITE and adjoining areas. Therefore, it is proposed to provide 3 Nos. of borewells as supplementary source to the HUDA water supply network As the underground water is potable, provision for three number of borewells have been made in this estimate. It has been proposed to construct underground tanks of capacity as per attached details, for domestic purpose. The underground tanks will be filled up from the proposed borewell or HUDA riser and the water will be pumped to the tanks proposed on the roof of the building. The building is being constructed for shopping areas, offices, auditorium, food courts, restaurants and residential units.

DESIGN:

The scheme has been designed for population as given in attached sheets.

PUMPING EQUIPMENTS

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

SEWERAGE SCHEME

This scheme is designed for sewer connecting to two nos. proposed STP within the complex. The sewerage system has been marked on the respective plans.

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(MEP consultant)

The sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 75% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 2.46 ft/sec self cleaning velocity. Necessary provision for laying S.W pipe sewer line, construction of required number of manholes etc., have been made in the estimate.

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

STORM WATER DRAINAGE

Storm water line from the proposed site will be connected to the existing storm drain.

SPECIFICATIONS

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

Roads :
Cost of road has been taken in the estimate.

Street Lighting
Provision for external lighting of proposed area has been made.

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

Rates
The estimate has been based on the present market rates.

Cost:

The total cost of the scheme, including cost of all services works out to be **Rs. 775 lacs (Rupees Seven Crores Seventy Five Lacs Only)** including 3% contingencies @ 49% departmental charges.

For SILVERGLADES INFRASTRUCTURE Pvt.

Authorized Signatory

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FINAL ABSTRACT OF COST

Amount in Rs. Lacs

SUB WORK NO. I	WATER SUPPLY	**352.13**
SUB WORK NO. II	SEWERAGE	**236.80**
SUB WORK NO. III	STORM WATER DRINAGE SYSTEM	**39.31**
SUB WORK NO. IV	ROAD WORK	**57.90**
SUB WORK NO. V	STREET LIGHTING	**7.45**
SUB WORK NO. VI	PLANTATION & ROAD SIDE TREES	**2.65**
SUB WORK NO. VII	SERVICES & RESURFACING OF ROADS	**78.58**
	TOTAL	**774.82**
	SAY	**775.00**
(Rupees Seven crores seventy fire lacs only)		

AUTHORIZED SIGNATORY

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SUB WORK No. 1 Water Supply

1.	Sub Head No. 01	Head Works	**53,69,700.00**
2.	Sub Head No. 02	Pumping Machinery	**1,38,90,000.00**
3.	Sub Head No. 03	Rising Main from HUDA	**1,18,000.00**
4.	Sub Head No. 04	Fire Piping	**19,41,000.00**
5.	Sub Head No. 05	Garden Irrigation Piping	**16,26,000.00**
		TOTAL	**2,29,44,700.00**
		Add 3% contingencies & PH Charges	6,88,341.00
		TOTAL	**2,36,33,041.00**
		Add 49% Departmental charges	**1,15,80,190.09**
		GRAND TOTAL	**3,52,13,231.09**
		SAY	**Rs. 352.13 Lacs.**

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Sub Work No. I
Sub Head No. 01

Water Supply
Head Works
Amount in Rs.

1. Boring and installing 510 mm i/d borewell with reverse rotary rig Complete with pipe and strainer to a depth of about 120 metre 3 Nos. @ Rs. 3,50,000/- each.	Rs.	1050000.00
2. Provision for rising mains, connecting borewells with water main and Bye-pass arrangements.		
a) 80 mm x 90 M @ Rs. 2100/- per RM	Rs.	189000.00
b) 50 mm x 175 M @ Rs. 1000/- per RM	Rs.	175000.00
3. Provision of water supply risers to OHT from Pump room.		
a) 50 mm x 270 M @ Rs. 900/- per RM	Rs.	243000.00
b) 65 mm x 240 M @ Rs. 1400/- per RM	Rs.	336000.00
c) 80 mm x 375 M @ Rs. 1700/- per RM	Rs.	637500.00
d) 100 mm x 335 M @ Rs. 2400/- per RM	Rs.	804000.00
4. Providing and fixing valve:		
- 50 dia 1 Nos.@ Rs.3200/- per valve	Rs.	3200.00
- 80 dia 2 Nos.@ Rs.3700/- per valve	Rs.	7400.00
- 100 dia 3 Nos.@ Rs.5200/- per valve	Rs.	15600.00
5. Provision for carriage for materials L.S .	Rs.	25000.00
6. Construction of U.G. tanks 1260 KL @ Rs.1400/KL	Rs.	1764000.00
7. Provision for Construction of tubewell chamber Size 1.50 x 1.50 x 1.50 M for housing Tubewell – 3 nos. @ Rs. 40,000- each	Rs.	120000.00
TOTAL	**Rs.**	**53,69,700.00**

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub Work No. 1
Sub Head No. 02

Water Supply
Pumping Machinery
Amount in Rs.

1. Providing and installing electricity driven submersible pumping Set capable of delivering about 14 KL / Hr. of water against a total Head of 98 M complete with motor and other accessories.		
- 3 Nos. @ Rs. 50,000/-	Rs.	1,50,000.00
2. Provision for diesel engine genset each for standby arrangements For T.W. & Booster Pump complete with following capacities.		
- 1 No. 100 KVA @ Rs. 8,50,000/-	Rs.	8,50,000.00
3. Providing & installing pumping set of following capacity For fire protection		
Commercial block		
- 180 lpm at 100m Head 2 Nos.@ Rs.1,00,000/- each [elect.]	Rs.	2,00,000.00
- 2850 lpm at 100m Head 1 No.@ Rs. 5,00,000/-[diesel]	Rs.	5,50,000.00
- 2850 lpm at 100m Head 2 Nos. @ Rs.3,30,000/- each[elect.]	Rs.	6,50,000.00
- 700 lpm at 40m Head 1 Nos. @ Rs.1,10,000/- [elect.]	Rs.	1,10,000.00
- 700 lpm at 40m Head 1 Nos. @ Rs.3,25,000/- [diesel]	Rs.	6,50,000.00
Residential block		
- 180 lpm at 160m Head 4 Nos.@ Rs.2,25,000/- each [elect.]	Rs.	9,00,000.00
- 2850 lpm at 160m Head 2 Nos.@ Rs. 17,30,000/-[diesel]	Rs.	34,60,000.00
- 2850 lpm at 160m Head 4 Nos.@ Rs.11,25,000/- each[elect.]	Rs.	45,00,000.00
- 1700 lpm at 40m Head 1 Nos. @ Rs.1,75,000/- [elect.]	Rs.	1,75,000.00
- 1700 lpm at 40m Head 1 Nos. @ Rs.4,00,000/- [diesel]	Rs.	4,00,000.00
4. Providing Boosting pumps:		
Commercial block		
- Domestic pump= Cap.150 LPM at 60M head, (3.5 HP) 2 Nos. @ Rs.95,000/-each	Rs.	1,90,000.00
- Flushing pump= Cap.100 LPM at 60M head, (2.5 HP) 2 Nos. @ Rs.75,000/-each	Rs.	1,50,000.00
Residential block		
- Domestic pump= Cap.150 LPM at 120M head, (7.0 HP) 3 Nos. @ Rs.1,35,000/-each	Rs.	4,05,000.00
- Flushing pump= Cap.150 LPM at 120M head, (7.0 HP) 2 Nos. @ Rs.1,35,000/-each	Rs.	2,70,000.00

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5.	Provision for chlorination plant complete 2 nos. @ Rs.30,000/- Each	Rs.	60,000.00
6.	Provision for making foundations and erection of Pumping Machinery (lumpsum)	Rs.	50,000.00
7.	Provision for pipes, valves and specials inside the pump Chamber and boosting chamber.(lumpsum)	Rs.	60,000.00
8.	Provision for electric service connection including electrical Fittings for tube-well and boosting chamber etc.(lumpsum)	Rs.	60,000.00
9.	Provision for carriage of material and other unforeseen Items etc. L/S	Rs.	50,000.00
	TOTAL	**Rs.**	**1,38,90,000.00**

(C.O. cost to final abstract of cost S.W. NO.1)

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Sub-Work No. 1 — Water Supply
Sub Head No. 03 — Rising Main from HUDA

			Amount in Rs.
1.	Providing, laying, jointing and testing CPVC pipe lines Including cost of excavation etc. complete in all respects. - 50 mm dia. 70 m @ Rs. 800/-M	Rs.	56000.00
2.	Providing and fixing valves including cost of surface boxes And masonry chambers etc. complete in all respects. - 50mm i/d 2 Nos. @ Rs. 5000/- each	Rs.	10,000.00
3.	Providing and fixing indicating plates for valves and air valves 2 No.@ Rs. 1000/- each	Rs.	2000.00
4.	Provision for carriage for materials and other Unforeseen items (L/S)	Rs.	15,000.00
5.	Provision for cutting of roads and making good to its original Conditions. (L/S)	Rs.	15,000.00
6.	Provision for making connection with HUDA line	Rs.	20,000.00
	Total	**Rs.**	**1,18,000.00**

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-Work No. 1 — Water Supply
Sub Head No. 04 — Fire Piping
Amount in Rs.

1.	Providing , laying , jointing and testing MS pipe lines Including cost of excavation etc. complete in all respects.		
	- 150 mm dia. 585 m @ Rs. 2400/-M	Rs.	14,04,000.00
	- 80 mm dia. 195 m @ Rs. 1400/-M	Rs.	2,73,000.00
2.	Providing and fixing valves including cost of surface boxes And masonry chambers etc. complete in all respects.		
	- 150mm i/d 4 Nos. @ Rs. 23000/- each	Rs.	92,000.00
3.	Providing and fixing indicating plates for valve and air valves 4 Nos.@ Rs. 1000/- each	Rs.	4,000.00
4.	External fire hydrants etc. 16 nos. @ Rs. 8,000/- each	Rs.	128,000.00
5.	Provision for carriage for materials and other Unforeseen items(L/S)	Rs.	25,000.00
6.	Provision for cutting of roads and making good to its original Conditions. (L/S)	Rs.	15,000.00
	Total	**Rs.**	**19,41,000.00**

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-Work No. 1 — Water Supply
Sub Head No. 05 — Garden Irrigation Piping
Amount in Rs.

1. Providing, laying, jointing and testing pipe lines conforming to IS:4955 Including cost of excavation etc. complete in all respects.		
- 65 mm dia. 700 m @ Rs. 2100/-M	Rs.	14,70,000.00
- 25 mm dia. 20 m @ Rs.500/-M	Rs.	10,000.00
2. Providing and fixing ball valves including cost of surface boxes And masonry chambers etc. complete in all respects.		
- 65 mm i/d 4 Nos. @ Rs. 15000/- each	Rs.	60,000.00
- 25 mm i/d 16 Nos. @ Rs. 3500/- each	Rs.	56,000.00
3 . Provision for carriage for materials and other Unforeseen items (L/S)	Rs.	15,000.00
4. Provision for cutting of roads and making good to its original Conditions.(L/S)	Rs.	15,000.00
Total	**Rs.**	**16,26,000.00**

(C.O. cost to final abstract of cost S.W. NO.1).

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Sub-Work No. II

Sewerage Scheme
Amount in Rs.

1.	Providing, jointing, cutting and testing SW pipe class "A" and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. Complete. a) SW pipe 250 mm i/d 430M @ Rs. 3000/M	Rs.	12,90,000.00
2.	Provision for lighting and watching	Rs.	30000.00
3.	Provision for carriage of material (L.S)	Rs.	15000.00
4.	Provision for making connection with HUDA sewer	Rs.	30000.00
5.	Sewage treatment plant - For Commercial - Capacity 100 KLD	Rs.	50,00,000.00
	- For Residential - Capacity 300 KLD	Rs.	90,00,000.00
6.	Provision for temporary disposal arrangement till such time HUDA services are made available	Rs.	65000.00
	TOTAL	Rs.	15430000.00
	Add 3% contingencies & PH charges	Rs	462900.00
	TOTAL	Rs.	15892900.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.	Rs.	7787521.00
	Total	**Rs.**	**23680421.00**
	Say	**Rs.**	**236.80 Lacs**

(C.O. to final abstract of cost).

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Sub-Work No. III

Storm Water Scheme
Amount in Rs.

1.	Providing, laying, RCC pipe class NP-2 including manholes etc. complete in all respects.		
	a) 450 mm dia RCC pipe 15 M @ 10000/M	Rs.	1,50,000.00
	b) 300 mm dia RCC pipe 125 M @ 4500/M	Rs.	5,62,500.00
	c) 250 mm dia RCC pipe 245 M @ 3000/M	Rs.	7,35,000.00
2.	Provision for road gullies & connecting pipe L.S.	Rs.	4,50,000.00
3.	Provision for rainwater harvesting arrangements @ Rs. 1.0 lacs per acre for approx 4.85 acres.	Rs.	5,84,000.00
4.	Provision for timbering & shoring (L.S.)	Rs.	40,000.00
5.	Provision for lighting, watering and timbering drains & other unforeseen charges	Rs.	40,000.00
	Total	Rs.	25,61,500.00
	Add 3% contingencies & P.H. charges	Rs.	76,845.00
	Total	Rs.	26,38,345.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.	Rs	12,92,789.05
	TOTAL	Rs.	**39,31,134.05**
	Say	**Rs.**	**39.31 Lacs**

(C.O. cost to final abstract of cost).

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Sub Work No. IV — Road work

Width in M.	Length in M.	Metalled Portion	Area in Sq.M.
6.0	680	6.00	4080.00
	Total		4080.00
	Add 10 % for Curves		408.00
	Parking =30 x 5 x 2.5 =		375.00
	Grand Total		**4863.00**
		Say	**4900 sq.m**

		Amount in Rs.
1.	Provision for leveling earth and filling as per site conditions, approx 4.85 acres @ 100000/acre	Rs. 4,85,000.00
2.	i) Soling cost 100 mm thick (63-45)mm gauge compacted to to 75 mm thick WBM conforming to MOT specifications (Table 400-6, Grading 2)	
	ii) Wearing Coat (Top Coat) 100 mm thick (53-22.4) mm gauage compacted to 75 mm thick conforming to MOT specifications (Table 400-6, Grading 3)	
	iii) 25 mm thick premix carpet with seal coat 4900 Sq.M. @ Rs. 500/Sq.M.	Rs. 24,50,000.00
3.	Provision for kerbs and channels 1650 M @ Rs. 350/M	Rs. 5,77,500.00
4.	Provision for making approach and pavement to building	Rs. 1,00,000.00
5.	Provision for parking arrangement [L.S.]	Rs. 1,00,000.00
6.	Provision for carriage of materials	Rs. 60,000.00
	Total	Rs. 37,72,500.00
	Add 3 % contingencies and P.H. Charges	Rs. 1,13,175.00
	Total	Rs. 38,85,675.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.	Rs. 19,03,980.75
	Total	**Rs. 57,89,655.75**
	Carry Over to Final Abstract of cost **Say**	**Rs. 57.90 Lacs.**

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Sub Work No. V — Street Lighting
Sub-Head No. 01

			Amount in Rs.
1.	Providing street lighting on roads as per standard specifications of HVPN approx 4.85 acres @100,000/acre	Rs.	4,85,000.00
	Add 3 % contingencies and P.H. Charges	Rs.	14,550.00
	Total	Rs.	4,99,550.00
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.	Rs.	2,44,779.50
	Total	Rs.	7,44,329.50
	Carry Over to Final Abstract of cost **Say**	**Rs.**	**7.45 lacs**

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Sub Work No. VI — Plantation & Road side Trees
Sub-Head

Total Landscape area – 2955 sqmt.
Or 0.730 Acre Say 0.75 Acre

Road side trees. (Amount in Rs)

1. **Development of lawn areas**

a) Trenching the ordinary soil up to dept of 60 cm including removal and stacking of serviceable material and disposing of by spreading and leveling within a lead to 50m an and making up the trenches area of proper leads by filling with earth mixed with manure before and after flooding trench with water including cost of imported earth and manure

b) Rough dressing of roof area

c) Grassing with "Doob Grass" including watering and maintenance of lawns for 30 days till the grass a thick lawn, free weeds and fit for moving in rows 7.5m apart in either direction including provision for hedges and barbed wire fencing around park.
Approx. 0.75 acres @ Rs. 100,000 per acre. — Rs. 75,000.00

2. Provision of trees, guards and planting trees along road at 12 M intervals for 6m wide road

Total Road Length	= 750 M
No. of trees (750/12)x2	= 126
Say	= 130.0 trees.
Cost Details.	
Excavation	= Rs. 30.00
Manure	= Rs. 40.00
Tree Plant	= Rs. 80.00
Tree Guard	= Rs.600.00
Total	= Rs.750.00

130 trees @ 750/tree — Rs. 97,500.00

Total — **Rs. 1,72,500.00**

Add 3% contingencies — Rs. 5,175.00

Total — **Rs. 1,77,675.00**

Add 49% Deptt. Charges, Price Escalation Unforeseen, Admn. — Rs. 87,060.75

Total — Rs. 2,64,735.75
SAY — **Rs. 2.65 lacs**

PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

(C.O. to final abstract of cost)

Sub Work No. VII — **Services & Resurfacing of Roads**
Sub-Head

Sl. No.	Description	Unit	Qty	Rate in Rs.	Amount in Rs.
1.0	Provision of MTC carges for W/S, SWD & Sewarage, Roads, Street Lighting, Horticulture etc.				
a)	Complete in all aspect, including operational and establishment charges as per HUDA norms for 10 years completion.	Acre	4.85	500000.00	24,25,000.00
2.0	Provision of resurfacing of roads MTC one layer of 100 mm thick WBM compacted to 75 mm thick with 25mm thick premix carpet with seal coat.				
a)	Resurfacing of road after 5 yerar of MTC	Sq.m	4900	300.00	14,70,000.00
b)	Resurfacing of road after 5 yerar of MTC	Sq.m	4900	250.00	12,25,000.00
	Sub Total				**51,20,000.00**
	Add 3% contingencies & PH charges				1,53,600.00
	Sub Total				**52,73,600.00**
	Add 49% Departmental charges, Price Escalation, Unforeseen Admn.				25,84,064.00
				Total	**78,57,664.00**
				Say	**78.58 lacs**

(C.O. to final abstract of cost)

ENGINEERING SERVICES CONSULTANTS

ANAND SHARMA
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New Delhi

(MEP consultant)

PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: POPULATION & WATER DEMAND CALCULATIONS

S. NO.	UNIT NAME	TYPE OF OCCUPANCY	TOTAL BUILT UP AREA IN SQ. M. (DATA GIVEN BY ARCH.)	POPULATION	WATER REQUIREMENT PER PERSON (LPCD)		POTABLE WATER DEMAND (LPD)	FLUSHING WATER DEMAND (LPD)
					POTABLE	FLUSHING		
I.	COMMERCIAL BLOCK							
a)	**Ground floor-Shops**	Mercantile						
	Total population		5218.00	870				
	Staffs @ 10%			87	25	20	2,175	1,740
	Visitors @ 90%			783	5	10	3,915	7,830
b)	**First floor-Shops**	Mercantile						
	Total population		4560.00	761				
	Staffs @ 10%			76.1	25	20	1,903	1,522
	Visitors @ 90%			684.9	5	10	3,425	6,849
c)	**Second floor-Shops**	Mercantile						
	Total population		3000.00	501				
	Staffs @ 10%			50.1	25	20	1;253	1,002
	Visitors @ 90%			450.9	5	10	2,255	4,509
d)	**Second floor-Restaurant**	Assembly						
	Total population		900.00	501				
	Diversity @ 70%			350.7	55	15	19,289	5,261
e)	**Third floor-Restaurant**	Assembly						
	Total population		1150.00	639				
	Diversity @ 70%			447.3	55	15	24,602	6,710
f)	**Third floor-Food courts**	Assembly						
	Total population		612.00	341				
	Diversity @ 70%			238.7	25	10	5,968	2,387
g)	**Fourth floor-Auditorium**	Assembly						
	582 seats			582	5	10	2,910	5,820
h)	Fifth floor to 9th floor-offices	Business						
	Total population		4170.00	418	25	20	10,450	8,360
	TOTAL WATER DEMAND						78,142	51,989
	SAY IN (M3)						80	50

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II.	**RESIDENTIAL BLOCK**							
a)	**3 BHK BLOCK-S+26 (TOWER-1)**	Residential						
	78 Dwelling units @ 6 persons/DU			468	120	60	56,160	28,080
b)	**3 BHK BLOCK-S+26 (TOWER-2)**	Residential						
	78 Dwelling units @ 6 persons/DU			468	120	60	56,160	28,080
c)	**4 BHK BLOCK-S+28**	Residential						
i)	1st floor to 26th floor							
	104 Dwelling units @ 7 persons/DU			728	120	60	87,360	43,680
ii)	**27th floor to 28th floor- Pent house**							
	4 Dwelling units @ 7 persons/DU			28	120	60	3,360	1,680
d)	**EWS**	Residential						
	46 Dwelling units @ 4 persons/DU			184	90	45	16,560	8,280
	TOTAL WATER DEMAND						**219,600**	**109,800**
	SAY IN (M3)						**230**	**115**

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II.	TUBE WELLS		
(a)	Yield	14	KL/Hr
(b)	Working Hours per Day	16	Hours per Day
(c)	Total water demand = Commercial + Residential=80+230=310	310	m^3/day
(d)	Number of Tube wells required.	1.38	
	(Water Demand/Discharge/Hours working per day)		
(e)	Add 5% as standby	0.07	
	Total	1.45	Nos.
	Say	3.00	Nos.
	(Water to the proposed development is to be supplied by HUDA and it is proposed to install the tube-wells for augmentation/standby purposes).		
III.	PUMPING MACHINERY FOR TUBEWELLS		
(a)	Gross Working Head	80	Meters
(b)	Average fall in S.L	2	Meters
(c)	Depression Head	6	Meters
(d)	Friction loss in main	10	Meters
	Total	98	Meters
(e)	Discharge	15000	LPH
(f)	Horse Power	9.0741	HP
	HP = (15000 X 98 X 1)/(60 X 60 X 75 X 0.6)		
	Say	10.00	HP
IV.	UNDER GROUND		
(a)	Total water demand (Daily for Domestic purposes)-Commercial=80m3 + Residential=230m3 = 310m3	310	m^3/day
(b)	Proposed underground tanks for domestic use. (One day Storage)	310	m^3
(c)	Minimum Separate Static Storage for fire fighting purpose provided - Commercial=450m3 + Residential=500m3 = 950m3	950	m^3
	TOTAL	1260	m^3

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V. (A)	BOOSTING MACHINERY (Water Supply Pumps)		
I)	COMMERCIAL		
(a)	Daily Domestic Water Demand	80	m^3/day
(b)	Discharge per hour @ 12 hr. pumping / day	6.67	m^3/Hour
		120.0	LPM
(c)	No. of Working pump	1.0	
(d)	Proposed Pump discharge (Working)	120.00	LPM
	Say	150.00	LPM
	Gross Working Head		
(a)	Suction lift – positive suction	6	Meters
(b)	Frictional Loss in Mains & Specials	10	Meters
(c)	Max Clear Head required	42	Meters
	Total	58	Meters
	Say	60	Meters
(g)	H.P. of each pump required	3.33	HP
	Pump H.P.		
	Say	3.50	HP
II)	RESIDENTIAL		
(a)	Daily Domestic Water Demand	230	m^3/day
(b)	Discharge per hour @ 12 hr. pumping / day	19.17	m^3/Hour
	Say	320.0	LPM
(c)	No. of Working pump	2.0	
(d)	Proposed Pump discharge (Working)	160.00	LPM
	Say	150.00	LPM
	Gross Working Head		
(a)	Suction lift – positive suction	6	Meters
(b)	Frictional Loss in Mains & Specials	10	Meters
(c)	Max Clear Head required	101.5	Meters
	Total	117.5	Meters
	Say	120	Meters
(g)	H.P. of each pump required	6.67	HP
	Pump H.P.		
	Say	7.00	HP

V.(B)	BOOSTING MACHINERY (Flushing Supply Pumps from STP)		
I)	COMMERCIAL BLOCK		
(a)	Daily Flushing Water Demand	50	m^3/day
(b)	Discharge per hour @ 12 hr. pumping / day	4.17	m^3/Hour
		69.44	LPM
(c)	No. of Working pump	1	
(d)	Proposed Pump discharge (Working)	69.44	LPM
	Say	100	LPM
	Gross Working Head		
(e)	Suction lift – positive suction	6	Meters
(f)	Frictional Loss in Mains & Specials	10	Meters
(g)	Max Clear Head required	42	Meters
	Total	58	Meters
	Say	60	Meters
(h)	H.P. of each pump required (Pump H.P.)	2.22	HP
	Say	2.5	HP
II)	RESIDENTIAL BLOCK		
(a)	Daily Flushing Water Demand	115	m^3/day
(b)	Discharge per hour @ 12 hr. pumping / day	9.58	m^3/Hour
		159.72	LPM
(c)	No. of Working pump	1	
(d)	Proposed Pump discharge (Working)	159.72	LPM
	Say	150	LPM
	Gross Working Head		
(e)	Suction lift – positive suction	6	Meters
(f)	Frictional Loss in Mains & Specials	10	Meters
(g)	Max Clear Head required	101.5	Meters
	Total	117.5	Meters
	Say	120	Meters
(h)	H.P. of each pump required (Pump H.P.)	6.67	HP
	Say	7.0	HP

V.(C)	PUMPS FOR FIRE PROTECTION							
S. No.	Parameters				Location in pump room			
	COMMERCIAL BLOCK		Diesel	Jockey	Fire	Sprinkler	Water curtain	Water curtain (Diesel)
a)	Discharge in lpm		2850	180	2850	2850	700	700
b)	Head in meters		100	100	100	100	40	40
c)	HP			**10**	**120**	**120**	**10**	
d)	Quantity in Nos.		1	2	1	1	1	1
	RESIDENTIAL BLOCK		Diesel	Jockey	Fire	Sprinkler	Water curtain	Water curtain (Diesel)
a)	Discharge in lpm		2850	180	2850	2850	1700	1700
b)	Head in meters		160	160	160	160	40	40
c)	HP			**15**	**150**	**150**	**25**	
d)	Quantity in Nos.		2	4	2	2	1	1

VI.	GENERATING SETS		
1	HP of Tube well pump	10.00	
2	HP of Domestic Pump		
a)	Commercial block	3.50	
b)	Residential block	7.00	
3	HP of Flushing Pump		
a)	Commercial block	2.50	
b)	Residential block	7.00	
4	HP of Jockey Pump		
a)	Commercial block	20.00	
b)	Residential block	60.00	
	Total	110.00	HP
	in KW	83.60	KW
	in KVA	104.50	KVA
	SAY	100.00	KVA

PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: WATER SUPPLY PIPES SHEET

S. No.	Line Designation	50mm dia (Length in M)	65mm dia (Length in M)	80mm dia (Length in M)	100mm dia (Length in M)
1.0	**WATER SUPPLY**				
1.1	**COMMERCIAL BLOCK**				
1.1.1	Domestic water supply	51			138
1.1.2	Flushing water supply			18	
1.1.3	Soft water supply	18		120	
1.2	**RESIDENTIAL BLOCK**				
1.2.1	Domestic water supply		200	31	196
1.2.2	Flushing water supply	200	38	204	
	TOTAL	269	238	373	334
	SAY	**270 m**	**240 m**	**375 m**	**335 m**
2.0	**MUNICIPAL LINE**				
2.1	MUNICIPAL LINE - UGT (COMMERCIAL BLOCK)	**35**			
2.2	MUNICIPAL LINE - UGT (RESIDENTIAL BLOCK)	**34**			
	TOTAL	**69**			
	SAY	**70 m**			
3.0	**BOREWELL LINE**				
3.1	BOREWELL LINE - UGT (COMMERCIAL BLOCK)			87	
3.2	BOREWELL LINE - UGT (RESIDENTIAL BLOCK)	**173**			
	TOTAL	**173**		87	
	SAY	**175 m**		**90 m**	
4.0	**Ball Valves/Butterfly valves**	1		2	3

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PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: MATERIAL SHEET FOR EXTERNAL FIRE FIGHTING

S. No.	Node No		150 mm dia (Length in M)	80 mm dia (Length in M)
	COMMERCIAL BLOCK			
1	PUMP ROOM	F1	5	
2	F1	F3	6	
3	F2	F3	9	
4	F3	F4	117	
5	F4	F5	59	
6	F5	F6	117	
	RESIDENTIAL BLOCK			
1	PUMP ROOM	F7	5	
2	F7	F9	4	
3	F8	F9		36
4	F9	F11	2	
5	F10	F11		15
6	F11	F12	55	
7	F12	F14	17	
8	F13	F14	12	
9	F14	F16	10	
10	F15	F16		67
11	F16	F18	41	
12	F17	F18		29
13	F18	F19	124	
14	F19	F20		46
	TOTAL		583	193
	SAY		585 m	195 m

FIRE HYDRANT VALVE=16 NOS.

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MS-2

PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: MATERIAL SHEET FOR GARDEN HYDRANT

S. No.	Node No		Pipe Length (m)	
			75mm dia	25mm dia
COMMERCIAL BLOCK				
1	STP	GH1	7	
2	GH1	GH2	52	1
3	GH2	GH3	82	2
4	GH1	GH4	129	3
RESIDENTIAL BLOCK				
1	STP	GH5	19	
2	GH5	GH3	47	1
3	GH5	GH6	108	2
4	GH6	GH7	100	3
5	GH7	GH8	119	3
6	GH8	GH4	37	1
TOTAL			700	16
SAY			700 m	20 m

GARDEN HYDRANT VALVE=16 NOS.

Silverglades Infrastructure Pvt. Limited New Delhi

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PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: SEWERAGE SYSTEM SHEET

S. No.	Sewer Line	Size of Pipe mm	Length of Line Meters
	Commercial block		
1	S1 – S2	250	24
2	S2 – S4	250	19
3	S3 – S4	250	13
4	S4 – STP	250	2
	Residential block		
1	S5 - S6	250	78
2	S6 - S7	250	93
3	S7 - S9	250	78
4	S8 - S9	250	117
5	S9 - STP	250	3
	Total 250 Dia Pipe		427
	Say		430 m

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PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY
(70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: DRAINAGE SYSTEM MATERIAL SHEET

S. No.	Line No.	250mm dia pipe (Lenth in M)	300mm dia pipe (Lenth in M)	450mm dia pipe (Lenth in M)
	COMMERCIAL BLOCK			
1	SD-1 TO RWH-8	22	-	-
2	RWH-8 TO RWH-7	33	-	-
3	RWH-7 TO SD-03	-	14	-
4	SD-2 TO RWH-5	24	-	-
5	RWH-5 TO RWH-6	35	18	-
6	RWH-6 TO SD-03	-	17	-
7	SD-03 TO EXTERNAL DRAIN	-	-	6
	RESIDENTIAL BLOCK	-	-	-
1	SD-04 TO RWH-01	40	-	-
2	RWH-01 TO RWH-02	27	34	-
3	RWH-02 TO RWH-03	-	37	-
4	RWH-03 TO SD-06	-	1	-
5	SD-05 TO RWH-04	30	-	-
6	RWH-04 TO SD-06	32	-	-
7	SD-06 TO EXTERNAL DRAIN	-	-	7
	Total	**243.00**	121.00	**13.00**
	SAY	**245m**	125m	**15m**

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PROJECT: APPROVAL OF REVISED BUILDING PLANS OF RESIDENTIAL GROUP HOUSING COLONY UNDER TRANSIT ORIENTED DEVELOPMENT (TOD) POLICY FOR MIX LAND USE COLONY (70% RESIDENTIAL+30%COMMERCIAL) MEASURING 4.85 ACRES (LICENSE No. 110 OF 2013 DATED 27.12.2013) IN SECTOR - 28, GURUGRAM

SUBJECT: MATERIAL SHEET FOR ROAD WORK

S. No.	Node No		Road Length	
			6m wide	9m wide
1	R1	R2	15	-
2	R2	R3	43	-
3	R3	R4	14	-
4	R4	R5	167	-
5	R5	R6	80	-
	R2	R7	39	-
	R7	R8	34	-
	R8	R9	13	-
	R3	R8	35	-
	R4	R9	35	-
	R9	R10	76	-
	R10	R11	80	-
	R11	R7	49	-
TOTAL			680	-
SAY			680 m	-

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