INTERNAL DEVELOPMENT WORKS

DESIGN AND COST ESTIMATES

FOR

PROPOSED BUILDING PLANS OF INTEGRATED COMMERCIAL COLONY (UNDER LEFT OVER POCKET POLICY) MEASURING 2.0 ACRES (LICENCE NO 32 OF 2020 DATED 31/10/2020.) FALLING IN THE VILLAGE ADAMPUR, SUB TEHSIL WAZIRABAD , SECTOR-50, DISTRICT GURUGRAM, MANESAR URBAN COMPLEX.

OWNER

BEING DEVELOPED BY-PYRAMID CITY PROJECT LLP IN COLLABORATION WITH ELAN LIMITED

ENVIRONS BUILDING SERVICES CONSULTANTS

PROPOSED BUILDING PLANS OF INTEGRATED COMMERCIAL COLONY (UNDER LEFT OVER POCKET POLICY) MEASURING 2.0 ACRES (LICENCE NO 32 OF 2020 DATED 31/10/2020 FALLING IN THE VILLAGE ADAMPUR, SUB TEHSIL WAZIRABAD , SECTOR-50, DISTRICT GURUGRAM,MANESAR URBAN COMPLEX BEING DEVELOPED BY-PYRAMID CITY PROJECT LLP IN COLLABORATION WITH ELAN LIMITED

REPORT

Gurgaon town of Haryana State is situated on Delhi - Jaipur national Highway No.8 at a distance of 30 kms for Delhi. Haryana Government has established various residential & commercial sectors along with infrastructure facilities in Gurgaon. It is now proposed Commercial colony Measuring 2.0 Acres total licenses granted area measuring 2.0 acres site at Sector 50 Gurugram.

WATER SUPPLY

Source of water supply in this area is HSVP water main. It has been proposed to construct underground tanks of capacity as per details given for domestic purpose. The underground tanks will be filled from the proposed HSVP main and water will be pumped to the O.H tanks proposed on the roof of the proposed building. Flushing, irrigation & soft water demand of cooling tower makeup will be met from the treated effluent from sewage treatment plant located within development.

DESIGN

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

PUMPING EQUIPMENTS

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

SEWERAGE SCHEME

This scheme is designed for sewer connecting to the sewage treatment plant of the development and excess water, if any, will be disposed off to the proposed HSVP sewer. The sewerage system has been marked on respective plans.

The sewer lines have been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 80% of the 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 CI/S.W/RCC pipe sewer line, construction of required number of manholes etc., have been made in the estimate.

Design statement for entire sewerage system has been prepared and attached with the estimate.

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STORM WATER DRAINAGE

Rainwater precipitation of the proposed development will be collected through a series of catch basin /channels and piping and will be connected to the proposed Rainwater Harvesting System. Surplus water will be disposed off to the proposed HSVP Storm Drain. Intensity of rainfall has been taken as ¼" per hour.

SPECIFICATIONS

Development work will be carried out in accordance with the standard specifications of P.H as laid down by the Haryana Govt./HSVP/Haryana Building Code (HBC).

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

Street Lighting
Provision for external lighting 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:
Total cost of the internal development scheme, including cost of all services, works out to be Rs. **190.42 Lakhs** including 3% contingencies @ 49% departmental charges.

Authorized Signatory

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1. DESIGN CALCULATION :

Sl. No.	Description	FAR in Sqm.	Population per Sqm (As per NBC)	Total Population	Water Demand LPCD	Total Water Demand LPD	Domestic Water Demand LPCD	Total Domestic Water Demand LPD	Flushing Water Demand LPCD	Total Flushing Water Demand LPD	Treated Effluent Water Demand in LPD	Sewage Flow		
												80% of Total Dom. Water Demand	100 % of Total Flu. Water Demand	Total in LPD
1	**Lower Ground Floor**	4954.89	3	1652										
	Permanent Population		10%	166	45	7470	25	4150	20	3320	3320	3320	3320	6640
	Floating Population		90%	1486	15	22290	5	7430	10	14860	14860	5944	14860	20804
2	**Ground Floor**													
2.1	**Retail**	6428.897	3	2143										
	Permanent Population		10%	215	45	9675	25	5375	20	4300	4300	4300	4300	8600
	Floating Population		90%	1928	15	28920	5	9640	10	19280	19280	7712	19280	26992
3	**Mezzanine Floor**													
3.1	**Retail**	567.845	6	95										
	Permanent Population		10%	10	45	450	25	250	20	200	200	200	200	400
	Floating Population		90%	85	15	1275	5	425	10	850	850	340	850	1190
3	**First Floor**	5672.965	6	946										
	Permanent Population		10%	95	45	4275	25	2375	20	1900	1900	1900	1900	3800
	Floating Population		90%	851	15	12765	5	4255	10	8510	8510	3404	8510	11914

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4	**Second Floor (Restaurant & Food Court)**	5829.648	1.8	3239										
	Permanent Population		10%	324	45	14580	25	8100	20	6480	6480	6480	6480	12960
	Floating Population		90%	2915	70	204050	55	160325	20	58300	58300	128260	58300	186560
5	**Third Floor**	2291	6	382										
	Permanent Population		10%	39	45	1755	25	975	20	780	780	780	780	1560
	Floating Population		90%	343	15	5145	5	1715	10	3430	3430	1372	3430	4802
6	**Fourth Floor**	2575.188	6	430										
	Permanent Population		10%	43	45	1935	25	1075	20	860	860	860	860	1720
	Floating Population		90%	387	15	5805	5	1935	10	3870	3870	1548	3870	5418
7	Maintenance Staff			50	45	2250	25	1250	20	1000	1000	1000	1000	2000
8	Filter Back-Wash			L.S		10000		10000						10000
9	Horticulture (Proposed green area @ 5 LPD/sq.m)			L.S		10000					10000.0			
10	Soft water demand for HVAC Cooling Tower Make-up.			L.S		170000					170000.0			
	Total					**512640**		**219275**		**127940**	**307940**			**305360**

Fire Water Tank Cap. 200 + Water Curtain Demand KL (200+96 = 2962KL) as per NBC 2016 Part – IV, Table No. 7, Clause No.5- Assembly & Mercantile Building D6.
Proposed Capacity - 300KL

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IV. UNDER GROUND WATER TANKS

a) Total Domestic water demand	219 KL
Half day's requirement for (219/2)	109.5 KL
b) Total Flushing water demand	128 KL
Half day's requirement for (128/2)	64 KL

It is proposed to construct one set of Raw & Domestic water tanks of Capacity 300 KL. Fire Water Tank of 300 KL is proposed for entire development. Flushing, Irrigation & Soft water tanks of total capacity 300 is proposed. Total Capacity of underground water storage tank is 900 KL.

V. BOOSTING MACHINERY

A. Domestic Water Transfer Pump to feed water tank at Terrace Floor:

- Daily Domestic water demand	219 KLD
- Discharge per hour @ 8 hr. pumping / day	27.375 KL / hr.
	456.25 LPM
	500 LPM
Gross Working Head	
- Suction lift – positive suction	0.0 Mtr.
- Friction Loss in Mains & Specials	12.0 Mtr.
- Clear Head required (Pump Room to OHT)	40.00 Mtr.
TOTAL	**52.00 SAY 60 Mtr.**

Pump – HP = $\frac{500 \times 60}{60 \times 75 \times 0.75}$ = 8.89 Say 10 HP Each

It is proposed to provide 2 Nos. of pumps of 500 lpm discharge at 60 mtr. Head, (one pump working and one standby) for domestic purpose.

- Daily Flushing water demand	128.0 KLD
- Discharge per hour @ 8 hr. pumping / day	16.0 KL / hr.
	266.67 LPM
	300 LPM
- Gross Working Head	
- Suction lift – positive suction	0.0 Mtr.
- Friction Loss in Mains & Specials	12.0 Mtr.
- Clear Head required (Pump Room to OHT)	40.00 Mtr.
TOTAL	**52.00 SAY 60 Mtr.**

Pump – HP = $\frac{300 \times 60}{60 \times 75 \times 0.75}$ = 5.34 HP Say 5.5 HP Each

It is proposed to provide 2 Nos. of pumps of 300 lpm discharge at 60 mtr. Head, (one pump working and one standby) for Flushing Water purpose.

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E. Irrigation Pump

- Water Demand of Horticulture and Road Area	10 KLD
- Discharge per hour @ 1 hr. pumping / day	10 KL / hr.
	166.67 LPM
SAY	200 LPM
Gross Working Head	
- Suction lift – positive suction	0.0 Mtr.
- Friction Loss in Mains & Specials	10.0 Mtr.
- Residual head required at irrigation hydrant	25 Mtr.
TOTAL	**35 Mtr. Say 40 Mtr.**

Pump – HP = $\frac{200 \times 40}{60 \times 75 \times 0.75}$ = 2.37, Say 3 HP Each

It is proposed to provide 2 Nos. of pumps of 200 lpm discharge at 40 mtr. Head, (one pump working and one standby) for Irrigation purpose.

VI. PUMPS FOR FIRE PROTECTION

S. No.	Parameters	Location		Pump Sets	
			Jockey	Main	Diesel
a)	Discharge in lpm	Pump Room	180 lpm	2850 lpm	2850 lpm
b)	Head in meters		95	95	95
c)	HP		7.5 HP Each	100 HP Each	110 BHP
d)	Quantity in Nos.		1W+1S	2	1

VII. GENERATING SETS:

HP of	Sump pump	= 4x2 x 5	= 40 HP
HP of	Domestic water transfer pump	= (10 x 1)	= 10 HP
HP of	Flushing water transfer Pump	= (5.5 x 1)	= 5.5 HP
HP of	Irrigation Pump	= (3 x 1)	= 3.0 HP
HP of	Jockey pump	= (7.5 x 1)	= 7.50 HP
	TOTAL		= 66.0 HP
			= 49.236 KW
	Say		= 50 Kw.

It is proposed to provide 50 KVA generating set separately or capacity will be added to the capacity of main generating set to supply backup power.

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FINAL ABSTRACT OF COST

Amount in Rs. Lacs

SUB WORK NO. I	WATER SUPPLY SCHEME	60.49
SUB WORK NO. II	SEWERAGE SCHEME	43.81
SUB WORK NO.III	STORM WATER DRINAGE	23.50
SUB WORK NO.IV	ROADS WORK	20.94
SUB WORK NO.V	STREET LIGHTING	5.41
SUB WORK NO. VI	HORTICULTURE	5.76
SUB WORK NO. VI	MTC CHARGE AND RESURFACING OF ROAD	30.51
	TOTAL	**190.42**

(Rs. ONE HUNDRED NINTY LACS AND FOURTY-SIX THOUSAND ONLY)

For

AUTHORISED SIGNATORY

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PROPOSED BUILDING PLANS OF INTEGRATED COMMERCIAL COLONY (UNDER LEFT OVER POCKET POLICY) MEASURING 2.0 ACRES (LICENCE NO 32 OF 2020 DATED 31/10/2020 FALL IN VILLAGE ADAMPUR, SUB TEHSIL WAZIRABAD , SECTOR-50,DISTRICT GURUGRAM,MANESAR URBAN COMPLEX BEING DEVELOPED BY-PYRAMID CITY PROJECT LLP IN COLLABORATION WITH ELAN LIMITED

SUB WORK No. 1 Water Supply

1.	Sub Head No. 01	Head Works	9,38,900.00
2.	Sub Head No. 02	Pumping Machinery	5,50,000.00
3.	Sub Head No. 03	Rising Main	2,30,000.00
4.	Sub Head No. 04	Distribution System	1,51,500.00
5.	Sub Head No. 05	Fire Fighting Main	9,44,000.00
6.	Sub Head No. 060	Irrigation System	3,07,300.00
		TOTAL	**31,21,700.00**
		Add 3% contingencies & PH Charges	ADDED
		TOTAL	
		Add 49% Departmental charges	
		TOTAL	**60,46,733.00**

Say 60.49 Lakhs.

Sub Work No. 1
Sub Head No. 01

Water Supply
Head Works
Amount in Rs.

1. Providing Domestic Water Transfer Pumps for feeding Terrace OHT- Capacity 500 lpm at 60 M head , 2 Nos. @ Rs. 1,50,000/-each	Rs. 3,00,000.00
2. Providing Flushing Water Transfer Pumps For feeding Terrace OHT- Capacity 300 lpm at 60 M head , 2 Nos. @ Rs. 1,10,000/-each	Rs. 2,20,000.00
3. Providing Pumps for Irrigation - Capacity 200 lpm at 40 M head , 2 Nos. @ Rs. 80,000/-each	Rs. 1,60,000.00
4. Construction of U.G. tanks 900 KL Rs. 1500/KL	Rs. 13,50,000.00
5. Provision for unforeseen items / carriage of materials	Rs. 1,00,000.00
TOTAL	**Rs. 9,38,900.00**

(Total C/F to Summery of Sub Work 1)

Sub Work No. 1
Sub Head No. 02

Water Supply
Pumping Machinery
Amount in Rs.

1. Provision for diesel engine genset for standby arrangements of Water Transfer Pumps etc. complete. of following capacities.	
- 1 No. 50 KVA @ Rs. 6,00,000/-	Rs.6,00,000.00
2. Providing and installing pumping set of following capacities for Fire protection:	
- 180 lpm at 95 M head 2 Nos. @ Rs.1,50,000/-	Rs. 3,00,000.00
- 2850 lpm at 95 M head 2 Nos. @ Rs. 5,00,000/-	Rs. 10,00,000.00
- 2850 lpm at 95 M head 1 No. DG pump @ Rs.7,50,000/-	Rs. 7,50,000.00
3. Provision for chlorination plant complete	
- 1 No. @ Rs. 100000/-	Rs.1,00,000.00
4. Provision for making foundations and erection of Pumping Machinery:	
- 1 Sets. @ Rs. 1,00,000/- each	Rs. 1,00,000.00
5. Provision for pipes, valves and specials inside boosting chamber.	
1 sets @ Rs. 3,00,000/- each	Rs. 3,00,000.00
6. Provision for carriage of material and other unforeseen Items etc. L/S	Rs. 1,00,000.00
TOTAL	**Rs. 5,50,000.00**

(Total C/F to Summery of Sub Work 1)

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Sub-Work No. 1
Sub Head No. 03

Water Supply
Rising Main from HSVP
Amount in Rs.

1.	Providing , laying , jointing and testing DI/GI pipe lines Including Cost of excavation etc. complete in all respects. - 80 mm dia. pipe 115 m @ Rs. 600/-	Rs. 69,000.00
2.	Providing and fixing valve including cost of surface box and masonary chamber etc. complete in all respects. - 80 mm i/d 1 Nos. @ Rs. 10000/-	Rs. 10,000.00
3.	Providing and fixing indicating plates for valve and air Valves. - 1 No. @ Rs. 1000/- each	Rs.1,000.00
4.	Providing and fixing air release valve and scour valve 1 No. @ Rs. 7500/- each	Rs.7,500.00
5.	Providing and fixing water meter on municipal Main including Chamber 1 No. @ Rs. 1,10,000/- each	Rs.1,10,000.00
6.	Provision for carriage for materials and other unforeseen items(L/S)	Rs. 40,000.00
7.	Provision for cutting of roads and making good to its original Conditions. (L/S)	Rs. 10,000.00
	Total	**Rs. 2,30,000.00**

(Total C/F to Summery of Sub Work 1)

Sub Work No. 1 — Water supply
Sub-Head No. 04 — Distribution System

Amount in Rs.

1.	Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Domestic Water Supply – G.I Pipe 80 mm, 75 M @ Rs. 720/-	Rs. 54,000.00
2.	Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Flushing Water Supply – G.I Pipe 65 mm, 50 M @ Rs. 650/-	Rs. 32,500.00
3.	Provision for carriage of materials and other unforeseen items	Rs. 50,000.00
4.	Providing and fixing valve:	
	- 65 mm dia 1 Nos. @ Rs. 4500/ - each	Rs. 4,500.00
	- 80 mm dia 1 Nos. @ Rs. 10500/ - each	Rs. 10,500.00
Total		**Rs.1,51,500.00**

(Total C/F to Summery of Sub Work 1)

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Hydraulic Calculation for Domestic Water Supply															
Sl. No.	Node	Total Dom. Water Demand in LPCD	Hours of Pumping @ 8 Hrs.	Water Demand in LPM	Length of Pipe in Mtr.	Head Loss in Mtr./ Mtr.	Slef Head Loss in Mtr./ Mtr.	Cumulative Head Loss in Mtrs.	Total Head Loss in Mtrs.	Ground Level at Starting	HL at Start	HL at End	Residual Head	Velocity in Mtr./Sec.	Size of Riser in MM
1	UGT-D1	219000	27375.0	456.25	75	0.055	4.146	0.000	4.146	0	60	55.85	55.85	1.51	80

Hydraulic Calculation for Flushing Water Supply															
Sl. No.	Node	Total Dom. Water Demand in LPCD	Hours of Pumping @ 8 Hrs.	Water Demand in LPM	Length of Pipe in Mtr.	Head Loss in Mtr./ Mtr.	Slef Head Loss in Mtr./ Mtr.	Cumulative Head Loss in Mtrs.	Total Head Loss in Mtrs.	Ground Level at Starting	HL at Start	HL at End	Residual Head	Velocity in Mtr./Sec.	Size of Riser in MM
1	STP - F1	128000	16000.0	266.667	50	0.056	2.810	0.000	2.810	0	60	57.19	57.19	1.34	65

Sub Work No. 1
Sub-Head No. 05

Fire Raising Main

Amount in Rs.

1.	Providing, Laying, jointing and testing M.S. pipes lines for fire rising main including cost of fittings, connection etc. complete in all respect .			
	(i) 150 mm m.s. pipe line 495 m @ Rs. 1800/- per Mtr.	=	Rs.	8,91,000.00
	(ii) 80mm i/d 30 m @ Rs. 1000/ m	=	Rs.	30,000.00
2.	Providing & fixing valve (i) 150 mm dia 3 Nos. @ Rs. 15000/- each	=	Rs.	45,000.00
3.	Providing and fixing fire Hydrant 11 Nos. @ Rs. 10000/-	=	Rs.	1,10,000.00
4.	Providing for carriage of material (L.S.)	=	Rs.	1,00,000.00
Total			**Rs.**	**9,44,000.00**

(Total C/F to Summery of Sub Work 1)

Material Statement - Fire Hydrant

Fire Main Ring 150mm dia – Total Length 495 Mtr.
80 mm dia – Total Length 30 Mtr.

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Sub Work No. 1
Sub-Head No. 06

Water supply
Irrigation

1. Providing , Laying, Jointing and testing pipe line Conforming to IS 4985 including cost of excavation etc. complete in all respect.

a) 25 OD 30 metre @ Rs. 250/- M	= Rs.	7,500.00
a) 63 OD 440 metre @ Rs. 495/- M	= Rs.	2,17,800.00

2. Providing and fixing 20 mm dia. irrigation hydrant Valve complete in all respect.
17 Nos. @ Rs. 2000/ each = Rs. 34,000.00

3. Provision for carriage of Material and other as foreseen Items. = Rs. 50,000.00

TOTAL **= Rs. 3, 07, 300.00**

(Total C/F to Summery of Sub Work 1)

Material Statement – Irrigation system

Irrigation Main Ring 63mm OD – Total Length 495 Mtr.
25 mm dia – Total Length 30 Mtr.

Irrigation Hydrant – 17 Nos

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Sub-Work No. II — Sewerage Scheme

Amount in Rs.

1.	Providing, jointing , cutting and testing spun cast iron pipe conforming to IS: 15905including cost of jointing, cleanouts, Structural Support, cost of fittings etc. Complete.		
	a) 200 mm i/d 300 M @ Rs. 1300/M	Rs.	3,90,000.00
	b) Providing & laying PVC "U" pipe conforming to IS: 15328-2003 SN-4 jointed with elastomeric sealing ring or solvent cement complete in all respects including testing of joints and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc. Complete. (STP by-pass)		
	200 mm i/d avg. depth 0-1.5 M 75 M @ Rs. 2000/M	Rs.	1,50,000.00
	c) Provision for cartage of material	Rs.	50,000.00
	d) Provision for lighting and watching	Rs.	40,000.00
	e) Sewage Treatment Plant of capacity 370 KLD @ 12000/- KLD	Rs.	20,40,000.00
	TOTAL	Rs.	31,21,000.00
	Add 3% contingencies & PH charges	Rs.	1,52,100.00
	TOTAL	Rs.	52,22,100.00
	Add 49% Departmental charges	Rs.	25,58,829.00
	Total	**Rs.**	**43,46,494.00**

(Total C/F to Summery of Sub Work II)

SAY Rs. 43.81 Lakhs

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SEWERAGE SYSTEM

Material statement of pipe

SL NO	NODE NO.		Pipe Length in Mtr.	
	FROM	TO	200 mm dia pipe	250 mm dia pipe
1	S1	S2	49	
	S4	S2	49	
2	S2	S3	51	
	S5	S3	49	
	S6	S3	49	
3	S3	STP	10	
		Total	257	
		SAY	300	

STP By Pass Line

Sl. No.	Node	Node		200 mm dia pipe
1	STP	HSVP		75
		Total		25

Subject :- Sewage Water Hydraulic Design Chart

Sl. No.	Node No.		Total Water Demand in LPD (X=X1 + X2)	Sewage Generation @80% of Total Water Demand (LPD) (A)	Peak Flow in LPS (B = (A x 3) / (24x3600))	Peak Flow in (cum/s)			Size of Pipe (in MM)	Velocity (in Mtr./Sec.)	Design Discharge (Q h) (in Cum/Sec.)	Length of Line (in Mtr.)	Slope	Q/q
						Self	previous	Total (q)						
1	S1	S2	72500	58000	2.0139	0.002	0.000	0.002	200	0.76	0.012	49	190	0.17
2	S4	S2	72500	58000	2.0139	0.002	0.000	0.002	200	0.76	0.012	49	190	0.17
3	S2	S3	43000	34400	1.1944	0.001	0.004	0.005	200	0.76	0.012	51	190	0.44
4	S5	S3	79500	63600	2.2083	0.002	0.000	0.002	200	0.76	0.012	49	190	0.19
5	S6	S3	79500	63600	2.2083	0.002	0.000	0.002	200	0.76	0.012	49	190	0.19
6	S3	STP	347000	277600	9.6389	0.010	0.010	0.019	200	0.76	0.012	5	190	1.62

Sub-Work No. III — Storm Water Scheme

	Amount in Rs.
1. Providing and laying R.C.C. pipe drain class NP-3 With required number of manholes, Excavation, etc complete	
a. 250 mm dia. 30m @ Rs. 600/m	Rs. 18,000.00
b. 400 mm dia. 250m @ Rs. 1200/m	Rs. 3,00,000.00
2. Provision for Road gully L.S	Rs. 50,000.00
3. Providing , Laying , jointing and testing G.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect. Sump Riser Pipe – G.I Pipe 100 mm, 145 M @ Rs. 1800/-	Rs. 2,61,000.00
4. Providing Sump Pumps For near ramp - Capacity 700 lpm at 10 M head, 4 Nos., @ Rs. 1,25,000/-each	Rs. 5,00,000.00
5. Provision for rain water harvesting arrangement @ Rs. 100,000/- per acre (3.525 Acres after excluding 0.475 acre acquired area for sector road and 12.0 m wide service road out of total license granted area measuring 4.0 acres with far benefit on total licensed area 4.0 acres))	Rs, 3,52,500.00
6. Provision for unforeseen items	Rs, 50,000.00
Total	Rs. 15,31,500.00
Add 3% for contingencies and PH charges	Rs. 45,945.00
	Rs. 15,77,445.00
Add 49% Departmental charges	Rs. 7,72,948.05
TOTAL	**Rs. 23,50,393.05**
(Total C/F to Summery of Sub Work III)	**Say Rs.23.50 Lakhs**

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STORM WATER DRAINAGE SYSTEM

Material statement of pipe

SL NO	NODE NO.		Pipe Length in Meter				
	FROM	TO	250MM Dia		400MM Dia		
1	D1	D2			106		
2	D3	D2			115		
3	D2	HSVP			26		
		TOTAL			247		
		SAY	30		250		

Subject :- Storm Water Hydraulic Design Chart

SL NO	NODE NO.		LENGTH	SELF AREA TO BE DRAINED IN	AREA IN HACTARES			DISCHARGE IN CUM/SEC RAIN INTENSITY =6.25mm	DISCHARGE	Pipe Dia	SLOPE	VELOCITY	DISCHARGE CAPACITY	GROUND LEVEL AT START	GROUND LEVEL AT END	INVERT LEVEL AT START	INVERT LEVEL AT END
	FROM	TO	MTR	SQM	SELF	BRANCH	TOTAL	M3/HR	IN M3/SEC	MM	1 IN	M/SEC	IN M3/SEC	MTR	MTR	MTR.	MTR
1	D1	D2	106	4725	0.47		0.47	29.531	0.0082	400	400	0.718	0.09	600	600	-300	-565
2	D3	D2	115	9001	0.90		0.90	56.256	0.0156	400	400	0.718	0.09	600	600	-300	-600
3	D3	HSVP	25		0.00	1.37	1.37	85.788	0.0238	400	400	0.718	0.09	600	600	-600	-665

Sub-Work No. IV **Road Work**

Width in Meter	Length in Meter	Metalled Portion	Area in Sq.m.
6	360	5.00	1800
9	60	7.00	420
12	120	10.00	1200
		TOTAL	3420
		Add 10% for curves	342
		TOTAL	**3762 Sq.m**
		SAY	**3800 Sq.m**

Amount in Rs.

1. Provision for levelling & earth filling as per site conditions. 3.525 acres (after excluding 0.475 acre acquired area for sector road and 12.0 m wide service road out of total license granted area measuring 4.0 acres with far benefit on total licensed area 4.0 acres) @ Rs. 90,000/- Rs. 1,17,250.00

2. i. Soling coat 100 mm thick (63-45) mm gauge compacted to 75 mm thick WBM conforming to MOT specification (Table 400-6, Grading No. 2).
   ii) Wearing coat (Top coat) 100mm thick(53-22.4)mm gauge (with double layer) compacted to 75mm thick conforming to MOT specifications (Table 400-6, Grading No. 3)
   iii) 25 mm thick pre-mix carpet with seal coat 3800 @ Rs. 450/S.qm. Rs. 8,10,000.00

3. Provision for kerbs & channels of CC 1:2.5:5, 720 m ((360+2(60+120)) @ Rs. 500 / m Rs. 3,60,000.00

4. Provision for making approach and pavement to building Rs. 1,00,000.00

5. Provision for carriage of material Rs. 50,000.00

TOTAL	**Rs. 13,10,630.00**
Add 3% contingency & P.E. charges	Rs. 39,319.00
	Rs. 13,49,949.50
Add 49% deptt. Charges	Rs. 6,61,475.0
	Rs. 20,93,424..00

(Total C/F to Summery of Sub Work IV)

Say **Rs. 20.94 Lakhs**

Road Work

S. No.	Road Marked	6 M	9M	12 M
1.	A	36	-	-
2.	B	08	-	-
3.	C	71	-	-
4.	D	07	-	-
5.	E	30	-	-
6.	F	10	-	-
7.	G	93	-	-
8.	H	93	-	-
9.	I	08	-	-
10.	J	00	27	-
11.	K	00	27	-
12.	L	00	-	112
	TOTAL	**356**	**54**	**112**
	SAY	**360**	**60**	**120**

Sub Work No. V — Street Lighting

Amount in Rs.

Providing external lighting as per standard specifications of HVPN 3.525 acres (after excluding 0.475 acre acquired area for sector road and 12.0 m wide service road out of total license granted area measuring 4.0 acres with far benefit on total licensed area 4.0 acres)@ Rs. 1,00,000 / acres.	Rs.	3,52,500.00
Add 3% contingencies & P.E. charges	Rs.	10,575.00
		3,63,075.00
Add 49% Departmental charges		1,77,906.75
TOTAL		**5,40,981.75**

(Total C/F to Summery of Sub Work V)

Say : 5.41 Lakhs

Sub Work No. VI — Plantation & Road Side trees
Amount in Rs.

1. Development of Lawn Areas:

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

b) Rough dressing of turfed area.

c) Grassing with "DOOB GRASS" i/c watering and maintenance of lawns for 30 days till the grass forms a thick lawn , free from weeds and fit for mowing in row 7.5 cm part in either direction.

Organised green of the 3.525 Acre development
@ Rs. 1,00,000 / acres — Rs. 3,52,500.00

2. Providing and planting trees along one side of 9 m &
Two side of 12 m wide road @ 12m interval
Total Road length 60 (9 Mtr. Wide Road) +120 (12 Mtr. Wide Road)
No. of trees (60/12)+(2*120/12) = 25
say 30

Cost Details:	
Excavation	= 50
Manure	= 50
Tree Plant	= 50
Tree Guard	= 600
TOTAL	Rs. 750

30 Trees @ Rs. 750/- each	Rs. 22,500.00
TOTAL	Rs 3,75,000.00
Add 3% contingencies & P.H. charges	Rs. 11,250.00
Total	Rs. 3,86,250.00
Add 49% departmental charges	Rs. 1,89262.50
Total	Rs. 5,75,512.50

(Total C/F to Summery of Sub Work VI)

Say — **Rs. 5.76 Lakhs**

ENVIRONS BUILDING SERVICES CONSULTANTS

Sub Work No. VII — MTC Charge and Resurfacing of Road

Amount in Rs.

1.	Provision for maintenance charge for Water supply, sewerage, storm water, Drainage, roads, street light, Hort. Etc. Complete including operation & Establishment charges as per HSVP Norms after completion. Area 3.525 Acre (after excluding 0.475 acre acquired area for sector road and 12.0 m wide service road out of total license granted area measuring 4.0 acres with far benefit on total licensed area 4.0 acres) @ Rs. 3,00,000/-	10,57, 500.00
2.	Provision for resurfacing of roads after First five year of maintenance. Total Road area 3800 Sqmt.@ Rs. 700/-	26,60,000.00
3.	Provision for resurfacing of roads after 10 Years of MTC. Total Road area 3800 Sqmt. @ Rs. 300/-	11,40,000.00
	Total	**20,01,130.00**
	Add 3% contingencies & P.E. charges	60,034.00
		20,61,164.00
	Add 49% deptt. Charges	10,09,970.00
	TOTAL	**30,71,134.00**

(Total C/F to Summery of Sub Work VII)

Say : 30.71 Lakhs

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