M/s SPITI TOWNSHIP LLP & OTHERS;
NILP PLOTTING IN
VILLAGE – GOPALPUR, SECTOR – 99A,
GURUGRAM, HARYANA.

EXTERNAL SERVICE ESTIMATE

ARCHITECT

DAULAT AND PUNEET ARCHITECTS LLP.

408, 4TH FLOOR, SUN CITY TRADE TOWER, OLD DELHI GURUGRAM ROAD,
SECTOR-21, GURUGRAM-122016, HARYANA
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PROJECTS

M/s SPITI TOWNSHIP LLP. & OTHERS Residential Plotted Colony Under New Integrated Licensing Policy (License No. 171 of 2023 dated 24 / 08 / 2023 area measuring 10.05625 Acres at Village – Gopalpur, Sector – 99A, Gurugram, Distt – Gurugram, Haryana

SUBJECTS

PROJECT REPORT / ESTIMATES FOR PROVIDING EXTERNAL SERVICES (WATER SUPPLY, FIRE, SEWERAGE & STORM WATER DRAINAGE, GARDEN HYDRANT & STREET LIGHTING)

District Gurugram is located 30 Km south of National Capital New Delhi, about 10 Kilometres from Dwarka sub-city and 268 Km south of Chandigarh, the State Capital. Over the past 25 years the city has undergone rapid development and construction. The district is one of Delhi's major satellite cities and is part of the National Capital Region. It is within commuting distance of Delhi via an expressway and Delhi Metro.

The district is the second largest city in the Indian State of Haryana and is the industrial and financial centre of Haryana. It has the 3rd highest per capita income in India after Chandigarh and Mumbai. It is also the only Indian city to have successfully distributed electricity connections to all its households. It is also the IT hub & centre of various BPO companies.

The district has been in existence since the times of Mahabharat. It is said that Yudhistir, the eldest brother among the Pandavas, gave the village to his guru, Dron Acharya, whose tank still exists on the west side of the Railway Road. Actual village "GURGAON" is about 1.5 Km. away from Gurugram town, where the temple of SHEETLA MATA, attracts devotees in large numbers on every Monday and Tuesday.

Water Supply

1. **Source**

   The source of water supply in this area is tube well as underground water is sweet and fit for human consumption, moreover, the water is available at reasonable depth, and the average yield of Tube wells, with approximate 60 to 80-meter depth will be about 15 KL per hour. 2 No. Tube wells are required to meet with the daily requirement of water till to city supply made available.

2. **Tube wells**

   The proposed tube wells shall be 510 mm bore drilled with reverse rotary rig and installed with 80 mm i/d housing pipe and 50 mm i/d slotted tube as strainer. The provision taken in the estimate under the sub-head tube well includes the cost of pea gravel packing. The lift of tube well is limited due to incrustation and rusting of strainer. Therefore, out of these tube wells the drilling of tube wells will be done for 2 Nos. tube wells and further tube wells will be drilled as the demand develops till the scheme is handed over the department.

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3. **Pump Chambers and Pumping Machinery**

It is proposed to occupy each tube well with an electric driven pumping set-submersible pump capable of delivering about 15000 Liters per hour. It has been proposed to install pumping set as described with standby of equal capacity.

4. **Under Ground Storage**

Underground tank 60% storage of one day storage of total daily demand of water supply have been proposed at one location in the scheme. The same shall be fed by Tube well at present and shall be later augmented through HSVP mains canal supply at later date.

6. **Distribution System**

The distribution system for this development is has been designed for 172.5 Liters per person per day @3.0 times the average rate of flow on "Hazen Williams" 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.

7. **Rising Main**

Rising mains from HSVP water main on sector road to water works have also been designed and provision for D.I. pipe line has been made in this estimate

8. **Sewerage**

The internal sewer lines have also been designed for three times average D.W.F in relation to water supply demand. It has been assumed that about 90 % of the domestic water supply shall find its way into the proposed sewer. All the SW pipes, sewer has been designed to run half/full/three fourth full.

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

Necessary provision for laying SW pipes sewer lines and manholes etc. has been made in this estimate.

9. **Storm water drainage**

It has been proposed to lay underground RCC-NP3 pipe drains on the road widths 12.0 M. to lay underground drains. The intensity of rain fall has been taken as ¼th inch per hour. The internal storm water drains will be jointed into external storm water drainage to be laid by HSVP on sector dividing roads. Necessary provision for curves and channels has been made in the estimate. The estimate for these closed drains has been included as sub work no. III A minimum size of 400 mm RCC – NP3 storm water line will be provided.

10. **Specifications**

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

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11. **Roads**

Cost of road has been taken in the estimate

12. **Street Lighting**

Provision for street lighting on surrounding area has been made.

13. **Horticulture**

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

14. **Specifications**

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

15. **Rates**

The estimate has been based on the present market rates and probable escalation in prices.

16. **Cost**

898.20

The total cost of the Scheme including cost of all services works out to **Rs. ~~570.284~~ lakhs** including 3% contingencies and 49% departmental charges, unfrozen, price escalation and admin charges.

-:-

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PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT: FINAL ABSTRACT OF COST

		Amount in Rs. Lacs
SUB WORK NO. I	WATER SUPPLY SCHEME	168.38 ~~164.652~~
SUB WORK NO. II	SEWERAGE SCHEME	93.45 ~~72.680~~
SUB WORK NO.III	STORM WATER DRAINAGE	136.96 ~~76.582~~
SUB WORK NO.IV	ROADS & FOOT PATHS	208.12 ~~151.793~~
SUB WORK NO.V	STREET LIGHTING	38.583
SUB WORK NO. VI	HORTICULTURE (PLANTATION & ROAD SIDE TREES)	6.00 ~~3.672~~
SUB WORK NO. VII	MTC CHARGES INCL RESURFACING OF ROADS AFTER 1st 5 YEARS AND 2nd YEAR OF MTC AS/HUDA	252.67 ~~62.322~~
	TOTAL	898.76 ~~570.284~~

TOTAL : (~~Rupees Seven Crores Fourty Three Lacs and Five Thousand Seven Hundred Only~~) 898.20 Lacs

Cost Per Acre = ~~570.284~~ Lakh / 10.05625 acres = ~~56.709~~ Lakh per acre.

898.20 89.37

AUTHORISED SIGNATORY

Executive Engineer
HSVP Division No. V,
Gurugram

Checked subject to Comments
In forwarding letter No. 195969
Dt 12/05/2023 and notes
attached with the estimate

Superintending Engineer,
HSVP Circle, Gurugram

Superintending Engineer (HQ)
for Chief Engineer-I
HSVP, Panchkula

Director General
Town & Country Planning
Haryana, Chandigarh

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हरियाणा शहरी विकास प्राधिकरण

HARYANA SHEHARI
VIKAS PRADHIKARAN

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

CE-I No. 195869
Dated: 12/09/2023

Annexure-A

SUB:- Approval of service plan estimate to set up Residential Plotted Colony under New Integrated licensing Policy (NILP) on an area measuring 10.05625 acres (licence no. 171 of 2023 dated 24.08.2023) in the revenue estate of Village Gopalpur, Sector-99A, Gurugram being developed by Spiti Township 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.
8. Only C.I/D.I pipes will be used in water supply and flushing system, UPVC/HDPE pipe for irrigation purposes.

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HARYANA SHEHARI VIKAS PRADHIKARAN

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

9. A minimum 100 i/d C.I/D.I, 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 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.
12. The specifications for various roads will be followed as per IRC/MORTH specifications.
13. The wiring system of street lighting and specifications of street lighting fixture will be as per relevant standards.
14. This shall confirm to such other conditions as are incorporated in the approved estimate and the letter of approval.

Superintending Engineer (HQ),
for Chief Engineer-I, HSVP,
Panchkula

SUB WORK No. 1 (Abstract of Cost)		Water Supply & Fire Fighting	
1	Sub Head No. 01	Head Works	~~5327500.00~~ 48.73
2	Sub Head No. 02	Pumping Machinery	~~1720000.00~~ 20.30
3	Sub Head No. 03	Rising Main	~~400500.00~~ 5.38
4	Sub Head No. 04	Distribution System Dom. and Flushing	~~3280625.00~~ 31.40
		TOTAL	~~10728625.00~~ 105.81
		Add 3% contingencies &	~~321858.75~~ 3.17
		PH Charges	
		TOTAL	~~11050183.75~~ 108.98
		Add 49% Departmental charges + Price escalation	~~5414737.01~~ 53.40
			162.38
		TOTAL	~~16465220.79~~
		Say in lakhs	~~164.652~~

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Sub Work No. 1 — Water Supply
Sub Head No. 01 — Head Works — *Amount in Rs.*

1. Boring and installing tube well with reverse Rotary Rig
Complete with pipe and strainer to a depth of about 120 meter in all respect
~~2 Nos. for For overall 10.05625 Acre Site Area~~
~~Total -~~ 2 No. @ Rs. 15,00,000/- each. — 15.0 — Rs. ~~20,00,000.00~~

2. Provision for rising mains, connecting tube wells with UGT Tanks including Valve & NRV — 0.58
a) 100 mm dia - ~~102 m~~ 40 @ Rs. ~~1250/-~~ 1460] — Rs. ~~27,500.00~~

3. Providing Tube well Submersible Pumps :
Capacity 15000 LPH at 88 M head , 2 Nos. @ Rs. 200,000/-each — Rs. 2,00,000.00

4. Construction of UG Tanks 200 KL ~~@ Rs. 3500/ KL~~ cap. including 50KL for fire reserve and 80KL Cap. for Flushing water Separately near STP 150+80 = 230 KL @ Rs 5500/KL — Rs. ~~5,00,000.00~~ 12.65 lacs

5. Provision of Construction of Tube well Chambers of
Size 1.5X1.5X1.5 m tube well - 3 Nos @ Rs.100000 each — Rs. 1,00,000.00

6. Provision for Carriage of material & other unforeseen items — Rs. 1,00,000.00

7. Provision for footpath, lawn, boundary wall around tubewell & waterworks (L.S) — Rs.3,00,000.00

8. Construction of boosting chamber (L.S.) — Rs.5,00,000.00

9. Provision for staff offices & for maintenance staff — 7.50 — Rs. ~~10,00,000.00~~

48.73 lacs

TOTAL — Rs. ~~53,27,500.00~~

(C/O To Abstract of Cost for Sub work No.1)

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Sub Work No. 1 — Water Supply — *Amount in Rs.*
Sub Head No. 02 — Pumping Machinery

1A. Providing and installing electricity driven Domestic Transfer pumping Set capable of delivering about 250 LPM of water against a total Head of 45 M complete with motor and other accessories including Valve (5.0 HP) & NRV. 3 Nos. @ 100000/- Each (2+1) — 4 — 5 — 3.00 las — Rs. ~~2,20,000.00~~

1B. Providing and installing electricity driven Flushing & Garden pumping Set capable of delivering about 200 LPM of water against a total Head of 45 M complete with motor and other accessories including Valve (3.00 HP) & NRV. 3 Nos. @ ~~150000~~/- Each (2+1) — 4 — 0.60 — 1.80 — Rs. ~~3,00,000.00~~

2. Provision for making foundations and erection of Pumping Machinery: - Lump Sum — Rs. 2,00,000.00

3. Provision for electric service connection including electrical Fittings for tube-well and boosting chamber etc. ← cost of transformer - Lump Sum — Rs.2,50,000.00

4. Provision for pipes, valves and specials inside boosting chamber. (L.S) — Rs.2,00,000.00

5. Provision for carriage of material ← other unforseen items (LS) — 2.50 — Rs. ~~50,000.00~~

6. Provision for ~~formation~~ chlorination of plant etc — Rs.1,00,000.00

7. Provision for diesel engine generator set each for stand by arrangement for tubewell is boosting pump craft etc (~~25~~ 40 kVA) — Rs. 6,00,000.00

TOTAL — Rs. ~~17,20,000.00~~ 20.30 las

(C/O To Abstract of Cost for Sub work No.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 pipe lines including Cost of excavation etc. complete in all respects.
   100 mm dia. OE Pipe **130 m** @ Rs. ~~1250~~ 1460/ M- — Rs. ~~1,62,500.00~~ 1,99,165

2. Providing and fixing sluice valve including cost of surface box and masonry chamber etc. complete in all respects.
   100 mm i/d 1 No. @ Rs. 12000/- — Rs.12,000.00

3. Providing and fixing indicating plates for sluice valve and air Valves. - 1 @ Rs. 1000/- each — Rs. 2,000.00

4. Provision for carriage for materials (Lump Sum) — Rs.25,000.00

5. Making Water Supply Connection,including road cut with HSVP master line — Rs. 2,00,000.00

6. Provision for roads cut and make up good condition — Rs.1,00,000.00

TOTAL — ~~Rs.4,00,500.00~~ 5,38,165

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Sub Work No. 1

Water Supply
Water Distribution System (Domestic And Flushing)

Sub-Head No. 04

Amount in Rs.

1. Providing , Laying , jointing and testing D.I pipe line including Fittings, valves, cost of excavation etc. complete in all respect.	24.69
D.I Pipe 100 mm , ~~2109~~ 1691 M @ Rs.~~1250/-~~ 1460/- per meter	Rs.~~26,36,250.00~~
D.I Pipe 150 mm , 25 M @ Rs.1575/- per meter	Rs.~~39,375.00~~ 0.51
2. Providing and fixing 20 mm dia. irrigation hydrant Valve,Chamber & Cover Etc. complete in all respect. **10 Nos.** @ Rs. 3500/ each	Rs.~~35,000.00~~ 0.50
3. Provision for carriage of materials (Lump Sum)	Rs.2,00,000.00
4. Provision for cutting of road and making its good condition	Rs.1,00,000.00
5. Provision for air valve 4 No. and sluice valve complete with masonry chamber (L.S)	Rs.2,00,000.00
6. Providing & Fixing indicating plates for sluice valve,air valve (L.S)	Rs.20,000.00
7. Providing & Fixing fire hydrant complete with masonry chamber(L.S)	Rs.50,000.00
TOTAL	Rs.~~32,80,625.00~~
(C/O To Abstract of Cost for Sub work No.1)	31.40 lacs

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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 in all respect	
a) SW pipe 200 to 250 mm i/d avg. depth 1.60 - ~~3.92 M~~ 693 ~~945 M~~ @ Rs. ~~1500/M~~ 1700/- m S.W. Pipe 250 mm ϕ 148 m @ ₹ 2000/ m	11.78 lacs Rs. ~~11,17,500.00~~
2. Rising main from STP to MH	2.96
a) 200 mm dia ~~155~~ m @ Rs. ~~2150~~/m 2040/-	3.16 Rs. ~~4,18,250.00~~
3. STP Cap. 200 KLD upto tertiary level (L.S) Complete in all respect @ 16000/- KL	32.00 Rs. ~~26,00,000.00~~
4. Provision for making HSVP Connection on main line (L.S)	Rs. ~~1~~,00,000.00
5. Provision for watering & lighting (sewer)	Rs. ~~1~~,00,000.00
6. Provision for vent pipe as per P.H. requirement (LS)	Rs. ~~5~~,00,000.00
7. Provision for cutting of roads and making good condition	Rs.1,00,000.00
8. Provision for timbering & shovering (L.S)	Rs.1,00,000.00
Total	60.90 Rs. ~~47,35,750.00~~
Add 3% contingencies & PH charges	Rs ~~1,42,072.50~~ 1.82
Total	Rs. ~~48,77,822.50~~ 62.72
Add 49% Price Escalation,Departmental charges	Rs ~~23,90,133.03~~ 30.73
TOTAL	Rs. ~~72,67,955.53~~ 93.45 lacs
SAY IN LAKHS	~~72.680~~

(Cost to Final abstract of cost)

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Sub-Work No. III	STORM WATER SCHEME

Amount in Rs.

1. Providing and laying R.C.C. pipe drain class NP-3 With cement joint ,Catch Basins & Road Gullies, manholes excavation etc complete in all respect.		
a) 400 mm dia. 1370 M @ Rs. 2500/m		34.25 Rs. ~~2,30,000.00~~
b). Providing Rain Harvesting arrangements at suitable places 5 Nos @ Rs 350,000		17.50 Rs. ~~7,50,000.00~~
2. Provision for Carriage of Material (L.S)	(L.S)	Rs. ~~7,50~~,000.00
3. Provision for watering & timbering and unforeseen (L.S)	(L.S)	Rs. 500,000.00
4. Provision for connection with HSVP line on master Road SWD	(L.S)	2.50 Rs. ~~50,000.00~~
5. Provision for Road gullies and ~~cement (L.S)~~ 300mm dia pipe	(L.S)	Rs.5,00,000.00
6. Provision for watering & lighting		Rs.1,00,000.00
7. Provision for temporary disposal arrangements till HSVP services are provided.	(L.S)	15.00 la Rs. ~~9,50,000.00~~
8) Prov. for Cutting of Road & making good to its in original Condition		2.5
Total		Rs. ~~49,90,000.00~~ 89.25
Add 3% for contingencies and PH charges		Rs. ~~1,49,700.00~~ 2.67
Total		91.92 Rs. ~~51,39,700.00~~
Add 49% Departmental charges		Rs. ~~25,18,453.00~~ 45.04
TOTAL (Cost to Final abstract of cost)		136.96 Rs. ~~76,58,153.00~~
SAY IN LAKHS		Rs. ~~76.582~~

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PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT: WATER DEMAND CALCULATIONS

S. No.	Unit Type	Category as Per Latest NBC	Total No. of Plots	Total Area (in Sqm)	Persons Considered Per Plot as Per HSVP Norms	Total Population	LPCD Factor for Potable Water Req.	LPCD Factor for Flushing Water Req.	Potable Water Requirement (LPD)	Flushing Water Requirement (LPD)	Total Water Requirement (LPD)
I.	DOMESTIC WATER DEMAND										
1	PLOTS	Residential	64		13.5	864	115.57	56.93	99852.5	49187.5	1,49,040
2	COMMERCIAL BLOCK	Business		1365.00 or 0.33730 ac	32000 Ltr./Acre				7231.7	3561.9	10,794
3	COMMUNITY FACILITIES			4070.00 or 1.00572 ac	25000 Ltr./Acre				16845.8	8297.2	25,143
4	PROVISION FOR AGH			4069.65 or 1.00563 ac	52000 Ltr./Acre				35036.1	17256.6	52,293
	Total								158966.2	78303.2	237269
	Grand Total								1,58,966	78303	2,37,269
	Say in Cum/day								159	78	237
									KL	KL	KL
II.	HORTICULTURAL WATER DEMAND 0.808										20200 L
	For approx. 20 % of Total site area approx. ~~10.05625~~ Acre @ 25000 litre/ Acre(say)										~~50281.25~~ 7000
III	~~Total, Say (In Cu.m. per day)~~ Area under Roads out of 10.05625 = 1.40 Acre @ 5000 Ltr/Acre										~~50~~
	TOTAL WATER REQUIREMENTS FOR ALL PURPOSES										~~288~~ 2720
											2716
IV	TUBE WELLS										26514
(a)	Yield									15	KL/Hr
(b)	Working Hours per Day									16	Hours per Day
	Discharge per Tube well									240	
(c)	Total Fresh water demand									159	m^3/day
(d)	Number of Tube wells required.									0.66	
	(Water Demand/Discharge/Hours working per day)										
(e)	Add 5% as standby									0.03	
	Total									0.70	Nos.
	Say									1.00	Nos.

(Water to the proposed development is to be supplied by HSVP and it is proposed to install the tube-wells for augmentation/standby purposes).

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IV.	PUMPING MACHINERY FOR TUBEWELLS		
(a)	Gross Working Head	60	Meters
(b)	Average fall in S.L	2	Meters
(c)	Depression Head	6	Meters
(d)	Friction loss in main	10	Meters
	Total	78	Meters
(e)	Discharge	15000	LPH
(f)	Horse Power	7.22	HP
	HP = (15000 X 78 X 1)/(60 X 60 X 75 X 0.6)		
	Say	8.00	HP
V.	UNDER GROUND TANK Drinking Water		
(a)	Total water demand (Daily for Domestic purposes)	159	m^3/day
	Capacity of U.G. tank @60 % 159		
(b)	Proposed capacity of underground tanks (Raw + Domestic) for domestic use. (25+33%) =58% (SAY 60%) storage (One day Storage) = 0.6 X 159 = 95.4	100.0	m^3
(C)	Proposed capacity of underground static tank for fire =100X sqroot of 864/1000 = 93.0 KL (SAY 100 KL) 15 = 30.98 KL	50 ~~100~~	m^3
	TOTAL	150 ~~200~~	m^3/day
d)	UGT. for Flushing water = 78 KL @ 60%. Say 46.80 say 50 KL	150 ~~200~~	m^3/day
	Add for staff 27 KL = 77 KL or 80 KL		
VI. (A)	BOOSTING MACHINERY (Water Supply Pumps)		
(a)	Daily Domestic Water Demand	159	m^3/day
(b)	Discharge per hour @ 6 hr. pumping / day	26.50	m^3/Hour
	Say	450.0	LPM
(c)	No. of Working pump (1 working + one standby)	2.0	
(d)	Proposed Pump discharge (Working)	225.00	LPM
	Say	250.00	LPM
	Gross Working Head		
(a)	Suction lift – positive suction	6	Meters
(b)	Frictional Loss in Mains & Specials	9	Meters
(c)	Max Clear Head required	~~30~~	Meters
	Total	~~45~~	Meters
(g)	H.P. of each pump required	~~2.99~~	HP
	Pump H.P.	5.6	
	Say	~~3.00~~	HP

250 x 45 / 60 x 75 x 0.60 = 4.16 HP

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VI.(B)	BOOSTING MACHINERY (Flushing & Garden Supply Pumps from STP)				
(a)	Daily Flushing & Horticultural Water Demand.		105	~~129~~	m^3/day
(b)	Discharge per hour @ 6 hr. pumping / day		17.50	~~21.45~~	m^3/Hour
		Say		~~360.00~~	LPM
(c)	No. of Working pump		291.66	2	
(d)	Proposed Pump discharge (Working)		145.83	~~450.00~~	LPM
		Say		~~200.00~~	LPM
				150.0	
	Gross Working Head				
(e)	Suction lift – positive suction			6	Meters
(f)	Frictional Loss in Mains & Specials			9	Meters
(g)	Max Clear Head required			~~30~~	Meters
		Total		~~45~~	Meters
(h)	H.P. of each pump required (Pump H.P.)		$\frac{150 \times 45}{60 \times 75 \times 0.60}$ = 2.50	~~2.59~~	HP
		Say		3.00 ✓	HP
VII.	GENERATING SETS				
1	HP of Tube well pump	1 × 7.50	7.50	~~8.00~~	
2	HP of Domestic water supply Pump	2 × 5	10.0	6.00	
3	HP of Flushing water supply Pump	2 × 3	6.0	~~5.00~~	
4	Add for lighting			10.00	
		Total		~~30.00~~	HP
		in KVA	33.50	~~21.74~~	KVA
		SAY	37.48	~~25~~	KVA
				40.0	
VIII.	STP CAPACITY				
1	Total water required Domestic + Flushing		189.60	237 ✓	KL
2	Water go to STP @ ~~80~~ %		9.48	~~237.925~~	
3	Add for 5% for margin			~~17.7975~~	
		TOTAL	199.08	~~165.7725~~	
		SAY		~~200.00~~	KL
				200kl	

DAULAT & PUNEET ARTCHITECTS LLP 4TH FLOOR SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : SEWERAGE SYSTEM DESIGN SHEET

S. No.	Sewer Line		No. of Plots	Population / PLOT	Total Population	Water Supply	Total Water Requirement	Sewage Discharge (LPD)			Average Sewage Discharge	Peak Sewage Discharge		Size of Pipe	Velocity		Design Discharge	Length of Line	Slope	Fall in Meters		Ground level		Invert Level		Depth of MH		Average depth of pipe
						LPCD	LPD	Self	Branch	Total	LPS	LPS	Cu sec	mm	feet/sec	M/S	Cu sec	Meters		As per slope	As Per Gradient	Start	End	Start	End	Start	End	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	25	26	28		
	From	To																									
1	1	2	7	13.5	94.5	172.5	16301	12.226		12.226	0.142	0.42	0.01	200	2	0.74	0.41	113	200	0.565	0.000	100.00	100.00	98.80	98.24	1.20	1.77	1.48
2	3	2	6 Community Facilities & Provision of AGH	13.5	54	172.5	9315	6.986		6.986	0.081	0.24	0.01	200	2	0.74	0.41	124	200	0.620	0.000	100.00	100.00	98.80	98.18	1.20	1.82	1.51
3	2	4		13.5	0	172.5	0		19.212	19.212	0.222	0.67	0.02	200	2	0.74	0.41	21	200	0.105	0.000	100.00	100.00	98.18	98.08	1.82	1.93	1.87
4	5	4	7	13.5	94.5	172.5	16301	12.226		12.226	0.142	0.42	0.01	200	2	0.74	0.41	90	200	0.450	0.000	100.00	100.00	98.80	98.35	1.20	1.65	1.43
5	4	6	2	13.5	27	172.5	4658	3.493	31.438	34.931	0.404	1.21	0.04	200	2	0.74	0.41	24	200	0.120	0.000	100.00	100.00	98.08	97.96	1.93	2.05	1.99
6	6	7		13.5	0	172.5	0		34.931	34.931	0.404	1.21	0.04	200	2	0.74	0.41	55	200	0.275	0.000	100.00	100.00	97.96	97.68	2.05	2.32	2.18
7	10	9	3	13.5	40.5	172.5	6986	5.240		5.240	0.061	0.18	0.01	200	2	0.74	0.41	28	200	0.140	0.000	100.00	100.00	98.80	98.66	1.20	1.34	1.27
8	8	8	4	13.5	54	172.5	9315	6.986	5.240	12.226	0.142	0.42	0.01	200	2	0.74	0.41	57	200	0.285	0.000	100.00	100.00	98.66	98.38	1.34	1.63	1.48
9	12	11	12	13.5	162	172.5	27945	20.959		20.959	0.243	0.73	0.03	200	2	0.74	0.41	54	200	0.270	0.000	100.00	100.00	98.80	98.53	1.20	1.47	1.34
10	11	8		13.5	0	172.5	0		20.959	20.959	0.243	0.73	0.03	200	2	0.74	0.41	12	200	0.060	0.000	100.00	100.00	98.53	98.47	1.47	1.53	1.50
11	8	7	4	13.5	54	172.5	9315	6.986	33.185	40.171	0.465	1.39	0.05	200	2	0.74	0.41	45	200	0.225	0.000	100.00	100.00	98.38	98.15	1.63	1.85	1.74
12	7	13	2	13.5	27	172.5	4658	3.493	75.102	78.595	0.910	2.73	0.10	200	2	0.74	0.41	33	200	0.165	0.000	100.00	100.00	97.68	97.52	2.32	2.49	2.40
13	13	14	9	13.5	121.5	172.5	20959	15.719	78.595	94.314	1.092	3.27	0.11	200	2	0.74	0.41	92	200	0.460	0.000	100.00	100.00	97.52	97.06	2.49	2.95	2.72
14	15	14	5	13.5	67.5	172.5	11643	8.733		8.733	0.101	0.30	0.01	200	2	0.74	0.41	24	200	0.120	0.000	100.00	100.00	98.80	98.68	1.20	1.32	1.26
15	14	16		13.5	0	172.5	0		1.03 047	1.03 047	1.193	3.58	0.13	250	3	0.77	0.66	55	250	0.220	0.000	100.00	100.00	97.06	96.84	2.95	3.17	3.06
16	16	17	2	13.5	27	172.5	4658	3.493	1.03 047	1.06 540	1.233	3.70	0.13	250	3	0.77	0.66	16	250	0.064	0.000	100.00	100.00	96.84	96.77	3.17	3.23	3.20
17	17	18	3	13.5	40.5	172.5	6986	5.240	1.06 540	1.11 780	1.294	3.88	0.14	250	3	0.77	0.66	40	250	0.160	0.000	100.00	100.00	96.77	96.61	3.23	3.39	3.31
18	18	19		13.5	0	172.5	0		1.11 780	1.11 780	1.294	3.88	0.14	250	3	0.77	0.66	28	250	0.112	0.000	100.00	100.00	96.61	96.50	3.39	3.50	3.45
19	20	19	Community	13.5	0	172.5	0		1.11 780	1.11 780	1.294	3.88	0.14	200	2	0.74	0.41	25	200	0.125	0.000	100.00	100.00	98.80	98.68	1.20	1.33	1.26
20	19	5TP		13.5	0	172.5	0		1.11 780	1.11 780	1.294	3.88	0.14	350	3	0.77	0.66	9	250	0.036	0.000	100.00	100.00	96.50	96.46	3.50	3.54	3.52

DAULAT & PUNEET ARTCHITECTS LLP 4TH FLOOR SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : SEWERAGE SYSTEM SHEET

S.No.	Sewer Line		Size of Pipe	Length of Line
	From	To	MM	Meters
1	1	2	200	113
2	~~3~~	~~2~~	~~200~~	~~124~~
3	2	4	200	21
4	5	4	200	190
5	4	6	200	24
6	6	7	200	55
7	10	9	200	28
8	9	8	200	57
9	12	11	200	54
10	11	8	200	12
11	8	7	200	45
12	7	13	200	33
13	13	14	200	92
14	15	14	200	24
15	14	16	250	55
16	16	17	250	16
17	17	18	250	40
18	18	19	250	28
19	20	19	200	25
20	19	STP	250	9
Total 200 Dia Pipe				~~797~~ 693
Total 250 Dia Pipe				148
Total				~~945~~ 841

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : DRAINAGE SYSTEM DESIGN SHEET

S. No.	LINE NO.		Self Area (m2)	Self Area (Acre)	Branch Area (Acre)	Total Area (Acre)	Total Area (Hectare)	Rain Fall mm/hr	Discharge @17.36 LPS/Hectare	Length in m	Pipe dia in mm	Slope 1 in	Velocity m/sec.	Cap of pipe in lps	Fall in line m	Ground Level		Invert Level		Depth		
	FROM	TO														Start	End	Start	End	Start	End	Average
1	1	2	6883.69	1.70		1.70	0.69	6.25	11.95	232.00	400	500	0.64	80.75	0.46	100.00	100.00	98.80	98.34	1.20	1.66	1.43
2	2	3	2670.40	0.66	1.70	2.36	0.96	6.25	16.59	90.00	400	500	0.64	80.75	0.18	100.00	100.00	98.34	98.16	1.66	1.84	1.75
3	3	4	1572.57	0.39	2.36	2.75	1.11	6.25	19.32	53.00	400	500	0.64	80.75	0.11	100.00	100.00	98.16	98.05	1.84	1.95	1.90
4	6	5	1750.59	0.43		0.43	0.18	6.25	3.04	59.00	400	500	0.64	80.75	0.12	100.00	100.00	98.80	98.68	1.20	1.32	1.26
5	5	4	445.07	0.11	0.43	0.54	0.22	6.25	3.81	15.00	400	500	0.64	80.75	0.03	100.00	100.00	98.68	98.65	1.32	1.35	1.33
6	4	7	1335.20	0.33	3.29	3.62	1.47	6.25	25.45	45.00	400	500	0.64	80.75	0.09	100.00	100.00	98.05	97.96	1.95	2.04	2.00
7	8	7	393.42	0.15		0.15	0.06	6.25	1.03	20.00	400	500	0.64	80.75	0.04	100.00	100.00	98.80	98.76	1.20	1.24	1.22
8	7	9	296.71	0.07	3.77	3.84	1.55	6.25	26.99	10.00	400	500	0.64	80.75	0.02	100.00	100.00	97.96	97.94	2.04	2.06	2.05
9	9	10	2739.41	0.68	3.84	4.52	1.83	6.25	31.78	93.00	400	500	0.64	80.75	0.19	100.00	100.00	97.94	97.75	2.06	2.25	2.15
10	10	11	652.76	0.16	4.52	4.69	1.90	6.25	32.91	22.00	400	500	0.64	80.75	0.04	100.00	100.00	97.75	97.71	2.25	2.29	2.27
11	13	14	504.41	0.12		0.12	0.05	6.25	0.88	17.00	400	500	0.64	80.75	0.03	100.00	100.00	98.80	98.77	1.20	1.23	1.22
12	14	12	1364.87	0.34	0.12	0.46	0.19	6.25	3.25	46.00	400	500	0.64	80.75	0.09	100.00	100.00	98.77	98.67	1.23	1.33	1.28
13	13	12	1275.86	0.32		0.32	0.13	6.25	2.21	43.00	400	500	0.64	80.75	0.09	100.00	100.00	98.80	98.71	1.20	1.29	1.24
14	12	11	1483.55	0.37	0.78	1.14	0.46	6.25	8.04	50.00	400	500	0.64	80.75	0.10	100.00	100.00	98.67	98.57	1.33	1.43	1.38
15	11	16	1898.95	0.47	5.83	6.30	2.55	6.25	44.25	64.00	400	500	0.64	80.75	0.13	100.00	100.00	97.71	97.58	2.29	2.42	2.35
16	18	17	2789.08	0.69		0.69	0.28	6.25	4.84	94.00	400	500	0.64	80.75	0.19	100.00	100.00	98.80	98.61	1.20	1.39	1.29
17	21	20	3619.87	0.89		0.89	0.36	6.25	6.28	122.00	400	500	0.64	80.75	0.24	100.00	100.00	98.80	98.56	1.20	1.44	1.32
18	22	20	3174.81	0.78		0.78	0.32	6.25	5.51	107.00	400	500	0.64	80.75	0.21	100.00	100.00	98.80	98.59	1.20	1.41	1.31
19	23	19	2878.09	0.71		0.71	0.29	6.25	5.00	97.00	400	500	0.64	80.75	0.19	100.00	100.00	98.80	98.61	1.20	1.39	1.30
20	19	20	682.43	0.17	0.71	0.88	0.36	6.25	6.18	23.00	400	500	0.64	80.75	0.05	100.00	100.00	98.61	98.56	1.39	1.44	1.42
21	20	17	652.76	0.16	2.56	2.72	1.10	6.25	19.11	22.00	400	500	0.64	80.75	0.04	100.00	100.00	98.56	98.52	1.44	1.48	1.46
22	17	16	623.09	0.15	3.41	3.56	1.44	6.25	25.03	21.00	400	500	0.64	80.75	0.04	100.00	100.00	98.52	98.47	1.48	1.53	1.51
23	16	DISPOSAL	741.78	0.18	9.86	10.05	4.06	6.25	70.57	25.00	400	500	0.64	80.75	0.05	100.00	100.00	97.71	97.66	2.29	2.34	2.32

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : DRAINAGE SYSTEM SHEET

S. No.	Line No.		Pipe dia.	Length
	From	To	mm	Meters
1	1	2	400	232.00
2	2	3	400	90.00
3	3	4	400	53.00
4	6	5	400	59.00
5	5	4	400	15.00
6	4	7	400	45.00
7	8	7	400	20.00
8	7	9	400	10.00
9	9	10	400	93.00
10	10	11	400	22.00
11	15	14	400	17.00
12	14	12	400	46.00
13	13	12	400	43.00
14	12	11	400	50.00
15	11	16	400	64.00
16	18	17	400	94.00
17	21	20	400	122.00
18	22	20	400	107.00
19	23	19	400	97.00
20	19	20	400	23.00
21	20	17	400	22.00
22	17	16	400	21.00
23	16	DISPOSAL	400	25.00
Total 400 Dia Pipe				1370
SAY				1370

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : DOMESTIC WATER SUPPLY DESIGN SHEET

S. No.	Line Designation		No. of Plot	Water Requirements (in KLD)	Self Water requirement (in KLD)	Branch Water requirement (in KLD)	Total Water Requirements (in KLD)	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity in ft/sec.	Velocity in m/sec.	Head Loss per 1000m	Loss of head as per pipe length	Length of pipe (in meters)	Ground Level		Hydraulic Level		Terminal Head
	FROM	TO					Total	KL/Hr	mm						Start	End	Start	End	
1	WTP	1		0.00	0	161	161	20.069	150	1.04	0.32	1	0.036	25	100.00	100.00	135.000	134.964	34.964
2	1	2		0.00	0	161	161	20.069	100	2.33	0.71	10	0.393	38	100.00	100.00	135.000	134.607	34.607
3	2	3	Commercial	7.23	7	153	161	20.069	100	2.33	0.71	10	0.414	40	100.00	100.00	135.000	134.586	34.586
4	1	4		0.00	0	153	153	19.165	100	2.23	0.68	9	0.152	16	100.00	100.00	135.000	134.848	34.848
5	4	5	2	3.12	3	5	8	0.975	100	0.11	0.03	0	0.001	15	100.00	100.00	135.000	134.999	34.999
6	5	6	3	4.68	5		5	0.585	100	0.07	0.02	0	0.001	38	100.00	100.00	135.000	134.999	34.999
7	4	7		0.00	0	146	146	18.190	100	2.12	0.65	9	0.388	45	100.00	100.00	135.000	134.612	34.612
8	7	10		0.00	0	146	146	18.190	100	2.12	0.65	9	0.086	10	100.00	100.00	135.000	134.914	34.914
9	7	8	3	4.68	5		5	0.585	100	0.07	0.02	0	0.000	26	100.00	100.00	135.000	135.000	35.000
10	8	9		0.00	0		0	0.000	100	0.00	0.00	0	0.000	10	100.00	100.00	135.000	135.000	35.000
11	10	9	3	4.68	5		5	0.585	100	0.07	0.02	0	0.000	26	100.00	100.00	135.000	135.000	35.000
12	10	11	9	14.05	14	122	136	17.019	100	1.98	0.60	8	0.709	93	100.00	100.00	135.000	134.291	34.291
13	11	12	1	1.56	2	121	122	15.264	100	1.78	0.54	6	0.199	32	100.00	100.00	135.000	134.801	34.801
14	12	13	3	7.80	8	28	36	4.487	100	0.52	0.16	1	0.032	50	100.00	100.00	135.000	134.968	34.968
15	13	14	3	4.68	5	5	9	1.170	100	0.14	0.04	0	0.002	40	100.00	100.00	135.000	134.998	34.998
16	14	15	3	4.68	5		5	0.585	100	0.07	0.02	0	0.001	34	100.00	100.00	135.000	134.999	34.999
17	13	16		0.00	0	19	19	2.341	100	0.27	0.08	0	0.002	10	100.00	100.00	135.000	134.998	34.998
18	16	17		0.00	0	11	11	1.366	100	0.16	0.05	0	0.001	10	100.00	100.00	135.000	134.999	34.999
19	17	18	7	10.92	11		11	1.366	100	0.16	0.05	0	0.003	43	100.00	100.00	135.000	134.997	34.997
20	18	19		0.00	0		0	0.000	100	0.00	0.00	0	0.000	10	100.00	100.00	135.000	135.000	35.000
21	19	16	5	7.80	8		8	0.975	100	0.11	0.03	0	0.002	43	100.00	100.00	135.000	134.998	34.998
22	12	20		0.00	0	85	85	10.582	100	1.23	0.38	3	0.171	54	100.00	100.00	135.000	134.829	34.829
23	20	21	2	3.12	3	82	85	10.582	100	1.23	0.38	3	0.073	23	100.00	100.00	135.000	134.927	34.927
24	21	22	7	10.92	11	60	71	8.826	100	1.03	0.31	2	0.158	70	100.00	100.00	135.000	134.842	34.842
25	22	23	1	1.56	2	58	60	7.461	100	0.87	0.26	2	0.060	36	100.00	100.00	135.000	134.940	34.940
26	23	24		0.00	0		0	0.000	100	0.00	0.00	0	0.000	22	100.00	100.00	135.000	135.000	35.000
27	24	25	3. Community Facilities	21.53	22		22	2.691	100	0.31	0.10	0	0.009	36	100.00	100.00	135.000	134.991	34.991
28	24	27	1. Provision of AGH	36.60	37		37	4.573	100	0.53	0.16	1	0.009	14	100.00	100.00	135.000	134.991	34.991
29	25	22		0.00	0		0	0.000	100	0.00	0.00	0	0.000	22	100.00	100.00	135.000	135.000	35.000
30	21	26	7	10.92	11		11	1.366	100	0.16	0.05	0	0.010	133	100.00	100.00	135.000	134.990	34.990

DAULAT & PUNEET ARCHITECTS LLP 4TH FLOOR SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : DOMESTIC WATER SUPPLY SHEET

S. No.	Line Designation		Size of Pipe Provided mm	Length of pipe metres
1	WTP	1	150	25
2	1	2	100	38
3	2	3	100	40
4	1	4	100	16
5	4	5	100	15
6	5	6	100	38
7	4	7	100	45
8	7	10	100	10
9	7	8	100	26
10	~~8~~	~~9~~	~~100~~	~~10~~
11	~~10~~	~~9~~	~~100~~	~~26~~
12	10	11	100	93
13	11	12	100	32
14	12	16	100	50
15	13	14	100	40
16	14	15	100	34
17	~~13~~	~~16~~	~~100~~	~~10~~
18	~~16~~	~~17~~	~~100~~	~~10~~
19	~~17~~	~~18~~	~~100~~	~~12~~
20	~~18~~	~~19~~	~~100~~	~~10~~
20	19	16	100	43
21	12	20	100	54
22	20	21	100	23
23	21	25	100	70
24	~~22~~	~~23~~	~~100~~	~~26~~
25	~~23~~	~~24~~	~~100~~	~~22~~
26	~~24~~	~~25~~	~~100~~	~~26~~
	~~25~~	27	100	16
27	~~35~~	~~22~~	~~100~~	~~22~~
30	21	26	100	133
		TOTAL FOR 100 DIA		~~1039~~ 836
		TOTAL FOR 150 DIA		25
		TOTAL PIPING		~~1064~~ 861
		SAY		~~1070~~
		MUNICIPAL LINE		
1	1a -- UGT		100	127
		TOTAL PIPE 100 DIA (SAY)		130
		TUBEWELL LINE		
1		~~TW1-1~~	~~100~~	~~66~~
2		TW1-2	100	36
		TOTAL PIPE 100 DIA (SAY)		~~102~~ 40 m

G. Total Dom + Plumbing line

100 mm ϕ = 836 + 855 = 1691 mt

150 mm = 25 mt

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : FLUSHING & GARDEN WATER SUPPLY DESIGN SHEET

S. No.	Node No.		No. of Plot	Flushing Water Requirement In KLD	Branch Water	Total KLD	Discharge per Hour considering 8 Hours Pumping	Size of Pipe Provided	Velocity		Head Loss per 1000 m	Loss of head as per pipe length	Length of pipe (in meters)	Ground level		Hydraulic Level		Terminal Head
	From	To					kl/hr	mm	in ft/sec.	in m/s				Start	End	Start	End	
														in m	in m	in m	in m	in m
1	STP	1			78	78	9.785	100	1.14	0.35	2	0.061	25	94.00	100.00	129.00	128.94	28.94
2	1	2	Commercial	4		4	0.445	100	0.05	0.02	0	0.000	27	101.30	101.30	136.30	136.30	35.00
3	1	3		0	75	75	9.339	100	1.09	0.33	2	0.056	25	101.30	101.30	136.30	136.24	34.94
4	3	4	4	3	72	75	9.339	100	1.09	0.33	2	0.081	36	101.30	101.30	136.30	136.22	34.92
5	4	5	1	1	71	72	8.955	100	1.04	0.32	2	0.031	15	101.30	101.30	136.30	136.27	34.97
6	5	6		0	71	71	8.859	100	1.03	0.31	2	0.091	45	101.30	101.30	136.30	136.21	34.91
7	6	7	3	2		2	0.288	100	0.03	0.01	0	0.000	26	101.30	101.30	136.30	136.30	35.00
8	6	8		0	69	69	8.571	100	1.00	0.30	2	0.019	10	101.30	101.30	136.30	136.28	34.98
9	8	9	3	2		2	0.288	100	0.03	0.01	0	0.000	26	101.30	101.30	136.30	136.30	35.00
10	7	9		0		0	0.000	100	0.00	0.00	0	0.000	10	101.30	101.30	136.30	136.30	35.00
11	8	10	9	7	59	66	8.283	100	0.96	0.29	2	0.164	93	101.30	101.30	136.30	136.14	34.84
12	10	11	1	1	59	59	7.419	100	0.86	0.26	1	0.031	22	101.30	101.30	136.30	136.27	34.97
13	11	12		0	12	12	1.440	100	0.17	0.05	0	0.002	38	101.30	101.30	136.30	136.30	35.00
14	12	13	7	5		5	0.672	100	0.08	0.02	0	0.001	55	101.30	101.30	136.30	136.30	35.00
15	12	14		0	6	6	0.768	100	0.09	0.03	0	0.000	12	101.30	101.30	136.30	136.30	35.00
16	14	15	5	4		4	0.480	100	0.06	0.02	0	0.000	48	101.30	101.30	136.30	136.30	35.00
17	14	16		0	2	2	0.288	100	0.03	0.01	0	0.000	36	101.30	101.30	136.30	136.30	35.00
18	16	17	3	2		2	0.288	100	0.03	0.01	0	0.000	33	101.30	101.30	136.30	136.30	35.00
19	11	26		0	47	47	5.883	100	0.68	0.21	1	0.009	10	101.30	101.30	136.30	136.29	34.99
20	26	25	8	6		6	0.768	100	0.09	0.03	0	0.001	86	101.30	101.30	136.30	136.30	35.00
21	16	25		0		0	0.000	100	0.00	0.00	0	0.000	10	101.30	101.30	136.30	136.30	35.00
22	26	18		0	41	41	5.115	100	0.59	0.18	1	0.036	34	101.30	101.30	136.30	136.26	34.96
23	18	23	3	2	39	41	5.115	100	0.59	0.18	1	0.016	24	101.30	101.30	136.30	136.28	34.98
24	23	19	5	4	35	39	4.827	100	0.56	0.17	1	0.042	70	101.30	101.30	136.30	136.26	34.96
25	19	20	1	1		1	0.096	100	0.01	0.00	0	0.000	22	101.30	101.30	136.30	136.30	35.00
26	19	21		0	34	34	4.250	100	0.49	0.15	0	0.010	22	101.30	101.30	136.30	136.29	34.99
27	21	22	4, Community Facilities & Provision of AGH	29		29	3.578	100	0.42	0.13	0	0.016	48	101.30	101.30	136.30	136.28	34.98
28	23	24	7	5		5	0.672	100	0.08	0.02	0	0.002	134	101.30	101.30	136.30	136.30	35.00

DAULAT & PUNEET ARTCHITECTS LLP 4TH FLR SUMCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : FLUSHING & GARDEN WATER SUPPLY SHEET

S. No.	Line Designation		Size of Pipe Provided	Length of pipe
			mm Dia	
1	STP	1	100	25
2	1	2	100	27
3	1	3	100	25
4	3	4	100	36
5	4	5	100	15
6	5	~~8~~	100	~~55~~
7	~~6~~	~~7~~	~~100~~	~~26~~
8	~~6~~	~~8~~	~~100~~	~~10~~
9	8	9	100	26
10	~~7~~	~~9~~	~~100~~	~~10~~
11	8	10	100	93
12	10	26	100	32
13	~~11~~	~~12~~	~~100~~	~~38~~
14	~~12~~	~~13~~	~~100~~	~~55~~
15	12	14	100	12
16	~~14~~	~~15~~	~~100~~	~~48~~
17	~~14~~	~~16~~	~~100~~	~~36~~
18	16	17	100	33
19	~~11~~	~~26~~	~~100~~	~~10~~
20	26	25	100	~~86~~ 125
21	~~16~~	~~25~~	~~100~~	~~10~~
22	26	18	100	54
23	18	23	100	24
24	~~23~~	~~19~~	~~100~~	~~70~~ 92
25	~~19~~	~~20~~	~~100~~	~~22~~
26	~~19~~	~~21~~	~~100~~	~~22~~
27	~~21~~	~~22~~	~~100~~	~~48~~
28	23	24	100	134
TOTAL PIPE OF 100 DIA				~~1062~~ 833
TOTAL PIPE				~~1062~~
Say				~~1070~~ 833

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : ROAD WORKS

S. No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Provision for leveling & earth filling as per site conditions	Acre.	10.05625	1.75 lacs ~~1,50,000.00~~	17.70 lacs ~~15,08,437.50~~
2	Construction of Roads 200mm granular surface, 250mm water mix macadam, 50mm DBM, ~~30~~mm BC.	Sqm	5670 ~~5,555.00~~	1,500.00	85.05 lacs ~~66,66,000.00~~
3	Provision for Kerbs & channels of CC 1:2, 5:5.complets in all respect	Metre	1770 ~~1,678.00~~	600.00	10.62 ~~10,06,800.00~~
4	Provision for Pavement in commercial area and pavements. (50% OF AREA)	Sqm	682.50	1500.00	10.24 ~~4,09,500.00~~
	Public Toilet				
5	Provision for ~~P~~arking arrangement	LS			2,00,000.00
6	Provision for carriage of materials, Guid map Plot indecater etc.	LS			10,00,000.00
	Sub Total			135.61	~~98,90,737.50~~
	Add 3% contingencies & PH charges			4.07	~~2,96,722.13~~
	Sub Total			139.68	~~1,01,87,459.63~~
	Add 49% Departmental Charges , Price escalation, unforseen & Admin. Charges			68.44	~~49,91,855.22~~
	Total			208.12	~~1,51,79,314.84~~
	Say Rs in Lakhs (C/O to Final abstract of cost)				~~151.79~~

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 409 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : ROAD AREA

S. NO	ROAD NO	ROAD LENGTH IN M	ROAD WIDTH (CARPETED) IN M	AREA N SQM	
1	1 - 2	95.00	~~6.00~~ 5.50	570.0	12m
2	3 - 4	32.00	~~6.00~~ 5.50	192.0	
3	5 - 7	61.00	~~6.00~~ 5.50	366.0	
4	6 - 7	87.00	~~6.00~~ 5.50	522.0	
5	7 - 8	43.00	~~6.00~~ 5.50	258.0	
6	9 - 11	139.00	7.00	973.0	24m
7	10 - 12	155.00	7.00	1085.0	
8	14 - 16	110.00	7.00	770.0	24m
9	13 - 15	117.00	7.00	819.0	
10	TOTAL	839.00		~~5555.0~~ 5396	
	Add 5% Increase 41.95				
	LENGTH OF KERB STONE			~~1678~~ 880.95 / 269.80 / 5665.80	RM

Say 885 mtr

Say 5670 sqm

length for Kerb & channel = 885 x 2 = 1770 mtr

DAULAT & PUNEET ARCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM

DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT: EXTERNAL LIGHTING

S.No.	Discription	Unit	Qty.	Rate	Amount
1	Providing and installing street light on roads as for standard specification of DHVPN with LED	Acre	10.05625	250000	2514062.50
2	Contigency and Frieght Charges @ 3%				75421.875
	TOTAL				2589484.375
3	ADD 49% Deptt charges, price escalation unforseen & dmin charges				1268847.344
4	TOTAL				3858331.719
	Say Rs in Lakhs (C/O to Final abstract of cost)				38.583 Lacs

DAULAT & PUNEET ARCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG
ARCHITECT
CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT: PLANTATION & ROAD SIDE TRESS

S.No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Development of organised lawn green area.	Acre	0.808800	1,50,000.00	~~80,800.00~~ 1.21 Lac
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.				
2	Providing and planting trees along boundary @ 12 m interval = (~~839~~ 885/12) X 2 = 147 Nos Say 150 No.	Nos.	150 ~~140~~	1800 ~~1,150.00~~	2.70 ~~1,60,808.33~~
	Cost Detail				
	Excavation 60.0	~~50.00~~			
	Manure 90.0	~~100.00~~			
	Tree Plant 150.0	~~100.00~~			
	Tree Guard 1500.0	~~900.00~~			
	1800.0				
	Total	~~1150.00~~			
	Sub Total			3.91	~~2,41,608.33~~
	Add 3% contingencies.			0.12	~~7,248.25~~
	Sub Total				~~2,48,856.58~~
	Add 49% Departmental charges			4.03	~~1,18,388.08~~
	Total			1.97	~~3,67,244.67~~
	Say Rs in Lakhs (C/O to Final abstract of cost)			6.0	~~3.672~~

DAULAT & PUNEET ARTCHITECTS LLP 4TH FL 408 SUNCITY TOWER GURUGRAM
DAULAT RAM GARG ARCHITECT CA/2001/28031

PROJECT: M/s SPITI TOWNSHIP LLP & OTHERS

SUBJECT : SERVICES & RESURFACING OF ROADS

S.No.	Description	Unit	Qty	Rate (in Rs.)	Amount (in Rs.)
1	Provision of MTC charges for W/S, SWD & Sewarage, Roads, Street Lighting, Horticulture etc.				
a.	Complete in all aspect, including operational and establishment charges as per HSVP norms for 10 years completion.	Acre	10.05625	8.0 ~~1,00,000~~	80.45 ~~10,05,625.00~~
2	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.				
			5670	660	37.42
a	Resurfacing of road after 5 years of MTC .	Sqm	~~8,555.00~~	~~225~~	~~12,49,875.00~~
			5670	825	46.78
b	Resurfacing of road after 10 years of MTC.	Sqm	~~8,555.00~~	~~225~~	~~16,05,375.00~~
	Sub Total				~~40,60,875.00~~ 164.65
	Add 3% contingencies.				~~1,21,826.25~~ 4.93
	Sub Total				~~41,82,701.25~~ 169.58
	Add 49% Departmental charges				~~20,49,523.61~~ 83.09
	Total				~~62,32,224.86~~
	Say Rs in Lakhs (C/O to Final abstract of cost)				~~62.322~~ 258.67