

Directorate of Town & Country Planning, Haryana

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To

✓ TRL Riceland Pvt. Ltd.
Eros Corporate Towers, Level 15, Nehru Place,
New Delhi-110019.

Memo No.LC-3533-JE (VA)-2019/ 19119 Dated: 08-08-2019

Subject: Approval of revised service plan estimates for Residential Plotted Colony under NILP over an area measuring 29.9125 acres in the revenue estate of village Kherki Daula, Sector-76, Gurugram w.r.t. licence no. 87 of 2017 dated 23.10.2017.

Ref: Chief Engineer-I, HSVP memo no. CE-I/SE(HQ)/SDE(W)/2019/dated 20.06.2019 and your request received on 10.07.2019.

The revised service plan estimates for Residential Plotted Colony under NILP over an area measuring 29.9125 acres in the revenue estate of village Kherki Daula, Sector-76, Gurugram (licence no. 87 of 2017 dated 23.10.2017) being developed by you, has been checked and corrected wherever necessary by Chief Engineer-I, HSVP, 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 HSVP 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.
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 HSVP 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 HSVP/State Govt. in this area as per your scheme. In case pumping is required the same will be done by you at your own cost.
6. 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.

7. The correctness of the levels of the colony will be your sole responsibility and you will integrate the internal sewer/storm water drainage of the colony by gravity with the master services.
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 concerned power utility.
9. You will be responsible for the construction of various structures such as RCC underground 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/HSVP 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 approved from the competent authority.
12. Levels/extent of the services to be provided by the HSVP i.e. water supply, sewerage will be proportionate of EDC as and when made available by HSVP till that you will make your 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 revised service plan/estimates is enclosed herewith. You are requested to supply four additional copies of the approved service plan/estimates to the Chief Engineer, HSVP, Panchkula under intimation to this office.

DA/As Above.


(Sanjay Kumar)
District Town Planner (HQ)
For Director, Town & Country Planning,
Haryana, Chandigarh

Endst. No. LC-3533-IV-JE (VA)-2019/

Dated:

A copy is forwarded to the Chief Engineer-I, HSVP, Panchkula with reference to his letter No. 108008 dated 20.06.2019 for information and necessary action please.

(Sanjay Kumar)
District Town Planner (HQ)
For Director, Town & Country Planning,
Haryana, Chandigarh

**DESIGN REPORT, SERVICES PLAN AND ESTIMATE
FOR
INFRASTRUCTURE WORKS
FOR
PROPOSED RESIDENTIAL PLOTTED COLONY
IN
SECTOR -76, GURUGRAM
FOR TRL RICELAND PVT LTD**

Sujata Raing



The site is located on the Delhi – Jaipur national highway and is part of sector 76 of Gurugram. The plotted colony with 65 plots in three categories is carved out of an area measuring 29.91 acres. This colony has been approved under NILP 2016, license no 87 of 2017 dated 23.10.2017 (SEIAA letter reference no is SEIAA/HR/2016/970 dated 07.12.2016).

The distribution of area has been planned as under:

Total land holding	= 29.91 acres
Area handed over for EWS	= 3.59 acres
Area handed over for Community Facilities	= 2.99 acres

Area under plotted colony = 23.33 acres

Within the residential plotted colony, the distribution of area is as under: -

Area under residential plots	= 13.27 acres	= 56.88%
Area under market place	= 0.60 acres	= 2.57%
Area under roads/ service lane	= 4.55 acres	= 19.50%
Area under green / landscape	= 4.49 acres	= 19.25%
Area under services & open area	= 0.42 acres	= 1.8%

Basis						
Total no of plots	65	Nos	65	Nos		
Permitted no of DUs per plot	4	Nos			We are aware that Zoning plan allows 3	
			260	Nos		
No of inhabitants per DU	7	Nos				
			1820	Nos		
Estate & maintenance office	45	Lt/dy				

The tables above set the basis of demand calculation through this report.

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A. WATER SUPPLY

Presently the source of water supply for human consumption can only be tube well as there is no municipal piped supply at present. However we will provide the supply pipe up to the edge of the property in the rear from where the water supply to the colony is expected based on the City masterplan.

Maximum Requirement of water on a daily basis:-						
Total no of plots	65	Nos	65	Nos		
Permitted no of DUs per plot	4	Nos	260	Nos		
No of inhabitants per DU	7	Nos	1820	Nos		
Consumption per person	172.5*	lit/day	313950	lit	314.00	KL
Estate & maintenance office	45	lit/day	5400	lit	5.40	KL
Total daily requirement			319350	lit	319.40	KL

Say 320 KL

Estate and maintenance office					
Description	Area	Standard Area / person	Number of occupants	Consumption / person in lit	Total Consumption in lit
Estate office	1500	50	30	45	1350
Maintenance staff (30 persons *3 shifts)			90	45	4050
					5400

Design

The scheme has been designed as per above data and consumption as permitted by law. The combined quantum of water supply (domestic+ flushing) per head per day has been taken as 172.5* lts /head/day (including provision of 15% for unaccounted water) for the residential area. The market place would be treated as an independent identity and all the services of that area shall remain separate from the residential area.

* As per HSVP direction

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Tube well

This quantum of water will be drawn from tube wells that will be drilled in the green areas and service yard areas.

Water requirement for the market place area will be advised later.

The proposed Tube wells shall be 510 mm bore drilled with reverse rotary rig & installed with 80mm i/d slotted tube as strainer. The provision taken in the estimate under the sub-head tube well includes the cost of pea-gravel packing. The lift of tube well is limited due to incrustation & rusting of strainer. Therefore, out of this tube well the drilling of tube wells will be done for 6 Nos tube wells & further tube wells will be drilled as the demand develops till the scheme is handed over the department or till the water supply system starts supplying water, whichever is earlier.

The department's proposal of using only Two tube wells is unviable as per the hydrological survey. Copy of the report is attached.

Calculation for Bore well

Yield of Bore Well = 8500 LPH (8.5 KL/Hr.)

No of Hours of operation = 8 Hrs.

Total Maximum Water Extraction per bore = 68 KLD

No of Tube Wells Required with 8 Hrs of Operation

= (Water Requirement) / (Water Extraction Per Bore)

= (320) / (68)

= 4.71 nos

= say 5 nos .

It is proposed that 5 nos of tube wells be provided for at the site to cater to the present needs. 5 nos would be in the residential area and 1 additional tube well in the market place to cater to the needs of the area. If the yield from the bore wells is not as per assumption, additional wells will be made to make good the requirement.

The size of the pipe for the supply of tube well water would be 100 mm dia.

Also, in keeping with the observations of HSVP, we will provide a pipe of 100mm dia up to the raw water storage tank in the service building.

Pump sizing and specification:

It is proposed to equip each tube well with an electrically driven pumping set-Ejecto type or submersible pump capable of delivering about 8500 liter per hour.

Total water requirement = 320 KL

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Tube well Pump

Tube well Lift	-	60m
Average Fall	-	3m
Depression	-	3m
<u>Friction loss</u>	-	<u>20m</u>
Total Head	-	86m

$$\text{H.P.} = (320 \times 86) / (4500 \times 0.7) = 8.74 \text{ say } 10.00 \text{ H.P.}$$

For domestic requirement @ 67% * = 214.4 KLD say 220 KL

Domestic Pump

Vertical Lift	-	6m
Average Fall	-	3m
Depression	-	3m
<u>Friction loss</u>	-	<u>20m</u>
Total Head	-	32m ~ 35m

Domestic water requirement = 220 KL

Pumping @ 8 hrs/ day = 220 / 8 = 27.5 KL/hr

One pump working = 458.33 LPH *LPM*

And one standby say 500 LPH *LPM*

$$\text{H.P.} = \frac{500 \times 35}{4500 \times 0.7} = 5.55 \approx 7.5 \text{ H.P.}$$

For flushing requirement @ 33% * = 105.6 KLD say 110 KL

Flushing Pump

Vertical Lift	-	6m
Average Fall	-	3m
Depression	-	3m
<u>Friction loss</u>	-	<u>20m</u>
Total Head	-	32m ~ 35m

Flushing water requirement = 110 KL

Horticulture requirement* = 112.25 KL

Total requirement = 222.25 KL

Pumping @ 8 hrs/ day = 222.25/8 = 27.78 KL/hr

One pump working = 483.02 say 500 LPH *LPM*

$$\text{H.P.} = \frac{500 \times 35}{4500 \times 0.7} = 5.55 \approx 7.5 \text{ H.P.}$$

* as per HSVP direction

Sujalā Ranganathan
CA/16/1301
Architect



Fresh Water Underground water storage Tank

Total domestic water requirement = 220 KL

Underground storage required @ 60% = 132 KL say 150 KL

It is proposed to have an UG tank of 150 KL. The tube well water collected in the tank will pass through a sand filter and activated carbon filter and be collected in a treated water tank of 100 KL capacity, which is one third of one-day storage capacity for distribution. Total capacity of storage would be 250 KL.

This supply would be metered at the plot and charges as advised collected.

Once the Sector masterplan services are in place, the treated water supplied by the authorities will be collected in the both the UG storage tanks for distribution.

Under the current fire norms no Fire water tank is needed for a plotted colony. Individual owners will seek their own building approval and conform to the fire norms as prescribed and hence we are disregarding this from the calculations.

Distribution System

The water from treated water tank will be pumped through a network of water supply pipes along the main boulevard. This will then branch and run on one side of the service lane in the rear of the villas. The water supply lines will be looped. Each villa will have a valve chamber/s with the meter/s. From the meter the pipe will be connected to U.G tank allocated for each floor. The feeder pipe will have a solenoid valve which will be activated by a float as the water is filled thus closing the inlet to tank.

Pipe sizing for fresh water

Maximum no of Villas in one street = 16 nos.

Total Population = Nos. of Villa's x Nos. Of DU's per plot x No's of inhabitants per DU

Total Population = 16 x 4 x 7 = 448 persons

Water per day requirement per person = 172.5 LPD*

Total Water Requirement = Total Population x Water requirement / day
= 448 x 172.5 LPD = 77280 LD = 77.28KLD

Total Water Requirement = 77.28KLD

Water will be supplied for 2 hours per day.

Water Requirement in KLPH = Water Requirement ÷ Pumping hours
= 77.28 ÷ 2 = 38.64 KLD

Water Requirement in KLD = Water Requirement in KLPH × 24
= 38.64 × 24 = 927.36 KLD

As Per Hazen- William's Chart Pipe Size = 65mm

Sujata Ranganatha
Arch



However in keeping with the observations of HSV, we will provide 100mm dia loop distribution and an inlet of 50mm dia to each plot.

B. SEWERAGE

The colony has a terrain which is almost flat but with a gentle slope towards the rear and the adjoining plot on the NW side of the plot.

Taking advantage of this natural slope, the service building has been located towards the rear. This would give a natural slope to the sewer line where the sewage would flow by gravity with a self-cleansing velocity of 0.6 m / sec.

Presently the master sewer line has not been laid by the authorities. But this is likely to be laid alongside the proposed 24m wide road in the rear

As we are required to be a zero discharge development, it is proposed to treat all the sewage generated on site and use it in the parks/ green areas for horticulture.

This sewage system has been designed assuming maximum flow of 3 times the average) All SW pipes have been designed to run $\frac{1}{2}$ or $\frac{3}{4}$ full.

In addition to the natural gravity flow, a provision for manual flushing line to cleanse the sewage is provided. The Manual flushing line will be connected to all the starting Manhole/ IC in the service lane and the main trunk which is on the main boulevard taking sewage to the STP located in service yard.

Estimate of Sewage generated at full occupation.

Estimated consumption for residential 65 villas	= 314.40 KL
Consumption - estate / maintenance office	= 5.40 KL
Total consumption	= 319.40 KL
Sewage generated @ 80% of consumption	= 255.52 KL

STP of required capacity to handle this quantum of sewage would be provided at site.

Total Quantum of water provided is 320 KL

Diversity for usage @ 0.8

$$= 320 \times 1000 \times 0.8$$

$$= 256000 \text{ Liters/day.}$$

Size of Sewerage Pipe

Assuming half of sewage enters in the drainage line in 6 Hours.

$$= \frac{256000}{6}$$

$$2 \times 6 \times 60 \times 60$$

$$= 5.09 \text{ Liters/ Sec}$$

$$\text{Peak flow} = \text{Design Flow} \times 2$$

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=5.09 x 2=10.18 Liters / Sec.

Pipe to half-filled hence flow need to be doubled.

=10.18 x 2 =20.36 Liters / Sec

$Q = V \times A$

$V = 0.8 \text{ m/sec}$

$(20.36/1000) = 0.8 \times (3.14/4) \times D \times D$

$D = \text{Sqrt} ((20.36/1000) / (0.8 \times (3.14/4)))$

$D = 0.185 \text{ m}$

D=185 mm so we have selected 200 mm Dia for sewerage.

Sewage generated in the colony will be treated in the "on site STP" would be used for horticulture and is expected to be 255.52 KL at full capacity and occupation.

Daily Requirement of water for all the common areas

• Area under parks / green 4.49 acres @ 25 KL/ acres	112.25 KL
• Area under roads / open (4.55 + 0.42) @ 5 KL/ acre	24.85 KL
Total daily requirement	137.10 KL

Design

At full occupation the sewage estimated is 256 KLD. In a 20-hour period this needs to be processed @ 11,000 liters per hour.

We propose to install an STP with MBBR technology and in the initial stages we will commission a plant of capacity 20 KLD. MBBR plants cannot be run with big "turn downs". Provision for expansion is being provided within the service building area as the availability of Sewage increases and the project gets occupied.

The overflow, if any, from the STP shall be disposed into the proposed Master Sewer line to be laid along the 24 m wide roads. The STP tanks will have a minimum separation of 3.0 m from the freshwater tanks to prevent any contamination.

Manholes and IC chambers shall be located in the rear lane with each villa being connected to a separate manhole.

There shall be no provision for manual cleaning of these to avoid manual scavenging. These shall be cleaned by mechanical means.

As per Hazen William chart, the size of the pipe for the supply of tube well water is 40 – 50 mm dia. But keeping in view frictional losses and future expansion, we will use a pipe of 65 mm dia. However in keeping with the observations of HSVP, we will provide a loop of 100mm dia and an inlet of 50mm dia to each plot and park.

An additional STP of adequate capacity would be provided for the requirements of the market place. This would be part of the design of the market place.

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The Plot is divided in zones the maximum area of the zone is 1.724 Hectares so according to Rational Formula

= $(1/36) \times \text{Area in Hectare} \times \text{Runoff Coefficient} \times \text{intensity of Rainfall in cm/hr} \times \text{losses}$

= $(1/36) \times 1.724 \times 0.62 \times 6 \times 0.75 = 0.1335 \text{ Cum/Sec.}$

This zone is divided in 2 circuits of pipe which divides the flow

= $0.1335/2 = 0.067$

The Velocity in Storm water pipe should be 0.95 m/sec.

$Q = V \times A$

$0.067 = 0.95 \times (3.14/4) \times d^2$

$D = 300 \text{ mm}$

Pipe Selected is 300 mm.

Slope of Pipe Required as per Manning Formula

= $(1/n) \times (R^{2/3}) \times S^{1/2}$

$R = D/4$ For pipe flowing full

$n = 0.010$

$S = 1:350$

The Storm water system is so designed to collect over 5 million litres of water in the sunken greens towards the North side of the land. Considering that every plot will have its own rain water harvesting and the plinth of every house in a plot is likely to be just under 30% it will only be the run off from the paved areas across the site that will drain into this area. This volume represents over 50% of the average annual rainfall in this area. In the unlikely event of this plan proving inadequate, we will make arrangements for pumping the water into the storm water drain along the NH8 and /or the Sector 76/77 Road till the Local Municipal authorities create the storm water drains along the 24 m roads.

C. ELECTRICAL

All common services like street lighting park lighting water pumps the service area guardhouse perimeter lighting will be fed by a separate and independent circuit at domestic voltage across the site taking spurs along the 12 M ROW and Service lanes. These services will be fed by a common services panel in the service yard which will have a DG backup for safety and services.

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Architect
CA/25/9397

The total percolation area of these recharge green areas is 6831 sq m (1.68 acres) and will be separated by gentle bunds in landscaping to form collection basins from where the water would percolate. The colony would be divided into 6 different zones each draining into a designated recharge area.



The depressions in these gardens can store over **5 million liters of water**.

The 12 m wide roads would have a camber towards the saucer drains on either side of the roads. The water collected would be drained into chambers from the perforated covers which would be connected to the storm water manhole and drainpipe that would run below the pathway on either side. These pipes would drain into the low lying areas as would the surface run off from the roads if any in heavy downpour.

For the 3 m wide service lanes, the drain pipe would run in the centre of the road and also lead to the designated low lying green areas.

Each plot would have an independent rain water harvesting system as required by law. The overflow from these pits would be connected to the storm water drainage system of the colony.

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Architect

Distribution system for Treated water for Flushing & Irrigation.

We propose to take treated water from the ETP at Manesar and the STP at Behrampur for horticulture use. Tanks for collecting this treated water will be constructed in the service yard. This ETP / STP treated water and the treated water from the onsite STP will be mixed and then pumped through a network of water supply pipes along the main boulevard. This will then branch and run on the opposite side of the service lane to the fresh water is pipe.

All crossings will be through a sleeve.

Each villa will have a valve chamber with the meter/s. From the meter, the pipe will be connected to U.G tanks allocated for each dwelling unit in the plot. The feeder pipe will have a solenoid valve which will be activated by a float as the water is filled thus closing the inlet to tank. From the UG tank, it would be pumped to be used for watering the lawns.

Pipe sizing for treated water

Maximum no of Villas in a street = 16 nos.

Total Population = Nos. of Villa's x Nos. Of DU's per plot x No's of inhabitants per DU

Total Population = $16 \times 4 \times 7 = 448$ persons

Water per day requirement = 45 LPD

Water Requirement = Total Population x Water requirement / day
= $448 \times 45 = 20160$ LD = 20.16 KLD

Total Water Requirement = 20.16 KLD

Water Requirement in KLPH = Water Requirement ÷ Pumping hours
= $20.16 \div 2 = 10.08$

Water Requirement in KLD = Water Requirement in KLPH × 24
= $10.08 \times 24 = 241.92$

Water Requirement in KLD = 241.92 KLD


As Per Hazen- William's Chart, Pipe Size = 65mm.

However in keeping with the observations of HSVP, we will provide 100mm dia loop distribution and an inlet of 50mm dia to each plot and park.

C. STORM WATER DRAINAGE

The Municipal storm water drainage system around the proposed colony is yet to be developed. Notwithstanding that, it is proposed that all the rain water would be collected in the naturally low lying green areas on the North of the site. The water thus collected would be allowed to percolate to the ground water aquifer.

Sujata Ranganna
Architect



D. ROADS & ACCESS

The access to the colony is from a 24 m road. The market place abuts the service lane of the 84 M wide sector road. All the roads are planned as 12 M ROW which has –

1. The motorable road 7.5 M wide permitting two lane traffic.
2. A planting bed 0.75 M wide on either side of the road to allow space for planting trees and the street lighting
3. A pedestrian pathway 1.2M wide on either side of this bed.
4. A narrow planting bed of 0.30 M between the walkway & the boundary of the plot which would also provide foot lights for the walkway.

The **road** would have a camber of 2.5 % towards the storm water drain on either side which would have the following layers –

Base WBM- 150mm th with aggregate 90-60 mm which would define the camber

Layer WBM – 150mm th with agg 60-45

PCC – 100 mm thick 1:2:4

Concrete pavers – 80 mm th M-40 grade as/design

The **service lane** 3.0 M wide would have a slope towards the centre of the lane to drain rainwater. The specification for base would be well consolidated earth with 200 mm of PCC overlaid with Concrete pavers – 60 mm th M-40 grade as/design.

The **pathways** 1.2 M wide on either side of the 24 M road will have 40mm th. pavers laid over PCC base 100 mm thick 1:2:4 over consolidated earth.

E. HORTICULTURE

Estimate and details of plantation, landscaping, signage etc. has also been included in this estimate

F. SPECIFICATIONS

The work will be carried out in accordance with the standard specifications of Public Health as laid down by the Haryana Government / HUDA

G. RATES

The estimate has been based on the present market rates.

H. COST

The estimates calculated by HSVP vide their letter no.35822 dated 22nd Feb 2019 is Rs.2166.06 lakhs.

The total cost of the scheme including cost of all services works out to be Rs. ^{2935.65} ~~1956.23~~ lacs as per summary of cost. The cost per acre works out to be Rs. ⁹⁵⁸² ~~83.85~~ Lacs/ acre

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Architect

SUMMARY		
Sr No	Description	Amount in Rs
A	Water Supply	304.52 Lacs 30,146,557
B	Sewerage	235.30 Lacs 23,377,248
C	Storm water Drainage	364.27 Lacs 36,427,439
D	Electrical / street lighting	89.51 Lacs 8,951,138
E	Roads & access	607.78 Lacs 60,777,641
F	Horticulture	90.91 Lacs 9,090,795
G	Maintenance of Services including resurfacing of Road for 10 years	543.36 Lacs 26,853,413
	GRAND TOTAL i.e. for 5 years @ 20% in of 10 years of int.	2233.63 195,623,932

Cost for aces Rs $\frac{2235.65}{23.33 \text{ Ann}} = \text{Rs} \approx 95.82 \text{ Lacs}$

Checked subject to comments
in forwarding letter No. 108008
Dt. 20/06/19.....and notes
attached with the estimate

Executive Engineer
HSVP Division No. VI
Gurugram

Superintending Engineer (HQ)
for Chief Engineer 1 HSVP
Panchkula

Superintending Engineer
HSVP, Circle-II, Gurugram

Director
Town & Country Planning
Haryana, Chandigarh

Add. Chief Engineer
HSVP, Gurugram

Sujata Ranganathan



Plumbing & Mechanical Infra Boq					
Sr.No	Description	Qty	Unit	Unit Rate	Amount
1	Providing and fixing approved and tested water meter bearing I.S.I. mark with non return valve including strainer, sockets, union & mounting with MS frame with locking arrangement complete as per local municipal norms.				
	50mm Dia PRV for domestic water Meter.	67	No	9,500	636,500
	100mm Dia PRV for domestic flushing	21	No	12,000	252,000
2	Supply, Installation, Laying, Testing & Commissioning of uPVC pressurised plumbing pipes for water supply pipe buried in ground with necessary coupler, elbow bends, tees, union etc jointing to be done by solution (solvent welding). SCH_80				
	100mm	5,810	mtr	1,250	7,262,500
3	Excavation & refilling for water supply pipe of suitable depth as per Drawings.	6,972	cum	320	2,231,040
4	Providing and Installing Water transfer surface mounted pumps LPM @ M head, 2900 RPM with cast iron body, CI impeller, carbon steel shaft complete with and delivery, Power cum control panel with automatic electronic level controller, incomer HRC switch fuse unit, individual MPCB (Motor Protection Circuit Breaker), Auto / Manual / Off selector switch, start - stop push buttons, low suction level alarm, level probes in UG tanks, interconnecting cabling, wiring between Panel and all components / tanks complete system with all NRV, Strainers, flanges & Gauges.				
	LPM: 500				
	HEAD: 35mtr				
	HP: 7.5				
	(1W+1S)	1	set	118,125	118,125
	For Domestic				
	LPM: 500				
	HEAD: 35mtr				
	HP: 7.5				
	(1W+1S)	1	set	118,125	118,125
	For Irrigation/ flushing				
5	Drilling & Erecting Tube wells shall be 510 mm bore drilled with reverse rotary rig & installed with 80mm i/d slotted tube as strainer. The provision taken in the estimate under the sub-head tubewell includes the cost of pea-gravel packing. The lift of tubewell is limited due to incrustation & rusting of strainer. With 10 Hp Bore well Pump of 300 LPM & 86 M Head.	6	set	1,000,000	6,000,000
6	Construction of pump chamber for tube well housing		Job	LS	200,000
7	Construction of boundary wall around the water works site		Job	LS	100,000
8	Provision of footpath, hedges and lawn at water works		Job	LS	100,000
9	Construction of UGT of 250 KL capacity (150 KL for domestic and 100 KL for flushing/irrigation). Tank near STP (150+100)	250	KL	3,500	875,000 8.75L



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10	Provision for boosting chamber as per public health req of suitable capacity	Job	LS	500,000
11	Provision for foundation and erection of pumping machinery	Job	LS	200,000
12	Provision for electric connection for tube well chamber/boosting chamber <i>in cont of transformer</i>	Job	LS	250,000
13	Provision for 100 mm dia rising main from HSVP water line and tube well for UGT	Job	LS	300,000
14	Provision for carriage of material and other unforeseen items <i>Provision for fixing fire hydrant complete with necessary valves</i>	Job	LS	500,000
			LS	2.00 Lacs
	Total		198.43	19,643,290
			595	589,299
	Add 3% Contingency & PE Charges		20438	20,232,589
	Total		100.14	9,913,968
	Add 49% Deptt, price escalation, unforeseen, administration		30452	30,146,557
	Total			

Sujata Ranganathan
CA/85/9391
Architect

Sewerage estimate

Sr.No	Description	Unit	Qty	Unit Rate	Amount
1	Supplying fixing of D-Rex Anti Rodent Confirming to IS:16098 Part-II by excavating trenches of suitable width with benching of 6" PCC M15 for Laying pipe for suitable slope as per mentioned in drawing refilling trench with proper ramming on the pipe as per site conditions.SN8 Pressure Class				
a	Sewage Drainage				
	200mm Dia ID	mtr	1,760	1,472	2,590,720
2	Construction of inspection chamber (900mmx450mm) in masonry for sewer line with 150mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with half round 150mm pipe with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3.	No	166	14,500	2,407,000
3	Construction of inspection chamber (900mmx900mm) in masonry for sewer line with 150mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with half round 150mm pipe with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3. (For STP)	No	1	25,800	25,800
4	Construction of man hole chamber (600mm dia) in masonry for sewer line with 230mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with half round 150mm pipe with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3.	No	82	39,000	3,198,000
5	Heavy duty cover with weight bearing capacity of 25 MT	No	1	19,140	19,140
	900 x 900	No	RO	8,333	
	600 x 600	No	166	8,242	1,368,131
	900 x 450	No	82	6,942	569,275
	600 dia				
6	Light duty cover with weight bearing capacity of 1.5 MT	No			
	300 x 300	No			
	600 x 600	No			
	900 x 450	No	1	4,389	4,389
	600 dia (For Tank)				
7	SITC of MBBR type STP with all accessories, mechanical, electrical and plumbing connections of capacity 125 ²⁶⁰ KL	Nos	1	LS	3,500,000
8	Provision for making connection with sewer line on master road			LS	100,000



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9	Provision for vent Pipe as per public health requirement at suitable places		LS	1,000,000
10	Provision for finishing and storing lamp holes etc.		LS	250,000
11	Provision for cutting of roads and making good to its original condition and carriage of material and unforeseen items		LS	200,000
Total				15,232,454
Add 3% Contingency & PE Charges				459,973.42
Total				15,692,427
Add 49% Deptt, price escalation, unforeseen, administration				7,687,820
Total				23,377,248

Go to final abstract of cost.

Sy No 235.30 Lm

Sejata Ranganathan



Storm water disposal estimate					
Sr.No	Description	Unit	Qty	Unit Rate	Amount
1	Supplying fixing of D-Rex Anti Rodent Confirming to IS:16098 Part-II by excavating trenches of suitable width with benching of 6" PCC M15 for Laying pipe for suitable slope as per mentioned in drawing refilling trench with proper ramming on the pipe as per site conditions.SN8 Pressure Class.				
b	Rain Water Drainage				
	300mm Dia ID	mtr	4,400	3,462	15,232,800
2	Construction of Grated Gully (1200mmx300mm) inside dimensions in masonry for Rain water line with 150mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3. with Grated FRP chamber cover resting on FRP L angles 35 x 35 x 4 mm thick for 4 whheler & tempo Load.	No	165	15,550	2,565,750
3	Construction of catch basin (600mmx600mm) in masonry for Rain water line with 150mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3. with perforated chamber cover.	No	105	23,794	2,498,396
4	Construction of catch basin (900mmx900mm) in masonry for Rain water line with 150mm thick wall resting on 1:4:8 concrete foundation with 6" PCC M15 benching with desired channel alignment. The inside face to be smooth plastered with 15mm thick plaster of cement mortar 1:2 & outside rough plaster in cm 1:3. with perforated chamber cover.	No	1	28,728	28,728
5	Construction of Saucer Dain (600mmx450mm) one piece tile for storm drain of roads with 100 to 150mm thick resting on 1:4:8 concrete foundation with 6" PCC M15.	mtr	10	1,000	10,000
6	Construction of Rain Water Harvesting pits of size 2m X 2m upto depth of 20 m depth at selected place	Nos	1	LS	1,500,000
7	Provision for connection with HSVP main line on master road			LS	100,000
8	Provision for cutting of roads and making good to its original condition			LS	200,000
9	Provision for carriage of material and other unforeseen items			LS	100,000
10	Provision for temporary disposal arrangement till HUDA services are provided			LS	1,500,000

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 Architect

Total				23,735,674
	Add 3% Contingency & PE Charges			712,070
	Total			24,447,744
	Add 49% Deftt, price escalation, unforeseen, administration			11,979,395
Total				36,427,139

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Street Lighting estimate					
S.NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Providing lighting at surrounding area as per standard specification of HBVNL with LED lights	Acre	23.33	250000	5832500
	Add 3% Contingency & PE Charges				174975
	Total				6007475
	Add 49% Deptt, price escalation, unforeseen, administration				2943663
	Total				8951138

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Roads & access estimate

S.NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	Preparation & consolidation of earth Filling on site condition	Acre	23.23	150,000	3,499,500
2	granular subbase with aggregate compaction Base WBM 150 mm th Layer WBM - 150 mm th	cum	5,254	2,100	11,033,673
3	PCC base 1:4:8 - 100 mm th	cum	2,033	5,300	10,775,112
4	Supply & fixing of interlocking pavers on road/ service lane 80 mm th pavers in roads 60 mm th pavers in service lane 40 mm th paver in pathway	sqm	9,426	760	7,163,760
		sqm	3,522	720	2,535,840
		sqm	2,429	780	1,894,409
5	Supply & fixing of granite cobble stone 180X180X180 <i>Provo. for traffic light control</i> <i>at entrance</i>			LS	200,000
6	Provision for plot indicators road marking signs etc	Job		LS	500,000
7	Providing and fixing kerb and channels on both sides of roads in CC 1: 1.5:3 complete in all respects			LS	1,500,000
8	Provision for cartage of material and other unforeseen items				500,000
Note	Being a small low density project, traffic light control is being disregarded				
	Total				39,602,294
	Add 3% Contingency & PE Charges				1,188,069
	Total				40,790,363
	Add 49% Deptt, price escalation, unforeseen, administration				19,987,278
	Total				60,777,641




Horticulture estimate					
S.NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	DEVELOPMENT OF LAWN AREAS				
a	Trenching of ordinary soil upto depth of 60 cm i.e. Removal & stacking of serviceable material & disposing by spreading and levelling within a lead of 50 M and making up the trench area for proper levels by filling with earth or earth mixed with manure befor and after flooding trench with water i/c cost of imported earth and manure	acres	4.91	150000	736500
b	Rough dressing of turfed area				
c	Grassing with Doob grass i/c watering and maintenance of lawn for free from weeds and fit for moving in rows 7.50 cm in either direction including for beges and grill and barred wire fencing around park and green belts (as per HUDA norms)				
2	Laying of trees @6.0 M c/c on both sides of the road including cost of excavation, manure, tree plant, tree guard on both sides of the 12 M wide road of length = 1100 M along boundarywall = $1600 M = 1100 \times 2 + 1600 + 5\% = 3990$ Nos	Nos	3990	1300 each	5187000
Total					5,923,500
Add 3% Contingency & PE Charges					177,705
Total					6,101,205
Add 49% Deptt, price escalation, unforeseen, administration					2,989,590
Total					9,090,795

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CA/85/9391
Architect



हरियाणा शहरी विकास प्राधिकरण
HARYANA SHEHRI
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Email : cencrhsvp@gmail.com

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

C.E.I-No. 108008
Dated: 20/06/19

Annexure-A

SUB:- Approval of revised Service Plan / estimate of Residential Plotted Colony measuring 29.91 acres area under NILP-2016 at Sec-76, Kherki Daula, Gurugram (License No. 87 of 2017 dated 23.10.2017) being developed by TRL Rice land Pvt.Ltd.

Technical note and comments:-

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1. All detailed working drawings would have to be prepared by the colonizer for Integrating the internal services proposals with the master proposals of town.
2. The correctness of the levels will be the sole, responsibility of the colonizer for the integration of internal proposals, with the master proposals, of town and will be got confirmed before execution.
3. The material to be used shall the same specifications as are being adopted by HSVP and further shall also confirm to such directions, as issued by Chief Engineer, HSVP from time to time.
4. The work shall be carried out according to Haryana PWD specification or such specifications as are being followed by HSVP. Further it shall also confirm to such other directions, as are issued by Chief Engineer, HSVP from time to time.
5. The colonizer will be fully responsible to meet the demand of water supply and allied services till such time these are made available by State Government/ HSVP. All link connections with the State Government/ HSVP system and services will be done by the colonizer. If necessary extra tube-wells shall also be installed to meet extra demand of water beyond the provision according to EDC deposited.
6. Structural design & drawings of all the structures, such as pump chamber, boosting chamber, RCC OHSR underground tanks quarters, manholes chamber, sections of RCC pipes sewer and SW pipes, sewer, ventilating shafts for sewerage and Masonry Ventilation Chamber for Chamber for storm water drainage, temporary disposal/ arrangement etc. will be as per relevant I.S codes and PWD specifications; colonizer himself will be responsible for structural stability of all structures.

SKL
R
S.B. Singh
20/6/19



हरियाणा शहरी विकास प्राधिकरण

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

C.E. No:

Dated:

7. Potability of water will be checked and confirmed and the tube-wells will be put into operation after getting chemical analysis of water tested.
8. Only C.I/D.I pipes will be used in water supply and flushing system, UPVC/HDPE pipe for irrigation purposes.
9. A minimum 100 I/d C.I/D.I, 200mm I/d SW and 400mm id RCC NP-3 pipes will be used for water supply, sewerage and storm water drainage respectively.
10. Standard X-section for S.W. pipes sewer, RCC pipes sewer etc. will be followed as are being adopted in Haryana Public Health Engineering Deptt.or HSVP.
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 
Superintending Engineer (HQ),
Chief Engineer-I, HSVP,
Panchkula.

20/6/19

Maintenance of Infrastructure Services & Resurfacing of Road					
S.NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	2nd phase after 5 years of 1st phase. Provision for maintenance for water supply, sewerage, storm water drainage road, street light, horticulture etc. complete in all respect including operation and establishment charges as per HUDA norms	acres	23.33	750,000	17,497,500
	2.92 PI See below				179.08 Lak
	Total				17,497,500
	Add 3% Contingency & PE Charges				524,925
	Total				18,022,425
	Add 49% Deptt, price escalation, unforeseen, administration				8,830,988
	Total				26,853,413

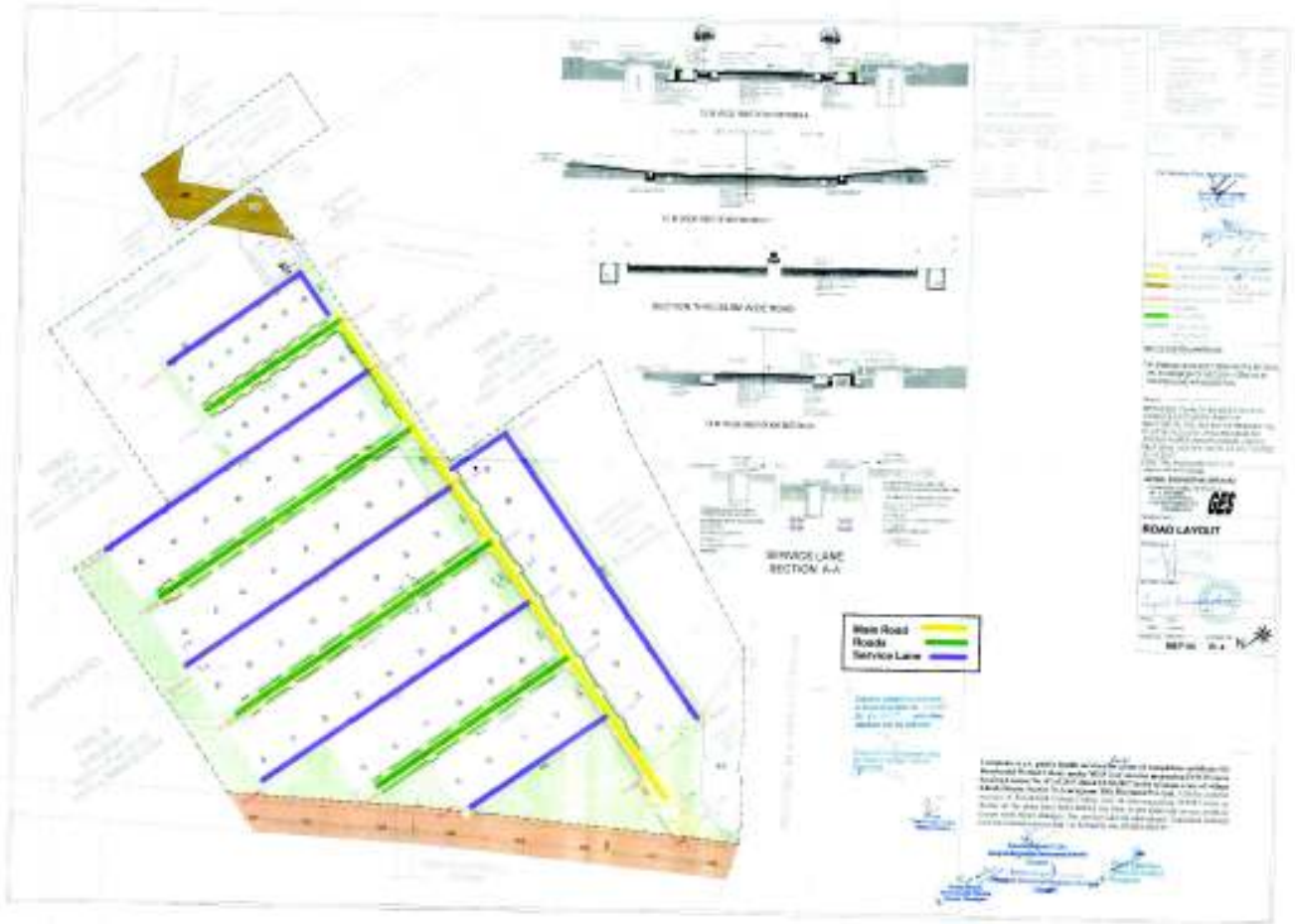
354.05 Lak
10.62 Lak
364.67 Lak
178.69 Lak
543.36 Lak

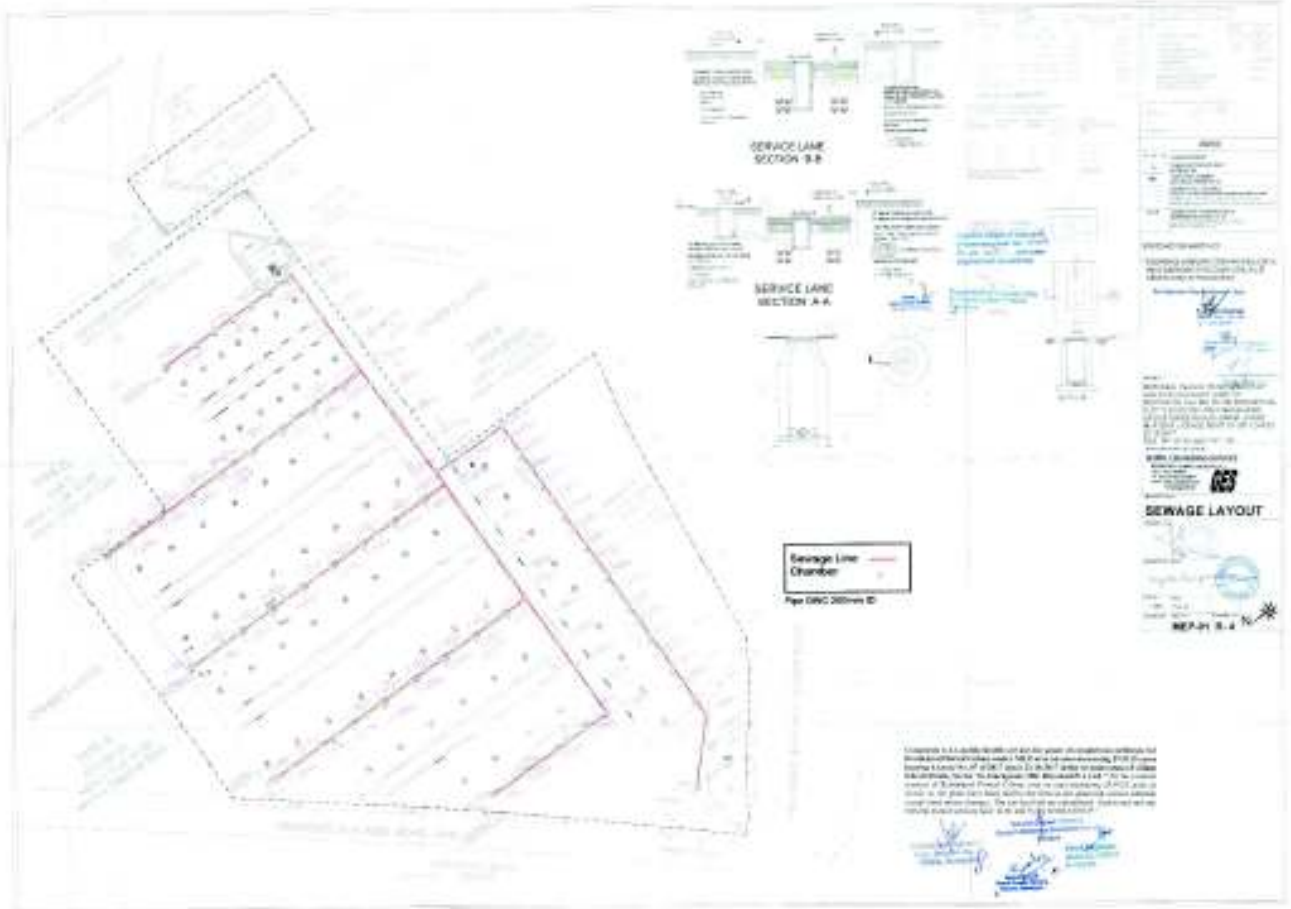
2) Prov. for resurfacing of Roads after 5 years
13265 sqm @ Rs 600/- sqm = 79.59 Lak

3) Prov. for resurfacing of Road after 10 years of mth.
13265 sqm @ Rs 750/- sqm = $\frac{99.49 \text{ Lak}}{179.08 \text{ Lak}}$

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CA/86/9391
Architect







SERVICE LINE SECTION 9-B

SERVICE LINE SECTION A-A

Service Line
Chamber

SEWAGE LAYOUT

Scale: 1" = 10'-0"

North Arrow

DATE: 08/14/2014

PROJECT: [Illegible]

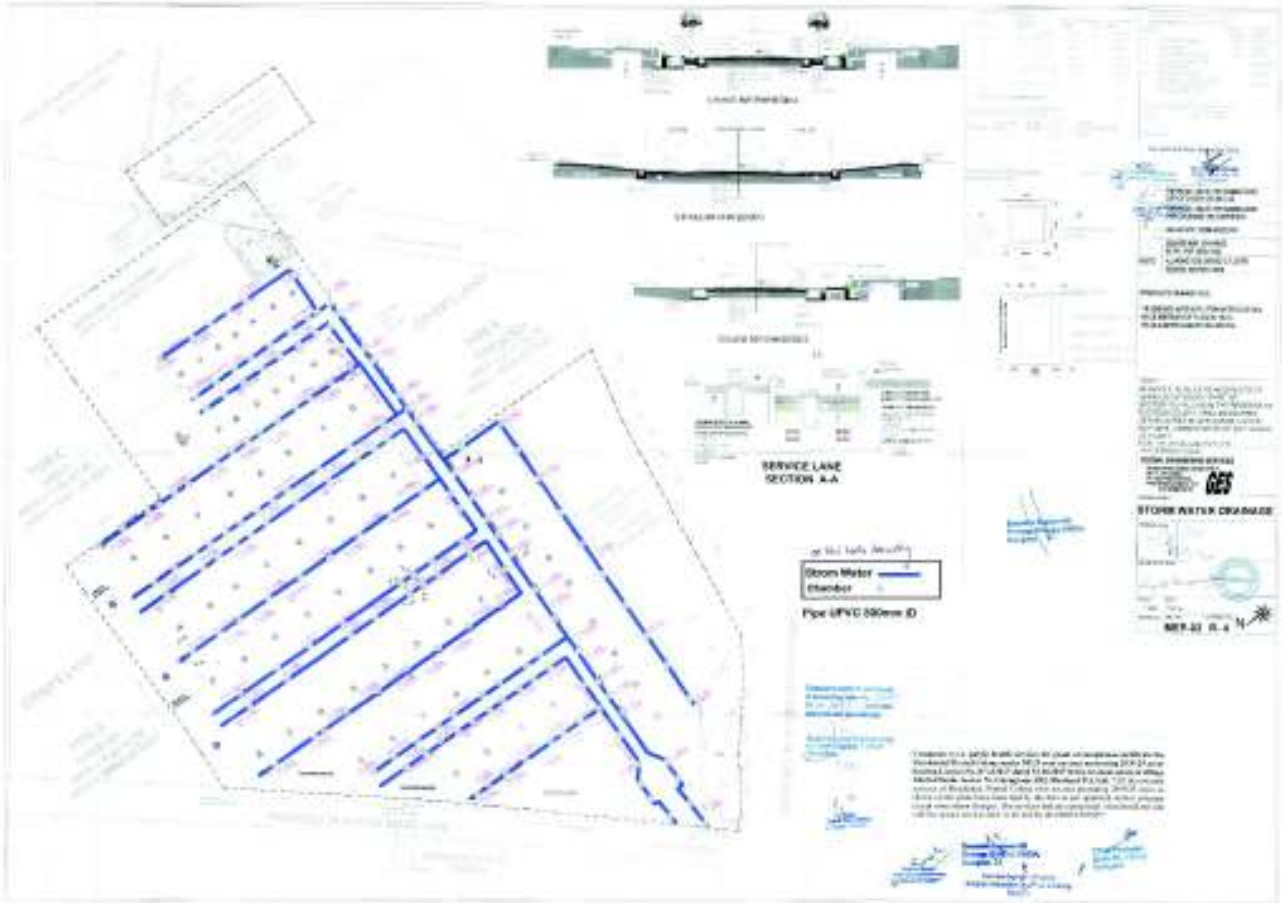
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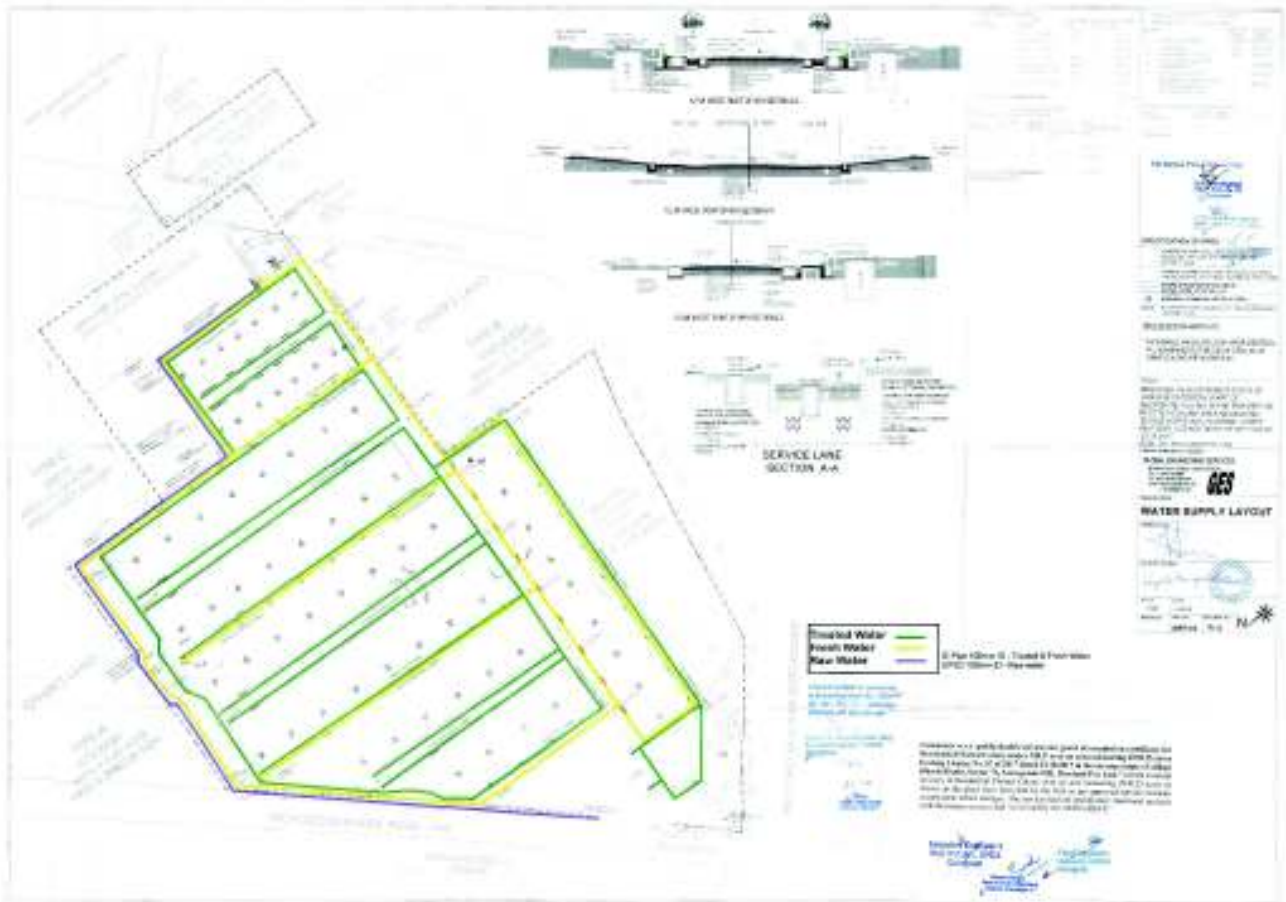
DESIGNER: [Illegible]

APPROVED: [Illegible]

As shown in this plan, the sewer lines are to be installed in accordance with the requirements of the local health department. The sewer lines are to be installed in accordance with the requirements of the local health department. The sewer lines are to be installed in accordance with the requirements of the local health department.







SERVICE LINE SECTION A-A

— Treated Water
— Fresh Water
— Raw Water

PROJECT INFORMATION

CLIENT: [Name]

PROJECT NO.: [Number]

DATE: [Date]

SCALE: [Scale]

DESIGNER: [Name]

CHECKER: [Name]

APPROVED: [Signature]

WATER SUPPLY LAYOUT

DATE: 2014.11.10

This drawing is a preliminary design and is subject to change without notice. It is not to be used for construction or for any other purpose without the written consent of the engineer. The engineer is not responsible for any errors or omissions in this drawing.



