DIRECTOR, TOWN & COUNTRY PLANNING, HARYANA
Aayojna Bhawan, Sector 18, Chandigarh
Phone: 0172-2549349 e-mail:tcphry@gmail.com
website:-http://tcpharyana.gov.in

(1)

To

S.A. Infracon Pvt. Ltd.
C-10, C-Block Market, Vasant Vihar,
New Delhi-110057.

Memo No.LC-1635-B-JE (VA)/2013 30253 Dated: 6/12/13

Subject: **Approval of service Plan/Estim for the GROUP HOUSING COLONY measuring 48.82 acres falling in revenue estate of village Wazirpur, Sector 92, Gurgaon (license no. 44 of 2009 dated 14.08.2009 & No. 68 of 2011 dated 21.07.2011).**

The Service Plan/Estimates of Residential Group Housing Colony for the land measuring 48.82 acres falling in the revenue estate of village Wazirpur, Sector 92, 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:

i. 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 acreage 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.

ii. 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.

iii. 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.

iv. 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.

v. 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.

vi. 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.

vii. 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.

viii. The estimate do not include the provision of electrification of the colony, therefore the supervision charges and O & M charges shall be paid by the you directly to the HVPN.

ix. 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.

x. 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.

xi. 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.

xii. 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.

xiii. You will comply with the conditions as specified in Annexure 'A' attached with service plan/estimates.

xiv. 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.

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

Endst. No. LC-1635-B-JE (VA)/2013/ Dated

A copy is forwarded to the Chief Administrator, HUDA, Panchkula with reference to his letter no. 12846 dated 24.09.2012 for information and necessary action please.

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

(3)

Estimate for providing, Water Supply, Sewerage, Storm Drainage, Road, Street light Horticulture and maintenance for group Housing Colony at Sector 92, Gurgaon. (Being Developed by M/s S. A. Infracon Private Limited and Others)

Estimated Cost	Rs. 2538.00
Cost per Acre	Rs. 52.00 lacs

Architect

Rajiv Khanna & Associates (P) Ltd
727, Sector 15 (II)
Gurgaon

RAJIV KHANNA
Architect CA/80/6037

Client

M/s S. A. Infracon Pvt. Ltd
C-IV C-Block Market
Vasant Vihar, New Delhi

Paradise Consultants New Delhi

Estimate for providing water supply, sewerage, SW drainage, roads Street light & Horticulture and maintenance for group housing Colony in Sector 92, Gurgaon.

Report

Gurgaon Town of Haryana state situated on Delhi-Jaipur National Highway No. 8 at a distance of 30 Km from Delhi. Gurgaon town falls in the National Capital Region. The town has fast developing tendency and potential. In order to relieve the growing pressure of population in the national capital of Delhi, it has been decided by the Haryana.Govt. to establish various residential sectors along with infrastructure facilities in Gurgaon. It is proposed to develop a residential colony in an area of 48.82 Acres in Green Park Sector 92, Gurgaon. This colony is being developed by M/s SA Infracon Pvt. Ltd and others.

Water supply

The water supply source in this area is underground i.e. tube wells. As the underground water is portable and fit for human consumption. Therefore, required no. of tube wells has been calculated and provision taken in this estimate. An underground water storage tank will be constructed to store the water, this tank will be filled up through the proposed tube wells. the water supply system has been designed as per Hazen William formula. The necessary distribution system has been designed and design statement has been attached with the estimate.

The scheme has been designed for a population of ~~14929~~ 15899 persons considering 5 persons for general category flat and ~~2~~ 5 persons for EWS flat. The rate of water supply per head per day has been taken as 172.50 Ltrs.

Sewage scheme

The sewer lines have been designed for three times average DWF. It has been assumed that 80% of the domestic water supply shall find its way into the proposed sewer. Sewer lines shall be laid to a gradient maintaining minimum 0.75 m/.second self cleaning velocity. The size of sewer line from 200 mm to 400 mm dia has been designed to run half full. S. W. pipe sewers shall be laid in the ground and C.I pipes shall laid under cutting basement area, necessary provision of manholes where required has been made. The sewerage system of the colony has been proposed to be connected with the STP to be constructed within the colony. It has been decided that the treated water from the STP shall be utilized for lawn irrigation and flushing system within the colony. Design statement of entire sewerage system has been prepared and attached with the estimate. Manning formula has been used to design of sewerage system.

(5)

Storm water drainage scheme

The storm water drainage scheme is proposed with underground pipe drains in ground area and CI pipe to proposed under caiting of basement area. RCC pipes drains with required no of manholes with the roads gullies for collection and disposed of storm water have been proposed. The intensity of rain fall has been kept as ¼" (6mm) per hour. A minimum size of 400 mm RCC pipe drain will be provided to connect manhole to manhole and designed with manning formula. Rain water harvesting system has been proposed to dispose of rain water in the ground to maintain the spring level.

Roads

It is proposed to construct 24m, 16m and 6 m wide roads in the colony as per the plan approved by the DTCP. The roads shall be constructed as per M. O. S. t. specifications.

Street lighting

The provision has been made in this estimate on lump sum basis. The lighting system will be laid as per standard specifications of HVPN.

Horticulture

The necessary provision of plantation of trees with tree guards has been taken on both sides for all roads. The green parks shall be developed by providing lawn as per HUDA required norms.

Specifications
This work will be carried out in accordance with the standard specifications of public Health as laid down by the Haryana Government/HUDA.

Cost
The total cost of the estimate including cost of all services works out to Rs. ~~2538~~ 3078.50 lacs including 3% contingencies and 49% department charges (i.e. price escalation, unforeseen charges, and misc. charges)
The per acre cost works out to Rs. ~~52.00~~ 63.06 lacs

Architect signature

RAJIV KHANNA
Architect CA/80/6037

Owner Signature
M/s SA Infracon Pvt. Ltd
C-10, C-Block Market
Vasant Vihar
New Delhi

Paradise Consult... New Delhi

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

Zone - I

	150 mm	200 mm
T.W. No. 1 to T.W. No. 2	150 mtr	—
T.W. No 4 to T.W. No 3	160 mtr	—
T.W. No 3 to T	50 mtr	—
T to UGT NO - I	—	75 mtr

Zone. II

T.W. No. 3 To. I	220 m	—
T.W No 1 to TW2	135 m	—
T.W. No 2 to T	53 m	—
T to UGT No. II	—	40 m
	768 mtrs	115 mtr

Group Housing Colony in Sector 92, Gurgaon
Sub Work 1 — Water Supply

Sub Head -1 — ~~Water~~ Head Works

Sr. No.	Description	Rs.(In Lacs)
1.	Boring and installation 500 mm i/d tube wells with reserve rotary rig complete with pipe and strainer to depth of about 60 mtres. Complete in all respect Zone 1 = 4 Zone 2 = 3/7 Nos 7 Nos. @ Rs. ~~400000~~ 7.00 Lacs/-	~~28.00~~ 49.00 Lacs
2.	Provision for construction of Pump Chamber 7 Nos. 4.9 x 4.25 @ rs. 225000/-	15.75 Lacs
3.	Provision for carriage of materials and other foreseen items	3.00
4.	Provision for valves specials and piping L. S.	3.00
5.	Provision for construction of boosting chamber of size 7.50 x 5.00 m	6.00
6.	Provision for construction of boundary wall around tube well @ water works 7 Nos. Tube well @Rs. 1.00 lacs each 1 No. water works @ 1.50 lac each	7.00 1.50
7.	Provision for construction of UG Water tank ~~347 + 280 = 627~~ 580 + 290 + 520 + 280 = 1670 K. Ltrs @ Rs. 5000/- Per K. Ltrs	~~31.35~~ 50.10 Lacs
8.	Provision for ~~construction of Staff Qtrs~~ carriage of material and other unforseen items (L.S) ~~a. 1 Nos. 350 sft @ Rs. 3.50 Lacs per sft~~ ~~b. 1 Nos 440 sft @ Rs. 4.40 lacs er sft~~	5.00 Lacs ~~3.50~~ ~~4.40~~
	~~Total Amt. Rs.~~ ~~Say Rs. 104.00 Lacs~~	103.50

Provision for Rising main, connecting T. well with water main bye-pass arrangement

150 mm ϕ 768 mtrs @ Rs. 1900/- mtr — Rs. 14.59 Lacs

200 mm ϕ 115 mtr @ Rs 1200/- mtr — Rs. 1.38 Lacs

Rs. 156.32 Lacs

4) Domestic Pump

Providing & installing electric driven pumping sets capable of delivery about 2400 LPm of water against a total Head of 72m Complete with motor and other accessories 65 HP for domestic water supply Zone-I & 2150 LPm with 60 HP in Zone-II

Zone-I	2 Nos @ ₹	6.50 Lacs each	₹ 13.00 Lacs
Zone-II	2 Nos @ ₹	6.00 Lacs each	₹ 12.00 Lacs

Flushing Pump

5) Providing & installing electric driven pumping sets capable of delivery about 1300 LPm, 72m Head at 35 BHP in Zone-I and 1150 LPm, 72m Head at 30 HP in Zone-II (one working & other as standby)

2 Nos	@ ₹	3.50 Lacs each	₹ 7.00 Lacs
2 Nos	@ ₹	3.00 Lacs each	₹ 6.00 Lacs
			₹ 38.00 Lacs

(X)

10. Providing and installing pumping sets of the capacity for Fire protection

Zone - I + II

(a)	180 LPm Jockey Pump 1+1	@ ₹ 1.50 Lacs each	₹ 3.00 Lacs
(b)	2280 LPm Electric Pump 2+2	@ ₹ 10.00 Lacs each	₹ 40.00 Lacs
(c)	2280 LPm diesel pump 1+1	@ ₹ 12.00 Lacs each	₹ 24.00 Lacs
			67.00 Lacs

GROUP HOUSING COLONY IN SECTOR 92, GURGAON

SUB WORK 1 — **WATER SUPPLY**

SUB HEAD – II — **PUMPING MACHINERY**

Sr. No.	Description	Rs. (in lacs)
1.	Providing and installing electricity driven submersible pumping set capable of delivering about 23 Kl water per hour against a total head of 60 m complete with motor and other accessories complete in all respect 7 Nos @ Rs. 1.50 Lac each	10.50
2.	Provision of diesel engine for standby arrangement for T. W. complete (15 KVA) 7 Nos @ Rs. 2.00 Lac each	14.00
3.	Provision for diesel engine genset each for standby arrangements for booster pump complete with gear head arrangement for following capacities 1 Nos (52 KVA) L. S	10-00 ~~2.00~~
4.	Provision for providing and fixing boosting pumping set and accessories capacity 104 KLH at 80 mtrs head 4 Nos PL. See oppo.	~~1.50~~ 38.00 Lacs
5.	Provision for chlorination plant complete ~~7 Nos @ Rs. 80000 each~~ (L.S.)	2.00 Lacs ~~5.60~~
6.	Provision for making foundations and erection of pumping machinery in Tube Well and at boosting station L. S.	2.00
7.	Provision for pipes valves and specials inside boosting chamber and pump room L. S.	10.00
8.	Provision for electric services connection including electric fitting for tube wells chambers and boosting chambers L. S.	3.00
9.	Provision for carriage for materials & other unforeseen items L. S.	0.50
	~~Total Amt. Rs.~~	~~49.10~~
	~~Say Rs. 49.00~~	

(8) 10 PL. See oppo.

Rs. 67.00 Lacs

& 157.00 Lacs

Group Housing Colony in sector 92, Gurgaon

Sub Work -1 — Water Supply
Sub Head –III — Rising Mains

Sr. No.	Description	Rs.(In Lacs)
1.	Providing, laying, jointing and testing CI/DI pipe (K-9) including cost of excavation complete in all respect CI/DI (K9 pipe) 200 mm i/d = 140m @ Rs. ~~2510~~ 1900/- each mtr 150 mm i/d = 863 m @ Rs. 1840/- ~~each~~ mtr	 2.66 Lacs ~~3.51~~ ~~15.88~~ 12.95 Lacs
2.	Providing and fixing sluice valves including cost brick masonry chambers etc. complete 200 mm i/d = 1 @ Rs. ~~19700~~ 18200/- each 150 mm i/d = 6 @ Rs. ~~15500~~ 14000/- each	 0.18 Lacs ~~0.20~~ ~~0.78~~ 0.14 Lacs
3.	Providing and fixing indicating plates for sluice valve and air valve 6 Nos. @ Rs. 1000/- each	 0.06
4.	Providing and fixing air release valve and scour valve 4 Nos. @ Rs. 12000/- each	 0.48
5.	Provision for carriage of materials Lump sum	0.50 Lacs ~~0.25~~
6.	Provision for cutting the roads and making to its original conditions for making connection ~~Lump sum~~	1.00 Lacs ~~0.25~~
	Provision for making connection with HUDA main line on master Roads (L.S) ~~Total Amt. Rs.~~ ~~Say Rs. 22.00 Lacs~~	~~21.41~~ 0.50 Lacs Rs. 18.47 Lacs

(C. O. to Abstract of Cost of Sub work No. 1)

Group Housing Colony in sector 92, Gurgaon

Sub Work -1
Sub Head –IV

Water Supply
Distribution ~~System~~ and Flushing system.

Sr. No.	Description	Rs.(In Lacs)
1.	Providing, laying, jointing and testing C1/D1 (K-9) Pipe specials including cost of excavation complete in all respect 100 mm i/d = 3704m @ 1270/- mtr 150 mm i/d = 1330 m @ Rs. ~~1840~~/- mtr 1500/- 200 mm i/d = 596 m @ Rs. ~~2510~~/ mtr 2000/- 250 mm i/d = 13 m @ Rs. ~~3200~~/- mtr 2615/-	46.85 Lacs ~~47.04~~ ~~24.47~~ 19.95 Lacs ~~14.70~~ 11.80 Lacs ~~0.42~~ 0.39 Lacs
2.	Providing and fixing sluice valves including cost of surface box and masonry chamber etc. complete in all respects. 100 mm i/d = 50 Nos. @ Rs. ~~13850~~/- each 12000/- 150 mm i/d = 22 Nos. @ Rs. ~~15500~~/- each 14000/- 200 mm i/d = 6 Nos. @ Rs. ~~19700~~/- each 18200/- 250 mm i/d = 1 Nos. @ Rs. ~~23460~~/- each 24000/-	6.00 Lacs ~~6.93~~ ~~3.41~~ 3.08 Lacs ~~1.18~~ 1.09 Lacs ~~0.23~~ 0.24 Lacs
	Providing and fixing air release valve complete in all respects 6 Nos @ Rs. 12000/- each	1.44 Lacs 0.72
4.	Providing and fixing indicating plate complete in all respects 80 nos @ Rs. 1000/- each	0.80 Lacs 0.80
5.	Provision for carriage of materials and unforeseen items	~~0.50~~ 5.00 Lacs
6.	Provision for cutting of roads and making good the same conditions	~~1.00~~ 2.00 Lacs
	~~Total Amount Rs.~~ Say Rs. ~~102.00~~	~~101.40~~ 98.61 Lacs

Group Housing for Green Park, sector 92, Gurgaon

Sub Work -1 — Water Supply
Sub Head – V — Fire Fighting arraignment

Sr. No.	Description	Rs.(In Lacs)
1.	Provision, laying, jointing and testing ~~C1/D1~~ M.S. (K-9) Pipe line and specials including cost of excavation complete in all respects 3150 mtrs (150 mm i/d pipe) @ Rs. ~~1840~~ 1500/- per mtr	47.25 Lacs ~~57.96~~
2.	Providing, laying, jointing and testing C1/D1 (K-9) fire hydrant complete including M. S. Bon and hose real etc. 50 Nos @ ~~5000~~ 10000/- each	5.00 Lacs ~~2.50~~
	Total	~~60.45~~
	Say Rs. ~~61.00~~ Lacs	

Provision for sluice valve, Air valve, Hodies Complete in all respect — Rs 1.00 Lacs

Provision for cutting of roads & making good to its in original condition (L.S.) — Rs 0.50 Lacs

Provision for carriage of materials (L.S.) — Rs 0.50 Lacs

GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

Abstract of cost of Sub Work No. 1 (Water Supply)

	Description	Rs. (in Lacs)
• Sub Work No. 1	Head ~~Water~~ Works	~~104.66~~ 156.32 Lacs
• Sub Work No. 2	Pumping Machinery	~~49.00~~ 157.00 Lacs
• Sub Work No. 3	Rising main from proposed T.W. to Underground Water tank in Complex.	~~22.00~~ 18.47 Lacs
• Sub Work No. 4	Distribution system.	~~102.00~~ 98.64 Lacs
• Sub Work No. 5	Fire fighting arrangements.	~~61.00~~ 54.25 Lacs
		~~338.00~~ 484.68 Lacs
		~~10.14~~ 14.54 Lacs
• Add 3% contingencies and P.E. Charges.		~~229.34~~ 499.22 Lacs
• Add 49% Department charges, price escalation,		~~165.62~~ ₹ 244.62 Lacs
• Unforeseen charges and Admin. Charges.		₹ 743.84 Lacs
	Grand Total	~~513.76~~

RAJIV KHANNA
Architect CA/80/6037

~~Say Rs. 514.00~~

For S. A. Infracon Pvt. Ltd.
Authorised Signatory

Paradise Consultants
New Delhi

GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

SUB WORK – II: **SEWERAGE SCHEME**

SR. No.	Description			RS. (in Lacs)
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 respects:			
	200mm Upto 3.00 M Depth	=	3019m @ Rs. ~~1800~~ 1250/- mtr.	~~54.34~~ 37.74 Lacs
	250mm dia i/d SWP (upto 3 mtr. Depth)	=	370m @ Rs. 2000/- mtr.	~~7.40~~ 6.66 Lacs
	300 mm dia i/d SWP (upto 3 mtr. Depth)	=	260 @ Rs. 2200/- mtr.	5.72
	400mm dia i/d SWP (upto 3 mtr. Depth)	=	90m @ Rs. 2400/-	~~2.16~~ 2.25 Lacs
2.	Provision for lighting and watching etc.			1.00 Lacs
3.	Provision for timbering and shoring of trenches.		Lump sum	1.00 Lacs
4.	Provision for vent pipe at suitable place as per P.H. requirement		Lump sum	2.50 Lac
5.	Provision for sewerage treatment plant			
	Capacity 382+426 = 808 K. Ltrs @ Rs. 12000 Per K. Ltrs.			96.96 Lac
6.	Provision for carriage of materials & unforeseen items.		Lump sum	1.00 Lac
7.	Provision for making connection with HUDA on master road.		Lump sum	1.00 Lac
8	150 mm ϕ C.I sewer under Basement 1025m @ Rs 1500/-			Rs 15.37 Lacs
8.	Provision, of C.I / D.I. Pipe ~~for Sewer line~~ in Basement for flushing purposes			
	150mm Ø = ~~1270~~ 325 mtr. @ Rs. ~~1840~~ 1500/- per M			~~23.37~~ 11.63 Lacs
	100 mm ϕ 895 mtr @ Rs 1200/- mtr			Rs 11.16 Lacs

10. Provision and laying of C.I. / D. I. pipe (K9) laid ~~100mm dia~~ complete for lawn irrigation and Flashing proposes. under ground

11. Provision for over Flow pipe line Lump-Sump Rs 2.00 Lacs

100mm Q =	~~4223~~ 3600 mtr. @ ~~1250~~ 1200/- mtr	~~52.79~~	43.20 Lacs
150 mm Q =	~~725~~ 575 mtr. @ Rs. ~~1840~~ 1500/- per mtr.	~~13.34~~	8.75 Lacs
			~~5-00 Lacs~~
	Total Amt.	~~262.58~~	252.94 Lacs
	Add 3% contingencies P.E. Charges	~~7.88~~	7.59 Lacs
	Add 49% Deptt. Charges.	~~128.66~~	260.53 Lacs
	~~Grand Total Amt.~~ unforseen, price escalation Admin. Charges	~~399.12~~	127.66 Lacs
			388.19 Lacs

~~Say Rs. 340.00~~

RAJIV KHANNA
Architect CA/80/6037

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

Paradise Consultants New Delhi

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GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

SUB WORK-III: STORM WATER DRAINGE

SR. No.	Description		Rs. (in Lacs)
1.	Provision, lowering an jointing RCC N P-3 pipes and specials into trenches including cost of excavation, M.H. ventilation chamber etc. complete.		
	a. 400mm dia i/d = 4260m (upto 2 mtr. Depth) @ Rs. ~~1300~~/-mtr.	1750/-	~~55.38~~ Rs 74.58 Lacs
2.	Constructing brick masonry road gully chamber complete including cost of RCC road gully cover and frame (size of chamber 60cm * 45cm * 60 cm)		
		70 Nos. @ ~~Rs. 3000/- each~~	~~2.10~~ 3.50 Lacs
3	Provision for constructing Rain water harvesting system complete inclusing cost of masonry chamber and ore well.		
		48.82 Acres @ Rs. 1.00 Lac per acre	Rs 48.82 Lacs
		~~5 Nos. @ Rs. 300000/- each~~	~~15.00~~
4.	Provision for shoring and Timbering	Lump sum	~~0.50~~ 2.50 Lacs
5.	Provision of lighting and watching	Lump sum	~~0.30~~ 2.00 Lacs
6.	Provision of carriage of materials	Lump sum	~~0.50~~ 2.50 Lacs
7.	Provision of disposal of surplus rain water From RWHS.	Lump sum	0.50 ~ 3.00 Lacs
8.	Provision of cutting of road and making.	Lump sum	~~0.50~~
~~9.~~	~~C.I. Pipe line to be laid under basement~~	~~Lump sum~~	~~20.00~~
		Total Amt.	~~94.78~~ 137.37 Lacs
		Add 3% contingencies on P.E. charges	~~2.84~~ 4.12 Lacs
	Add 49% Department charges, price escalation and unforeseen charges		~~46.44~~ 141.49 Lacs
			Rs 69.33 Lacs
		Grand Total Amt. Rs.	~~144.06~~ Rs 210.82 Lacs

~~SAY Rs. 144.00 Lacs~~

RAJIV KHANNA
Architect CA/80/6637

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

Paradise Consultants New Delhi

GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

SUB WORK-IV: ROAD WORK

SUB HEAD NO. 01

SR. No.	Description	Rs. (in Lacs)
1.	Provision for leveling and earth filling as per site condition 48.82 acres @ Rs. 100000 per acre	48.82 Lacs
2.	Construction of road by providing granular sub base 300 mm as per MORT specifications conforming to clause 401 grading II, as per Table – 400-1	
	a. Providing, laying, spreading and compacting hand broken/crushed stone aggregates to wet mixed macadam conforming to physical requirement laid in 400 of MORT specification in two layers (compacted to 250 mm(125+125 by taking materials 1.32 times of the (thickness of the layers including premixing of materials with water in mechanical mixer for such on ground).	
	b. 50mm thick bitumen macadam (BM).	
	c. 20 mm thick mix seal surfacing 18300 ~~28300~~ sqm @ Rs. 850/- ~~800/-~~ mtr.	Rs. 155.55 Lacs ~~226.40~~
3.	Provision for kerbs and channels of CC: 1:1 ½ :3 (Kerb and Channels on both side of road). 11800 @ Rs. 600/- ~~400/-~~ mtr.	Rs. 70.80 Lacs
4.	Provision for guide map and other unforeseen — Lump sum	1.00
5.	Provision for plot indicators — Lump sum	1.00
6.	Provision for demarcating burgies — Lump sum	1.00
7.	Provision for traffic arrangements/traffic light etc. — Lump sum	1.50
~~8.~~	~~Provision laying, spreading, compacting layer of premix carpet of 25 mm thick seal cost of 12 mm thick mix with mechanical mixer. 22600 sq. M. @ 500/- per Sq M~~	~~113.00~~
8)	Provision for footpath on 24 m wide road on both side. 1575 sqm @ ₹ 600/- sqm	Rs. 9.45 Lacs
	Road falls on basement 2250 Rmt @ ₹ 4220/ Rmt	₹ 94.95 Lacs

9.	Provision for carriage of material & unforeseen	Lump sum	~~1~~.50
			₹ 395.07 Lacs
	Total Amt.		~~441.42~~
	Add 3% contingencies on P.E. charges		₹ 11.85 Lacs ~~13.24~~
			406.92 Lacs
	Add 49% Department charges, price escalation and unforeseen Charges.		~~216.30~~ 199.39 Lacs
			₹ 606.31 Lacs
	Grand Total Amt. Rs.		~~670.96~~

~~SAY Rs. 671.00~~

GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

SUB WORK-IV: **ROAD WORK**

SUB HEAD NO. 02 **FOOT PATH**

SR. No.	Description	Rs. (in Lacs)
1.	Providing and laying concrete paver blocks 63mm of thick of cement convrete, 1:1.5:3 including base preparation as footpaths on both sides of road and central	
	Total area under footpath 25600 sqm @ Rs. 600/- sqm	153.60
	Add 3% Contingencies	4.61
	Add 49% Department charges and unforeseen charges	75.26
	(C/o to abstract of Cost Sub work No. IV)	233.47

SAY Rs. 234.00 Lacs

GROUP HOUSING COLONY IN SECTOR – 92, GURGAON

SUB WORK-IV: ROADS

SR. No.	Description		Rs. (in Lacs)
1.	Sub Work No. 01	Road works	671.00
2.	Sub Work No. 02	Footpath	234.00
		Total Amt.	905.00

SAY Rs. 905.00 Lacs

(C.O. to summary of costs.)

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

Paradise Consultants New Delhi

GROUP HOUSING FOR GREEN PARK SECTOR – 92, GURGAON

SUB WORK- V: **STREET LIGHTING**

SR. No.	Description	Rs. (in Lacs)
1.	Providing street lighting on roads as per standard specification of HVPN 48.82 acres @ Rs. ~~1.25~~ 1.00 Lacs. Per acre	~~61.03~~ 48.82 Lacs
	Add 3% contingencies & P.C. charges	~~1.83~~ 1.46 Lacs
	Add 49% Depth. Charges, price escalation, unforseen, Admn. charges	~~29.90~~ 50.28 Lacs
	Grand Total Amt.	~~92.76~~ & 24.64 Lacs
		@ 74.92 Lacs
	~~Say Rs. 93.00 Lacs~~ c.o. to final abstract of cost	

RAJIV KHANNA
Architect CA/80/6037

For S. A. Infracon Pvt. Ltd.
Authorised Signatory

Paradise Consultants New Delhi

GROUP HOUSING FOR GREEN PARK SECTOR – 92, GURGAON

SUB WORK- VI PLANTATION & ROAD SIDE TREE COST

SR. No.	Description	Rs. (in Lacs)
1.	**Development of Lawn Area**	
	a. Trenching the ordinary soil upto depth of 60cm including removal and stacking of serviceable material and disposing of by spreading and leveling within a lead of 50cm and making up the renched area of proper levels by filling with earth or earth mixed with manure before and after flooding trench with water including cost of imported earth and manure	
	b. Rough dressing of turned area	
	c. Grassing with Doob Grass including watering and maintenance of lawns for 30 days and maintenance of lawn free weeds and fit for moving in rews 7.5cm. Apart in either direction including provision for hedges and barbed wire, fencing around park.	
	48.82 acres @ Rs. 100000/- acre 600	48.82 Lacs
2.	Provision and planting trees along with 12m, 24m & 45 & wide roads on both the sides at 12m interval.	

Cost Details

Excavation	:	Rs.	~~50.00~~ 30.00	
Manure	:	Rs.	~~55.00~~ 60.00	
Tree Plant	:	Rs.	~~50.00~~ 60.00	
Tree Guard	:	Rs.	~~350.00~~ 600.00	4.50 Lacs
Total Amt.		**Rs.**	~~500.00~~ 750/-	~~3.00~~

~~600~~ Nos. @ Rs. ~~500~~/- each 750/-

Total Amt. Rs.	~~51.82~~	53.32 Lacs
Add 3% contingencies & PE charges	~~1.54~~	1.60 Lacs
Add 49% Deptt. Charges.	~~25.39~~	54.92 Lacs
Grand Total Amt.	~~78.75~~	26.91 Lacs
Unforseen, price escalation Admin. Charges		
~~Say Rs. 79.00 Lacs.~~		81.83 Lacs

C. O. to final abstract of Cost.

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

RAJIV KHANNA
Architect CA/80/6037

Paradise Consultants New Delhi

RESIDENTIAL COLONY AMD ESTATE (P) LTD. SECTOR 23-24, GURGAON

SUB WORK- VII M/C CHARGES + RESURFACING OF ROADS

Sr. No.	Description	Rs. (in lacs)
1.	Provision for maintenance charges for water supply, sewerage, storm water, drainage, roads, street light, horticulture etc. complete in all respect including operation and establishment charges as per HUDA norms after completion. 48.82 Acres @ Rs. ~~3.00~~ 5.00 lacs per acre	~~146.46~~ @ 244.10 Lacs
2.	Provision for resurfacing of roads after first 5 years of maintenance i.e. 100 mm thick BUSG, compacted to 75 mm thick with 25 mm thick premix carpet with seal cost with mechanical paver ~~50900~~ 41000 sqm @ Rs. ~~150~~ 350/- per sqm	~~76.35~~ 143.50 Lacs
3.	Provision for resurfacing of roads after 10 yrs of maintenance i.e. 25 mm thick premix carpet with seal coat with mechanical paver ~~50900~~ 41000 sqm @ Rs. ~~200~~ 600/- per sqm	~~101.80~~ 246.00 Lacs
	Total Amt. Rs.	~~324.16~~ 633.60 Lacs
	Add 3% contingencies as P.E charges	~~9.72~~ 19.00 Lacs
Add 49% Deptt. Charges, price escalation, unforeseen Admn. charges		~~158.84~~ 652.60 Lacs
	Grand Total Amt. ~~492.72~~	319.78 Lacs
	~~Say Rs. 493.00 Lacs~~	972.38 Lacs

C. O. TO SUMMARY OF COST

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

RAJIV KHANNA
Architect CA/80/6037

Paradise Consultants New Delhi

GROUP HOUSING COLONY IN SECTOR 92, GURGAON

Sub Work No. 1	Water supply	~~514.00~~	743.84 Lacs
Sub work No. II	Sewerage	~~340.00~~	388.19 Lacs
Sub Work No. III	Storm Water Drainage	~~114.00~~	210.82 Lacs
Sub work No. IV	Road & Footpath	~~905.00~~	606.31 Lacs
Sub Work No. V	Street Lighting	~~93.00~~	74.92 Lacs
Sub Work No. VI	Plantation & Road side Tree	~~79.00~~	81.83 Lacs
Sub Work No. VII	M/c Charges for 10 yrs including resurfacing of roads after 1st five years and 2nd phase i.e. 10 yrs of maintenance (as per HUDA norms)	~~493.00~~	972.38 Lacs
.	**Total Amt. Rs.**	~~2538.00~~	3078.29 Lacs

Say Rs. 3078.50 Lacs

3078.50 Lacs

Cost per Acre = ~~2538~~/48.82= ~~52.00~~ lacs per acre

63.06 Lacs

Checked subject to its in forwarding letter No. 12846 Dt. 24/9/12 and notes attached with the estimate

24/9/12

Executive Engineer (W)
for Chief Engineer
HUDA Panchkula

Executive Engineer
HUDA Division No. III
Gurgaon

For S. A. Infracon Pvt. Ltd.

Authorised Signatory

RAJIV KHANNA
Architect CA/80/6037

Paradise Consultants New Delhi

Superintending Engineer
HUDA Circle No. 1,
Gurgaon

MATERIAL STATEMENT OF WATER SUPPLY SCHEME FOR GROUP HOUSING COLONY SECTOR 92, GURGAON (DISTRIBUTION SYSTEM)

Sr. No.	Name of Pipe	Length of pipe				No of sluice of value			
		100 M Dia	150 MM Dia	200 mm dia	250 mm dia	100 mm dia	150 mm dia	200 mm dia	250 mm dia
1	2	3	4	5	6	7	8	9	10
				Zone – 1					
1.	W/W1-A	-	-	-	13	-	-	-	1
2.	A-B	-	-	50	-	-	-	1	
3.	B-C	-	-	15	-	-	-	1	
4.	C-D	-	-	40	-	-	-	1	-
5.	D-E	-	-	440	-	-	-	1	-
6	E-F	-	60	-	-	-	1	-	-
7	F-A9	100	-	-	-	1	-	-	-
8	A-A_1	-	60	-	-	-	1	-	-
9	A_1-A_2	160	-	-	-	1	-	-	-
10	A2-E	60	-	-	-	1	-	-	-
11	A1-A3	-	60	-	-	-	1	-	-
12	A3-A4	-	15	-	-	-	1	-	-
13	A4-A5	-	150	-	-	-	1	-	-
14	A5-A6	55	-	-	-	1	-	-	-
15	A6-A7	10	-	-	-	1	-	-	-
16	A7-A8	25	-	-	-	1	-	-	-
17	A8-A9	40	-	-	-	1	-	-	-
18	B-B1	45	-	-	-	1	-	-	-
19	B1-B2	85	-	-	-	1	-	-	-

20	B2-B3	205	-	-	-	1	-	-	-
21	B2-B4/2	345	-	-	-	1	-	-	-
22	B3-A6	24	-	-	-	1	-	-	-
23	B1-D	100	-	-	-	1	1	-	-
24	C-C1	-	210	-	-	-	-	-	-
25	C1-A2	150	-	-	-	1	-	-	-
26	C1-C2	45	-	-	-	1	-	-	-
		1449	555	545	13	15	6	4	1

Zone -2

27	W/W-2a	-	-	13	-	-	-	1	-
28	a-b	-		28	-	-	-	1	
29	b-c	-	50	-	-	-	1	-	-
30	c-d	-	22	-	-	-	1	-	-
31	d-e	-	33	-	-	-	1	-	-
32	e-f	30	-	-	-	1	-	-	-
33	f-g	40	-	-	-	1	-	-	-
34	g-h	85	-	-	-	1	-	-	-
35	a-a1	-	30	-	-	-	1	-	-
36	a1-a2	-	50	-	-	-	1	-	-
37	a2-a3	-	13	-	-	-	1	-	-
38	a3-a4	-	30	-	-	-	1	-	-
39	a4-a5	-	50	-	-	1	1	-	-
40	a5-a6	145	-	-	-	1	-	-	-
41	a1-a6	35	-	-	-	1	-	-	-
42	a2-a2/1	25	-	-	-	1	-	-	-
43	a2/1-a	175	-	-	-	-	-	-	-
44	a3-a3/1	-	35	-	-	-	1	-	-
45	a3/1-a3/2	-	55	-	-	-	1	-	-
46	a3/2-a3/3	-	110	-	-	-	1	-	-
47	a3/3-a6	150	-	-	-	1	-	-	-
48	A3/3-a9	70	-	-	-	1	-	-	-

49	a3/2-a8	38				1			
50	a3/1-a5	55				1			
51	aa-b	165				1			
52	b-b1	8				1			
53	b1-b2	25				1			
54	b3-b4	26				1			
55	b3-b4	32				1			
56	b4-b5	53				1			
57	b5-e2	117				1			
58	b5-a4	34				1			
59	b4-e2	107				1			
60	b3-e1	107				1			
61	b2-d	100				1			
62	e-e1		50			-	1		
63	e1-e2		30				1		
64	e2-e3		34				1		
65	e3-e4		53				1		
66	e4-e5		130				1		
67	e5-e6	6				1			
68	e6-e7	60				1			
69	e7-e8	68				1			
70	e6-e8	128				1			
71	e4-e4/1	40				1			
72	e4/1-e4/2	110				1			
73	e4/2-e5	6				1			
74	e4/1-b3	75				1			
75	f-f1	80				1			
76	f1-f2	20	-	-	-	1			
77	f1-e3	85				1			
78	g-f2	70				1			
79	g-h	85				1			

		~~2255~~ 2455	775	41	-	35	16	2	-
Total Domestic									
	Zone 1	1449	555	~~545~~	13	15	6	4	1
	Zone 2	~~2255~~ 2455	775	41	-	35	16	2	-
		~~3704~~ 31	1330	586	13	50	22	6	1
		M	M	M	M	No	No	No	No

RISING MAIN

Zone -1	150mm dia =150+95+50+160 = 455m		200mm dia= 100m	
Zone -2	150mm dia =135+53+220	= 408m	200mm dia= 40m	
		863m		140m

Fire Fighting Pipe Line

150mm dia

Zone- 1	100+360+430+65+420+315	=	1690m
Zone -2	90+390+460+40+70+150+110+150 =		1460m
			3150m

Design calculations of W/s System for Group Housing Colony in Sector 92, Gurgaon (Development by M/s SA Infraacon Pvt. Ltd. and others)

Domestic water requirement

a) For residential Area: As per sanctioned layout plan

Nos of flat for EWS = 670 flats

670 flat @ 2 person per flat = 1340

Nos. of flats dwelling units

For building A =	180	
For building B =	180	
For building C =	80	
For building D =	160	
For building E =	144	
For building F =	80	
For Tower T_1=	144	
For Tower T_2=	84	
For Tower T_3=	114	
For Tower T_4=	144	
For Tower T_5=	741	
For Tower T_6=	342	
For Tower T_7=	276	
For Tower T_8=	28	
	2613	
2613 flats @ 5 person per flat =		13065
• No of flats for maintenance 262		
262 flat @ 2 person/flats =		524
		14929 person

Water requirement

14929 person @ 172.50 liter person = 2575253

B. For Non residential area

High School 1 No.	75000.00
Primary School 2 No. @ 30000 Ltrs/day	60000.00
Nursery school 3 No @ 10000 Ltrs/day	30000.00
Creche = 1 No (Lump Sum)	2500.00
Religious Building = 1 No. (Lump Sum)	10000.00
Community centre = 2 (Lump Sum)	20000.00
Shopping area = 2 Nos @ 30000 Ltrs. Per acre	60000.00

5058 Sqm or 1.25 Acs. 62500

Dispensary = 1 No. @ (~~Lump Sum~~) 50000.00 307500.00

Total requirement = 2887753.00 470000 Ltr

~~Say~~ = ~~2882753.00~~

Or ~~2882.75 KL~~

For irrigation and Lawn. = 125000

Total 2742577.50 + 470000 + 125000 = 3337577 Ltrs or 3337 KLD.

Water requirement for Zone – 1

- Dwelling unit = 1621 @ 5 person/unit = 8105
- Flat for ~~maintenance~~ service Personal = 162 no. @ 2 person flat = 324

8429 person

8429 person @ 172.50 flat/person 1454003

Water of non residential area

- Creache = ~~2500~~ ~~2500~~ 10000 LTRS.
- Community Centre = ~~10000~~ ~~10000~~ 50000 LTRS
- High School = ~~75000~~ ~~75000~~ 150000 LTRS
- Nursing school = ~~30000~~ 30000 ✓
- Shopping = ~~30000~~ ~~30000~~ 6250 Ltrs

~~147500~~ ~~1601503~~ 246250

Total = 1454003 + 246250 = 1700253 or 1702 KLD.

~~Water for domestic use = 1601503 x 65/100 = 1040977 Say 1043000~~

~~Water for flushing use = 1601503 x 35/100 = 560526 Say 560500~~

~~Say 560500 Litrs~~

For irrigation of lawn = 62500 / 1762753 Ltrs 1763 KL

Dom. 1763 KL @ 65% = 1146 KLD

Flushing 1763 KL @ 35% = 617 KLD.

Fire fighting demand

Population = 8429
= 100 8P = 100 88429 96767
= 100 x 2.903 x 1000
1/3rd of fire fighting demand = 290300 x 1/3 = 100000 290 KD.
Say 10000 ltrs.

Tube Wells

Approximate discharge of one tube well = 4000 gallons
Or = 18000 ltrs

Working hours of tube well = 16 hrs
Total domestic demand per day = 1040977 Ltrs Say 1146
No. of tube well = 1040977 x 1/1800 x 1/16 = 3.61 3.98
1146

Add 10%for standby = 0.36 0.40
Say = 3.97 say 4 No 4.38

Pumping Machinery for tube – well
Head of pump

- Depth of Spring level = 130 feet
- Average falling in spring level = 5 feet
- Depression head = 20 feet
- Friction losses in pipes special & pumping machinery = 20 feet

175 feet

53.35 mtrs
Say 60 mtrs

BHP = 4000 x 10 x 175 x 100/33000 x 1/60 x 1/60 = 5.89
Say = 7.50

Provide 2 Nos. Pumps driven by electricity (One pump as stand bye) provide also one No. diesel set 10 BHP for one tube well

B. Underground Water tank

- Water demand for domestic use excluding green lawns and plantation irrigation
- Capacity of storage tank for domestic considering = ~~1041000~~ 1146000 / 12/24 x ~~8/24~~ Hrs. storage

12-8

= ~~347000~~ 573000 Sqy 580 KL

For Fire fighting =100000 Ltrs

Size of under ground tanks with 3.0 m depth

For Raw water tank = ~~3470000~~ 573000 x 1/1000 x ~~1/3.00~~ = 191 sqm

= ~~115.67 sqm = 10.75 x 10.75 x 3.0 M~~ Size 14.0m x 14.0m x 3.0m

For domestic = ~~10.75 x 10.75 x 3.0 M~~ 14.0m x 14.0m x 3.0m

For Fire fighting = ~~100000 x 1/1000 x 1/3.00 =33.33 sqm~~ 10.50 x 3.20 x 3.0 M

290 KLD

Zone-I

Flushing requirement demand in Zone-I = 617 KLD

Pumping Hrs. 8 Hrs. = 77.125 KLH.

or 1285.42 LPm

Say 1300 LPm

One pump working

Head 72 m.

BHP of Pump. $\frac{1300 \times 72}{60 \times 75 \times 0.60}$ = 34.66 HP

Say 35 BHP

Providing 2 Nos Pumps of 1300 LPm electric driven (one working and other as standby)

Boosting machinery for
Raw water and domestic water requirement per day =
Pumping Hours = 8 1146KLD 143.25KLH 2387.50 LPM
Hourly pumping = ~~1041000~~ x 1/8 = ~~130125~~ Ltrs. Or ~~28662 Gallons~~
~~Say 28700 Gallons~~ Say 2400 LPM

Head of Pumping Machinery

Height of building (59.93 + 3 = 6293M) =62.93 Mtrs
Friction losses in pipes, Specials & Machinery = 4 Mtrs
Suction Lift = 4 Mtrs.
70.93 Mtrs or 232.65 feet
Say 235 feet

$\frac{2400 \times 72}{60 \times 75 \times 0.6}$ = 64 BHP
Say 65 BHP

BHP = ~~28700 x 10 x 235 x 100/33000 x 1/60 x1/ 60 56.77 say 60~~

Providing 2 Nos. Pumps electrically driven (One as stand bye arrangements) Provide one diesel engine 100 BHP

Detail of total structures and machinery

For pumps domestic use (tube wells)
2 Nos. x 4 = 8 Nos. (Electrically driven) 7.50 BHP each
1 Nos. x 4 = 4 Nos. Diesel Set (10 BHP each)

For Boosting station
2 Nos. 60 BHP Driven by electricity for domestic and raw water
1 No. diesel oil engine for domestic
1 No. diesel oil engine for raw water

For fire fighting 2 Nos (2280 LPM discharge driven by electricity)
2 No. (2280 LPM discharge driven by diesel oil engine)

Jocky Pump = 1 No.

UGWT = ~~347000~~ 573000 LTrs. Capacity (Size ~~10.75 mx 10.75 x 3.0 M~~ 14.0m x 14.0m x 3.0m)
Fire Fight Tank = 100000 Ltrs. Capacity (Size 10.00 x 3.50 x 3.0 M)

Tube wells =4 Nos

Pump Chamber = 4 Nos 9Size 5.0 M x 4.25)

Zone - II

Water for Flushing Use = 550 KLD.

Working Hrs 8 Hrs = 68.75 KLH

or 1145.83 LPm say 1150 LPm

Head 72 mtr

BHP. $\frac{1150 \times 72}{60 \times 75 \times 0.60}$ = 30.66 BHP

say 30 BHP.

It is proposed to provide 2 Nos pumping set of 1150 LPm discharge at 72 m Head (one Pump is working and other as standby) for Flushing Purposes.

Water requirement for Zone – 2

- Dwelling Unit = 992 @ 5 person/unit = 4960 Person
- Flat for ~~maintenance~~ Service Personal = 100 @ 2 person/flat = 200 Person
- Flat for EWS = ~~670~~ 462 @ ~~5~~ person/flat = ~~1340~~ 2310 Person

~~6500~~ 7470 Person

7470
~~6500~~ person @ 172.50 Ltres /person = ~~1121250 Ltrs~~ 1288575

Water requirement for non residential area

- Primary school 2 Nos. = ~~60000~~ 100 KL
- Religious Building = ~~10000~~ 5 KL
- Community Centre = ~~10000~~ 50 KL
- Shopping = ~~30000~~ 6.25 KL
- Dispensary = ~~50000~~ 62.50 KL

~~160000~~ 223.75 KL

= ~~160000 Ltrs~~
~~1281250 Litres~~

Total = 1288575 + 223750 = 1510325 mtr
Hort. Provision 6250 1572825 or 1575 KLD.

- Water for domestic use = ~~1281250~~ 1575 x 65/100 = ~~832813~~ Litres
  Say ~~833000~~ 1023750 Ltrs or 1025 KLD.
- Water for flushing use = ~~1281250~~ 1575 x 35/100 = ~~448437 Ltrs~~ 550 KLD

Fire Fight demand 7470
Population = ~~6500~~ person
= 100 P = 100 86.50
= 100 x ~~2.55~~ 2.73 x 1000 = ~~255000~~ 273000

Considering ~~1/3rd~~ for fire fighting demand = ~~255000 x 1/3~~ 273000
= ~~85000 Litres~~ 273000

Tube Wells

Approximate discharge of tube well = 4000 Gallon R 18000 Liters
Working hours of one tube well = 16 hours
Total domestic demand per day = 865345 litres
No. of tube well = ~~832813~~ 1025 x 1/18000 x 1/16 = ~~2.89~~ 3.55 Nos.
Add 10% for stand bye = ~~0.29~~ 0.36 No
= ~~3.18~~ No 3.91 Nos
Say ~~3~~ 4 hours
Pumping machinery for tube well 4 Nos.

Head of pump
BHP = 4000 x 10 x 175 x 100 / 33000 x 60 x 60
= 5.89 Say 7.50

Provide 2 Nos pumps driven by electricity (one pump as stand bye) Provide also one no. diesel set of 10 BHP for each tube well

Under around water tank
Water demand for domestic use excluding green lawns and plantation of irrigation and Flashing = ~~833000~~ 1025000 Ltr

Capacity of tank for domestic use 12 512500
Considering 8 Hours storage = ~~833000~~ 1025000 x 8/24 = ~~277667~~
Say ~~280000~~ 513000 say 520 KLD.

For Fire Fighting = ~~85000~~ 273000 litres Say 275 KLD.

Size of under ground tanks

For raw water and domestic water tank = ~~280000~~ 1025000 Litres
= ~~28000~~ 1025000 x 1/1000 x 1/3.0 = ~~93.33~~ 341.67 sqm

Size = ~~10.0 x 10.0~~ 19.0m x 19.0m x 3.0m 3.0 M (~~One Raw and~~
For Fire Fighting = ~~85000~~ 273000 x 1/1000 x 1/3.0
= ~~28.33 sqm (10x 2.90 x 3.0~~ 19.0m x 4.80 m x 3.0m)

Boosting Machinery for raw water domestic tank

Requirement for raw water = ~~833000~~ 1025 KL Litres
Requirement for domestic water = ~~833000~~ 1025 KL litres

Pumping Hours = 8
Hourly pumping = ~~833000~~ 1025 KL x 1/8 = ~~104125~~ 128125 Say ~~104100~~ 128130 Litres
~~Or 22930 Gallons~~
~~Say 23000 Gallons~~

128.12 KLH.
2135.33 LPM
Say 2150 LPM

Head of pumping Machinery

- Height of building (68.90 + 3.0 = 71.90 M) = 71.90 M
- Friction loss in pipes & specialty's & Machinery = 4.0 M
- Section Lift = 4.0 M

79.90 M
Or 262.07 feet
Say 262 feet

$\frac{2150 \times 72 m}{60 \times 75 \times 0.60}$
= 57.33 HP
Say 60 BHP

BHP = 23000 x 10 x 262 x 100/ 33000 x 60 x 60
= 50.72 Say 50

Provide 2 Nos. pumps electrically driven/under as stand bye arrangement) Provide one diesel engine of 75 BHP.

(36)

C.E. No. 12846
Dated 24/9/12
Annexure-A

SUB:- Approval of service plan /estimate of Group Housing Colony on the land measuring 48.82 acres being developed by M/S. S.A. Infracon Pvt. Ltd. (License No. 44 of 2009 dated 14.8.2009 & No. 68 of 2011 dated 21.7.2011) in Sec-92, Gurgaon.

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 HUDA and further shall also confirm to such directions, as issued by Chief Engineer, HUDA from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HUDA. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HUDA 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/ HUDA. All link connections with the State Government/ HUDA 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.

(37)

C.E. No. 12846
Dated:- 24/9/12

8. Only C.I/D.I pipes will be used in water supply and flushing system, UPVC/HDPE pipe for irrigation purposes.
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 HUDA.
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.
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.

For Executive Engineer (W),
Chief Administrator, HUDA,
Panchkula

Detail of Total structures and machinery

PUMPS

For domestic use (Tube Wells)
= 2Nos x 3 = 6 Nos. (electricity driven)
= 1 x 3 = 3 Nos. Diesel set for domestic

For Boosting station
= 2 Nos. 50 BHP for domestic driven by electricity
= 2 Nos. 5 BHP for domestic driven by electricity for raw water
= 1 No. diesel oil engine for domestic
= 1 No. diesel oil engine for raw water

For Fire fighting
= 2 No. (2280 LPM discharge driven by electricity)
= 1 No (2280 LPM discharge driven by diesel oil engine)
= 1 No (Jocky Pump)

UGWT
= 28000 Litres capacity (Size 10x 10 x 3M)

Fire Fighting Tank
= 87000 Litres capacity (zie 10 x 2.9 x 3.0 M)

Tube Wells = 4 Nos
Pump Chamber for T. W.
= 4 Nos. (size 5.0 x 4.25 M)

C.I. pipe for Flushing & Irrigation under Ground.

	Zone I	Zone 2	Total.
	150 mm Ø	150 mm Ø	
	STP – p = 120	STP – a = 20	
	p – q = 85	STP – k = 85	
	q – r = 85		
	STP – f – g = 180		
	470 M	105 M	575 M
	100 mm Ø.	100 mm Ø	
	p – p1 = 140	k – d2 = 235	
	q – p1 = 25	d2 – d1 = 50	
	r – s = 85	d2 – d3 = 120	
	s – a1 = 135	d – d1 = 15	
	g – h = 175	d1 – d2 = 45	
	h – i = 85	d2 – d3 = 45	
	i – j = 40	d3 – d4 = 45	
	j – k = 30	d4 – d5 = 135	
	g – g1 = 55	d5 – d6 = 10	
	g1 – g1/2 = 45	d6 – d7 = 115	
	g1 – l = 45	d7 – d8 = 115	
	l – m = 50	d6 – d6/1 = 115	
	m – n = 35	d6/1 – d8 = 115	
	n – n1 = 90	d2 – d2/1 = 60	
	i – j1 = 90	d2/1 – d2/2 = 45	
	j – j1 = 90	d2/1 – d4 = 45	
		d2/2 – d2/3 = 80	

Materials statement of sewer lines under basement

(150 mm Ø CI Pipe Sewer)

Zone I		Zone-2		Total	
$L_1 - L$	= 150 M	$R_{1/3} - R_{1/1}$	= 45 M	195	M
$G_{2/1} - G_2$	= 20 M	$\gamma - R_{1/1}$	= 85 M	105	M
$G_{2/2} - G_2$	= 20 M	$R_1 - T$	= 175 M	195	M
$G_2 - G$	= 5 M	$W_1 - W$	= 235 M	240	M
$G_1 - G$	= 50 M	—		50	M
$I_1 - I$	= 50 M	—		50	M
$B_1 - B$	= 190 M	—		190	M
	485 M		540 M	1025	M

150 mm d CI/DI line under basement

485 m + 540 m = 1025 mt

C.1 Pipe for Flushing & Irrigation under basement.

Zone - I	Zone - 2	Total
100 mm Ø	150 mm Ø	
V - P1 = 25	a - b = 30	
P - P1 = 20	b - c = 20	
P1 - g1/3 = 35	c - d = 275	
g1/3 - γ = 45	325 M	
g1/1 - g1/1 = 50		
g1/1 - g1/2 = 30		
g1/1 - m = 50		
g1/2 - n = 50	100 mm Ø	
P1 - g1/1 = 100	c - d = 275	
405 M	d - d1 = 15	
	b - b1 = 200	
	490 M	
	Total	
150 mm Ø		
Z2	325 M	
100 mm Ø		
Z1 = 405		
Z2 = 490		
895 M		

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$j - j_1$	= 100	$d_{2/2} - d_{2/4}$	= 30	
$j_1 - d_{2/3}$	= 20	$d_{2/5} - n_{/1}$	= 75	
$h_2 - h_{21}$	= 90	$d_{2/5} - d_{2/6}$	= 35	
$h_{21} - m_1$	= 185	$d_{2/6} - d_{2/7}$	= 90	
$m - m_1$	= 90	$d_{2/7} - d_{2/4}$	= 30	
$m_1 - m_2$	= 20	$d_{2/7} - d_{2/8}$	= 80	
		$d_{2/6} - d_{2/8}$	= 70	
		$d_{2/8} - d_{2/7}$	= 80	
	1720 M		~~1835~~ 1880 M	~~3555~~ 3600 M

Grand total for flushing & irrigation line in Zone - I & II

100 mm ϕ = 405 m + 490 m + 1720 m + 1880 m = 4495 m

150 mm ϕ = 470 m + 105 m + 325 m = 900 m