Directorate of Town & Country Planning, Haryana
SCO-71-75, 2nd Floor, Sector 17 C, Chandigarh
Phone: 0172-2549349 e-mail:tcphry@gmail.com
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To

Vatika Ltd.
Vatika Triangle, 7th Floor,
Block –A, Sushant Lok – I, M.G. Road,
Gurgaon.

Memo No.LC-1143 (VA)-2014 27811 Dated: 9/12/14

Subject: **Approval of Service Plan/Estimates for RESIDENTIAL PLOTTED COLONY on the land measuring 393.358 acres falling in the part of the license no. 76 of 2011 dated 07.09.2011 in Sector 81, 82, 82A, 83 & 85, Distt. Gurgaon.**

Ref. Your letter dated 16.06.2014 on the subject noted above.

The service plan/estimates of Plotted Colony falling in Sector 81, 82, 82A, 83 & 85, Gurgaon being developed by you, has been checked and corrected wherever necessary by Chief Administrator, HUDA, Panchkula and are hereby approved subject to the following terms & conditions:

1. You will have to pay the proportionate cost of external development charges for the services like water supply, sewerage, storm water drainage, roads, bridges, community buildings, street lighting, horticulture etc. on gross average basis as and when approved by the Director. These charges are modifiable as and when approved by the Government and modified charges will be binding upon the colonizer.
2. You are liable to maintain the estate developed by you as per HUDA norms till such time the colony is taken over by the Local Authority/State Govt.
3. The wiring system of the street lighting will be under ground and the specifications of the street lighting fixture etc. will be as per relevant standard of HVPNL.
4. That appropriate provision for fire fighting as required in the NBC/ISI code should also be provided by you and a fire safety certificate will be obtained by you from the competent authority before undertaking any construction. You will be sole responsible for fire safety arrangements. You will not make connection with the master services without prior approval of the competent authority.
5. You will be fully responsible to make the arrangement of disposal of sewerage and storm water drainage till such time these are made available by HUDA and all link connections with the external system will be done by you at your own cost. You will have to ensure that sewer/storm water drainage to be laid by you will be connected by gravity with the master services laid/to be laid by HUDA/State Govt. in this area as per your scheme. In case pumping is required the same will be done by you at their own cost.
6. The correctness of the levels of the colony will be sole responsibility of the colonizer for integrating the internal sewer/storm water drainage of the colony by gravity with the master services.

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7. It is made clear that roof top rain harvesting system shall be provided by you as per norms and the same shall be kept operational/maintained all the time. The arrangement for segregation of first rain shall be made by you.
8. The estimate do not include the provision of electrification of the colony, therefore the supervision charges and O & M charges shall be paid by you directly to the HVPN.
9. You will be responsible for the construction of various structures such as RCC under ground tank etc. according to the standard specifications, good quality and its workmanship. The structural stability responsibility will entirely rest upon you.
10. In case some additional structures are required to be constructed and decided by the Director/HUDA at a later stage, the same will be binding upon you.
11. You will not make the connection with the master services i.e. water supply, sewerage, storm water drainage without getting its approval from the competent authority.
12. Levels/extent of the services to be provided by the HUDA i.e. water supply, sewerage will be proportionate of EDC as and when made available by HUDA till that you will make its own arrangement.
13. You will comply with the conditions as specified in Annexure 'A' attached with service plan/estimates.
14. You shall get approved the electrical service plan estimates from the concerned power utility within 60 days and submit the same in this office after approval.
15. A copy of the approved service plan/estimates is enclosed herewith. You are requested to supply four additional copies of the approved service plan/estimates to the Chief Engineer, HUDA, Panchkula under intimation to this office.

(KARAMVEER SINGH)
District Town Planner (HQ)
For Director General, Town & Country Planning
Haryana Chandigarh

Endst. No. LC-1143-(SPE)-JE (VA)-2014/ Dated

A copy is forwarded to the Chief Administrator, HUDA, Panchkula with reference to his letter No. 862 dated 21.01.2013 for information and necessary action please.

(KARAMVEER SINGH)
District Town Planner (HQ)
For Director General, Town & Country Planning
Haryana Chandigarh

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Vatika India Next, Gurgaon

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1. INTRODUCTION

- **Gurgaon** is the industrial and financial center of Haryana. Gurgaon is one of Delhi's four major satellite cities and is part of the National Capital Region of India. Over the past 10 years the city has undergone rapid development and construction.

2 LOCATION

- The project is located within approved master plan of Gurgaon in Sector- 81, 82A, 82, 83, 84 & 85
- The site is located at junction of National Highway-8 & Northern Periphery Road.
- Vatika Limited Vatika Triangle, Block B, Sushant Lok-1, Meharauli Gurgaon Road, Gurgaon, is developing residential colony, Vatika India Next in proposed sector 82, 82A, 83, 84 & 85 Gurgaon.
- Vatika Limited Vatika Triangle, Block B, Sushant Lok-1, Meharauli Gurgaon Road, Gurgaon has been awarded License by Director, Town & Country Planning Department, and Govt. of Haryana to develop 393.36 acre area in proposed sector 82, 82 A, 83, 84& 85 Gurgaon. (License No. 76 of 2011 dtd. 7-9-2011)

3 ROADS

3.1 Roads

3.1.1 Proposed Site Grading

The concept adopted for site grading and estimating the earth work quantities is described below.

a. Sufficient natural slopes are available on the ground.

b. The master roads been constructed by HUDA have already been planned & the road grading has been finalized. These levels, conveyed by HUDA to **M/S Vatika Ltd.,** have been kept in view.

3.2 ROAD NETWORK

3.2.1 Existing Connectivity to the Project site

- At present the project site is connected directly from the National Highway-8 located on the southern side of the project site.
- The site will further be connected with the 60 Mtr master plan roads dividing 82-83, 84-85, 83-84 & 82-85 which show that the site will have excellent connectivity with National Highway.
- The site will further get connected with the NPR directly to Delhi near Dwarka.

3.2.2 Road Cross Sections

- The ROW of various road are decided as per the min. requirements of deptt of TCP Haryana & have been cross checked with the IRC requirements of roads in URBAN area based on the traffic assessment criteria as mentioned above. The land under roads is 92.72 acres under internal roads & 18.7 acres under external roads. The total land under roads is 18.15% of the project area.

3.2.3 Road Design

3.2.3.1 Soil Investigation Report

- Based on the Soil Investigation Report the CBR value for 5mm penetration have been considered fit for the design & as such the average value CBR considered for the design is 6 %

3.2.3.2 Earth Work

- The fill sections or from sub grade level at cut sections should be compacted to a dry density corresponding to the minimum state of compaction likely to be achieved. As per normal practice the dry density of the embankment shall be 95 % while in case of sub-grade to the depth of 500 mm below the curst shall be 97% in all roads.

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3.2.3.3 Internal Streets

All Internal Streets of 12 & 15 Mtr have been proposed with the following crust thickness

GSB	-	150 mm
Granular Base (WMM)	-	225 mm
BM	-	50 mm
SDBC	-	25 mm

All Roads of 24 Mtr width

GSB	-	200 mm
Granular Base (WMM)	-	225 mm
DBM	-	50 mm
SDBC	-	25 mm

The Granular Sub Base material should have a minimum CBR value of 25 % Standard Road Cross Sections have been adopted

Table:-1

Sr. No.	Name of Wide Road	Road Width	Road Cross Section				
			Berms of Main Road Upper side	Main Road	Central Verge	Paved Parking	Berms of Main Road Lower side
	M	M	M	M	M	M	M
1	12 m	12	3	6			3
2	15 m	15	4.5	6			4.5
3	18 m	18	4.5	6		3	4.5
4	24 m	24	4	14	2		4
	Total			28?			

4 WATER SUPPLY

4.1 Source of Water

- HUDA water pipe line is laid along 90 m wide Road from proposed development of residential colony in Sector 82, 82A, 83, 84 & 85 Gurgaon.
- Boosting Station is proposed in Sector 82.
- Area available is 1600 sqm.
- Rising Main from the above said HUDA water pipe line to Boosting Station in Sector-82 is proposed.
- It is proposed to construct centralized RCC underground tank of capacity as per attached details for domestic purpose.
- The RCC underground tank will be filled from the HUDA rising Main and then pumped directly to plots.
- The scheme has been designed and the total water supply requirements calculated for population as given inn attached sheets.
- 7 No. Existing Tube wells will supply water in initial stage.

4.2 Pumping Equipments

- It has been proposed to install pumping machinery as described with standby of equal capacity.
- Provision for stand by generating set has been made to run the system in case of power failure.
- The total area has been sub dived in 2 Zones
- The distribution of water from Boosting Station is proposed in 2 Zones as per breakup given below:-

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5 SEWERAGE SYSTEM

Proposal

- Master Sewer is proposed to be laid along 60 m & 75 m wide roads by HUDA.
- 800 mm i/d, 900 mm i/d pipe sewer is proposed to be laid.
- It is proposed that internal sewer from sector may be connected with HUDA sewer at three points.
- Three no sites have been earmarked for construction of STP before joining HUDA Sewer in Sector 82A, 85 & 83.
- The sewer has been designed in such a manner that gravity flow is feasible in main sewer.
- The Estimated Waste Water Generation = 5.02 mld in plotted area
- Initial arrangements for treatment of 1.5 mld for plotted Area.

  STP1 =1 No. module of 300 KL each
  STP2 =3 No. module of 300 KL each.
  STP3 =1 No. module of 300 KL each

  5 X 0.30 = 1.5 MLD
- Balance quantity of 5-1.5=3.5 mld waste water is to be disposed off in master sewer.

6 RECYCLING OF TREATED WASTE WATER

Plotted Area

- Requirement of Treated Waste Water = 3150Kld.
- 1500 kld of waste water will be treated by developer.
- Balance quantity of 3150-1500 =1650kld will be supplied by HUDA at later stage.
- Till then this quantity will be added in fresh water supply.
- The distribution network has been designed both ways.

7 STORM WATER DRAINAGE SCHEMES

- As per proposal for Storm Water Drainage the storm runoff from the area will be drained off in the master storm sewer yet to be laid.
- 40% of rain fall finds its way as surface water ,balance quantity is either evaporated or infiltrate in ground.
- Efforts are done that part of surface flow also finds its way into ground with the help of injection wells.
- 50 No. Recharge well is proposed in common area.

8 STREET LIGHTING

- As per latest instructions issued by Govt. of Haryana energy efficient street lighting is to be provided in Govt. buildings, Boards, Corporations and public places.
- 150Watt sodium vapour lamps have been proposed on 24 m road on both sides at 40 m distance in a staggered manner i.e. 20 m centre to centre.
- 150Watt sodium vapour lamps have been proposed on 18 m road at 20 m distance on one side of the road. (60 Nos).
- 70Watt HPSV lamps on 12 mt. & 15 mt. roads at a spacing of 20 mts. on one side of roads.
- Clearance of poles from edge is proposed to be 0.6 mts.
- The Street light points shall be supplied power through 25 sq. mm PVC Cables.

9 HORTICULTURE

- Green area acts in the similar manner as lungs performs in human body. Hence its development is important for eco friendly development.
- Fine grassing & landscaping is proposed in all the parks.

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- Shrubs and creepers will be provided at suitable places.
- Side plantation will be carried out as per norms on foot paths.
- The different variety of plants will be used as per requirements i.e. for parking area, side, commercial area etc

10 SPECIFICATIONS:

- The work will be carried out in accordance with the Haryana Schedule of rates / HUDA and as per Guide lines of the Haryana Govt.

11 RATES

- Estimate for providing services in this project has been prepared on the basis of recent market rates and H.S.R.

12 COST

- The cost of the project:-6215Crore 6758.55
- Add charges on account of Escalation, Over Head& Supervision Charges at 49% of Project Cost: - 3046 Lacs 3309.25
- Total Cost of the project =9261 Lacs 20.25 10012.80
- Maintenance Cost for 10 years:-2067 Lacs 32.20
- Resurfacing of Roads after 5 yrs. & 10 yrs.=1574 lacs
- Grand Total =12902 lacs. 15308.30 Crore
- Net Area Planned=321.748 Acres
- The cost of development in this project comes out to be :-40.1 Lacs per acre 47.60

For ky Consultants Pvt Ltd

(Director)

For VATIKA LIMITED

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Area Statement - Vatika Project, Gurgaon, Haryana		
Description (As per layout plan)	Area	Unit
Total Area of the Scheme (182.796+98.781+44.454+67.331)	393.358	Acres
Area under 45m & 60m Sector Road	18.70	Acres
Balance Scheme Area (A)	374.66	Acres
50% of the area under Sector Roads (B)	9.35	Acres
Total (A)+(B)	384.01	Acres
Area under Group Housing	28.00	Acres
Area under Undetermined Use	34.26	Acres
Net Planned Area (As per plan)	**321.748**	**Acres**

DETAILS OF COMMUNITY SITES				
Sr.No.	Community Facilities	Unit Area	Required	Provided
		Acres	Nos.	Nos.
1	Nursery School	0.20	6	6
2	Primary School	1.00	4	4
3	High School	5.00	2	3
4	Creche	0.20	2	3
5	Religious Building	0.20	2	2
6	Dispensary	1.25	2	2
7	Club / Community Centre	2.00	2	2
8	Police Post	2.00	1	1
9	Health Center	2.00	1	1
10	Taxi Stand	0.50	6	6
	As a part of LSC/Retail			
1	Clinic 250 sq.m each	0.06	7	7
2	ATM of 12 sq.m	0.003	7	7
3	Beauty Parlour of 12 sq.m	0.003	7	7
4	Multipurpose Booth 5 x 5.5 sq.m	0.0068	7	7
5	Milk & Vegetable Booth	-	7	7
6	Nursing Home	1127.16		8

Detail of Area Residential Vatika India Next, Gurgaon						
Sr. No.	Description	Area of each Unit / Plot	Plots	Total Area		Total Persons
1	**Residential (Plotted)**					
		Sq.m.	Nos.	Sq.m.	Acres	No.
		EWS Category				
1.11	A	56.25	497	27956	6.91	4473
1.12	A1	50.00	52	2600	0.64	468
			549	30556	8	4941

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		General Category				
1.13	B	150.88	145	21878	5.41	1958
1.14	C	200.68	125	25085	6.20	1688
1.15	D	150.88	361	54468	13.46	4874
1.16	E	201.82	245	49447	12.22	3308
1.17	F	254.40	131	33326	8.24	1769
1.18	F1	250.80	173	43388	10.72	2336
1.19	G	295.20	213	62878	15.54	2876
1.20	H	330.07	152	50171	12.40	2052
1.21	H1	334.49	94	31442	7.77	1269
1.22	H2	342.00	14	4788	1.18	189
1.23	I	409.22	79	32328	7.99	1067
1.25	J	411.81	22	9060	2.24	297
1.26	K	339.84	28	9516	2.35	378
1.27	L	301.07	6	1806	0.45	81
1.28	M	205.39	68	13967	3.45	918
	Sub Total		**1856**	**443548**	**110**	**25056**
	Total		**2405**	**474104**	**117**	**29997**
2	**Area under Group Housing**			113311	28.00	**8400**
3	**Commercial Area**	Sqm	Nos.	Sq.m	Acres	
3.1	Commercial Area			52083	12.87	
3.2	Nursing Home	1127	8	8943	2.21	
4	**Community Area**	Acres	Nos.	Sq.m	Acres	
4.1	High School	5.00	3	67825	16.76	
4.2	Primary School	1.00	4	17078	4.22	
4.3	Nursery School	0.20	6	6232	1.54	
4.4	Creche	0.20	3	3035	0.75	
4.5	Dispensary	1.25	2	9146	2.26	
4.6	Club / Community Centre	2.00	2	16632	4.11	
4.7	Religious Building	0.20	2	2388	0.59	
4.8	Taxi Stand	0.50	6	12790	3.16	
4.9	Police Post	1.02	1	4128	1.02	
4.10	Health Centre	2.63	1	10643	2.63	
	Sub Total			149896	37.04	
5	**Undetermined use**			138644	34.26	
6	**Green Area**					
6.1	Organised Green - Area under Green Belt	13.16	1	53256.2	13.16	
6.2	Incidental Green -	8.6	1	34762.2	8.59	
	Sub Total			**88018**	**21.750**	
7	**Area under Master Roads**			75676	18.700	
8	**Area under Roads**			491175	121.373	
	Total Area / Total Demand			**1591851**	**393.358**	

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Detail of Area Residential Vatika India				Daily Water Requirement		
Sr. No.	Description	Total Persons	Water Allowance	Water Requirement	Net Water Requirement	Net Water Requirement to meet from Recycled water
1	**Residential**					
	Category of Plots					
		No.	LPCD	Ltrs./Day	Ltrs./Day	Ltrs./Day
	EWS Category					
1.11	A	4473	135	603855	603855	167738
1.12	A1	468	135	63180	63180	17550
		4941		667035	667035	185288
	General Category					
1.13	B	1958	172.5	337669	337669	73406
1.14	C	1688	172.5	291094	291094	63281
1.15	D	4874	172.5	840679	840679	182756
1.16	E	3308	172.5	570544	570544	124031
1.17	F	1769	172.5	305066	305066	66319
1.18	F1	2336	172.5	402874	402874	87581
1.19	G	2876	172.5	496024	496024	107831
1.20	H	2052	172.5	353970	353970	76950
1.21	H1	1269	172.5	218903	218903	47588
1.22	H2	189	172.5	32603	32603	7088
1.23	I	1067	172.5	183971	183971	39994
1.24	J	297	172.5	51233	51233	11138
1.25	K	378	172.5	65205	65205	14175
1.26	L	81	172.5	13973	13973	3038
1.27	M	918	172.5	158355	158355	34425
	Sub Total	**25056**		**4322160**	**4322160**	**939600**
	Total	**29997**		**4989195**	**4989195**	**1124888**
2	**Area under Group**	**8400**	172.5	1449000	1134000	315000
3	**Commercial Area**					
3.1	Commercial Area	12.87	25000	321750	321750	64350
3.2	Nursing Home	8	5000	40000	40000	8000
4	**Community Area**					
4.1	High School	3	150000	450000	360000	90000
4.2	Primary School	4	50000	200000	160000	40000
4.3	Nursery School	2	10000	60000	48000	12000
4.4	Crèche	3	10000	30000	24000	6000
4.5	Dispensary	2	25000	56500	45200	11300
4.6	Club / Community	2	25000	102750	82200	20550
4.7	Religious Building	2	10000	20000	20000	0
4.8	Taxi Stand	6	5000	30000	24000	6000
4.9	Police Post	1	25000	25500	20400	5100
4.10	Health Centre	1	25000	65750	52600	13150
	Sub Total			1040500	**836400**	**204100**
5	**Undetermined use**	34.2 (Nos)	25000	898464	898464	
6	**Green Area**					
6.1	Organised Green -	13.12 (10%)	25000	329000	52900	**296100**
6.2	Incidental Green -	8.5 Area	25000	214750	21475	**193275**
	Sub Total			**543750**	**74375**	**489375**
7	**Area under** Wes		10000	**187000**	18700	**168300**
8	**Area under Roads**		10000	**1213730**	121373	**1092357**
	Total Area / Total			**10683389**	**8434257**	**3466370**
	Total Area / Total			9234389	7300257	3151370

9234 73 00 3152 Lpd

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	Type of Water & Type of Source	Demand	
	Total Water Demand	9234	KL
1	Potable Water Demand of Plotted Area	7302	KL
2	Fire Fighting Demand 100/29997 = 547.63 KLD	550	KL
3	Flushing Water Demand	3152	KL

Rising Main from HUDA Source			
1	Potable Water Demand of Plotted Area	7302	KL
2	Duration of Supply	16	Hrs
3	Line Flow Rate	11.40	M^3/Min
4	Internal Diameter of Pipe Rising main	400	mm
5	Flow Velocity	1.51	M/Sec
6	Frictional Head Loss/100 0M	3.58	M
7	Length of Pipe	380	M
8	Total Head Loss	1.50	M

Design of Water Works			
Net Water Demand of 2041 (203)	Residential (Plotted)	7302	KL
Net Water Demand of 2041 (203)	Zone I	4652	KL
Net Water Demand of 2041 (203)	Zone2	2650	KL
Net Water Demand of 2041 (203)	Zone I	4652	KL
Over Head Service Reservoir			
Size of OHSR@ 6 hrs storage capacity (4652 x 1/4)		1163	KL
Provide OHSR600 KL storage capacity with30 M Staging Height		382 → 500	KL
Balance capacity to carried to UGT (1163 - 382)		781 → 500	KL
Size of UGT@ 8 hrs storage capacity (465.2 x 1/3)		1551	KL
Fire Fighting Demand		275	KL
UGT Total Capacity required (663 781 + 155 + 275)		2607 2489	KL
Provide UGT in Two Compartments one to meet fire demand , size 18m x6mx3 m (18x6x3 = 324 Cum)		324 (As per IS)	KL
Provide UGT in Two Compartments another to meet water demand , siz18m x18mx3.6m (2489 - 324)		2333 2165	KL
Design of Pumping Machinery			
Net Water Demand Zone 1		4652	KL
Daily Pumping Hrs		16	Hr
No of Pumps Proposed		3	Nos.

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Pumping Capacity of Pump to cater for average demand with 60% efficiency=1000/3600*4653/16/3		26.9	35	lps
BHP of Motor=35*45/(75*0.6)		35.0	35	BHP
Provide 3pumps to meet total demand 35lps with45 m head ,35 hp Motor each &Provide one pump as stand bye35 lps with45 m , 35 hp Motor				
Provide one no generating set of100 k VA as100% Power back up arrangements to run three pumps average demand with 35HP Motor each.				
Net Water Demand of 2041	Zone 2	2650		KL
Over Head Service Reservoir				
Size of OHSR@ 6 hrs storage capacity		663		KL
Provide OHSR600 KL storage capacity WITH 30 M Staging Height		218		KL
Balance capacity to carried to UGT		445		KL
Size of UGT@ 8 hrs storage capacity		884		KL
Fire Fighting Demand		275		KL
Total Capacity required		1604		KL
Provide UGT in Two Compartments one to meet fire demand , size 18m x6mx3 m		324		KL
Provide UGT in Two Compartments another to meet water demand , siz18m x18mx3.6m each		2333		KL
Design of Pumping Machinery				
Net Water Demand Zone 2		2650		KL
Daily Pumping Hrs		16		Hr
No of Pumps Proposed Two for Peak Demand		2		Nos.
Pumping Capacity of Pump to cater for average demand with 60% efficiency=10003600*2653/16/3		23.0	35	lps
BHP of Motor=20*45/(75*0.6)		35.0	35	BHP
Provide 2pumps to meet total demand 35lps with45 m head ,35 hp Motor each &Provide one pump as stand bye35 lps with45 m , 35 hp Motor				
Provide one no generating set of100 k VA as100% Power back up arrangements to run 2 pumps with 35HP Motor each.				
Design of Boosting Station for recycling of Treated Water				
Anticipated Waste Water	5000			KL
Net Water Demand to met from Recycled Water	3153			KL
Phase 1		1500		KL
Phase 2(Balance treated water to be supplied by HUDA)		1653		KL
To be disposed in HUDA Sewer		1847		KL

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Break up use of treated sewer		Net Water Demand to met from Recycled Water	Phase 1(To be treated & utilize by developer)	Phase 2(Balance treated water to be supplied by HUDA)	
Boosting Station	STP -1	685	300	385	KL
Boosting Station	STP -2	1498	900	598	KL
Boosting Station	STP -3	970	300	670	KL
Sub Total		3153	1500	1653	KL
Design of Boosting Station for recycling of Treated Water					
Boosting Station at point STP1			STP1	No.	1
Size of UGT@ 12 hrs Storage Capacity				150	KL
Provide UGT of 9m *6M* 3 m Depth				162	KL
Design of Pumping Machinery					
Net Water Demand				300	KL
Daily Pumping Hrs				16	Hr
No of Pumps Proposed one for Average Demand +One for Peak Demand (Two Times Average Demand)				1	Nos.
Pumping Capacity of Pump to cater for average demand =1000/3600*300/10/1				5.2	lps
BHP of Motor=5*30/(75*0.6)				3.3	BHP
Pumping Capacity of two Pump to cater for peak demand with 60% efficiency=2*1000/3600*889/10/3/0.6				10.4	lps
BHP of Motor=10*30/(75*0.6)				6.7	BHP
Provide one pumps to meet total demand 5 lps with30 m head ,5 hp Motor each &Provide one pumps stand bye5 lps with30 m , 5 hp Motor					
Provide one no generating set of20 k VA as100% Power back up arrangements to run 2 pump as average demand with 5HP Motor each.				20.0	k VA
Boosting Station at point STP2				No.	3
Size of UGT@ 12 hrs Storage Capacity				450	KL
Provide UGT of 9m *6M* 3 m Depth				486	KL
Design of Pumping Machinery					
Net Water Demand				300	KL
Daily Pumping Hrs				16	Hr
No of Pumps Proposed one for Average Demand +One for Peak Demand (Two Times Average Demand)				1	Nos.
Pumping Capacity of Pump to cater for average demand =1000/3600*300/10/3				5.2	lps
BHP of Motor=5*30/(75*0.6)				3.3	BHP
Pumping Capacity of two Pump to cater for peak demand with 60% efficiency=2*1000/3600*889/10/3/0.6				17.4	lps
BHP of Motor=10*30/(75*0.6)				10.0	BHP
Provide Three pumps to meet total demand 5 lps with30 m head ,5 hp Motor each &Provide one pump as stand bye5 lps with30 m , 5 hp Motor					
Provide one no generating set of25 k VA as100% Power back up arrangements to run three pumps average demand with 5HP Motor each.				25.0	k VA
Boosting Station at point STP3				No.	1

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Size of UGT@ 12 hrs Storage Capacity	150		KL
Provide UGT of 9m *6M* 3 m Depth	162		KL
Design of Pumping Machinery			
Net Water Demand	300		KL
Daily Pumping Hrs	16		Hr
No of Pumps Proposed one for Average Demand +One for Peak Demand (Two Times Average Demand)	1		Nos.
Pumping Capacity of Pump to cater for average demand =1000/3600*300/16/1	5.2	5	lps
BHP of Motor=5*30/(75*0.6)	3.3	5	BHP
Pumping Capacity of two Pump to cater for peak demand with 60% efficiency=2*1000/3600*889/10/3/0.6 (1 x 2 Nos)	10.4	10	lps
BHP of Motor=10*30/(75*0.6) (1 x 2 Nos)	10.0	10	BHP
Provide 1epumps to meet total demand 5 lps with30 m head ,5 hp Motor each &Provide one pump as stand bye5 lps with30 m , 5 hp Motor (1+1)			
Provide one no generating set of 20 k VA as100% Power back up arrangements to run three pumps average demand with 5HP Motor each. (1 x 20 KVA)			

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COSTING

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