

**SUBMISSION REPORT
ON
"SERVICES PLAN AND ESTIMATE"**

**FOR EXTERNAL SERVICES
(SWERAGE, STORM WATER DRAINAGE, WATER SUPPLY,
ROAD WORKS, LIGHTING & HORTICULTURE)**

FOR

**ADDITIONAL BUILDING PLAN OF
GROUP HOUSING COLONY MEASURING 13.2118 ACRES
(LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68
(HD ZONE) GURGAON MANESAR URBAN COMPLEX**

BEING DEVELOPED BY:

**M/S HANS PROPCON PVT. LTD., DEVIKA TOWER,
NEHRU PLACE, NEW DELHI**

JULY 2021

**SERVICE ESTIMATE, DESIGN REPORT AND CALCULATIONS OF
EXTERNAL DEVELOPMENT WORKS OF ADDITIONAL BUILDING PLANS OF GROUP HOUSING COLONY MEASURING
13.2118 ACRES (LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68
(HD ZONE) GURGAON MANESAR URBAN COMPLEX**

	Sub -Work No. 1			Water Supply & Fire Fighting		
	Sub -Head No. 01			Water Supply distribution		
SL.NO	Description	Unit	Qty	Rate	Amount	
2	Provision for water supply risers from pump room (DOMESTIC WATER SUPPLY)					
a.	50 mm dia	M	94	550.00	51,425.00	
3	Provision for water supply risers from pump room (FLUSHING WATER SUPPLY)					
a.	40 mm dia	M	94	450.00	42,075.00	
4	Provision&Fixing valve.					
a.	40 mm dia	Each	2	2000.00	4,000.00	
b	50 mm dia	Each	2	2500.00	5,000.00	
5	Provision for carriage of materials					
		LS			10,000.00	
	TOTAL				1,12,500.00	
	(C/O To Abstract of cost for subwork No.1)		SAY		1.13	Lakhs
	Sub -Work No. 1			Water Supply & Fire Fighting		
	Sub -Head No. 02			FIRE FIGHTING		
SL . NO	Description	Unit	Qty	Rate	Amount	
1	Providing , Laying , jointing and testing MS. pipes lines including					
(a)	80 mm dia. Pipe.	M	100	1800	1,80,000.00	
(a)	150 mm dia. Pipe.	M	18	1800	32,400.00	
2	Providing and fixing external fire hydrants etc.	EACH	3	8500	25,500.00	
	Total cost of Abstract of cost for Subwork No.1				2,37,900.00	
	SAY				2.38	Lakhs

	Sub -Work No. 1			Water Supply & Fire Fighting		
	Sub -Head No. 03			Water Supply Rising Main from MAIN		
SL . NO	Description	Unit	Qty	Rate	Amount	
1	Providing , laying, jointing and testing pipe lines including Cost of excavation etc. complete in all respects .					
	50 /40 mm dia.	Each	2	600.00	1,200.00	
2	Providing and fixing sluice valve including cost of surface box and masonry chamber etc. completed in all respects.					
	50 /40 mm dia.	Each	2	6000.00	12,000.00	
3	Providing and fixing indicating plates for sluice valve and air Valves .					
		Each	2	750.00	1,500.00	
4	Provision for carriage for materials and other unforeseen items .					
		LS			5,000.00	
5	Provision for cutting of roads and making good to its original condition					
		LS			5,000.00	
	Total cost of Abstract of cost for Subwork No.1				24,700.00	
	SAY				0.25 Lakhs	
	Sub -Work No. 1			Water supply & Fire fighting		
	Sub -Head No. 04			Water supply Irrigation		
SL . NO	Description	Unit	Qty	Rate	Amount	
1	Providing , Laying, Jointing and testing pipe line including cost of excavation etc. complete in all respect.					
a	65 mm dia	M	0	850	-	
a	25 dia	M	18	650	11,700.00	
2	Providing and fixing 20 mm dia irrigation hydrant Valve complete in all respect.					
		Each	3	3500	10,500.00	
3	Provision for carriage of Material and other as foreseen Items.				1,000.00	
4	Provision for cutting of roads and making good to its original condition					
		LS			1,000.00	
	Total cost of Abstract of cost for Subwork No.1				24,200.00	
	SAY				0.24 Lakhs	
	Material statement of irrigaton line (See Enclosed Sheet Annexure-II)					

Sub -Work No. II Sewerages Scheme						
SL . NO	Description	Unit	Qty	Rate	Amount	
1	Providing, jointing, cutting and testing .S W pipe class "A" and lowering into trenches including cost of Excavation, bed concrete, cost of manholes etc.					
a	200 mm dia	M	175	800	1,40,000.00	
4	Provision for vent pipe as per P.E requirement					
		LS			5,000.00	
5	Provision for cartage of material an other unforeseen items.					
		LS			20,000.00	
					10,000.00	
	TOTAL				1,75,000.00	
	Add 3% contingencies & PE charges				5,250.00	
	TOTAL				1,80,250.00	
	Add 49% Departmental charges, price escalation Unforeseen, Admin.				88,322.50	
	TOTAL				2,68,572.50	
	SAY				2.69	Lakhs
	Material statement of sewer line (See Enclosed Sheet Annexure-III)					
	Sub -Work No. III			Storm Water Scheme		
SL .NO	Description	Unit	Qty	Rate	Amount	
1	1. Providing and laying R.C.C. pipe drain class NP-3 with cement joint, manholes excavation etc complete in all respect including refilling earth.					
a	400 mm dia.	M	30	1500	45,000.00	
a	250 mm dia.	M	130	1000	1,30,000.00	
a	150 mm dia.	M	75	750	56,250.00	
2	Provision for road gullies with pipe connection					
		LS			50,000.00	
4	Provision for carriage of material and unforseen items				20,000.00	
5	Provision for timbering & shoring					
		LS			10,000.00	
8	Provision for cutting of roads and making good to its original					
		LS			10,000.00	
9	Provision for temporary disposal arrangement					
		LS			10,000.00	
	TOTAL				3,31,250.00	
	Add 3% for contingencies and PE charges.				9,937.50	
	TOTAL				3,41,187.50	
	Add 49% Departmental charges, price escalation,				1,67,181.88	
	TOTAL				5,08,369.38	
	SAY				5.08	Lakhs
	Material statement of strom line (See Enclosed Sheet Annexure-IV)					

	Sub -Work No.IV				Roads and Footpaths	
SL .NO	Description	Unit	Qty	Rate	Amount	
	ROAD NAME		Length (M)	Metalled portion	Area in sqmt.	
(a)	6 M WIDE		70.0	4.5	315.00	
(c)	Total Length of Road				315.00	
	Total Area of Road =			315.00	m2	
	Add 5% for curve =			15.75	m2	
	Total Area			330.75	m2	
	SAY			331.00	m2	
1	Provision for leveling and earth filling as Per site condition 0.65 acres					
		Acre	0.65	60000	39,000.00	
2 (i)	Construction of roads by providing granular sub base 300 mm as per MORT & H specification conforming to clause 401 grading B 400.1					
(ii)	Providing ,laying,spreading & compacting hand broken/ crushed stone aggregate to wet mix macadam conforming to physical requirement laid in 400 of 300 mm GSB 250 mm stone aggregate MORT &H specification in two layers (compacted to 250 mm (125+125) by taking material 1.32 times of the (thickness of the layer) including per mixing of material with water in mechanical mixer .					
(iii)	50 mm thick BM					
(iv)	20 mm thick mix seal surfacing					
		sqmt.	331	800	2,64,800.00	
3	Provision for kerb and channels of CC M35					
		RM	23.63	500	11,812.50	
4	Provision for making approach and pavement to building.					
					10,000.00	
5	Provision for guide map and other unforeseen items and Indicating board etc.					
					10,000.00	
6	Provision for parking arrangement					
		LS			10,000.00	
7	Provision for carriage of material and other unforeseen items.					
		LS			10,000.00	
			TOTAL		3,55,612.50	
		Add 3% contingencies & PE Charges			10,668.38	
			TOTAL		3,66,280.88	
		Add 49% Departmental charges, price escalation, unforeseen,			1,79,477.63	
			TOTAL		5,45,758.50	
			SAY		5.46	Lakhs
	Material statement of road (See Enclosed Sheet Annexure-V)					

Sub -Work No.V				Street Lighting	
SL.NO	Description	Unit	Qty	Rate	Amount
1	Providing Street lighting on roads as l. per standard specification of HVPN				
		Acre	0.65	110000	71,500.00
			TOTAL		71,500.00
		Add 3% contingencies & PE Charges			2,145.00
			TOTAL		73,645.00
		Add 49% Departmental charges, price escalation, unforeseen,			36,086.05
			TOTAL		1,09,731.05
			SAY		1.10 Lakhs
	Sub -Work No.VI			Plantation and road side trees	
SL.NO	Description	Unit	Qty	Rate	Amount
1	Development of lawn area 0.65 Acres				
		Acre	0.65	150000	97,500.00
a	Trenching the ordinary soil up to dept of 60cm including removal and stacking serviceable material and disposing of by spreading and leveling within a lead of 50m and making up the trenches area to proper leads by filling with earth mixed with manure before and after flooding trench with water including cost of imported earth and manure.				
b	Rough dressing of turfed area				
c	Grassing with "Doob Grass" including watering and IV. Maintenance of lawns for 30 days till the grass forms a thick lawn, free from weeds and fit for moving in rows 7.5 m Apart in either direction 1.76 Acres @ 100000 per acre				
2	Providing 1 trees, guards and planting trees along road at 12 m interval Total road length = 102 No of Trees = 12.9 Say = 8 Cost analysis of Planting Trees Excavation = 30 each Manure = 40 each Tree plants = 80 each Tree guards = 600 each = Rs.750 per tree				
		Each	8	750	6,000.00
			TOTAL		1,03,500.00
		Add 3% contingencies & PE Charges			3,105.00
			TOTAL		1,06,605.00
		Add 49% Departmental charges, price escalation, unforeseen,			52,236.45
			TOTAL		1,58,841.45
			SAY		1.59 Lakhs

	Sub -Work No.VII			Maintenance Charges & Resurfacing of Road		
SL .NO	Description				Amount	
1	Provision for maintenance charges for water supply, sewerage, storm water drainage, roads, street light, horticulture etc. complete including operation and establishment charges as per HUDA norms after completion.					
		Acre	0.65	300000	1,95,000.00	
2	Provision for resurfacing of roads after 1st 5 years of maintenance i.e by providing 50mm thick B.M. with 20 mm thick Premix Carpet.					
			331	600	1,98,600.00	
3	Provision for resurfacing of roads after 10 years of maintenance i.e by providing 20 mm thick Premix Carpet.					
			331	300	99,300.00	
			TOTAL		4,92,900.00	
		Add 3% contingencies & PE Charges			14,787.00	
			TOTAL		5,07,687.00	
		Add 49% Departmental charges, price escalation, unforeseen,			2,48,766.63	
			TOTAL		7,56,453.63	
			SAY		7.56	Lakhs

SERVICE ESTIMATE, DESIGN REPORT AND CALCULATIONS OF EXTERNAL DEVELOPMENT WORKS OF ADDITIONAL BUILDING PLANS OF GROUP HOUSING COLONY MEASURING 13.2118 ACRES (LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68 (HD ZONE) GURGAON MANESAR URBAN COMPLEX			
FINAL ABSTRACT OF COST (ADDL. TOWER)			
			Amount in Rs. Lacs
1	SUB WORK NO. I	WATER SUPPLY SCHEME	6.13
2	SUB WORK NO. II	SEWERAGE SCHEME	2.69
3	SUB WORK NO.III	STORM WATER DRAINAGE	5.08
4	SUB WORK NO.IV	ROADS & FOOT PATHS	5.46
5	SUB WORK NO.V	STREET LIGHTING	1.10
6	SUB WORK NO. VI	PLANTATION & ROAD SIDE TREES	1.59
	SUB WORK NO. VII	MAINTENANCE CHARGES & SURFACING OF ROAD	7.56
		TOTAL	29.61
	Cost per acre	45.547	
	Say	46.00	Lakhs Per Acre

SERVICE ESTIMATE, DESIGN REPORT AND CALCULATIONS OF EXTERNAL DEVELOPMENT WORKS OF ADDITIONAL BUILDING PLANS OF GROUP HOUSING COLONY MEASURING 13.2118 ACRES (LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68 (HD ZONE) GURGAON MANESAR URBAN COMPLEX			
S.No	SUB WORK No. 1		Water Supply & Fire Fighting
1	Sub Head No. 01	Water Supply distribution	1,12,500.00
2	Sub Head No. 02	Fire Fighting	2,37,900.00
3	Sub Head No. 03	Water Supply Rising Main from Main Line	24,700.00
4	Sub Head No. 04	Water supply Irrigation	24,200.00
		TOTAL	3,99,300.00
		Add 3% contingencies & PE Charges	11,979.00
		TOTAL	4,11,279.00
		Add 49% Departmental charges, price escalation, unforeseen, Admin.	2,01,526.71
		TOTAL	6,12,805.71
		SAY IN LAKHS	6.13

SEWER MATERIAL STATEMENT FOR ADDL. TOWER				
S.NO.	LINE		Length of line	Dia of Pipe
	FROM	TO	Mtr	MM
1.0	S-01	S-02	22	200
2.0	S-02	S-03	59	200
3.0	S-04	S-03	14	200
4.0	S-03	S-07	12	200
5.0	S-05	S-06	23	200
6.0	S-06	S-07	23	200
7.0	S-07	NETWORK	5	200
		Dia	LENGTH	WITH #10 %
		200 mm	158	175

SEWER DESIGN CALCULATION OF ADDITIONAL BUILDING PLAN, SECTOR 68 (HD ZONE), GURGAON MANESAR URBAN COMPLEX																											
					Total water Requirement .	Total Water Requirement. @ 172.5 lpcd for fixed																					
SI	LINE				@ 15 lpcd FOR FLOATING	Total Water Requirement. @ 172.5 lpcd for fixed	TYPE OF BUILDING	Total water requirement for other buildings (LPD)	Total Daily Water Requirement in Litre	Self	Peak Load @ 2.5X Av. Load	Subsoil Infiltration @25% of Av Load	Self Discharge	Branch Discharge	Total Discharge	Total Discharge	Length of line	Dia of Pipe	Slope 1 IN	Fall in Line	Velocity In	Capacity of Pipe	CHECK FOR CARRYING CAPACITY	STARTING(G.L)	STARTING(I.L)	END(G.L)	END(I.L)
NO.	FROM	TO	TOTAL FLOATING POPULATION	TOTAL FIXED POPULATION																							
1.0	S-01	S-02	14	90	210	15525		0	15735	12588	31470	3147	34617	0	34617	0.40	22	200	190	0.12	0.66	10.31	OK	0.000	-0.900	0.000	-1.016
2.0	S-02	S-03	18	115	270	19837.5		0	20108	16086	40215	4021.5	44237	34617	78854	0.91	59	200	190	0.31	0.66	10.31	OK	0.000	-1.016	0.000	-1.326
3.0	S-04	S-03	14	90	210	15525		0	15735	12588	31470	3147	34617		34617	0.40	14	200	190	0.07	0.66	10.31	OK	0.000	-0.900	0.000	-0.974
4.0	S-03	S-07	10	60	150	10350		0	10500	8400	21000	2100	23100	113471	136571	1.58	12	200	190	0.06	0.66	10.31	OK	0.000	-1.326	0.000	-1.389
5.0	S-05	S-06	20	145	300	25012.5		0	25313	20250	50625	5062.5	55688		55688	0.64	23	200	190	0.12	0.66	10.31	OK	0.000	-0.900	0.000	-1.021
6.0	S-06	S-07	20	140	300	24150		0	24450	19560	48900	4890	53790	55688	109478	1.27	23	200	190	0.12	0.66	10.31	OK	0.000	-1.021	0.000	-1.142
7.0	S-07	NETWORK															5	200	190	0.03	0.66	10.31	OK	0.000	-1.326	0.000	-1.353

MATERIAL STATEMENT FOR EXTERNAL FIRE HYDRANT WORKS ADDL. TOWER				
S.NO.	LINE NO		LENGTH in m (PIPE IN 150 MM Dia)	LENGTH in m (PIPE IN 80 MM Dia) Branch pipe
	FROM	TO		
1	EFH1	F3	45	45
2	EFH3	F3	45	45
3	EFH2	F3	5	5
4	F3	MAIN LINE	15	
		PIPE DIA	LENGTH (in m)	#10 % Extra
		150 mm	15	18
		80 mm	95	100

MATERIAL STATEMENT FOR GARDEN HYDRANT WORKS FOR ADDL. TOWER

S.NO.	LINE NO		LENGTH (in m) (65 mm dia Pipe)	LENGTH (in m) (32 mm dia Pipe) Branch pipe
	FROM	TO		
1	Existing LINE	GH 01		15
2	Existing LINE	GH02		10
3	Existing LINE	GH03		15
		PIPE DIA	LENGTH (in m)	#20 % Extra
		65 mm	0	0
		32 mm	15	18

MATERIAL STATEMENT FOR DOMESTIC AND FLUSHING WATER SUPPLY WORKS FOR ADDL. TOWER				
Domestic Water Supply				
SL NO	LINE NO	SIZE OF RISER PIPE IN MM Dia	LENGTH OF PIPE	With 20 % Extra
1	PUMP ROOM- D1	50	20	22
2	D1-OHT	50	65	72
Flushing Water Supply				
SL NO	LINE NO	SIZE OF RISER PIPE IN MM Dia	LENGTH OF PIPE	With 10 % Extra
1	PUMP ROOM- F1	50	20	22
2	F1- OHT	50	65	72

DESIGN CHART FOR WATER SUPPLY SYSTEM DOMESTIC ADDITIONAL BUILDING PLAN, SECTOR 68 (HD ZONE), GURGAON MANESAR URBAN COMPLEX																	
SL NO	LINE NO			TOTAL POPULATION	TOTAL WATER REQ@45lpcfor fixedand 15lpcfor floating population LPD	Total water requirement for other buildings (LPD)	DOMESTICL WATER	TOTAL DOMESTICWATER REQ.PER DAY(SELF)	PROGRESSIVE WATER REQ. IN LPD	TOTAL DOMESTICWATER REQ.PER DAY	PUMP WORKING 8 HOURS	SELF WATER REQ IN LPM	LENGTH OF PIPE	HEAD LOSS MTR/ MTR	TOTAL HEAD LOSS IN MTRS	VELOCIT Y IN M/SEC	SIZE OF RISER PIPE IN MM Dia
1	PUMP ROOM- D1			761	118000	118000	88000	0	88000	88000	11000	183	20	0.072	1.44	1.296	50
2	D1- OHT			0	0		88000	88000	0	88000	11000	183	65	0.072	4.67	1.296	50
													85				
											85						

DESIGN CHART FOR WATER SUPPLY SYSTEM (FLUSHING) ADDITIONAL BUILDING PLAN, SECTOR 68 (HD ZONE), GURGAON MANESAR URBAN COMPLEX																		
SL NO	LINE NO			TOTAL POPULATION	TOTAL WATER REQ @45lpcd for fixed and 15lpcd for floating population LPD	FLUSHING @WATER	Total water requirement for other buildings (LPD)	FLUSHING WATER	TOTAL FLUSHING WATER REQ.PER DAY(SELF)	PROGRESSIVE WATER REQ. IN LPD	TOTAL FLUSHING WATER REQ.PER DAY	PUMP WORKING 10 HOURS	SELF WATER REQ IN LPM	LENGTH OF PIPE	HEAD LOSS MTR/ MTR	TOTAL HEAD LOSS IN MTRS	VELOCITY IN M/SEC	SIZE OF RISER PIPE IN MM Dia
1	PUMP ROOM- FI			761	118000	30000	118000	0	0	30000	30000	3000	50	20	0.019	0.38	0.552	40
2	FI- OHT			0	0	0		30000	30000	0	30000	3000	50	65	0.019	1.25	0.552	40
														85				

MATERIAL STATEMENT FOR STROM WATER WORKS FOR ADDL. TOWER							
S.No.	DRAINAGE LINE		DIA OF	LENGTH (M)	PIPE DIAMETER		
	MARKED AS		PIPE	OF LINE			
	STARTING NODE	ENDING NODE	IN MM		250	400	
1	SW-01	SW-02	250	25.0	25.0		6
2	SW-02	SW-03	250	59.0	59.0		10
3	SW-03	SW-07	400	20.0		20	36
4	SW-04	SW-05	250	10.0	10.0		8
5	SW-05	SW-06	250	26.0	26.0		6
6	SW-06	SW-07	250	10.0	10.0		6
7	SW-07	SEWER NETWORK	400	9.0		9	
		PIPE DIA			130.0	29.0	72.0
		SAY			130	30	75

[illegible]

ADDITIONAL BUILDING PLAN, SECTOR 68 (HD ZONE), GURGAON MANESAR URBAN					
MATERIAL STATEMENT FOR ROAD					
S. No.	Road Name (m)	Road Length (m)	6 M WIDE	Metal Portion (m)	Area (sqm)
1	R1 - R2	50	50	4.5	225.0
2	R2 - R3	52	52	4.5	234.0

Total Length		102	102		459
SAY		102	102		460

PROJECT REPORT/ESTIMATE FOR PROVIDING EXTERNAL SERVICES - WATER SUPPLY, SEWERAGE, STORM WATER DRAINAGE, ETC. IN RESPECT OF ADDITIONAL BUILDING PLAN OF GROUP HOUSING COLONY MEASURING 13.2118 ACRES (LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68 (HD ZONE) GURGAON MANESAR URBAN COMPLEX

REPORT

Gurgaon is a leading financial and industrial city of India in the state of HARYANA, situated in the National Capital Region near the National Capital along the national highway No-8 at a distance of 32 kms south-west from New Delhi. Being in the national capital Region, the town has fast developing tendency and potential. Further, it has also started sharing the growing Industrial load of Delhi. In order to relieve the growing pressure of population in National Capital of Delhi, Haryana Urban Development Authority has already developed residential sector which are inhabited to an extent. Further to the increasing demand HUDA has planned to develop new sectors at outskirts of Gurgaon town. The ADDITIONAL BUILDING PLAN OF GROUP HOUSING COLONY MEASURING 13.2118 ACRES (LICENSE NO.93 OF 2014 DATED 13.08.2014) SECTOR 68 (HD ZONE) GURGAON MANESAR URBAN COMPLEX

WATER SUPPLY

The source of water supply shall be water supply connection from the existing water supply network in the complex.

DESIGN:

The scheme has been designed for population of residential colony. The rate of water supply per head per day has been taken assumed as 150 liters + 15% wastage ie. 172.5 liter per head per day as per HSVP norms.

PUMPING EQUIPMENTS

It has been proposed to utilize the existing pumping set.

SEWERAGE SCHEME

Sewer line from proposed development will be connecting to proposed external Sewage network within the complex. The sewerage system has been marked on the respective plans.

Sewer lines have been designed for 2.5 or 3.0 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 (0.75 m/sec) self cleaning velocity. Sewer line up to 400 mm dia has been designed to run half full and above 400 mm dia has been designed to run three fourth full at peak flow. Necessary provision for laying S.W pipe sewer line, construction of required number of manholes etc. have been made in the estimate. The sewer line has been designed as per Manning's formulae.

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

STORM WATER DRAINAGE:

We are proposing to lay underground R.C.C pipe drains with required number of MANHOLES for disposal of storm water which will be connecting to the existing storm network /rain water harvesting system to recharge the aquifer and surplus storm water will be allowed to flow to the **HSVP** Master drain along the services road. The intensity of rain fall has been taken as ¼" (6.25mm) per hour and storm water line has been designed as per Manning's formulae.

SPECIFICATIONS:

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

Roads:

Cost of road has been taken in the estimate.

Street Lighting:

Provision for streets lighting has been included.

Horticulture:

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

Rates:

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

Cost:

The total cost of the scheme, including cost of all services works out to be **Rs. 29.61 lakhs** (Rupees Twenty nine lakhs sixty one thousand only) including 3% contingencies @ 49% departmental charges, price escalation, unforeseen & admin charges etc.

For **M/S HANS PROPCON PRIVATE LIMITED**

Authorized signatory

I DESIGN CALCULATION:

(i) Water requirement Chart

PROJECT- M3M MARINA (ADDL.TOWER),GURUGRAM																
WATER CONSUMPTION SHEET																
S.NO.	DESCRIPTION	AREA (SQM)	OCCUPENCY LOAD	TOTAL POPULA- TION	TOTAL WATER REQUIRED ACC. TO NBC	FLUSH WATER REQUIRED		DOMESTIC (HOT) WATER REQUIRED		DOMESTIC (COLD) WATER REQUIRED		DOMESTIC (HOT+COLD) WATER	TOTAL GROSS WATER	WATER FLOW IN STP		
					LPD	LPCD	LPD			LPCD	LPD					
1	TYPICAL FLOORS (1ST TO 20TH)															
1.1	UNIT-01 (3BHK)		6 PERSON/UNIT	120	173	45	5400	35	4200	93	11160	15360	20760	5400	13056	18456
1.2	UNIT-02 (2BHK)		5 PERSON/UNIT	100	173	45	4500	35	3500	93	9300	12800	17300	4500	10880	15380
1.3	UNIT-03 (2BHK)		5 PERSON/UNIT	100	173	45	4500	35	3500	93	9300	12800	17300	4500	10880	15380
1.4	UNIT-04 (2BHK)		5 PERSON/UNIT	100	173	45	4500	35	3500	93	9300	12800	17300	4500	10880	15380
1.5	UNIT-05 (2BHK)		5 PERSON/UNIT	100	173	45	4500	35	3500	93	9300	12800	17300	4500	10880	15380
1.6	UNIT-06 (3BHK)		6 PERSON/UNIT	120	173	45	5400	35	4200	93	11160	15360	20760	5400	13056	18456
2	VISITORS (15% OF TOTAL POPULATION)			96	15	10	960		0	5	480	480	1440	960	408	1368
3	MAINTENANCE STAFF			25	45	20	500	5	125	20	500	625	1125	500	531	1031
4	FILTER BACKWASH & FLOOR MOPPING											5000	5000			
	TOTAL			761			30260		22525		60500	88025	118285	30260	70571	100831
	SAY IN KLD						30		23		61	88	118	30	71	101

(i)	Total domestic and flushing requirement	=	118.00 KLD
	Total domestic water requirement	=	88.00 KLD
	Total flushing water requirement	=	30.00 KLD